

**Exhibit 1. Comparison of Analysis in the PEIS LL, PEIS CRV, and PEIS RV**

<b>Document</b>	<b>PEIS LL</b>	<b>PEIS CRV</b>	<b>PEIS RV</b>
<b>Date Finalized</b>	<b>May 2001</b>	<b>May 1992</b>	<b>N/A</b>
<b>Purpose and Need</b>	New technologies have created the need for increased launch transportation. The U.S. military and NASA cannot meet the demand for access to space.	Not explicitly stated.	Reusable and reentry vehicle technologies are starting to become reality. The first X-Prize entrant tested its engines in 2001 and NASA continued to award funding under the Space Launch Initiative with the hope of supporting a full scale commercial RLV by 2005.
<b>Proposed Action</b>	Included launches of expendable launch vehicles, launches and reentries of RLVs, and sounding rockets and addressed all activities from lift-off to payload separation. Vehicle assembly and payload preparation prior to liftoff, payload functioning during useful life, controlled or uncontrolled payload reentry, and construction activities were outside the scope of the PEIS LL.	Generic analysis of the impacts from the reentry from space of commercial reentry vehicles. Any mission and vehicle specific aspects of an RV operation (including its payload) that significantly differ from the variations described in the PEIS were outside the scope of this document.	Would analyze the potential impacts of licensing the launch of horizontally launched vehicles and the reentry of reentry vehicles.
<b>Propellants</b>	Solid (polybutadiene matrix, acrylonitrile oxidizer, and powdered aluminum); liquid (liquid hydrocarbons, hypergolic, and cryogenic); and hybrid propellants	Solid propellants, monomethyl hydrazine, hydrazine, and nitrogen tetroxide	Liquid oxygen, kerosene, air, liquid hydrogen, hydrogen peroxide, methane, hybrid propellants, jet engines, ramjet <sup>1</sup>
<b>Launch/Takeoff operations</b>	<b>Orientation:</b> vertical <b>Platform:</b> sea, land, and air	Assumed that RVs would be launched on expendable launch vehicles into space, but analyzed only impacts from space reentry of commercial RVs.	<b>Orientation:</b> horizontal and vertical <b>Platform:</b> sea, land, and air (including hot air balloon) <b>Other:</b> tow launch and air refueling

<sup>1</sup> 2002 U.S. Commercial Space Transportation Developments and Concepts

<b>Reentry/Landing Operations</b>	Did not fully consider reentry/landing operations.	<b>Orientation:</b> unspecified <b>Power type:</b> unpowered <b>Other:</b> parachute, air snatch, retro thrust, inflatable air cushions, sand filled landing area, and water	<b>Orientation:</b> horizontal and vertical <b>Power type:</b> powered and unpowered <b>Other:</b> turbofan, parachute, air bag, water, parafoil, and jet engine
<b>Basis for Analysis</b>	Taurus, Athena, Titan III, Delta II, Delta III, Delta IV, Zenit-3SL, Titan IV, and Atlas V (representative vehicles)	Space Shuttle, Lifesat, COMET, and Space Station Freedom	X-Prize Entrants, K-1, Astroliner, Pathfinder, and SA-1 (representative vehicles)
<b>Proposed Function of Vehicles</b>	Transport of government, scientific, and commercial payloads (communication satellites, other vehicles, scientific experiments)	Microgravity research (crystal growth; solidification of metals, alloys, and composites; and fluid transport), medical research, and biological research on organisms	Manned reusable launch vehicles, deployment of satellites, and other payloads for commercial and government customers, travel to other parts of the world, and space tourism
<b>Major Impact Areas Evaluated</b>	Atmospheric, Noise, and Other Environmental Effects (water, land, biota, socioeconomics, historical, cultural, and archaeological resources)	Atmospheric, Noise Sources, Landing (water, hazardous materials/waste), and Site-Specific Effects (land, hazardous waste, biota, historical and cultural resources, noise, transportation, socioeconomics)	Atmospheric, Noise, and Other Environmental Effects (water, land, biota, socioeconomics, historical, cultural, and archaeological resources)
<b>Environment Types Evaluated</b>	Southeastern Atlantic Coastal Environment, Southwestern Desert-Arid Environment, South Central California Coastal Environment, Subarctic Pacific Environment, Ocean or Open-Ocean Environment, and Mid-Atlantic Coastal Environment	Atmosphere, Space, and Site-Specific Environments on Earth's surface (did not include specific sites on Earth)	South Central Inland Environment, Southeastern Atlantic Coastal Environment, Southwestern Desert-Arid Environment, South Central California Coastal Environment, Subarctic Pacific Environment, Ocean or Open-Ocean Environment, and Mid-Atlantic Coastal Environment
<b>Feasible Alternatives</b>	More Environmentally-Friendly Propellant Combinations Alternative and No Action	No Action Alternative	TBD
<b>Launch Manifest Estimates</b>	Assumed 72 small, 22 medium, 75 intermediate, and 92 high capacity launches between 2000 and 2010.	Assumed up to 7 reentries per year from 1993-1999 and 20-30 reentries per year from 2000-2005.	TBD