Federal Aviation Administration
Office of Commercial Space Transportation

RECORD OF DECISION

Spaceport America Commercial Launch Site, Sierra County, New Mexico
December 2008

Introduction and Background

This Record of Decision (ROD) provides the FAA's final environmental determination and approval to support the issuance of a Launch Site Operator License to the New Mexico Spaceport Authority (NMSA) to operate Spaceport America for horizontal and vertical suborbital Launch Vehicle (LV) launches. The Federal action identified in this ROD is the FAA's issuance of a Launch Site Operator License to NMSA to operate a commercial launch site near Upham, New Mexico.

The ROD includes

- Description of the project proposed by the applicant,
- Reasonable alternatives to the proposed project,
- Environmental impacts associated with the Proposed Action, and
- Explanation of mitigation measures to avoid or minimize environmental harm.

The ROD also discloses the Federal, State, and local actions needed before the project may be implemented and identifies the FAA's preferred and the environmentally preferred alternatives and the alternative selected by the FAA for implementation.

The FAA prepared the Final Environmental Impact Statement for the Spaceport America Commercial Launch Site (Spaceport America FEIS, Final EIS, or FEIS), published November 2008, which is the primary reference and basis for preparation of this ROD. The FEIS documents the analysis of environmental consequences associated with the construction and operation of Spaceport America and reasonable alternatives to the Proposed Action. The FAA is the lead Federal agency responsible for the preparation of the EIS and ROD for the proposed Spaceport America. Cooperating agencies include the Bureau of Land Management (BLM), the National Park Service, the U.S. Army's White Sands Missile Range (WSMR), and the National Aeronautic and Space Administration. The EIS and ROD were prepared pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969 as amended (42 USC 4321, et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), and FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures.*

The FAA is responsible for the accuracy of the all information in the FEIS and the ROD. For more information concerning the contents of this ROD or the FEIS please contact:

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Project Purpose and Need

The need for the project proposed by NMSA is to establish a long-term source of economic development in southern New Mexico that is technology-based and can be used to develop educational opportunities. To be successful, the project must meet the expected need of the commercial space transportation industry for both vertical and horizontal suborbital launch capacity. Several commercial space transportation providers have made commitments to the State contingent on the State's ability to provide the licensed launch facility in a timely way. These commercial entities have done so because of the inherent advantages offered by the State's proposed site, which features a dry and sunny climate, 4,500-foot launch pad elevation, low population density, contiguous sections of available land, and access to the restricted airspace over nearby WSMR

The purpose of the project proposed by NMSA is to:

- Develop and operate a safe, economically-viable spaceport in southern New Mexico;
- Expand the space launch industry in New Mexico by meeting the demand for launch site services;
- Expand into new space-related markets by licensing an inland spaceport with both horizontal and vertical suborbital launch capabilities;
- Provide a location for X Prize Cup and other scheduled events; and
- Provide a venue for expansion of opportunities for aerospace education in New Mexico.

These activities are consistent with the objectives of the FAA's mission to encourage, facilitate, and promote commercial launch and reentry activities by the private sector.

The need for the FAA action on NMSA's request for licensure is to facilitate the strengthening and expansion of the U.S. space transportation infrastructure, including the enhancement of U.S. launch sites and launch-site support facilities, and development of reentry sites to support the full range of U.S. space-related activities.

The purpose of the FAA action in connection with NMSA's application for a license is to ensure compliance with international obligations of the U.S. and to protect the public health and safety, safety of property, and national security and foreign policy interest of the U.S. during commercial launch or reentry activities; to encourage, facilitate, and promote commercial space launches and reentries by the private sector; and to facilitate

the strengthening and expansion of the U.S. space transportation infrastructure, in accordance with the requirements of the Commercial Space Launch Act of 1984 (CSLA), the Commercial Space Transportation Competition Act of 2000 (CSTCA) (49 U.S.C. 70101-70121), the FAA's commercial space transportation regulations (14 CFR Parts 400-450), the National Space Transportation Policy, and the National Space Policy.

Overview of the Proposed Action and Alternatives

The Proposed Action and Alternatives considered are described in detail in Chapter 2 of the FEIS and are summarized in this ROD.

Proposed Action

The Proposed Action, which is the FAA's Preferred Alternative, is for the FAA to issue a Launch Site Operator License to NMSA that would allow the Spaceport Authority to operate Spaceport America for horizontal and vertical suborbital LV launches.

The proposed Spaceport America site is in Sierra County near Upham, New Mexico at a location approximately 45 miles north of Las Cruces and 30 miles southeast of Truth or Consequences. The proposed site is between 32-33° North latitude and 106-107° West longitude at an average elevation of 4,500 feet, in the region referred to as the Jornada del Muerto Basin.

Horizontal LVs would launch and land at the proposed Spaceport America airfield. Vertical LVs would launch from Spaceport America and either land at Spaceport America or at WSMR. Rocket-powered vertical landing vehicles would land on either the Spaceport America airfield or a vertical launch/landing pad. Vertical LVs with components that would return to Earth by parachute would have flight profiles such that these components (i.e., main rocket stages, payload sections, and crew/passenger modules) would land at WSMR. Landings at WSMR would be coordinated with, and approved in advance by, WSMR.

Under the Proposed Action, infrastructure would be constructed both on- and offsite to support the operation of the commercial launch site. Infrastructure would include the horizontal launch area and airfield, the vertical launch area, access roads, and utilities such as, electrical power lines, fiber optic cables, water supply, and sewage treatment facilities. All construction, with the exception of improvements to some existing access roads and installation of a power distribution line and fiber optic cables to the project site, would take place on New Mexico State Trust Land. Off-site access roads, distribution line, and fiber optic cables would cross a mix of State Trust, BLM, and private lands. Development of Spaceport America infrastructure would occur in two phases. Phase 1 would begin thirty days after the ROD is published and continue for seventeen months. During phase 1, the operational spaceport with both vertical and horizontal launch capabilities would be constructed along with facilities in support of some X Prize Cup activities. Phase 2 would begin eighteen months after the ROD is published and continue for a year. During phase 2, construction would occur for additional vertical launch capabilities as well as full support of all X Prize Cup activities.

Operational activities related to the Proposed Action are described in more detail in Chapter 2 of the FEIS, and include:

- Transport of LVs to the assembly or staging area,
- Transportation and storage of propellants and other fuels,
- Launch, landing and recovery of vehicles,
- Airspace operations, and
- Other activities.

Alternatives to the Proposed Action

In accordance with the Federal guidelines implementing NEPA, the FAA identified a range of reasonable alternatives. The scope of alternatives the FAA considered derives from the action(s) proposed by a license-seeking entity and the need for and purpose of Federal action in connection with the applicant's proposal. The alternatives identified that did not meet the purpose and need as well as those that were not technically, operationally, or economically prudent or feasible were excluded from detailed consideration in the FEIS.

The Spaceport America FEIS considered two Alternatives to the Proposed Action and a No Action Alternative. The alternatives are described in detail in Chapter 2 of the FEIS and are summarized for the purposes of this ROD.

Horizontal Launch Vehicles Only (Alternative 1)

Under Alternative 1, the FAA would consider issuing a Launch Site Operator License for the operation of a launch site to support horizontal launches only. In this alternative, the vertical launch complex would not be built. Vertical commercial launches licensed or permitted by the FAA would not occur from Spaceport America and no vertical vehicles or components would land at WSMR. However, amateur vertical launches, which do not require a license or permit from the FAA, could still occur. This is considered a feasible alternative because a significant number of launches of horizontal LVs are projected, and most X Prize Cup activities would be located at the airfield.

Vertical Launch Vehicles Only (Alternative 2)

Under Alternative 2, the FAA would consider issuing a Launch Site Operator License for the operation of a launch site to support vertical launches only. In this alternative, the vertical launch complex would be built but the airfield facilities would be more limited than described under the Proposed Action. Many X Prize Cup activities would still be located at the airfield. Horizontal commercial and X Prize Cup launches would not occur from Spaceport America. This is considered a feasible alternative because a significant number of launches are projected to be of vertical LVs.

No Action Alternative

Under the No Action Alternative, the FAA would not issue a Launch Site Operator License to the NMSA. Because the NMSA would not be authorized to offer the site for commercial licensed launches, facilities to support commercial launches would not be constructed. The current land use in the proposed project areas would remain unchanged or the land would be put to some other use, as designated by the entities that have authority over the land, namely the New Mexico State Land Office. The need to support

commercial launches and host the X Prize Cup would not be met by the State of New Mexico.

Summary of Necessary Permits and Approvals

Preparation of an EIS, public review and comment, and issuance of this ROD fulfills the FAA's requirements under NEPA. The FAA has selected the preferred alternative, which is for the FAA to issue a Launch Site Operator License to NMSA. Acquisition of permits and approvals under other regulations would be required prior to construction of the spaceport. The FAA has already obtained a finding under Section 404 of the Clean Water Act by the U.S. Army Corps of Engineers that the project area is located within a closed basin and no jurisdictional waters would be affected by the proposed project. The U.S. Fish and Wildlife Service, through consultation under Section 7 of the Endangered Species Act, has concurred with the FAA's determination that the proposed project "is not likely to jeopardize" any listed species. In accordance with Section 106 of the National Historic Preservation Act, the FAA has developed a Programmatic Agreement to resolve the adverse effects of the proposed project on historic properties. The Programmatic Agreement was signed by the FAA, Bureau of Land Management, State Historic Preservation Office, Advisory Council for Historic Preservation and other invited signatories and concurring parties. Further permits or approvals that would be required include the applicant's acquisition of a discharge permit from the U.S. Environmental Protection Agency (EPA) under the Clean Water Act's National Pollution Discharge Elimination System and any other state and local permits required for construction of the launch site.

Preferred Alternative

In determining this Alternative, the FAA considered the economic and environmental impacts of the applicant's Proposed Action, Alternatives 1 and 2, and the No Action Alternative. The FAA evaluated the environmental impacts of spaceport construction and operation in the draft and final EIS. Based on all of these considerations, the FAA determined that the NMSA's proposed action (identified in chapter 2 of the FEIS) as modified to incorporate the avoidance, minimization, and mitigation measures described below and in section 6 of the FEIS constitute the FAA's Preferred Alternative. Adoption of this alternative will result in the construction and operation of a commercial spaceport that is consistent with the purpose and need for the proposed action, while at the same time avoiding, minimizing, and mitigating the effects of spaceport construction on the environment.

Environmentally Preferable Alternative

The environmentally preferred alternative in the FEIS is the No Action Alternative because there would be no new construction or operation of Spaceport America elements at the proposed site. Continuation of current site operations would result in few additional environmental impacts. However, the No Action Alternative is not the FAA's Preferred Alternative because it would not result in the construction and operation of a commercial spaceport consistent with the purpose and need for action. Nor would it be consistent with the FAA's mission to facilitate the strengthening and expansion of the U.S. space transportation infrastructure, including the enhancement of U.S. launch sites

and launch-site support facilities, and development of reentry sites to support the full range of U.S. space-related activities.

Public and Agency Involvement

Public participation in the NEPA process provides for and encourages open communication between the FAA and the public, and promotes better decision-making. Scoping for the development of the EIS began with the publication of the Notice of Intent (NOI) in the Federal Register on January 23, 2006 (71 FR 3915). During scoping, the FAA invited the participation of Federal, State, and local agencies, Native American tribes, environmental groups, citizens, and other interested parties to assist in determining the scope and significant issues to be evaluated in the EIS. Two scoping meetings were held in February 2006 to request input from the public on concerns regarding the proposed activities as well as to gather information and knowledge of issues relevant to analyzing the environmental impacts associated with the Proposed Action.

Public review and comment on the Draft EIS were initiated with publication of the Environmental Protection Agency's Notice of Availability in the Federal Register on July 3, 2008 (73 FR 38204). The FAA published an additional Notice of Availability, Public Comment Period, and Public Hearings and Request for Comment in the Federal Register on July 9, 2008 (73 FR 39370). The FAA also announced the availability of the Draft EIS and the scheduled public hearings through local newspapers. Copies of these Federal Register and newspaper notices are included in Appendix B of the FEIS. Copies of the Draft EIS were mailed to agencies, tribes, organizations, and private citizens who had requested copies. Copies of the Draft EIS also were distributed to public libraries in southern New Mexico and to the media.

The public review and comment period lasted 45 days, ending on August 18, 2008. However, comments received after the end-date were considered in the FEIS. Six public hearings were held: two on August 5, 2008 in Alamogordo, New Mexico; two on August 6, 2008 in Truth or Consequences, New Mexico; and two on August 7, 2008 in Las Cruces, New Mexico. Appendix N of the FEIS contains the public comments received, transcripts of the six public hearings, comment identification, and the FAA's responses. The FAA responded to all substantive comments, and included in the Final EIS any necessary changes or edits resulting from the comments received. The Environmental Protection Agency issued a Notice of Availability for the Final EIS on November 14, 2008 (73 FR 67511). The FAA is issuing this ROD no sooner than 30 days after publication of the Final EIS in accordance with CEQ NEPA implementing regulations (40 CFR 1500-1508).

Environmental and Cumulative Impacts under the Proposed Action

The Spaceport America FEIS analyzes the environmental impacts of constructing and operating a commercial launch facility, including all related activities and uses that are reasonably foreseeable and any actions considered connected to the Proposed Action within the context of NEPA. Section 5 of the FEIS provides a complete description of the potential environmental consequences of the Proposed Action and the alternatives. Based on the analysis and any necessary mitigation, the only resource area for which the

impact from the Proposed Action would exceed the applicable threshold of significance is Historical, Architectural, Archaeological and Cultural Resources.

Cumulative impacts are "the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). The cumulative impacts analysis in the FEIS focuses on those past, present, and reasonably foreseeable future actions that have the potential to contribute to cumulative impacts. These past, current and future projects and activities are listed in the section 5.1 of the FEIS.

The following section summarizes the impact analysis including cumulative impacts for each resource area under the Proposed Action.

Compatible Land Use

The construction and operation of Spaceport America would retain most current land uses, while permanently changing land use in a small portion of the total project area from rangeland to spaceport and support facilities use. There would be a direct loss of rangeland used by wildlife and livestock due to fencing and facilities. Livestock grazing opportunities on adjacent lands may be reduced due to loss of base waters, provided by State grazing leases, or temporarily due to required land resting during the growing season after grassland restoration projects are completed. Cooperative efforts have been initiated and would be developed to continue economic, recreation, and habitat land uses and to reduce or offset any losses. Indirect impacts could come from increased noise, air emissions, vehicle use, visual effects, recreation, and induced growth in adjacent areas. Temporary indirect impacts would be greatest during construction and special events. Effects on land use are not expected to be significant.

Past projects and activities have been supportive of maintaining the historic and current land use for ranching and have not resulted in land use impacts. Future projects could result in doubling the amount of acreage at Spaceport America removed from grazing use. However, because the vicinity of the project area includes large amounts of rangeland, the cumulative impact on land use from the Proposed Action would not be significant.

Section 4(f) Lands and Farmlands

There would be no direct use or constructive use of Section 4(f) resources as a result of the Proposed Action. Therefore, there would be no impact on Section 4(f) resources resulting from construction or operation of the proposed Spaceport America. No protected farmlands are present and no impacts are expected.

Because there would be no impacts expected from the Proposed Action on Section 4(f) and farmland resources, no cumulative impacts are anticipated.

Noise

The threshold of significance applicable to noise is defined in FAA Order 1050.1E, Appendix A, Section 14, which states that:

> "A significant noise impact would occur if analysis shows that the Proposed Action will cause noise sensitive areas to experience an increase in noise of

> Day-Night average sound level DNL 1.5 decibels (dB) or more at or above DNL 65 dB noise exposure when compared to the No Action Alternative for the same timeframe".

The DNL is the sound level in A-weighted decibels (dBA) averaged over a 24-hour period. The estimated noise levels that could result from the construction or operation of the Proposed Action are below this threshold.

Noise sources during construction would include construction equipment and traffic. Estimates of noise levels based on the type of equipment to be used and the distance from the major construction activity to nearby residences indicate the noise level would be expected to be at background or ambient levels at the nearest residence. Also, the DNL noise levels from construction traffic at residences along the roadways would not exceed the noise level that EPA associates with activities occurring in a small town (approximately 50 dBA at 300 feet from the road).

Noise sources during operation would be vertical launches, horizontal launches and airplane take-offs and landings, rocket test firings, and traffic. Vertical launches would have the highest noise levels, but occur for short periods of time, approximately two minutes, and average once every three days and only during daylight hours. Persons within three miles of the launch site would experience very loud, but not damaging sound levels. Also, the communities of Hatch and Truth or Consequences would be shielded from the launch and test firing sites by the Caballo Mountains and thus would experience lower noise levels. Test firing of rocket engines would be even less frequent and less intense.

Horizontal launches along with airport operations would generate noise that is more frequent than vertical launches, but noise peaks would be less. Exhibit 4.3-10 in the FEIS presents 65 DNL noise contours resulting from these operational activities, which are confined within proposed Spaceport America boundaries. The noise levels expected from X Prize Cup event activities would be greater and the DNL at the nearby Yost Escarpment would increase to the noise level mentioned above that EPA associates with activities in a small town.

Finally, the traffic noise of operations would be less than that of the peak of construction, except during the X Prize Cup event, when noise levels are estimated at about 50 (dBA) at 300 feet from the road, the level that EPA associates with noise levels in a small town.

Past and current projects and activities would have minor short-term noise impacts. Future projects would have temporary noise impacts during construction activities. Use of the expanded facilities would result in different noise impact contours than those of the Proposed Action, and would see increased traffic noise. Increasing the number of vertical and horizontal LV launches could result in significant noise impacts from launches, aircraft using the airfield, and traffic. When the noise impacts from the Proposed Action are added to the likely noise impacts of the past, current, and future projects and activities, it is likely that the cumulative noise impacts would be significant.

Visual Resources and Light Emissions

The visual impacts and light emissions resulting from construction and operation of Spaceport America would be less-than-significant for the project area. Visual Resource

Management VRM Class II objectives for the National Historic Trail NHT would be maintained in the five-mile visual buffer zone because of terrain, use of color schemes, distance, and camouflage. There would be weak contrast between the current setting and the proposed project facilities as viewed from the NHT. All new utility-infrastructure would be buried on-site. Road modifications and paving would be noticeable, but would not be a significant visual intrusion. The visual impacts of launch and landings and aircraft operations would be low because of their low frequency and distance from viewpoints. Effects of security and safety lighting would be kept at low levels by minimizing use and by using only lighting products and designs that are consistent with the standards of the International Dark-Sky Association. Visual impacts of roadway vehicles and fugitive dust would increase and have some minor impact on the NHT and the overall visual setting. In VRM Class IV areas the new construction would increase visual contrast, but would be consistent with the objectives for these areas.

Past and current projects and activities would have minor, sporadic, and short-term visual impacts. Future projects would have temporary visual impacts during construction activities. Construction and use of expanded Spaceport America facilities could likely result in significant visual impacts due to their location and orientation. Increasing the number of vertical and horizontal launches could result in significant visual impacts as well. When the visual impacts from the Proposed Action are added to the likely visual impacts from the past, current, and future projects and activities, it is likely that the cumulative visual impacts would be significant.

Historical, Architectural, Archaeological, and Cultural Resources

Impacts to historic properties, including physical damage, changes to setting, and visual and auditory effects, would occur as a result of the Proposed Action. These impacts, without mitigation measures, would include minimal impacts to setting, moderate impacts to setting, and significant impacts to setting and physical resource integrity.

The FAA developed a Programmatic Agreement in consultation with the consulting parties, in accordance with 36 CFR 800.6. A draft Programmatic Agreement was included in Appendix P of the Final EIS. The final Programmatic Agreement was signed by the Signatories in December 2008. The signed version is included as Attachment 1 to this ROD. The Programmatic Agreement stipulates that plans to avoid, minimize, or mitigate the adverse effects would be developed in consultation with the consulting parties. Mitigation of physical effects to identified archaeological sites would be completed prior to the site being affected. The plans also will describe the processes to be followed when previously unknown cultural resources or human remains are discovered during construction or operation of the selected alternative, and also will address processes to be followed when inadvertent physical damage to an historic property is discovered. The PA and the measures contained within the plans would resolve some of the adverse effects per 36 CFR Part 800; however, due to their nature, some effects would still remain significant, such as those to historic property settings and Traditional Cultural Properties.

Measures to avoid, minimize, or mitigate adverse effects that may be considered and included in the plans are discussed in the mitigation section of this ROD by resource area.

Past and current projects and activities have had significant impacts to historic properties in the vicinity of the project area. Future projects would have impacts to the settings of historic properties from construction activities and permanent physical impacts to historic properties. Construction and use of expanded Spaceport America facilities could likely result in significant impacts to the settings of the NHT and Aleman Draw Historic District (District) due to the location and orientation of the new facilities. Increasing the number of vertical and horizontal launches could result in significant impacts to setting as well. When the impacts remaining, after mitigation, to the physical integrity and settings of historic properties from the Proposed Action are added to those of the past, current, and future projects, it is likely that the cumulative impacts to historic properties would be significant, particularly to the settings of the NHT and District.

Air Quality

The criteria pollutant and hazardous air pollutant emissions from construction and operation of Spaceport America would have a negligible impact on air quality and would not impair visibility along El Camino Real NHT. The emissions of carbon dioxide and ozone-depleting substances in the stratosphere would have a negligible impact on climate change and ozone depletion.

The project area is in attainment of Federal and New Mexico Ambient Air Quality Standards, thus past and current projects and activities have not had significant adverse impacts on air quality. Future projects would have temporary air quality impacts during construction activities. Paving of dirt roads would result in less fugitive dust. Construction and use of expanded Spaceport America facilities would likely result in negligible impacts similar to those described for the Proposed Action. Increasing the number of vertical and horizontal launches would result in some level of air quality impacts, dependent on the magnitude of the increase. BLM leasing and development of oil and gas resources could have effects to air quality, but mitigation measures would mitigate them. When the air quality impacts from the Proposed Action are added to the likely impacts from past, current, and future projects and activities, it is likely that the cumulative impact would not be significant.

Water Quality, Wetlands, Wild and Scenic Rivers, Coastal Resources, and Floodplains

The construction and operation of Spaceport America would not result in significant impacts on water quality in the Spaceport America region. There could be small off-site water quantity (drawdown) effects in the immediate vicinity of the site, but no changes in off-site water use are anticipated as a result of the Proposed Action. The proposed Spaceport America would not result in a notable adverse impact on natural and beneficial floodplain values. There are no wetlands, wild and scenic rivers, nor coastal resources in the vicinity of the Spaceport America site; therefore, there would be no impacts on these resources.

The impacts on groundwater quantity arising from the Proposed Action would not be significant. Past and current projects and activities have had a negligible impact on groundwater. Future projects would have impacts that are similar to the Proposed Action and would not be significant. Based on the water usage and drawdown calculations of the Proposed Action, when the impacts of the past, current, and future projects and activities are added to the impacts of the Proposed Action, it is likely that the cumulative

groundwater quantity impacts would not be significant. Because there would be no impacts expected from the Proposed Action on wetlands, wild and scenic rivers, or coastal resources there are no cumulative impacts anticipated either.

Fish, Wildlife, and Plants

The only Federal- or State-listed species documented as observed in the Spaceport America project area are bald and golden eagles and Bell's vireo; these species are considered transients of the area (i.e., species do not breed on-site). Marginal habitat exists in the project area for Aplomado falcons, but they have not been observed on-site. Sensitive species and/or species of concern present on the project area include loggerhead shrikes, Texas horned lizards, and possibly burrowing owls. Impacts from construction and operation of Spaceport America would occur but would not jeopardize the continued existence of special status species of plants or wildlife, or result in the destruction or adverse modification of designated critical habitat, and therefore, would not be significant. Impacts from construction (primarily habitat loss) and site operation (primarily noise and increased human activities) may result in displacement of some local wildlife; however, impacts on regional wildlife populations would not be significant.

The impacts on wildlife and plants resulting from implementation of the Proposed Action would not be significant. Past and current projects and activities have had both positive and negative impacts. BLM restoration activities have had a beneficial impact on grassland habitats. Future projects would cause temporary disturbance impacts that would not be significant during construction activities and launch operations. When the impacts to wildlife and plants from the Proposed Action are added to the likely impacts from past, current, and future projects and activities, it is likely that the cumulative impacts would be additive, but would not be significant. Because there would be no impacts expected from the Proposed Action on fish, there are no cumulative impacts anticipated either.

Hazardous Materials, Pollution Prevention, and Solid Waste

On-site impacts stemming from the management of hazardous materials and hazardous and non-hazardous wastes are not anticipated because hazardous materials and wastes would be handled, stored, and used in compliance with all applicable regulations. Hazardous material storage areas would be equipped with secondary containment and the appropriate spill control equipment. Procedures would be in place to minimize potential impacts from spills of hazardous materials and hazardous waste. Pollution prevention plans would be implemented to minimize waste through reuse and recycling of materials.

The X Prize Cup would generate an estimated additional waste quantity of 45.4 tons per day in the absence of a recycling program. Off-site impacts from disposal of spaceport-generated waste would be negligible to minimal due to the small quantities of waste in comparison to waste disposal capacity available in the region.

Offsite impacts from disposal of spaceport-generated waste would be negligible to minimal under the Proposed Action due to the small quantities of waste in comparison to waste disposal capacity available in the region. For the past, current, and future projects and activities, the quantities of waste generated would have negligible or minimal impacts on the waste disposal capacity in the region. When these impacts are added to

the impacts of the Proposed Action, it is likely that the cumulative impacts to waste disposal capacity in the region would not be significant. Because there would be no impacts expected from the management of hazardous materials or hazardous and non-hazardous wastes under the Proposed Action, no cumulative impacts are anticipated either.

Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The proposed Spaceport America site is in a sparsely populated area and no permanent residents would be displaced. No ranches would cease to operate due to construction or operation of the proposed Spaceport America; therefore, no community businesses would be lost or relocated. The construction and operation of the proposed spaceport would increase the community tax base with workers adding to gross receipts by purchasing goods and services in the locality, and workers and visitors renting hotel/motel rooms in the area that are subject to lodger's tax. As described in Appendix H of the FEIS, Traffic and Transportation, there would be disruptions to traffic patterns at the peak of construction while improving County Road A013 and during the X Prize Cup event. However, these impacts would be temporary. Therefore, the Proposed Action would not have any significant negative socioeconomic impacts, as defined by FAA Order 1050.1E because identified significance thresholds are not expected to be reached.

The Proposed Action would lead to small impacts on population, employment, housing, income and community services in Sierra County on a temporary basis during the construction phase and on a permanent basis during the operations phase. Even though the impacts would be small, the permanent impacts experienced during operations could be mitigated. The increase in tax revenues generated by the project could be used to facilitate the hiring of additional school and medical staff. The proposed Spaceport America would have a large positive economic impact on the region of influence (ROI) (Sierra, Doña Ana, and Otero Counties). The regional economic activity is estimated to be approximately $73.7 million during 2013 (see Exhibits 4.10-3, 4.10-4, and 4.10-5 in the FEIS).

There are no anticipated significant adverse impacts arising from the proposed project that would disproportionately impact minority or low-income populations. There are no disproportionate high and adverse impacts on minority or low-income populations expected from the construction or operation of the proposed Spaceport America. Therefore, there are no significant environmental justice impacts as defined by FAA Order 1050.1E because identified significance thresholds are not expected to be reached.

The potential environmental health impacts and safety risks from the construction and operation of the proposed Spaceport America would not be expected to disproportionately affect children because the site is in a sparsely populated area; the distance to the local area school is 18 miles; and the general population of the ROI does not have a significantly higher percentage of children as compared to the State of New Mexico or the nation. Therefore, there are no significant children's environmental health and safety impacts as defined by FAA Order 1050.1E because identified significance thresholds are not expected to be reached.

Most of the past, current, and future projects and activities would result in the same types of beneficial and adverse impacts on socioeconomics as the Proposed Action. When these impacts are combined with the impacts of the Proposed Action, it is likely that the cumulative beneficial impact on socioeconomics would be significant. Since there are no disproportionately high and adverse impacts on minority or low-income populations, or potential health impacts and safety risks from the Proposed Action, no cumulative impacts are anticipated either.

Energy Supply and Natural Resources

Various propellants and other fuels would be required at Spaceport America to launch and land vehicles and to operate vehicles and infrastructure to support launches and recoveries. The actual amounts and types of rocket propellants and other fuels would depend on the specific launch operations and types of LVs finally selected. Most of the rocket propellant supply would be trucked to the site from national or regional suppliers. Gasoline and diesel needs would be relatively small. There would be no impact on energy supplies as a result of implementation of the Proposed Action.

The demand for electrical energy in the region would increase if the Proposed Action were implemented. However, the site's limited electrical distribution, served by a 5 mega volt ampere (MVA) capacity, makes it unlikely that other system users would be impacted by Spaceport America electricity use.

There are numerous potential supplies of aggregate materials needed for construction of runways, taxiways, aprons, and roads in the area and diversion of materials for Spaceport America would not restrict the availability of these materials.

Under two of three scenarios defined in the Proposed Action, water would be pumped from on-site wells to supply construction and operation activities. Aquifer drawdowns calculated for these use scenarios indicate that nearby users would not be affected.

Since there are no potential impacts on energy supply and natural resources from the Proposed Action, there are no cumulative impacts anticipated either.

Secondary or Induced Impacts

Major developments sometimes have the potential to cause secondary or induced impacts on surrounding communities. The CEQ defines secondary impacts as those that are caused by an action and are later in time and/or farther removed in distance, but still foreseeable. The FAA 1050.1E guidance requires assessment of the potential for and significance of such impacts. Potential secondary or induced impacts assessed for the proposed Spaceport America project include:

- Shifts in patterns of population movement or growth,
- Public service demands,
- Changes in local or regional business or economic activity, and
- Changes in regional land use.

Issuing a Launch Site Operator License to NMSA for Spaceport America would not result in substantial induced impacts. Although the Proposed Action would result in beneficial economic impacts to the region by supporting and facilitating limited growth, it would not induce growth. Operation of the Spaceport would not support substantial

numbers of workers. Construction would temporarily employ large numbers of workers during peak construction; however, these workers either would already live in the region or would be transient workers who would move away once the construction job was completed. Thus, population movement would not be affected. Implementation of Spaceport America would include development of all necessary infrastructure for water, wastewater, electricity, communications, and roads. Thus, there would be no changes in demand for public services, no strain on existing public service infrastructure, and no induced expansion of existing infrastructure. There are no known specific future development activities that would be dependent on the Proposed Action. Spaceport America would be constructed in a rural area with very sparse population, and would co-exist with the local ranching economy. Economic activity and regional land use in the region would not change due to the implementation of the Proposed Action.

Therefore, no secondary or substantial induced impacts are expected to result from the Proposed Action or alternatives analyzed in the FEIS.

Mitigation Summary

As stated previously the only resource area for which the impact from the Proposed Action would exceed the applicable threshold of significance is Historical, Architectural, Archaeological, and Cultural Resources. A Programmatic Agreement has been developed to address these impacts. The signed Programmatic Agreement is included in Attachment 1. Mitigation plans would be developed in consultation with the New Mexico SHPO and Section 106 consulting parties, to resolve these impacts and reduce some of them to a level that is not significant. Measures considered for inclusion in these plans are presented in Chapter 6 of the FEIS. For other resource areas, measures would be implemented to ensure impacts are not significant. Finally, other conservation or enhancement measures that would further reduce impacts, if implemented, are presented for consideration, but are not made a condition of the approval of the action described in the FEIS.

In accordance with 40 CFR 1505.3, the FAA would take appropriate steps to ensure that the mitigation and enforcement actions made a condition of the approval of the action described in the FEIS are implemented during project development. NMSA would monitor the implementation of these mitigation actions. Reports of monitoring would provide necessary assurance that representations made in the FEIS with respect to mitigation are carried out. These mitigation actions would be made the subject of the terms and conditions of the Launch Site Operator License issued to NMSA.

A summary of the mitigation measures is presented in the next sections.

Visual Resources and Light Emissions

The following mitigating measures would be implemented to minimize visual impacts and light emissions:

- Minimizing the use of security and safety lighting, and ensuring that all essential lighting would meet lighting standards consistent with the Outdoor Lighting Code Handbook published by the International Dark-Sky Association (IDA, 2002) and Night Sky Protection Act [74-12-1 to 74-12-10 New Mexico Statutes Annotated 1978];

- Controlling fugitive dust during construction with water and dust abatement on roads;
- Providing buses for visitors and tourists, especially during the X Prize Cup event, and controlling vehicle use associated with Spaceport America activities and events within the limited developed land areas; and
- Using earthen berms, vegetation, non-glare material, color, and height and distance measures to disguise facilities to the extent practicable to minimize impacts within areas visible from the NHT.

Historical, Architectural, Archaeological, and Cultural Resources

NMSA will develop mitigation plans for known historic properties as well as any plans that may be required as a result of survey and evaluation described in the Programmatic Agreement. NMSA along with the Signatories and Consulting Parties to this Agreement will develop an overall approach to mitigation plans for known historic properties as well as plan that may be required as a result of survey and evaluation described in the stipulations outlined in the Programmatic Agreement. The mitigation plans will discuss the historical context of the area, research themes that can be reasonably addressed, and the data recovery, creative, and compensatory measures appropriate to mitigate effects.

The following measures would be considered for inclusion in mitigation plans, which would be binding on the parties to the Programmatic Agreement as described in the PA:

- Conducting data recovery excavations of archaeological sites;
- Conducting in-depth background research and field investigations of historical resources;
- Implementing standard Best Management Practices during construction and maintenance activities to control erosion and changes to erosion patterns;
- Training Spaceport America construction, maintenance, operations, contractor, and tenant personnel to recognize when archaeological resources or human remains have been discovered or when inadvertent damage has occurred to a resource, to halt ground disturbing activities in the vicinity of the discovery, and to notify appropriate personnel;
- Educating Spaceport America construction, maintenance, and operations personnel, as well as contractors and tenant organizations, on the importance of cultural resources, the need to stay within defined work zones, and the legal implications of vandalism and artifact collecting;
- Educating visitors and the general public on the importance of cultural resources, the need to stay within defined access areas, and the legal implications of vandalism and artifact collecting;
- Developing a State management plan for those portions of the NHT located on State Trust Land;
- Developing a Cultural Resource Management Plan to ensure long-term protection of resources within the project boundaries;

- Establishing periodic moratoria on launch and landing events to provide periods of quiet inactivity along the NHT;
- Establishing a Design Committee, with membership to include agency and public stakeholders, to develop ways to reduce the visibility of proposed facilities through use of specific color, texture, topography, orientation, materials, etc.; and
- Developing joint marketing and education programs that benefit both Spaceport America and the NHT, such as:
    - Providing educational outreach to the public about the region's cultural heritage with programs and publications;
    - Developing public activities in coordination with El Camino Real International Heritage Center, the New Mexico Farm and Ranch Heritage Museum, and the New Mexico Museum of Space History; and
    - Developing and maintaining roadside interpretive signs and foot trails to enhance the visitor experience.

Air Quality

The following measures would be implemented to reduce impacts on air quality:

- Applying water to disturbed areas and dirt road surfaces for dust suppression during construction;
- Applying dust abatement to gravel roads for dust suppression during operations;
- Incorporating particulate control features at the cement batch plant, such as the enclosure of conveyors and elevators, filters on storage bin vents, and the use of water sprays; and
- Acquiring any necessary permits from the Air Quality Bureau of the New Mexico Environmental Department, if any additional operations at Spaceport America, other than those represented in the original application, are planned.

Water Quality, Wetlands, Wild and Scenic Rivers, Coastal Resources, and Floodplains

The following measures would be considered for minimizing impacts on water resources, but are not made a condition of the approval of the action described in the FEIS:

- Incorporating water-efficient fixtures and appliances into facility design, such as dual flush toilets, waterless urinals, aerated faucets, and low flow showers;
- Incorporating desert landscaping with water-efficient irrigation where needed;
- Using wastewater effluent to meet a portion of the nonpotable water needs, such as for vehicle washing, toilet flushing, and landscaping; and
- Collection of rain water and storm water runoff for nonpotable uses.

Fish, Wildlife, and Plants

The following measures would be implemented to minimize impacts on fish, wildlife and plants:

- Adherence to New Mexico Department of Game and Fish (NMDGF) trenching guidelines both on-site and off-site to reduce threats to local fauna;
- Adherence to NMDGF distribution line guidelines for on-site and off-site construction of aboveground lines to reduce threats to avifauna, particularly raptors;
- Adherence to NMDGF burrowing owl guidelines, including surveys prior to construction, to reduce threats to nesting burrowing owls;
- Conducting surveys for nesting migratory birds prior to construction, resulting in avoidance and/or relocation of active nests to the extent possible, as permitted (Migratory Bird Treaty Act);
- Conducting surveys for the night blooming cereus cactus during the June-July period during and prior to planned construction (Federal species of concern);
- Adherence to BLM fencing protocols to the extent possible, using livestock fencing (which allows wildlife movement) at all locations other than those areas requiring high game fencing for safety or security requirements; and
- Re-vegetation of temporarily disturbed work areas, using original top soil as a seed bank.

The following measures would be considered for wildlife and habitat enhancement, as deemed necessary and appropriate, but are not made a condition of approval of the action described in the FEIS:

- Creation and/or refurbishment of off-site watering areas (drinkers and catchments) to replace those watering areas that may be impacted by Spaceport America construction and/or operation and to improve off-site habitats for wildlife;
- Enhancement of off-site desert grassland habitats, primarily through mesquite/creosote brush control to increase herbaceous growth, to replace those grassland habitats made un-usable or inaccessible by Spaceport America construction and/or operation; and
- Monitoring of wildlife populations within and/or near the project area to examine for potential shifts in density and diversity.

Energy Supply and Natural Resources

The following measures would be considered, but are not made a condition of the approval of the action described in the FEIS:

- Incorporating energy efficient building design for natural cooling, heating, and lighting; and
- Developing alternate power sources such as geothermal and photovoltaic.

Hazardous Materials, Pollution Prevention, and Solid Waste

The following measures would be considered, but are not made a condition of the approval of the action described in the FEIS:

- Taking advantage of all pollution prevention opportunities, including recycling and purchase of environmentally-friendly products whenever possible;
- Having spill response materials (e.g., sorbents, drain covers, mops, brooms, shovels, drum repair materials and tools, warning signs and tapes, and personal protective equipment) readily available for use in storage areas, during fueling, and during transport in the event of an unplanned release;
- Storing hazardous materials in protected and controlled areas with containment and impermeable ground cover;
- Using spill containment berms during fueling operations;
- Inspecting hazardous materials daily; and
- Purchasing hazardous materials in appropriately sized containers (e.g., if the material is used by the can, it would be purchased by the can rather than in bulk-sized containers) and in appropriate quantities.

Decision and Order

I have considered potential environmental impacts as analyzed in the FEIS, applicable regulatory requirements, public comments, and FAA's responsibilities to encourage, facilitate, and promote commercial space launches and reentries by the private sector; and to facilitate the strengthening and expansion of the U.S. space transportation infrastructure in my decision.

Alternatives 1 and 2 and the No Action Alternative would result in restrictive licensing that would impede the FAA's ability to assist the commercial space transportation industry in meeting projected demand for services and expansion into new markets. The Preferred Alternative would allow the greatest development and growth of the U.S. commercial space launch industry. In addition, although implementation of the Preferred Alternative would result in slightly greater environmental impacts than the overall impacts associated with the alternatives including the No Action Alternative, the impacts are still expected to be less than significant, in all but one resource area. For the reasons summarized earlier in this ROD and supported by detailed discussion in the FEIS, the FAA has selected the Preferred Alternative.

I have carefully considered the FAA's goals and objectives in relation to issuing a Launch Site Operator License as discussed in the FEIS, including the purpose and need to be served, the alternative means of achieving them, the environmental impacts of these alternatives, and the mitigation measures available to preserve and enhance the environment. I have determined that all practicable means to avoid or minimize environmental harm from the alternatives selected have been adopted. Based upon the record of this proposed Federal action, and under the authority delegated to me by the Administrator of the FAA, I find that the action described in this Record of Decision is reasonably supported.

Responsible FAA Official:

Dr. George C. Nield
Associate Administrator for
Commercial Space Transportation

12/15/08
Date

RIGHT OF APPEAL

This decision is taken pursuant to 49 U.S.C. Subtitle VII, Parts A and B, and constitutes a Final Order of the Administrator, subject to review by the courts of appeals of the United States in accordance with the provisions of 49 U.S.C. § 46110.

Attachment 1. Programmatic Agreement for Spaceport America