



Oklahoma Space Alliance

A Chapter of The
National Space Society

Space Priorities

August 2014

The Oklahoma Space Alliance is a Chapter of the National Space Society a non-profit organization. The NSS short-term goal is to continue advancing space exploration and space industry while creating technologies and jobs to benefit humanity. NSS's longer-term goal is to increase human activity in space leading to habitable space stations and to Lunar and Martian colonies. Resultant benefits to the United States and to Oklahoma include new technologies that will help improve human health and productivity and include economic growth that will strengthen society and create jobs.

Top priorities on space industry follow:

1. **Support NASA's Commercial Crew Program.** NASA's Commercial Crew Program is a stimulus to private development of spacecraft for human flight into orbit and return. These reusable craft replace the retired Space Shuttle and free the U. S. from expensive use of Russian Soyuz capsules. These spacecraft are much less expensive than any previous spacecraft. With a service life of many years, these spacecraft will maintain and expand both government and commercial access to space.
2. **Support balance in NASA programs.** For the most effective use of funding, ensure that NASA maintains balance between human and robotic programs, between scientific and commercial programs and between infrastructure and exploration programs. Advancement in all of these programs contributes to overall value and success.
3. **Support Commercial Space.** The emergence of commercial space industry marks a shift away from space programs supported solely by government toward space programs supported by American innovation and industry. American innovation and industry are great sources of strength. NASA still has an important role in leading the direction of space activities, but industry will lead in innovation, productivity and efficiency. A combination of commercial space and NASA efforts will help ensure that American principles, values and jobs continue to lead humanity into the space age.
4. **Protect Earth from Cosmic Impacts.** NSS recommends adding 1% to the NASA budget to fund improved detection of threatening asteroids and comets.
5. **Support Oklahoma Space Industry.** Oklahoma has a strong presence in the aerospace industry creating many jobs for Oklahomans. Most of these jobs are airplane related. Help ensure that Oklahoma has a similar presence in the growing space industry. Support incentives and limit barriers for space industry to locate in Oklahoma and create jobs.
6. **Support the Oklahoma Spaceport.** With new suborbital spacecraft entering the commercial market place, the Oklahoma Air and Space Port in Burns Flat is poised to become a thriving commercial spaceport. It is already a successful general aviation airport. Support the spaceport as a growing stimulus to space industry in Oklahoma.



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Additional NASA Priorities

February 18, 2015

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1. **Continue Funding NASA.** NASA is a continuing space industry stimulus. That industry creates jobs and enables a growing space economy.
2. **Focus NASA on Infrastructure and Innovation.** While increasing use of commercial products and investments, gradually move NASA away from producing spacecraft and launchers. The Federal Government provided extensive help to development of railroads and trucking, however the Government did not build locomotives or trucks. NASA's early role in launchers and spacecraft emerged because of their great expense. With commercial sources now building launchers, spacecraft and satellites, a needed role for NASA is to provide common infrastructure for launch complexes, tracking, communications, and standards. NASA should also stimulate innovation through research and selected projects.
3. **Provide Seed Projects for Competitive Commercial Innovation.** Stimulate development of products and services that support national space interests and contribute to a growing space economy. Example seed projects include:
 - a. Noise abatement –reduce launch noise and reentry sonic booms.
 - b. Modular mission design – Fund design and pilot projects of missions that proceed in multiple steps. Reduce costs by using multiple missions to accomplish what otherwise would require large expensive boosters.
 - c. Develop modular multi-use components to minimize reinvention for new space craft and satellites and ensure that many items in space can be reused rather than discarded after planned 'lifetime' expires.
 - d. Design solutions that allow point-to-point suborbital flights to mesh with the FAA's next generation system.
 - e. Design and develop spacecraft for point-to-point suborbital service.

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Oklahoma Space Industry

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Example Considerations for Oklahoma Space Industry:

1. **Leverage National Weather Center.** Build on presence of National Weather Center. Attract and incentivize weather research and commerce with Weather Center as a hub. Fund projects. For example, quantify relationship between forest growth and CO2 presence; monitor air quality and point sources of emissions using satellite data; optimize air traffic routes for time and fuel efficiency using current weather satellite data (leverage this with FAA next generation capabilities).
2. **Leverage University Capabilities and Experience.** Build on strengths within the state. Leverage OSU habitat experience to attract commercial and NASA funded habitat research, testing and commerce. Expand space projects and research using OU medical school capabilities. Add endowments and professorships for space research and education. Add space curriculums and space science degree programs.
3. **Look Forward and Exploit Gaps in Space Development.** Get ahead of competition by anticipating future opportunities.
4. **Develop Commercial Spaceport.** The Oklahoma Air and Space Port has the needed facilities. Secure anchor tenant(s) and supporting services.
5. **Expand Launch Corridor.** Anticipate future requirements for point-to-point suborbital flight, and assure Oklahoma Air and Space Port participation in the early development of p-t-p commerce.



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Government Regulations and Licenses

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Considerations for commercial space enablers:

1. **Certify and Train Commercial Astronauts and Tourists** – Build on FAA role in pilot certification to certify pilot, researcher and tourist health for planned commercial space missions including suborbital flights. Conduct health testing and certification in Oklahoma. Train commercial space pilots and tourists in Oklahoma. Use FAA and State capabilities. Provide test facilities including centrifuge in Oklahoma (possibly at the Oklahoma Spaceport).
2. **Develop Satellite Network Orbit Standards.** Direct NASA, FAA and DOT to work with ITU, satellite companies and launch companies to establish satellite network standards that assure space launch windows and minimize risks of collisions. With several companies planning to develop satellite networks with hundreds and even thousands of satellites, orbit standards are required to minimize collision risks and to assure a wide range of safe and predictable space launch windows for other space missions. The need for standards is complicated by the fact that such satellite networks will exist at different altitudes and orbit at different speeds.
3. **Pass H.R. 3038 - Soars Act.** Authorize DOT and FAA to streamline licensing and permits for space launches, while allowing permit process for experimental and development activities.
4. **Support Ownership of Property in Space.** International agreements state that no country will own extraterrestrial real estate. However, commercial activities in space will require ownership of improvements at work sites and work products including mined minerals. Laws and international agreements are needed to clarify private ownership in space and on extraterrestrial bodies. Lack of ownership should not be allowed to inhibit productive commercial activity.