4. Environmental Consequences

This section describes the potential environmental consequences of the two alternative actions, Proposed Action and No Action, by comparing these activities with the potentially affected environmental components. Section 4.1 provides an overview of cultural resources and socioeconomics. Sections 4.2 through 4.11 provide discussions of the potential environmental consequences of the activities. The amount of detail presented in each subsection is proportional to the potential for impacts. Sections 4.12 and 4.13 discuss environmental justice and cumulative impacts, respectively.

Potential impacts to resources resulting from the implementation of the two alternatives were identified and placed into one of the following pre-determined classifications (NASA, 2007h):

- No Impact–No impacts expected
- Minimal–Impacts are not expected to be measurable, or are measurable but are too small to cause any change in the environment
- Minor–Impacts are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated for with little effort and few resources so that the impact is not substantial
- Moderate–Impacts are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated for with effort and resources so that the impact is not substantial
- Major–Environmental impacts that, individually or cumulatively, could be substantial

The following subsections describe the potential environmental impacts resulting from the implementation of the Proposed Action and the No Action alternative. NASA currently anticipates that much of the SSP property would be reused by future space flight programs on the basis of the ongoing planning phases for these programs. It is anticipated that the other options listed under the preferred alternative would not be used to a great extent. Therefore, the text concludes that none of the potential impacts, other than some cultural resources at various Centers (described below), are moderate. The text also concludes that other resource area impacts are “minimal to no” or “no” impact.

4.1 Overview of Cultural Resources and Socioeconomics

4.1.1 National Perspectives on Cultural Resources

Cultural resources are broadly understood as the physical remains of historic and prehistoric cultural systems. These resources are used to interpret, explain, and study all aspects of a culture. These tangible cultural remains help us to better understand our heritage, to appreciate architecture and engineering, and to learn about past accomplishments.

The goal of preserving historic properties as important reflections of our cultural heritage became national policy in the early twentieth century with the passage of the Antiquities Act of 1906, and was then furthered with the Historic Sites Act of 1935 and the NHPA of 1966, as amended. (Appendix D contains a list of the applicable federal laws and regulations.) Multiple presidential EOs have followed in the ensuing decades to refine the goals of historic preservation, including EO 13287, signed in 2003. This order, creating the "Preserve America" initiative, established a policy to provide leadership in the preservation of our cultural heritage by actively advancing the protection, enhancement, and contemporary use of historic resources owned by the federal government (Preserve America, 2007).

The NHPA process has produced documentation regarding the appearance and importance of districts, sites, buildings, structures, and objects significant in our history and prehistory. Thousands of properties around the nation have been documented that illustrate for the generations to come the broad patterns of local, state, and national experience throughout U.S. history (NPS, 1995).

The federal government recognizes the cultural and societal value of irreplaceable historic and prehistoric resources and is committed to protecting them from damage (NASA, 2007h). Conservation of cultural resources is a component of NASA's environmental management program, in accordance with Section 110 of NHPA. The NASA Environmental Management Division (EMD) includes NASA's Federal Preservation Officer (FPO), who coordinates with the NASA Senior Historian to preserve historically significant NASA properties.

One of NASA's property management goals is to "ensure that historic properties are managed in a manner that promotes the long-term preservation and use of those properties as federal assets and, where appropriate and consistent with NASA's mission, contributes to the local community and its economy" (NASA, 2005c:6). NASA's goal is to provide responsible stewardship of its historic assets to achieve the best possible value for the public's investment (NASA, 2005c:7).

The NASA EMD serves as the agency lead in assuring that NASA meets its federal stewardship responsibilities under NHPA, while at the same time carrying out its primary mission of understanding and protecting the planet, exploring the larger universe, and inspiring the next generation of explorers (NASA, 2007d).

4.1.2 National Perspective on Socioeconomic Impacts

As indicated in Section 1 of this Programmatic EA, President Bush has directed NASA to transition and retire the SSP in 2010, and Congress has endorsed that directive. The Presidential decision to discontinue the SSP has already been made; as a Presidential decision, it is not a topic for NEPA analysis. NASA is in the planning stages of T&R activities for the SSP that will address the efficient reuse of critical skills, human capital, and property. This Programmatic EA evaluates NASA's decision about how to disposition the SSP's real and personal property assets (whether to use the approach of NASA's Proposed Action or the No Action alternative). Therefore, the socioeconomic impact analysis in this Programmatic EA addresses only the impacts of NASA's discretionary actions regarding the disposition of the SSP's real and personal property and does not address the broader socioeconomic impacts of the President's decision to discontinue the SSP.

Nevertheless, to provide context for this EA's socioeconomic analysis, the following introductory discussion provides information regarding the current and projected socioeconomic influence of the SSP and other NASA programs. A focused report (*Baseline Socioeconomic Resources, Space Shuttle Program, Fiscal Year 2006)* (NASA, 2007bb) was prepared to assess in more detail the current socioeconomic "footprint" of the SSP in the regions where the major NASA Centers are located. Brief summaries of that information are provided for each of those NASA Centers in Section 3, to describe baseline socioeconomic resources.

Section 4.1.2.1 provides an overview of the current economic footprint of the SSP in the regional economies and the anticipated effect as the SSP T&R takes place.

Section 4.1.2.2 provides a general discussion of the President's Vision for Space Exploration, describes NASA's current plans for developing future space flight programs, and illustrates NASA's proposed budgets for the SSP and other space operations during the SSP T&R period.

Section 4.1.2.3 describes the overall potential for effects from the Proposed Action (NASA's planned T&R of SSP assets, including real and personal property) on socioeconomic resources. Section 4.1.2.4 describes the overall potential for effects from the No Action Alternative on socioeconomic resources.

4.1.2.1 Socioeconomic Effects of Federal Agency Actions

Socioeconomic resources can be affected adversely by substantial changes in employment and procurement by federal agencies. The SSP currently provides an important source of revenue for local firms through the procurement of goods and services, as well as civil service and prime contractor salaries. The economic "multiplier effect" means that changes in SSP expenditures would be felt both in the industries that provide supplies and services to NASA and also in the businesses that depend on employee spending. The subsections in Section 3 provide baseline

data for SSP employment and expenditures at each of the major NASA Centers, including an estimate of the total "multiplier effect" of the SSP's direct expenditures on the economic output, employment, and income in the regional economies.

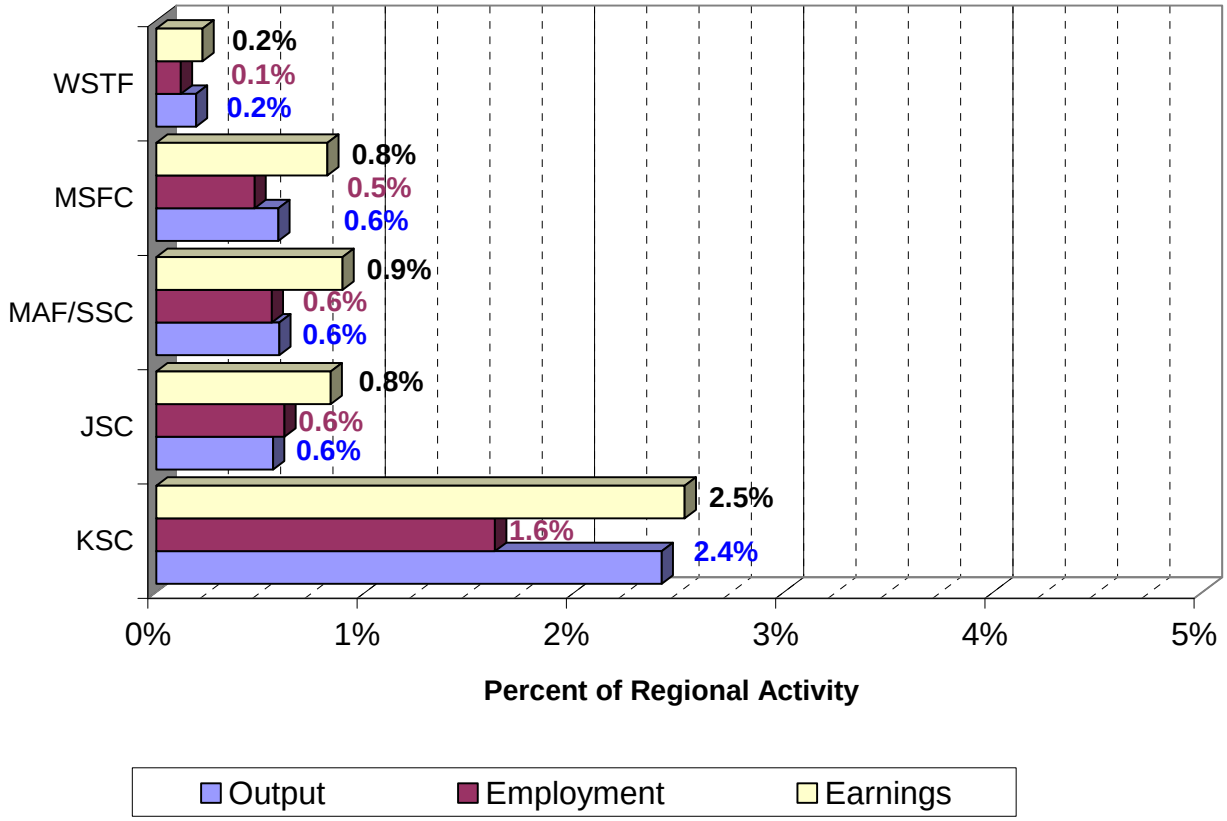
New NASA programs and projects will help fill the void left by the SSP T&R activities; however, localities that host NASA Centers that are heavily involved in the SSP would experience adverse socioeconomic impacts. Ripple effects on population and the associated demand for community services (such as housing, school enrollment, shopping, and police and fire protection) could occur if employment changes caused large numbers of employees to move into or out of an area.

Although SSP expenditures and employment make a positive contribution to the regional economies, it is relatively modest in proportion to the overall economic activity of the regions. At most of the Centers, the total direct and secondary effects of the SSP on economic output, earnings, and employment were less than 1 percent of regional levels in FY 2006, except in the KSC region, where the effects were less than 3 percent. (See Exhibit 4-1 and the Center-specific socioeconomic discussions in Section 3.)

However, it is important to note that the social and economic influence of NASA's Centers, especially at KSC and MAF (which primarily support SSP operations), extends well beyond the direct and secondary economic effects of Shuttle-related expenditures and salaries. NASA's operations and technical R&D programs have attracted other aerospace and related businesses to these areas, and thus, serve as an economic driver for the regional economies in a broader sense. NASA also supports higher education and research conducted by universities and non-profits. NASA and the State of Louisiana are collaborating to build on existing public-private commercial partnerships for technical R&D at MAF, which will contribute to New Orleans' economic recovery. In addition, NASA Visitor Centers attract considerable tourism dollars, especially in the KSC, JSC, and MSFC regions.

NASA will continue to invest in other space operations at existing Centers and will distribute the new work across NASA's existing Centers, as discussed below and in Section 3. However, a detailed analysis of changes in employment and expenditures at each Center is limited by the fact that the new Constellation Program is at an early stage of development, with major procurements not yet awarded, and would be subject to adjustments and changes as requirements become better defined (NASA, 2007t).

EXHIBIT 4-1
Contribution of the Space Shuttle Program to Regional Economies in FY 2006



Output is compared to: U.S. Bureau of the Census, 2002 Economic Census – Total sales, shipments, receipts, or revenue for all establishments (2-digit NAICS codes).

Employment is compared to: U.S. Bureau of Economic Analysis, 2004 – Total wage and salary employment by place of work (jobs in the region).

Earnings are compared to: U.S. Bureau of Economic Analysis, 2004 – Total wage and salary disbursements by place of work.

Percentages should be considered only as illustrative.

4.1.2.2 NASA's Vision for Exploration Systems and Space Operations

The President's FY 2008 budget request for NASA shows a steadily increasing investment in exploration systems and space operations over the budget period of FY 2006 through FY 2012 (Exhibit 4-2).

This portion of NASA's budget covers the SSP, ISS, and Constellation Programs, as well as ongoing activities that support human space flight and advanced capabilities development. As the SSP transitions and retires, the Constellation Program plans to increase the pace of development and testing of the nation's new space vehicles, leading to an initial operating capability by 2015.

In addition, the SSP T&R will require some minimal level of spending after 2010 to retire the remaining SSP real and personal property.

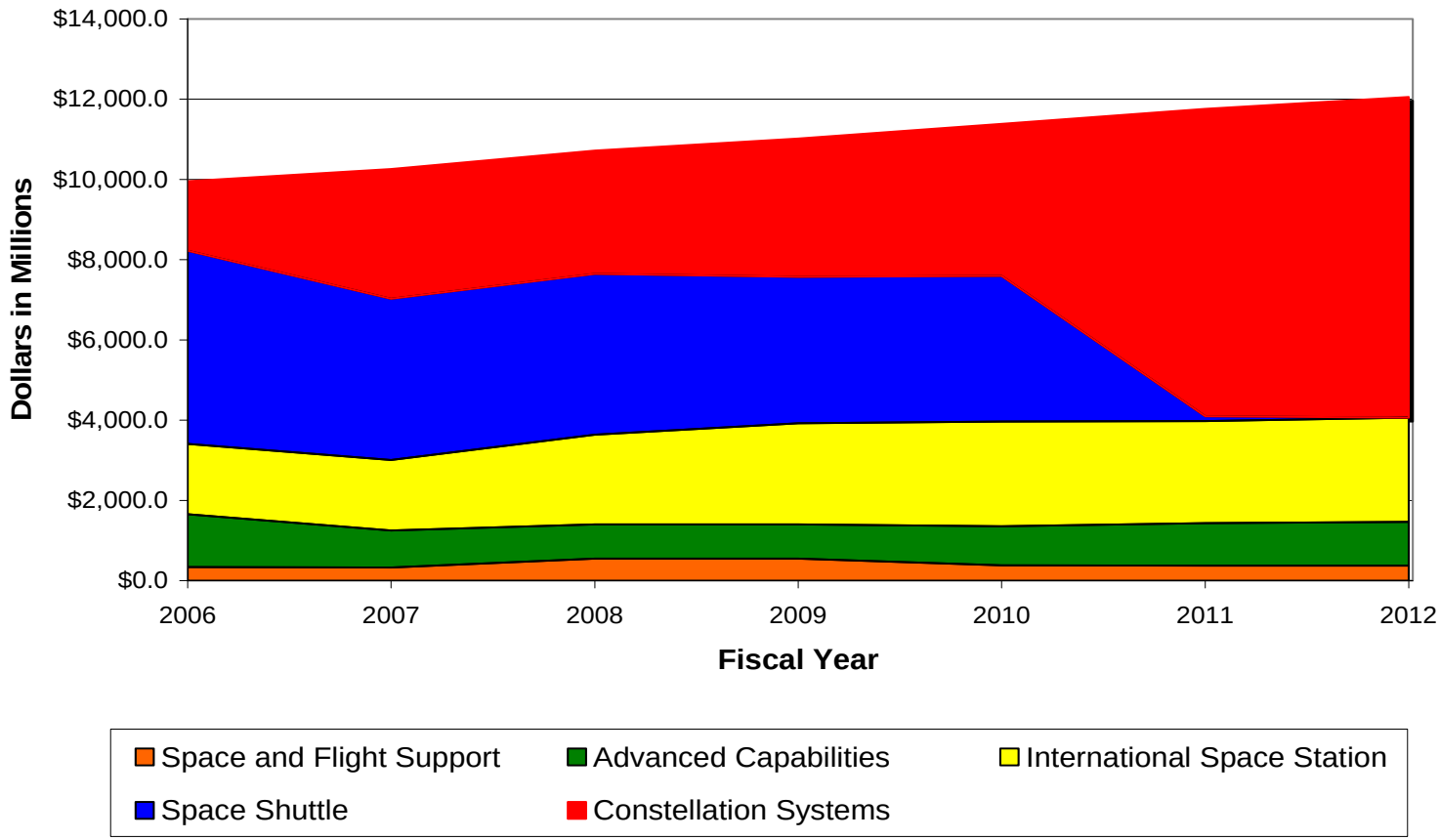
NASA has assigned its Centers responsibility for developing and implementing the proposed Constellation Program. This distribution of work across NASA's Centers reflects NASA's intention to productively use personnel, facilities, and resources from across the Agency to accomplish the Vision for Space Exploration. Assignments align the work to be performed with the capabilities of the individual NASA Centers. In addition to primary work assignments, the Centers would support additional Constellation program and project activities. The primary work assignments for each Center are described in Section 3.

Additional information is available in the Final Cx PEIS (NASA, 2007t).

Although these work assignments would result in budget and personnel allocations at the Centers and component installations, detailed meaningful estimates of these allocations and the associated socioeconomic impacts would not be available until after prime contracts are awarded for all of the program's major projects and procurements. However, it is fair to say that NASA's plans for implementing Constellation would tend to minimize workforce dislocations, compared to other action alternatives that initially were considered for that program. Even with the new programs, there will be an approximate 4-year gap between the termination of the SSP and the operation of the new vehicles, during which employment and expenditures would be affected.

NASA recognizes that a skilled NASA and contractor work force is an essential ingredient to successful implementation of the Constellation Program. NASA is examining a variety of personnel initiatives to effect a smooth transition to Constellation operations, and is committed to preserving the critical and unique capabilities provided by each NASA Center (NASA, 2007t).

EXHIBIT 4-2
NASA FY 2008 Budget Request for Exploration Systems and Space Operations



Source: NASA, 2007r. Highlights of NASA's FY 2008 Budget Request, and FY 2008 Budget Estimates.

4.1.2.3 Overall Effects of the Proposed Action

Under the Proposed Action alternative, NASA proposes to implement a centralized process for the disposition of the SSP real and personal property consisting of a coordinated series of actions. SSP real and personal property would be evaluated in accordance with NPR 8800.15, "Real Estate Management Program Implementation Manual," and NPR 4300.1, "NASA Personal Property Disposal Procedural Requirements," to select the best option for disposition.

Real Property. The major NASA Centers and GO/CO facilities will continue to operate under other programs besides the SSP. The disposition of selected buildings and smaller parcels of land within large and otherwise active facilities typically has minimal to no impact on socioeconomics outside the fence line.

The conveyance of real property to another NASA entity, or to new owners through a release to the GSA, whether the property is transferred to another federal agency, local government, or the private sector, would promote economic reuse of the property and generate employment and operational expenditures. If reuse were materially different from the existing use, additional NEPA documentation would be required. Mothballing the resource (that is, maintaining its functionality for reuse by NASA at a later time) would delay economic reuse.

Demolition temporarily would benefit the regional economy through the contracts for demolition and the hiring of the required workers. More importantly, demolition would allow another economically productive use of the land should another use be identified. If the land were to be transferred out of NASA's ownership, it could become available for conversion to a recreational or conservation use that could make a different type of social and economic contribution via tourism.

Personal Property. The disposition of personal property would have minimal to no discernable impact on the regional economies surrounding the NASA Centers where such property is located. One possible exception is for museums and visitor centers that receive Shuttle personal property, which would experience additional tourism, depending on the type and importance of the personal property newly available for display. Storage would delay or prevent this economic advantage, but is not likely to be of long duration for the Shuttle personal property most desirable to museums.

4.1.2.4 Overall Effects of No Action Alternative

Under the No Action alternative, NASA would not implement the proposed comprehensive and coordinated effort to disposition SSP property under a structured and centralized SSP process. The disposition of SSP property would instead occur on a Center-by-Center and item-by-item basis in the normal course of NASA's ongoing facility and program management. The No Action Alternative does not include continuing the SSP; it only pertains to the disposition of real and

personal property. Just as the specific methods for the disposition of real and personal property are likely to have minimal to no impact on socioeconomics, the selection of the No Action Alternative would have minimal to no effects.

Real Property. The major NASA Centers and GO/CO facilities would continue to operate under other programs besides the SSP. The disposition of selected buildings and smaller parcels of land within large and otherwise active facilities typically has minimal to no impact on socioeconomics outside the fence line.

The conveyance of real property to another NASA entity, or to new owners through a release to the GSA, whether the property is transferred to another federal agency, local government, or the private sector, would promote economic reuse of the property and generate employment and operational expenditures. If reuse were materially different from the existing use, additional NEPA documentation would be required. Mothballing the resource (that is, maintaining its functionality for reuse by NASA at a later time) would delay economic reuse.

Demolition temporarily would benefit the regional economy through the contracts for demolition and the hiring of the required workers. More importantly, demolition would allow another economically productive use of the land. If the land were to be transferred out of NASA's ownership, it could become available for conversion to a recreational or conservation use that could make a different type of social and economic contribution via tourism.

The environmental impact would be expected to be similar to that of the Proposed Action Alternative. However, if a centralized process were not used to disposition assets (i.e., Proposed Action), the property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid and hazardous waste that would require disposal could exceed landfill and less-than-90-day hazardous waste storage yard capacities at some Centers.

Personal Property. The disposition of personal property would have minimal to no discernable impact on the regional economies surrounding the NASA Centers where such property is located. One possible exception is for museums and visitor centers that receive Shuttle personal property, which would experience additional tourism, depending on the type and importance of the personal property newly available for display. Storage would delay or prevent that advantage, but is not likely to be of long duration for the Shuttle personal property most desirable to museums.

In addition, if a centralized process were not used to disposition assets (i.e., Proposed Action), the property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. Also, artifacts may not be properly identified and made

available to museums for display. In addition, the amount of solid and hazardous waste that would require disposal could exceed landfill and less-than-90-day hazardous waste storage yard capacities at some Centers.

4.2 Kennedy Space Center

Exhibit 4-3 outlines the major SSP real and personal property at KSC and the preliminary plans for their disposition.

EXHIBIT 4-3
Major SSP Real and Personal Property at KSC

SSP Asset/Facility	Description	Disposition
Vehicle Assembly Building (VAB) (Building K6-848)	The VAB is divided into three sections known as the transfer aisle, high-bay (HB), and low bay. The transfer aisle contains overhead cranes that are used to transfer Shuttle elements to the HBs. The VAB contains four HBs. Two of the HBs are equipped with extendable platforms used for Shuttle assembly and integration on the MLP. The other two HBs contain ET checkout cells. One of the HBs is used to safe a fully stacked vehicle in the event of a hurricane and one can accommodate Orbiter storage.	This facility would be used by the Constellation Program for vehicle processing.
Launch Control Center (Building LCC–K6-900)	The LCC is an automated Shuttle checkout and launch facility. The hardware and software used by the LCC is custom made for the SSP. The LCC uses three primary subsystems–the Shuttle Data Center; Checkout, Control, and Monitor Subsystem; and Record and Playback Subsystem.	This facility would be used by the Constellation Program for launch operations.
Orbiter Processing Facilities (OPF) HBs 1, 2, and 3, and SSME Facility (OPF HBs 1, 2, and 3) (Buildings K6-894, K6-696)	There are three OPFs at KSC that are responsible for Orbiter pre- and post-flight operations, as well as for routine maintenance activities for the TPS, SSME removal and installation, and hardware trouble shooting. NASA currently has three Orbiters that will need to be dispositioned that are maintained in the OPFs. The OPFs are equipped with HBs, as well as office annexes. The primary workload in the OPFs entails preparing the Orbiter for flight. OPF-3 houses the SSME Shop, where SSME maintenance activities are conducted. The OPFs have access platforms that surround the Orbiter and allow interior access. There are also zero-G counterweight devices for operating the Orbiter payload doors and a fixed crane system. A Launch Process System is used to check out the interface system between the Orbiter and the LCC. The payload operations conducted in the OPF entail down-mission payload removal, mission kit reconfiguration, and up-mission horizontal payload installation.	Constellation has identified the possibility of using one or more of the OPF HBs for processing of the Ares V upper stage.

EXHIBIT 4-3
Major SSP Real and Personal Property at KSC

SSP Asset/Facility	Description	Disposition
Thermal Protection System Facility (TPSF) (Building K6-794)	The TPSF houses offices, machine tools, processing equipment, and areas for storage. The operations conducted in the TPSF include producing Orbiter tiles from raw stock, thermal control system blankets, fibrous insulation blankets, and gap fillers and thermal barriers.	This property has not been identified for use by new programs.
Crawler Maintenance Facility (Building K6-743)	The Crawler Maintenance Facility is used to perform maintenance on the Crawler.	This facility would be used by the Constellation Program for maintenance of the Crawler-Transporters.
Launch Complex (LC) 39A and LC-39B (Buildings J8-1798 (A) and J7-337 (B))	The LC is a collection of facilities used for SSP launches.	This property would be used by the Constellation Program for launching space vehicles.
Hypergol Maintenance Facilities (HMF) (Buildings M7-1061, M7-961, and M7-1212), and HMF Support Building #2 (Building M7-1059)	The HMF consists of three buildings that process and store the hypergolic-fueled modules that make up the Orbiter's reaction control system, orbital maneuvering system, and auxiliary power units.	This property has not been identified for use by new programs.
Shuttle Landing Facility (SLF)	The SLF has a 15,000-foot-long runway that is equipped with navigational aids. The SLF also maintains and uses equipment to support Orbiter recovery, safing, processing, and towing operations.	Although NASA will no longer need this facility for Shuttle operations, it will continue to be used as an airfield to support cargo and equipment operations. The Mate-Demate Device will no longer be needed.
Operations Support Building (OSB) (Building K6-1096)	The OSBs are office buildings that include a technical documentation center, library, and photograph analysis area.	These properties would be used by future programs as administrative space.
Operations Support Building II (OSBII) (Building K6-1249)		
Component Refurbishment and Chemical Analysis (CRCA) (Building K6-1696)	The operational heart of the CRCA facility is a large clean-room area where instrumentation and pneumatic equipment of all types are serviced.	This property would be used by the Constellation Program for laboratory and cleaning operations.
Logistics Facility (Building K7-1547)	The Logistics Facility houses 190,000 SSP hardware parts and operates a state-of-the-art parts retrieval system, which includes automated handling equipment to find and retrieve specific SSP parts.	This property would be used by the Constellation Program for warehousing.
Rotation, Processing and Surge Facility (RPSF)	The RPSF consists of four buildings located north of the VAB. This facility is used to offload SRM segments from railcars and to build up the aft booster for the SRBs. The building contains 200-ton overhead bridge cranes, two surge buildings for the storage of processed SRM components, and a support building.	This property would be used by the Constellation Program for SRM handling.

EXHIBIT 4-3
Major SSP Real and Personal Property at KSC

SSP Asset/Facility	Description	Disposition
Hangar AF	Hangar AF is located on property owned by the USAF; however, NASA is responsible for the building and the associated processes. The operations conducted at Hangar AF are associated with recovery of the SRBs after a Shuttle launch. There are two ships with licensed crews and certified divers that recover the SRBs and associated hardware (Frustum and parachutes) from the ocean and perform an initial anomaly check. The SRBs and associated hardware are then towed to Hangar AF for disassembly operations. The SRBs are washed at Hangar AF and then disassembled by performing ordnance safing and removal operations, RSRM disassembly, forward and aft skirt disassembly, and TVC safing. SRB refurbishment activities also take place at Hangar AF, including TPS and substrate finish removal; and manual and robotic grit, hydro, and bead blasting operations. Once the SRB surfaces have been refurbished by blasting operations, an alodine and primer top coat application is applied to the parts, and they are sent to the ARF for reuse.	This property would be used by the Constellation Program for SRB recovery operations.
Hangar N	Hangar N is located on property owned by the USAF; however, NASA is responsible for the building and the associated processes. The ongoing processes at Hangar N include quality control tests primarily associated with checking SRB component welds, along with other Shuttle-related items. The hangar is equipped primarily with X-ray, infrared, and ultrasound equipment. The operations in the hangar also include dye penetrant, magnetic particle, eddy current, and thermography testing to evaluate fractures and welding anomalies in the SRB components. A bay located in the hangar is capable of performing tensile tests. There also is a robot that is used to scan SRB components to check for fractures in metals and flaws in welds. The facility has made great strides in moving to digital images rather than film images.	This property would be used by the Constellation Program for SRB checkout.

EXHIBIT 4-3
Major SSP Real and Personal Property at KSC

SSP Asset/Facility	Description	Disposition
Hangar S Annex	Hangar S is a Shuttle operations training facility.	This property has not been identified for use by new programs.
SSP SRB ARF	The assembly and maintenance operations for the SRB aft skirt, forward skirt, frustrum, and nose cap component assembly and TPS applications are performed in the ARF. In addition, the aft assembly acceptance checkout for the avionics and the aft skirt thrust vector control system hot fire testing are performed at the Aft Skirt Test Facility. The forward assembly acceptance checkout for avionics and range safety, as well as the ordinance installation and checkout, is conducted in the ARF. The parachutes that deploy, once the SRMs have spent their fuel upon launching the Shuttle, are packed in the ARF.	These properties would be used by the Constellation Program for SRB assembly and checkout.
Parachute Refurbishment Facility	The Parachute Refurbishment Facility washes, dries, and repacks the SRB main, drogue, and pilot chutes, as well as the Orbiter chutes. The water used to wash the parachutes is filtered and reused.	This property would be used by the Constellation Program for SRB parachute refurbishment.
Hangar M–Annex	Hangar M is located on USAF property, but NASA is responsible for the buildings and ongoing processes.	Hangar M would be used by the Constellation Program.
Mobile Launch Platforms (MLP) and Crawler-Transporter	There are three MLPs at KSC, which provide GSE for Shuttle checkout, servicing, and launch. They are two-story transportable launch bases for the Shuttle stack. The exterior of the MLPs provide for an SRB hold-down post, Orbiter tail service masts, and sound suppression water nozzles for deluge water. The MLPs are transported from the VAB to the launch pad by the Crawler-Transporter. The Crawler-Transporter weighs 6 million pounds	One MLP would be used by the Constellation Program for vehicle stacking, the remaining two MLP have no use identified. Both Crawler-Transporters would be used by the Constellation Program for transporting launch vehicles.
Transoceanic Abort Landing Sites (TALs)	NASA has various TAL sites and ELSs that are used in the case of an emergency during the Space Shuttle's accent into orbit. The TAL sites are located in Eastern Europe at Moron AFB; in Spain at Zaragoza AFB; and in Istres-le-Tube AFB, France.	This asset has not been identified for use by new programs.
Orbiters	The Orbiters are housed at KSC	The Orbiters will not be used by new programs.
Canister Rotation Facility (CRF)	The CRF was built in 1993 in the Industrial Area to handle the challenges of canister rotation. The 142-foot HB includes a 100-ton bridge crane and other specialized equipment required for lifting.	This asset has not been identified for use by new programs.

EXHIBIT 4-3
Major SSP Real and Personal Property at KSC

SSP Asset/Facility	Description	Disposition

Notes:
AFB = Air Force Base
ARF = Assembly and Refurbishment Facility
CRCA = Component Refurbishment and Chemical Analysis
CRF = Canister Rotation Facility
ELS = Emergency Landing Site
ET = External tank
ft = Feet
ft^2 = Square foot
GSE = Ground support equipment
HB = High bay
HMF = Hypergol Maintenance Facilities
KSC = Kennedy Space Center
kW = Kilowatt
LC = Launch complex
LCC = Launch control center
LH2 = Liquid hydrogen
MAF = Michoud Assembly Facility
MLP = Mobile launch platform
MOA = Memorandum of Agreement
NASA = National Aeronautics and Space Administration
OPF = Orbiter Processing Facilities
OSB = Operations Support Building
OSBII = Operations Support Building II
RPSF = Rotation, Processing, and Surge Facility
SAF = U.S. Air Force
SLF = Shuttle Landing Facility
SRB = Solid rocket booster
SRM = Solid rocket motor
SSME = Space Shuttle Main Engine
SSP = Space Shuttle Program
TAL = Transoceanic Abort Landing
TPS = Thermal protection system
TPSF = Thermal Protection System Facility
TVC = Thrust Vector Control
VAB = Vehicle Assembly Building

4.2.1 Environmental Consequences for KSC

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at KSC are summarized in Exhibit 4-4.

EXHIBIT 4-4
Summary of Environmental Consequences for KSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at KSC during the demolition or disposition operations.	Minimal to No Impact

EXHIBIT 4-4
Summary of Environmental Consequences for KSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Biological Resources	No Action and Proposed Action	**Vegetation**. Most of NASA's operational areas at KSC are on developed landscapes and are devoid of natural vegetation. Natural vegetation may spread into the developed areas once the property has been disposed, thereby increasing the distribution of natural vegetation in the area. NASA operational areas that currently support natural vegetation would remain undisturbed with the disposition of NASA property. The demolition of NASA property on KSC would have a minimal impact on vegetation and could have the potential to increase natural vegetation on the installation.	Minimal Impact
		Wildlife. Increased human activity and noise due to the disposition and demolition of property temporarily could increase the disturbance of wildlife. However, wildlife probably would return to the area after demolition was complete.	Minimal Impact
		Protected Species. Disposition of real property on KSC would have minimal to no impacts on protected species and habitats because NASA would continue to use protective measures for the habitat of these species.	Minimal Impact
Cultural Resources	No Action and Proposed Action	**Historic Resources.** As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure [as described in Section 2.1]. Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	Moderate Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling**. If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact
		Waste Management. If the facilities were reutilized, minimal impacts on the waste management procedures would be expected because KSC would be reutilized by a similar NASA program. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact

EXHIBIT 4-4
Summary of Environmental Consequences for KSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA and CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact
	No Action	**Storage and Handling**. The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA and CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification	Minimal Impact

EXHIBIT 4-4
Summary of Environmental Consequences for KSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		determined. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at KSC could include contamination or damage resulting from major spills or accidents. Buildings at KSC could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard, to ensure worker safety.	Minimal Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at KSC could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Land Use	No Action and Proposed Action	If the existing facilities were destroyed or released to GSA, new facilities potentially could be constructed in their place. It is anticipated that they would be compatible with the existing land use categories.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at KSC during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support the current activities at KSC. It is anticipated that a large percentage of the SSP property at KSC would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on	Minimal Impact

EXHIBIT 4-4
Summary of Environmental Consequences for KSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		the site infrastructure would result. Any impacts would result from decreased use.	
Socioeconomics	No Action and Proposed Action	The specific disposition methods selected for SSP real and personal property are likely to have minimal to no impact on the population, regional economy, and community services in the region surrounding KSC. KSC will continue to provide testing and launch services for other NASA programs. It is expected that most of the buildings at KSC that are used by the SSP would be reused for other NASA projects, with the same or similar functions. A few could be transferred, demolished, or reused. It is not anticipated that demolition or conveyance of individual buildings (and land) would affect the socioeconomic resources in the surrounding area appreciably.	Minimal to No Impact
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use. Non-salvageable solid waste would be disposed in accordance with the applicable health and safety and environmental regulations, either at the Schwartz Road Class III Landfill or at an appropriate offsite, permitted disposal facility, depending on the waste classification.	Minimal Impact
	No Action	The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-4
Summary of Environmental Consequences for KSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase the traffic on the surrounding streets in the study area.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = *Code of Federal Regulations*
GSA = General Services Administration
KSC = Kennedy Space Center
LBP = Lead-based paint
MAF = Michoud Assembly Facility
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.3 Johnson Space Center

Many of the operations conducted at JSC contribute to the SSP. Overviews of each directorate and its responsibilities are provided in Exhibit 4-5, along with descriptions of the key buildings that support the SSP and the preliminary plans for their disposition.

EXHIBIT 4-5
Major SSP Real and Personal Property at JSC

SSP Asset/Facility	Description	Disposition
Engineering Directorate–Government Furnished Equipment (GFE) Flight Systems Design and Development Laboratories	The GFE Flight Systems Design and Development Laboratories support the design, development, integration, test, and sustaining engineering of GFE hardware and software flight systems. The primary laboratories supported include the Wireless Instrumentation Development Laboratory and the Crew Health Care System Development Laboratory.	This property has not been identified for use by new programs.
Engineering Directorate–Flight Systems Integration and Test Facilities	The Flight Systems and Integration and Test Facilities support the integration of flight hardware and software systems. In addition, the functional and performance testing of flight systems is conducted in the GN&C Rapid Development Lab, Pyrotechnics Lab, Electrical Power Systems Lab, and the various pressure chambers.	The ISS program may continue to use SSP-developed space suits or transition to the Russian-developed suits in the future. NASA will evaluate future disposition options for this property.

EXHIBIT 4-5
Major SSP Real and Personal Property at JSC

SSP Asset/Facility	Description	Disposition
Engineering Directorate–End-to-End Integrated System Test Facilities	The End-to-End Integrated System Test Facilities provide high-fidelity, end-to-end, integrated hardware and software systems' testing and evaluation of critical functions and performance.	These facilities are reconfigurable and may include flight hardware and software systems, ground-based systems and facilities, and functional simulations. These facilities include the Electronic Systems Test Lab, Orion Avionics Integration Lab, and a Shuttle cabin with an airlock that is unique to the SSP. NASA will evaluate future disposition options for this property.
Engineering Directorate–Environmental Test Facilities (Building 32)	The Environmental Test Facilities provide high-fidelity, simulated fight environments for engineering unit testing and qualification and acceptance testing of flight hardware systems and spacecraft. The facilities include vacuum chambers, thermal and solar human-rated test facility, and a vibration and acoustic test facility.	The Constellation Program would use this for crewed thermal vacuum testing and altitude chambers.
Engineering Directorate–Arc Jet Test Facility (Building 222)	The Arc Jet Test Facility is used to simulate the conditions on a spacecraft during reentry.	Currently, it is anticipated that future space programs will use the Environmental Test Facilities. NASA will evaluate future disposition options for this property.
Engineering Directorate–High-fidelity Simulation and Analysis Facilities	The High-fidelity Simulation and Analysis Facilities provide high-fidelity, multi-system simulation facilities for engineering evaluations, operations procedures development, and crew training. These facilities include the following: • Aerosciences Laboratory • Systems Engineering Simulator • Six Degrees of Freedom Test System • Virtual Reality Laboratory	This property has not been identified for use by new programs.
Engineering Directorate–Long-duration, Integrated Simulation Facilities	The Long-duration, Integrated Simulation Facilities are high-fidelity, multi-system simulation facilities for long-duration testing of integrated systems, including advanced technology hardware and software systems, integrated real-time simulation systems, crew accommodations, and crew. These facilities include a 20-foot, human-rated chamber advanced life support and long-duration testing chambers.	These systems would be used to support lunar programs associated with long-duration missions and are expected to be used by other programs during the Shuttle transition activities. NASA will evaluate future disposition options for this property. The following locations in the facilities have been identified to support the Constellation Program: • 3rd floor – component and small unit bench top testing

EXHIBIT 4-5
Major SSP Real and Personal Property at JSC

SSP Asset/Facility	Description	Disposition
		• 8-ft chamber – unscrewed integrated EVA life support system operational vacuum testing. • 11-ft chamber – Crewed EVA system vacuum testing • Thermal Vacuum glovebox – thermal vacuum testing of gloves and small tools.
Engineering Directorate–Advanced Technology Development Laboratories	The Advanced Technology Development Laboratories support the design, development integration, and testing of advanced technology hardware and software systems. These test facilities include the following: • Advanced Portable Life Support System Development Laboratory • Regenerative Wastewater Processing Systems Development Laboratory • Wireless and Radio Frequency Identification Laboratory • Nanotube Development Laboratory	This property has not been identified for use by new programs.
Engineering Directorate–General Infrastructure Support Test Facilities	The General Infrastructure Support Test Facilities provide the infrastructure support services required by multiple Engineering Directorate core competencies and facilities, including manufacturing, integration and assembly, clean rooms, NDE, calibration and metrology, bonded storage, and gas and chemical analyses. These facilities include manufacturing processes, materials evaluation laboratories, and avionics development laboratories.	This property has not been identified for use by new programs.
Mission Operations Directorate–Mission Control Center and Integrated Planning System	The Mission Control Center and Integrated Planning System has the capability to provide ISS and SSP with real-time command and control operation to train and certify flight crews and controllers.	The cost to operate these facilities has been shared between ISS and SSP. Current plans are that the Constellation Program would provide the funding to operate these facilities, with no resulting gap due to the SSP retirement.

EXHIBIT 4-5
Major SSP Real and Personal Property at JSC

SSP Asset/Facility	Description	Disposition
Mission Operations Directorate–Training and Simulator Facilities	Three Shuttle simulators (Building 5), two fixed-based and one motion-based, are maintained by this directorate. Each simulator consists of numerous computers, workstations, special-purpose interface devices, visual image processing, cockpit mockups, and hydraulic motion systems. Fight operation trainers consist of single system trainers (three), flight controller trainers (three), and a payload trainer in Building 4 and dynamics skills trainers (seven) in Building 16. The operations that are conducted include the check out of special-purposed interface devices between the systems in the Space Shuttle. In addition, Mission Control Center workstations are developed and tested in this facility. Approximately 4,500 pieces of equipment were used to support these operations, along with about 13,000 spare parts.	The shuttle simulators would not be needed for future programs and would be dispositioned accordingly. The simulators have been identified as potential historical artifacts or landmarks. NASA would evaluate future disposition options for this property. Some of the equipment that supports Flight Operation Trainers would be used by the ISS operations, but most would be dispositioned upon the retirement of the SSP. There is also a simulator with a 40-foot dome used for astronaut training to dock the Shuttle with the ISS. NASA will evaluate future disposition options for this property. This directorate has developed an equipment replacement program that incorporates a phase-down leading up to transition. However, some of the spare parts stock is being increased so that new equipment would not have to be purchased for Shuttle fly-out, because replacement parts for existing equipment may not be available. Property that is shared between the SSP and ISS would become ISS property when the SSP retires. It is anticipated that Orion would use these facilities in the future.
Mission Operations Directorate–Space Vehicle Mockup Facilities.	This facility is located in Building 9 and has an inventory that is unique to the SSP. The equipment includes a full fuselage trainer, two crew compartment trainers, a crew escape system trainer, and TPS inspection and repair hardware. These trainers are all needed through SSP fly-out. Some of the platforms that support the trainers may be used by other programs. The Shuttle-specific portions of the trainers have been identified as potential historical artifacts.	The Shuttle-specific portions of the trainers have been identified as potential historical artifacts or landmarks. NASA would evaluate future disposition options for this property.

EXHIBIT 4-5
Major SSP Real and Personal Property at JSC

SSP Asset/Facility	Description	Disposition
Mission Operations Directorate–Software Production Facility	The Software Production Facility is a large computational facility consisting of an IBM Z900 mainframe and an IBM Shark data access storage device. The facility also contains tape silos and virtual tape systems. There are seven flight equipment interface device boxes that are unique to the SSP and various input and output and security devices.	These facilities would be needed through SSP fly-out, and none have been identified as being needed for future programs or as being of historical significance. NASA would evaluate future disposition options for this property.
Photographic Technology Laboratory (Building 8)	The Photographic Technology Laboratory handles approximately 100 rolls of film from each mission, along with about 1,000 digital images that are downloaded during the mission activities. This facility mixes its chemicals to develop photographs from the rolls of film and the digital images that will be stored in the archives.	The SSP has directly funded the operations in the laboratory. However, the Constellation Program, as well as the ISS, is beginning to fund the operations in the laboratory. The storage requirement for archiving the digital photographs is the largest issue facing the SSP transition activities from the operations in the laboratory. NASA will evaluate future disposition options for this property.
Technical Services Shop and Systems Integration Facility (Buildings 10 and 9S)	The Technical Services Shop (Building 10) has an extensive fabrication shop for metal, wood, and plastic to create up to full-scale spacecraft prototypes. The tooling is standard machine shop tooling that is not specific to the Shuttle. However, there is a Shuttle tile repair shop that has operations specific to the SSP. The Systems Integration Facility (Building 9S) houses technical and engineering personnel and provides for the construction of wood, plastic, and metal spacecraft hardware items. This building also has paint and model shops. There is a plating shop in this building used to perform plating operations for developing test models.	The tooling in the Technical Services Shop is standard machine shop tooling that is not specific to the Shuttle. However, there is a Shuttle tile repair shop that has operations specific to the SSP. NASA will evaluate future disposition options for this property. The Systems Integration Facility will have flight hardware associated with the SSP that will need to be excessed. However, the chemicals in use and the operations will not change, except that some “environmentally friendly” chemical replacements may be used in the future. It is anticipated that some of the work currently being implemented at Palmdale will be transferred to this area of JSC.

EXHIBIT 4-5
Major SSP Real and Personal Property at JSC

SSP Asset/Facility	Description	Disposition
Energy Systems Test Area (Building 357)	The Energy Systems Test Area performs tests on the electrical systems of spacecraft such as the fuel cells and solar cells, and is responsible for the pyrotechnic charges required for all aspects of spaceflight. This facility is capable of testing fuel cells in vacuum chambers under hot and cold conditions, along with the associated lithium batteries. The pyrotechnic testing includes age testing of the charges and space flight certification testing. Approximately 100 explosive devices are used for each flight. There are 35 explosive devices that are used in the event of an emergency; these devices can be used for other programs.	When the SSP retires, the contractors (USA) at KSC will be responsible for removing the explosive devices from the Orbiter as part of the safing process. The excess pyrotechnics are offered to the Harris County Bomb Squad for training purposes at its facilities. This facility was used to test hypergolics; however, because of encroachment from offsite development, this testing is now conducted at WSTF. This facility currently performs testing for the ISS, SSP, and other developmental projects. It is anticipated that future space flight programs would use this facility in the near future and that staff will be added to accommodate the increased workload. NASA will evaluate future disposition options for this property.

Notes:
°F = Degrees Fahrenheit
GFE = Government Furnished Equipment
GN&C = Guidance, Navigation, and Control
HCFC = Hydrochlorofluorocarbon
ISS = International Space Station
JSC = Johnson Space Center
NASA = National Aeronautics and Space Administration
NDE = Non-destructive evaluation
SSP = Space Shuttle Program
TPS = Thermal protection system
USA = United Space Alliance
WSTF = White Sands Test Facility

4.3.1 Environmental Consequences for JSC

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at JSC are summarized in Exhibit 4-6.

EXHIBIT 4-6
Summary of Environmental Consequences for JSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at JSC during the demolition or disposition operations.	Minimal to No Impact
Biological Resources	No Action and Proposed Action	**Wetlands**. No facilities on JSC are located in wetlands.	No Impact
		Floodplains. No facilities on JSC are located in floodplains.	No Impact
Cultural Resources	No Action and Proposed Action	**Archaeological Resources.** There would be minimal to no impact on archaeological resources under the Proposed Action and No Action Alternative if any sites are identified in the future.	No impact
		Historic Resources. As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure [as described in Section 2.1]. Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	Moderate Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling.** If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact

EXHIBIT 4-6
Summary of Environmental Consequences for JSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less-than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/CERCLA.	Minimal Impact

EXHIBIT 4-6
Summary of Environmental Consequences for JSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined. The property disposal process may become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	Minimal Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at JSC could include contamination or damage resulting from major spills or accidents. Buildings at JSC could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn, depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at JSC could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for removal of any designated facilities would vary in relation to the type of structure, its location, materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Land Use	No Action and Proposed Action	If the existing facilities were destroyed or released to GSA, new facilities potentially could be constructed in their place.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at JSC during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact

EXHIBIT 4-6
Summary of Environmental Consequences for JSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at JSC. It is anticipated that most of the SSP property at JSC would be transferred to other NASA programs upon the disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact
Socioeconomics	No Action and Proposed Action	The disposition of selected buildings and smaller parcels of land in an active facility, such as JSC, typically have minimal to no impact on socioeconomics outside the fence line. It is likely that many of the buildings at JSC that have been used by the SSP would be reused for these projects, with similar functions. Those that are unique to the SSP could be transferred for a different use or be demolished and the land reused. Otherwise, it is anticipated that demolition or conveyance of individual buildings (and land) would have minimal to no impact on socioeconomic resources in the surrounding area. The disposition of personal property would have minimal to no discernable impact on the regional economy surrounding JSC. The transfer of historic artifacts indirectly could benefit the museums (outside the region), Space Center Houston at JSC, or other museums by attracting visitors.	Minimal to No Impact
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use. Non-salvageable solid waste would be disposed in accordance with all applicable health and safety and environmental regulations at JSC, where nonhazardous refuse would be taken to roll-off boxes at the Central Waste Collection Facility and shipped to the City of Houston landfill.	Minimal Impact
	No Action	The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-6
Summary of Environmental Consequences for JSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase the traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = *Code of Federal Regulations*
EPA = National Environmental Policy Act
GSA = General Services Administration
JSC = Johnson Space Center
LBP = Lead-based paint
NASA = National Aeronautics and Space Administration
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.4 Ellington Field

Exhibit 4-7 outlines the SSP property at EF.

EXHIBIT 4-7
Ellington Field SSP Property

SSP Asset or Facility	Description	Disposition
Three Aircraft Maintenance Hangars	EF maintains the following facilities in support of aircraft maintenance operations: - Wash rack that also is used as a hangar for the Guppy - Aircraft simulator and test facility for avionics - Maintenance Shops - Engine Testing Facility - Paint Shop - Tire Shop - X-Ray Facility	This property has not been identified for use by new programs.
T-38s	These aircraft are for astronaut transport between NASA facilities and for training purposes.	This property has not been identified for use by new programs.

EXHIBIT 4-7
Ellington Field SSP Property

SSP Asset or Facility	Description	Disposition
Gulfstream 2	The Gulfstream 2 is used as an STA and the left side of the cockpit has been modified to simulate the flight controls of the Space Shuttle. In addition, other modifications have been made to the aircraft to simulate the flight characteristics of the Space Shuttle.	This property has not been identified for use by new programs.
Gulfstream 3	The Gulfstream 3 aircraft supports the transport of management teams and is capable of flying overseas, if necessary, to transport astronauts.	This property has not been identified for use by new programs.
C-9	The C-9 aircraft is used to support microgravity experiments and training for the astronauts. The aircraft will reach about 60,000 ft and will fly a parabolic pattern to simulate zero gravity.	This property has not been identified for use by new programs.
Guppy	The Guppy primarily is used by the ISS project to transport modules and other large components between NASA Centers.	This property has not been identified for use by new programs.
B-57	The B-57 supports high-altitude research programs and is able to test optical equipment and to collect air samples.	This property has not been identified for use by new programs.

Notes:
EF = Ellington Field
ft = Feet
ISS = International Space Station
NASA = National Aeronautics and Space Administration
STA = Shuttle Training Aircraft

4.4.1 Environmental Consequences for Ellington Field

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at EF are summarized in Exhibit 4-8.

EXHIBIT 4-8
Summary of Environmental Consequences for EF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at EF during the demolition or disposition operations.	Minimal to No Impact

EXHIBIT 4-8
Summary of Environmental Consequences for EF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling.** If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact
		Contaminated Areas. Minimal to no impacts would be expected because there are no reported contaminated SSP areas.	Minimal to No Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact

EXHIBIT 4-8
Summary of Environmental Consequences for EF

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined. The property disposal process may become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	Minimal Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at EF could include contamination or damage resulting from major spills or accidents. Buildings at EF could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at EF could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Land Use	No Action and Proposed Action	If the existing facilities were destroyed or released to GSA, new facilities potentially could be constructed in their place. It is anticipated that they would be compatible with the existing land use categories.	Minimal Impact

EXHIBIT 4-8
Summary of Environmental Consequences for EF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at EF during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at EF. It is anticipated that most of the SSP property at EF would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use. Non-salvageable solid waste would be disposed in accordance with all applicable health and safety and environmental regulations at EF, where nonhazardous refuse would be taken to roll-off boxes at the Central Waste Collection Facility and shipped to the City of Houston landfill.	Minimal Impact
	No Action	The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-8
Summary of Environmental Consequences for EF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
EF = Ellington Field
GSA = General Services Administration
LBP = Lead-based paint
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.5 El Paso Forward Operation Location

Exhibit 4-9 outlines the major SSP property at EPFOL.

EXHIBIT 4-9
Major SSP Property at EPFOL

SSP Asset/Facility	Description	Disposition
Hangar 1 (STA hangar)	Operations in Hangar 1 include the following: • Astronaut training: Providing aircraft to train astronauts for Shuttle missions • Aircraft turn-around: Providing oversight to refueling operations and performing flight checks • Unscheduled maintenance: Providing maintenance for any items identified during flight checks or inspections. Such maintenance could include engine or thrust reverser replacement. • Aircraft washing: Approximately two airplanes are washed each month.	This property has not been identified for use by new programs.

EXHIBIT 4-9
Major SSP Property at EPFOL

SSP Asset/Facility	Description	Disposition
Hangar 2 (T-38 Hangar)	Operations in Hangar 2 include the following: • Handling the corrosion prevention program: Providing corrosion prevention treatment to T-38 aircraft. This treatment involves physical grinding and the application of primers, paints, and sealants in a paint booth. • Performing structural maintenance: Providing structural maintenance on aircraft on a non-routine basis. • Performing avionics system upgrade operations.	This property has not been identified for use by new programs

Note:
STA = Shuttle Training Aircraft

4.5.1 Environmental Consequences for EPFOL

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at EPFOL are summarized in Exhibit 4-10.

EXHIBIT 4-10
Summary of Environmental Consequences for EPFOL

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at EPFOL during the demolition or disposition operations.	Minimal to No Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling.** If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact

EXHIBIT 4-10
Summary of Environmental Consequences for EPFOL

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-10
Summary of Environmental Consequences for EPFOL

Resource Area	Alternative	Overall Effects of Alternative	Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at EPFOL could include contamination or damage resulting from major spills or accidents. Buildings at JSC could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at EPFOL could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for the removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at EPFOL during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at EPFOL. It is anticipated that most of the SSP property at EPFOL would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact

EXHIBIT 4-10
Summary of Environmental Consequences for EPFOL

Resource Area	Alternative	Overall Effects of Alternative	Impact
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use. Non-salvageable solid waste would be disposed in accordance with all applicable health and safety and environmental regulations.	Minimal Impact
	No Action	The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
EPFOL = El Paso Forward Operation Location
GSA = General Services Administration
LBP = Lead-based paint
MAF = Michoud Assembly Facility
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.6 Stennis Space Center

Exhibit 4-11 outlines the major SSP property at SSC.

EXHIBIT 4-11
Major SSP Property at SSC

SSP Asset/Facility	Description	Disposition
Test Stand A-1	Test stands A-1 and A-2 have been used since 1975 to test the SSME.	Test stand A-1 is scheduled to transfer to the Constellation Program.
Test Stand A-2	Test stand A-2 has been used for SSME testing.	Test Stand A-2 also is proposed for Constellation use after 2010.
B1/B2 Test Stand	SSMEs are not tested at the B1/B2 Test Stand.	The Constellation Program will use this asset.
E-Complex	The E-Complex has three test stands.	The Constellation Program will use this asset.
Test Control Centers	Supports operation of the test stands.	NASA will evaluate future disposition options for this property.
Data Acquisition Facilities	Supports operation of the test stands.	NASA will evaluate future disposition options for this property.
Cryogenic Propellant Facility	Supports operation of the test stands.	NASA will evaluate future disposition options for this property.
Electrical Power-Generating Plant	Supports operation of the test stands.	NASA will evaluate future disposition options for this property.
Navigation Canal and Locks	NASA maintains a 7-mile manmade navigation canal and locks system for the transfer of liquid gases in supports operation of the test stands. SSC has nine barges used to transfer liquid gasses. Three of the barges are used to transfer hydrogen and six are used to transfer oxygen.	Currently, it is anticipated that the nine barges would be transferred to the Constellation Program.
Water Storage Reservoir	NASA maintains a 66-million-gallon water storage reservoir for industrial and deluge water consumption.	NASA will evaluate future disposition options for this property.

Notes:
KSC = Kennedy Space Center
NASA = National Aeronautics and Space Administration
PWR = Pratt-Whitney Rocketdyne
SSC = Stennis Space Center
SSME = Space Shuttle main engine
SSP = Space Shuttle Program

4.6.1 Environmental Consequences Summary for SSC

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at SSC are summarized in Exhibit 4-12.

EXHIBIT 4-12
Summary of Environmental Consequences for SSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at SSC during the demolition or disposition operations.	Minimal to No Impact
Biological Resources	No Action and Proposed Action	**Vegetation.** Facilities on SSC are located in developed portions of the Fee Area, and little or no natural vegetation would be disturbed by the implementation of the Proposed Action and the No Action alternative.	Minimal Impact
		Wetlands. No facilities on SSC are located in wetlands.	No Impact
		Floodplains. No facilities on SSC are located in floodplains.	No Impact
		Wildlife. Facilities on SSC are located in developed portions of the Fee Area, and these developed areas do not provide quality habitat for the wildlife. Therefore, minimal impact of the Proposed Action and the No Action alternative on wildlife would be anticipated because the disposition of the property would occur in developed portions of the Fee Area.	Minimal Impact
		Protected Species. Facilities on SSC are located in developed portions of the Fee Area, and these developed areas do not provide quality habitat for wildlife. Therefore, minimal impact of the Proposed Action and the No Action alternative on protected species would be anticipated because the disposition of the property would occur in the developed portions of the Fee Area.	Minimal Impact
Cultural Resources	No Action and Proposed Action	**Archaeological Resources.** There would be minimal to no impact on archaeological resources under the Proposed Action and No Action Alternatives because no ground-disturbing activities are anticipated.	Minimal to No Impact

EXHIBIT 4-12
Summary of Environmental Consequences for SSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Historic Resources. As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure (as described in Section 2.1). Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	Moderate Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling.** If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it could be possible that new contaminated areas might be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact

EXHIBIT 4-12
Summary of Environmental Consequences for SSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-12
Summary of Environmental Consequences for SSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at SSC could include contamination or damage resulting from major spills or accidents. Buildings at SSC could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at SSC could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for the removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Land Use	No Action and Proposed Action	If the existing facilities were destroyed or released to GSA, new facilities potentially could be constructed in their place. It is anticipated that they would be compatible with the existing land use categories.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at SSC during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact

EXHIBIT 4-12
Summary of Environmental Consequences for SSC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at SSC. It is anticipated that most of the SSP property at SSC would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use.	Minimal Impact
	No Action	The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase the traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
GSA = General Services Administration
LBP = Lead-based paint
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSC = Stennis Space Center
SSP = Space Shuttle Program
UST = Underground storage tank

4.7 Michoud Assembly Facility

Exhibit 4-13 outlines the major property at MAF.

EXHIBIT 4-13
Major Property at MAF

SSP Asset/Facility	Description	Disposition
41 buildings	MAF operates 41 buildings associated with machining, welding, and cleaning aluminum and aluminum-lithium panels and various parts, and 92 major tooling and unique equipment workstations to produce the ET's three major components.	Several facilities at MAF have been identified for use by the Constellation Program, including, but not limited to, the following: Manufacturing Building (103) – Ares Upper Stage structural welding, avionics, and common bulkhead assembly. Vertical Assembly Building (Building 110) – Ares Upper Stage and Orion Crew Module, Service Module, back shell, and heat shield fabrication. Acceptance and Preparation Building (Building 420) – Ares Upper Stage. Pneumatic Test Facility and Control Building (Buildings 451 and 452) – Pressure and dynamic test area. High Bay Addition (Building 114) – Ares I Upper Stage and Ares V Core Stage assembly and foam application.

Notes:
ET = External Tank
MAF = Michoud Assembly Facility

4.7.1 Environmental Consequences Summary for MAF

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at MAF are summarized in Exhibit 4-14.

EXHIBIT 4-14
Summary of Environmental Consequences for MAF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at MAF during the demolition or disposition operations.	Minimal to No Impact

EXHIBIT 4-14
Summary of Environmental Consequences for MAF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Biological Resources	No Action and Proposed Action	**Vegetation**. MAF has been heavily altered; the undeveloped areas are regularly maintained and little or no natural vegetation would be disturbed.	Minimal Impact
		Wetlands. No facilities on MAF are located in wetlands.	No Impact
		Floodplains. No existing development on MAF is located within the floodplains	No Impact
		Wildlife. Increased human activity and noise due to the disposition and demolition of real property temporarily could increase disturbance of wildlife.	Minimal Impact
		Protected Species. No protected species rely on the SSP NASA properties for habitat, and it is unlikely that protected species are present on MAF.	No Impact
Cultural Resources	No Action and Proposed Action	**Archaeological Resources.** There would be minimal to no impact on archaeological resources under the Proposed Action and No Action Alternatives because no ground-disturbing activities are anticipated.	Minimal to No Impact
		Historic Resources. As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure (as described in Section 2.1). Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	Moderate Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling**. If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact

EXHIBIT 4-14
Summary of Environmental Consequences for MAF

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas might be identified during the closure activities (closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, significant impacts would be unlikely because the Center has undergone investigation efforts under RCRA/CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact
	No Action	**Storage and Handling.** The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-14
Summary of Environmental Consequences for MAF

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	Minimal Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at MAF could include contamination or damage resulting from major spills or accidents. Buildings at MAF could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at MAF could result in minimal temporary soil disturbances, thus resulting in erosion during the removal activities. The methods used for removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of	Minimal Impact

EXHIBIT 4-14
Summary of Environmental Consequences for MAF

Resource Area	Alternative	Overall Effects of Alternative	Impact
		erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	
Land Use	No Action and Proposed Action	If the existing facilities were destroyed or released to the GSA, new facilities potentially could be constructed in their place. It is anticipated that they would be compatible with the existing land use categories.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of real property would have the potential to temporarily increase noise levels at MAF during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support the current activities at MAF. It is anticipated that most of the SSP property at MAF would be transferred to other NASA programs upon SSP T&R. In this case, it is assumed that infrastructure would continue to operate at similar levels because any programs receiving SSP property would have similar infrastructure needs. If the future programs at MAF required additional utility capacity, the new facilities would be required to undergo evaluation under NEPA, and the potential for any utility service incompatibilities would be identified at that time.	Minimal Impact
Socioeconomics	No Action and Proposed Action	The specific disposition methods selected for the SSP real and personal property probably would have minimal to no impact on the population, regional economy, and community services in the region surrounding MAF. MAF has been selected by NASA to manufacture large structures and composites for future vehicles. It is expected that most of the buildings at MAF that are used by the SSP would be reused for future space programs, with similar functions.	Minimal to No Impact
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use. Non-RCRA solid wastes would be collected and sent to an offsite landfill.	Minimal Impact

EXHIBIT 4-14
Summary of Environmental Consequences for MAF

Resource Area	Alternative	Overall Effects of Alternative	Impact
	No Action	The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = *Code of Federal Regulations*
GSA = General Services Administration
LBP = Lead-based paint
MAF = Michoud Assembly Facility
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.8 Marshall Space Flight Center

Exhibit 4-15 outlines the major SSP property at MSFC.

EXHIBIT 4-15
Major SSP Property at MSFC

SSP Asset/Facility	Description	Disposition
Office Building (Building 4202)	Six project offices for major development projects and six directorates that embody the institutional capabilities of MSFC carry out NASA's missions. The directorates are Shuttle Propulsion, Space Transportation Programs/ Projects, Space Systems Programs/Projects, Engineering, Science and Technology, and Center Operations. These facilities	NASA will evaluate future disposition options for this property.

EXHIBIT 4-15
Major SSP Property at MSFC

SSP Asset/Facility	Description	Disposition
	and directorates do not contain significant personal property.	
Office Building (Building 4203)	These facilities do not contain significant personal property.	NASA will evaluate future disposition options for this property.
Communications Facility (Building 4207)	Provides multimedia services to MSFC.	NASA will evaluate future disposition options for this property.
Hardware Simulation Laboratory (Building 4436)	The facility was designed to test and verify the SSME avionics and software, control system, and mathematical models.	Building 4436 has been identified for use by the Constellation Program. Ares Upper Stage engine control system and software testing and avionics and systems integration will be conducted in the facility.
Test Control and Services Building (Building 4561)	Engine testing at the test stands are controlled at the Test Control and Services Building.	NASA will evaluate future disposition options for this property.
Office Building (Building 4566)	These facilities do not contain significant personal property.	NASA will evaluate future disposition options for this property.
Office Building (Building 4600)	These facilities do not contain significant personal property.	NASA will evaluate future disposition options for this property.
Shuttle Hardware Storage (Building 4625)	These facilities do not contain significant personal property.	NASA will evaluate future disposition options for this property.
Multi-purpose HB Facility and Neutral Buoyancy Simulator (Building 4705)	The facility was designed to provide a simulated zero-gravity environment in which engineers, designers, and astronauts could perform, for extended periods of time, the various phases of space development to gain a first-hand knowledge of design problems and operational characteristics. The tank is 75 feet in diameter and 40 feet deep and designed to hold 1.5 million gallons of water. There are four observation levels for underwater audio and video communications. The southwestern corner of Building 4705 that houses the facility has a completely equipped test control center for	Building 4705 has been identified for use by the Constellation Program for Ares Upper Stage fabrication.

EXHIBIT 4-15
Major SSP Property at MSFC

SSP Asset/Facility	Description	Disposition
	directing, controlling, and monitoring the simulation activities.	
National Center for Advanced Manufacturing (Building 4707)	The National Center for Advanced Manufacturing (NCAM) addresses the manufacturing requirements of space transportation systems. NASA partners with other government agencies, industry, and academia in support of NCAM to leverage assets and successfully meet the requirements of future systems to provide safe, low-cost, access to space.	Building 4707 has been identified for use by the Constellation Program for Ares Upper Stage support actions and evaluations.
Engineering and Development Laboratory (Building 4708)	Contains laboratory space used for SSP and ISS development.	Building 4708 has been identified for use by the Constellation Program for final assembly and preparation for Ares Upper Stage testing.
Developmental Process Laboratory (Building 4711)	The Process and Methods Development Laboratory occupies 12,000 feet of floor area in Building 4711. The facility is for the development and testing of new processes, techniques, materials, and mechanical manufacturing devices as they relate to fabrication and assembly.	NASA will evaluate future disposition options for this property.
SOFI Formulation Facility (Building 4739)	The SOFI Formation Facility serves as a laboratory for the development of improved foam for space vehicle insulation.	NASA will evaluate future disposition options for this property.

Notes:
HB = High bay
MSFC = Marshall Space Flight Center
NASA = National Aeronautics and Space Administration
SOFI = Spray-on foam insulation

4.8.1 Environmental Consequences Summary for MSFC

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at MSFC are summarized in Exhibit 4-16.

EXHIBIT 4-16
Summary of Environmental Consequences for MSFC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at MSFC during the demolition or disposition operations.	Minimal to No Impact
Biological Resources	No Action and Proposed Action	**Vegetation**. Most of the NASA operational areas at MSFC are on developed landscapes and are devoid of natural vegetation. Natural vegetation may spread into the developed areas once the property has been disposed, thereby increasing the distribution of natural vegetation in the area. NASA operational areas that currently support natural vegetation would remain undisturbed with the disposition of NASA property.	Minimal Impact
		Wetlands. No facilities on MSFC are located in wetlands.	No Impact
		Floodplains. No SSP facilities on MSFC are located in floodplains.	No Impact
		Wildlife. Facilities on MSFC are located in developed areas that do not provide quality habitat for wildlife. Therefore, minimal impact of the Proposed Action and the No Action alternative on wildlife would be anticipated because the disposition of the property would occur in developed areas.	Minimal Impact
		Protected Species. Facilities on MSFC are located in developed areas that do not provide quality habitat for the wildlife. Therefore, minimal impact of the Proposed Action and the No Action alternative on protected species would be anticipated because the disposition of the property would occur in developed areas.	Minimal Impact
Cultural Resources	No Action and Proposed Action	**Archaeological Resources.** There would be minimal to no impact on archaeological resources under the Proposed Action and No Action Alternatives because no ground-disturbing activities are anticipated.	Minimal to No Impact
		Historic Resources. As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure [as described in Section 2.1]. Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	Moderate Impact

EXHIBIT 4-16
Summary of Environmental Consequences for MSFC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling.** If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it is possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less-than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/CERCLA.	Minimal Impact

EXHIBIT 4-16
Summary of Environmental Consequences for MSFC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	Minimal Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at MSFC could include contamination or damage resulting from major spills or accidents. Buildings at MSFC could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at MSFC could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Land Use	No Action and Proposed Action	If the existing facilities were destroyed or released to GSA, new facilities potentially could be constructed in their place. It is anticipated that they would be compatible with the existing land use categories.	Minimal Impact

EXHIBIT 4-16
Summary of Environmental Consequences for MSFC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at MSFC during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at MSFC. It is anticipated that most of the SSP property at MSFC would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact
Socioeconomics	No Action and Proposed Action	The specific disposition methods selected for SSP real and personal property probably would has minimal to no impact on the population, regional economy, and community services in the region surrounding MSFC. MSFC has been given project management responsibility for the future programs, including vehicle systems engineering, vehicle systems integration and safety, and mission assurance activities. It is likely that at least some of the buildings at MSFC that currently are used by the SSP would be reused for future programs, with the same or similar functions.	Minimal to No Impact
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use. Non-salvageable solid waste would be disposed in accordance with the applicable health and safety and environmental regulations at MSFC, the RSA inert landfill, or the City of Huntsville Refuse-to-Steam Plant. Therefore, minimal impacts to solid waste would be anticipated.	Minimal Impact
	No Action	The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-16
Summary of Environmental Consequences for MSFC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase the traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
GSA = General Services Administration
LBP = Lead-based paint
MAF = Michoud Assembly Facility
MSFC = Marshall Space Flight Center
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.9 White Sands Test Facility

Exhibit 4-17 outlines the major SSP property at WSTF and the preliminary plans for their disposition.

EXHIBIT 4-17
Major SSP Property at WSTF

SSP Asset/Facility	Description	Disposition
300 Area	The 300 Area is used for propulsion testing of the forward and aft Reaction Control System of the Orbiter. In addition, this area is used to test the Orbiter's Improved Auxiliary Power Unit.	This property has not been identified for use by new programs.
400 Area	The 400 Area is used for propulsion testing of the Orbiter Maneuvering Subsystem and the PRCTs and VRCTs.	This property has not been identified for use by new programs.

EXHIBIT 4-17
Major SSP Property at WSTF

SSP Asset/Facility	Description	Disposition
Analytical Chemistry and Metallurgy Laboratories	There are numerous laboratories and hazardous testing is conducted specifically for the SSP. Testing includes the following: • Materials and Components Testing with Hypergols • Materials Flammability in Oxygen-enriched Atmospheres • Standard Materials Testing per NASA Standard 6001 • High-pressure Oxygen Component Quality Testing • Materials and Components Testing in High-temperature, High-flow, Gaseous Oxygen and Hydrogen • Hypervelocity Impact Testing of Hazardous and Nonhazardous Materials and Assembled Items • Composite Overwrapped Pressure Vessel Safety Assessment Testing • Space Environment Simulation • Low-velocity Impact Testing	This property has not been identified for use by new programs.
Flight Component Depot for the SSP	These capabilities include the following processes and the associated personal property: • PRCS and VRCS Thruster Flushing, Valve R&R, Chamber R&R, and Other Repairs • PRCS and VRCS Thruster Valve Overhaul • OMS Engine, including Series Valve and Pneumatic Pack, Quad Check Valve, AC Motor Valve, Manual Valve, and Burst Disk/Relief Valve Overhaul • Rebuilt PRCS and VRCS Hot Firings performed at TS405 and 406 • Hydrogen and Oxygen Flow Control Valve ATP • LH2 Recirculation Pump Cryogenic ATP • Atmospheric Revitalization Pressure and Control Subsystem Panels Oxygen Wetting and Certification	This property has not been identified for use by new programs.
WSSH runways	WSSH is a back-up landing site for the Orbiter if the conditions at KSC or EAFB are not favorable for a landing. WSSH also is used to develop NAVAIDs to aid in Orbiter navigation, as well as to develop landing procedures. Three runways are maintained at WSSH on the dry gypsum lake bed.	This property has not been identified for use by new programs.

EXHIBIT 4-17
Major SSP Property at WSTF

SSP Asset/Facility	Description	Disposition
	NASA has equipment to support the Orbiter in the event of a landing. However, there are no major personal property assets located at WSSH. WSSH is the primary training area for Space Shuttle pilots flying practice approaches and landings in the STA and T-38 chase aircraft. Three runways are maintained at WSSH on the dry gypsum lake bed. Two of the runways are 35,000 ft by 900 ft, which includes a 15,000-foot by 300-foot marked runway with 10,000-foot extensions on either end and 300 ft on either side. These long runways are positioned to simulate approaches at Edwards AFB and KSC and are the back-up runways in the event of an Orbiter landing. The third runway is shorter and is used for training for a TAL site.	

Notes:
AFB = Air Force Base
ATP = Acceptance Test Procedure
ft = Feet
KSC = Kennedy Space Center
LH2 = Liquid hydrogen
NASA = National Aeronautics and Space Administration
NAVAID = Navigational aid
OMS = Orbital Maneuvering System
PCRT = Primary Reaction Control Thrusters
PRCS = Primary Reaction Control System
R&R = Repair and Refurbishment
SSP = Space Shuttle Program
STA = Shuttle Training Aircraft
TAL = Transoceanic Abort Landing
VRCS = Vernier Reaction Control System
VRCT = Vernier Reaction Control Thrusters
WSSH = White Sands Space Harbor

4.9.1 Environmental Consequences Summary for WSTF

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at WSTF are summarized in Exhibit 4-18.

EXHIBIT 4-18
Summary of Environmental Consequences for WSTF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at WSTF during the demolition or disposition operations.	Minimal to No Impact
Biological Resources	No Action and Proposed Action	**Vegetation**. Most of the facilities at WSTF are surrounded by common semi-desert vegetation or landscaped natural vegetation. Natural vegetation could spread into the developed areas once the property is dispositioned, thereby increasing the distribution of natural vegetation in the area. Therefore, an overall minimal impact of the Proposed Action and the No Action alternative on vegetation would be anticipated**.**	Minimal Impact
		Wildlife. Increased human activity and noise due to disposition and demolition of property temporarily could increase disturbance of wildlife. However, wildlife probably would return to the area after the disposition and demolition were complete. Therefore, the disposition of property on WSTF would have minimal impacts on wildlife.	Minimal Impact
		Protected Species. Increased human activity and noise due to disposition and demolition of property temporarily could increase disturbance of protected species. However, wildlife probably would return to the area after the disposition and demolition were complete. Therefore, the disposition of real property on WSTF would have minimal impacts on protected species.	Minimal Impact
Cultural Resources	No Action and Proposed Action	**Archaeological Resources.** There would be minimal to no impact on archaeological resources under the Proposed Action and No Action Alternatives because no ground-disturbing activities are anticipated.	Minimal to No Impact
		Historic Resources. As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure [as described in Section 2.1]. Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	Moderate Impact

EXHIBIT 4-18
Summary of Environmental Consequences for WSTF

Resource Area	Alternative	Overall Effects of Alternative	Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling**. If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it is possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal to No Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at WSTF could include contamination or	Minimal Impact

EXHIBIT 4-18
Summary of Environmental Consequences for WSTF

Resource Area	Alternative	Overall Effects of Alternative	Impact
		damage resulting from major spills or accidents. Buildings at WSTF could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at WSTF could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for the removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Land Use	No Action and Proposed Action	If the existing facilities were destroyed or released to the GSA, new facilities potentially could be constructed in their place. It is anticipated that they would be compatible with the existing land use categories.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at WSTF during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at WSTF. It is anticipated that most of the SSP property at WSTF would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact
Socioeconomics	No Action and Proposed Action	The specific disposition methods selected for SSP real and personal property probably would have	Minimal to No Impact

EXHIBIT 4-18
Summary of Environmental Consequences for WSTF

Resource Area	Alternative	Overall Effects of Alternative	Impact
		minimal to no impact on the population, regional economy, and community services in the region surrounding WSTF. It is anticipated that WSTF would be the Abort Test Booster test site for future space programs. WSTF also is being considered for future hazardous testing of system components such as vehicle reaction control systems.	
Solid Waste	Proposed Action	If it were determined that the real property would be demolished, the overall impacts probably would include the generation of solid waste consisting of concrete, asphalt, glass, metals (conduit, piping, and wiring), lumber, asbestos, and LBP. Items and materials that could be reused would be salvaged to the extent possible for NASA's future use.	Minimal Impact
	No Action	The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase the traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition and disposition activities.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
GSA = General Services Administration
LBP = Lead-based paint
MSFC = Marshall Space Flight Center
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank
WSTF = White Sands Testing Facility

4.10 Dryden Flight Research Center

Exhibit 4-19 lists the SSP property at DFRC.

EXHIBIT 4-19
SSP Property at DFRC

SSP Asset/Facility	Description	Disposition
Buildings 4833 and 4680	The buildings total 32,755 ft^2 and function as the Shuttle hangar and shops when landings must occur at DFRC.	This property has not been identified for use by new programs.
Building 4860	Mate-Demate Device	This property has not been identified for use by new programs.

Notes:
DFRC = Dryden Flight Research Center
ft^2 = Square feet

4.10.1 Environmental Consequences Summary for DFRC

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at DFRC are summarized in Exhibit 4-20.

EXHIBIT 4-20
Summary of Environmental Consequences for DFRC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at DFRC during the demolition or disposition operations.	Minimal to No Impact
Cultural Resources	No Action and Proposed Action	**Archaeological Resources.** There would be minimal to no impact on archaeological resources under the Proposed Action and No Action Alternatives because no ground-disturbing activities are anticipated.	Minimal to No Impact
		Historic Resources. As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure [as described in Section 2.1]. Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are	Moderate Impact

EXHIBIT 4-20
Summary of Environmental Consequences for DFRC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling**. If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal to No Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, new contaminated areas potentially could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined.	Minimal to No Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process may become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require	Minimal Impact

EXHIBIT 4-20
Summary of Environmental Consequences for DFRC

Resource Area	Alternative	Overall Effects of Alternative	Impact
		disposal could exceed landfill capacities.	
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/ CERCLA.	Minimal Impact
		Asbestos and Lead-based Paint. If real property were to be demolished, it probably would contribute to the generation of asbestos waste or LBP. Asbestos and LBP surveys would be conducted before demolition. If ACMs were determined to be present, they would be removed appropriately before demolition. Such wastes would need to be disposed according to the hazardous waste classification determined. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of asbestos due to demolition operations could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of ACM that would require disposal could exceed landfill capacities.	Minimal Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at DFRC could include contamination or damage resulting from major spills or accidents. Buildings at DFRC could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact

EXHIBIT 4-20
Summary of Environmental Consequences for DFRC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Hydrology and Water Quality	No Action and Proposed Action	Disposition or removal of buildings or structures at DFRC could result in minimal temporary soil disturbances, thus resulting in erosion during removal activities. The methods used for removal of any designated facilities would vary in relation to the type of structure, its location, the materials encountered in demolition, and the contractor's experience. Best engineering practices, codes, specifications, and standards would be followed to prevent or limit potential impacts. These would include the implementation of erosion and turbidity controls. Storm water permits might need to be obtained and soil stabilization measures might need to be implemented.	Minimal Impact
Land Use	No Action and Proposed Action	DFRC would evaluate land use possibilities for the facilities at DFRC.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at DFRC during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at DFRC. It is anticipated that most of the SSP property at DFRC would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact
Solid Waste	Proposed Action	Municipal-type solid wastes and nonhazardous wastes generated from property disposition would be disposed in accordance with the applicable health and safety and environmental regulations at the EAFB landfill. Non-RCRA wastes would be taken offsite by recyclers and reclaimers or sent to an appropriate offsite, permitted disposal facility, depending on the waste classification.	Minimal Impact
	No Action	The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact

EXHIBIT 4-20
Summary of Environmental Consequences for DFRC

Resource Area	Alternative	Overall Effects of Alternative	Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase the traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
DFRC = Dryden Flight Research Center
GSA = General Services Administration
LBP = Lead-based paint
MSFC = Marshall Space Flight Center
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.11 Palmdale

The major SSP-related properties at Palmdale are listed in Exhibit 4-21.

EXHIBIT 4-21
SSP-related Property at Palmdale

SSP Asset/Facility	Description	Disposition
Orbiter Lifting Facility	Lifting fixture used to mate the Orbiter to the Shuttle Carrier Aircraft.	This property has not been identified for use by new programs.
Detail Manufacturing and Testing Facility	The individual parts, pieces, and systems of the Orbiter are assembled and tested in this facility. Contains two Orbiter bays.	This property has not been identified for use by new programs.

Note:
SSP = Space Shuttle Program

4.11.1 Environmental Consequences Summary for Palmdale

The environmental resources that were evaluated and subsequently determined to have no potential for environmental impacts are provided in Exhibit 1-2. The environmental consequences for the resource areas present at Palmdale are summarized in Exhibit 4-22.

EXHIBIT 4-22
Summary of Environmental Consequences for Palmdale

Resource Area	Alternative	Overall Effects of Alternative	Impact
Air Quality	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase emissions at Palmdale during the demolition or disposition operations.	Minimal to No Impact
Cultural Resources	No Action and Proposed Action	**Archaeological Resources.** There would be minimal to no impact on archaeological resources under the Proposed Action and No Action Alternatives because no ground-disturbing activities are anticipated.	Minimal to No Impact
Cultural Resources	No Action and Proposed Action	**Historic Resources.** As the SSP approaches the end of its mission, a variety of buildings and facilities at several NASA installations will no longer be of use to SSP. Once SSP identifies and reports to a host installation that it no longer needs a building or facility, NASA will initiate the standard process for addressing excess infrastructure [as described in Section 2.1]. Termination of SSP by NASA will not lead to a specific decision or action on the future of each infrastructure asset and the associated environmental impacts to that asset. NASA will conduct an appropriate level of federally mandated NEPA analysis before final decisions on the disposition of SSP infrastructure assets are made. If any such properties are listed in or eligible for listing in the NRHP, NASA will take no action that would affect any such property until the NHPA Section 106 process is complete.	Moderate Impact
Hazardous and Toxic Materials and Waste	Proposed Action	**Storage and Handling.** If the facilities were reutilized, mothballed, demolished, or released to the GSA, minimal impacts on the storage and handling of hazardous materials associated with real property would be expected because waste generation would be expected to remain at the same level.	Minimal Impact
		Waste Management. If the facilities were mothballed, demolished, or released to the GSA, it would be likely that the waste management procedures associated with the SSP would no longer be applicable, because no wastes would be generated.	Minimal to No Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, new contaminated areas potentially could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/CERCLA.	Minimal to No Impact

EXHIBIT 4-22
Summary of Environmental Consequences for Palmdale

Resource Area	Alternative	Overall Effects of Alternative	Impact
	No Action	**Storage and Handling**. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill and less–than-90-day hazardous waste storage yard capacities.	Minimal Impact
		Waste Management. The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of hazardous waste that would require disposal could exceed landfill capacities.	Minimal Impact
		Contaminated Areas. If the facilities were mothballed, demolished, or released to the GSA, it would be possible that new contaminated areas could be identified during closure activities (such as the closure of ASTs or USTs). Newly identified contaminated areas would be addressed by the Center's restoration programs. However, major impacts would be unlikely because the Center has undergone investigation efforts under RCRA/CERCLA.	Minimal Impact
Health and Safety	No Action and Proposed Action	Health and safety risks associated with real property at Palmdale could include contamination or damage resulting from major spills or accidents. Buildings at Palmdale could contain asbestos and LBP. Employees conducting renovation or demolition work must meet the safety standards outlined in 29 CFR 1926.1101, OSHA's construction standard for asbestos, or 29 CFR 1962.62, OSHA's construction standard for lead, to prevent exposure. The appropriate level of PPE must be worn depending on the level of the abatement, in accordance with OSHA's construction standard to ensure worker safety.	Minimal Impact
Noise	No Action and Proposed Action	The demolition or disposition of property would have the potential to temporarily increase noise levels at Palmdale during the associated demolition or disposition operations. Any demolition or disposition activities would comply with the OSHA hearing protection standards for employees and other individuals in the vicinity.	Minimal Impact

EXHIBIT 4-22
Summary of Environmental Consequences for Palmdale

Resource Area	Alternative	Overall Effects of Alternative	Impact
Site Infrastructure	No Action and Proposed Action	The existing utilities are sufficient to support current activities at Palmdale. It is anticipated that most of the SSP property at Palmdale would be transferred to other NASA programs upon disposition of SSP real and personal property. In this case, it is assumed that the infrastructure would continue to operate at similar levels, because it is assumed that programs receiving SSP property would have similar infrastructure needs. If the property were not transferred but remained unused, a decreased load on the site infrastructure would result. Any impacts would result from decreased use.	Minimal Impact
Solid Waste	Proposed Action	Items and materials that could be reused would be salvaged to the extent possible for NASA's future use. Non-RCRA solid waste would be disposed in accordance with the applicable health and safety and environmental regulations at an offsite landfill by a solid waste disposal contractor.	Minimal Impact
	No Action	The property disposal process could become overwhelmed with the volume of property to disposition. The volume of property that would be processed could result in schedule and cost impacts if a structured disposal process were not implemented. In addition, the amount of solid waste that would require disposal could exceed landfill capacities.	Minimal Impact
Transportation	No Action and Proposed Action	Real property demolition could generate more destruction-related truck trips. It would increase the traffic on the surrounding streets in the study area. A traffic control plan could be required to control the movement of truck traffic during the demolition.	Minimal Impact

Notes:
ACM = Asbestos-containing material
AST = Aboveground storage tank
CCSMP = Cape Canaveral Spaceport Master Plan
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
GSA = General Services Administration
LBP = Lead-based paint
MSFC = Marshall Space Flight Center
NASA = National Aeronautics and Space Administration
NEPA = National Environmental Policy Act
OSHA = Occupational Safety and Health Administration
PPE = Personal protective equipment
PTE = Potential to emit
RCRA = Resource Conservation Recovery Act
SSP = Space Shuttle Program
UST = Underground storage tank

4.12 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

The CEQ has oversight responsibility for documentation prepared in compliance with NEPA (42 U.S.C. 4321 *et seq*.). In December 1997, the CEQ released its guidance on Environmental Justice (CEQ, 1997). The CEQ's guidance was adopted as the primary guide for the environmental justice analysis performed for this Programmatic EA for the disposition of SSP real and personal property.

This analysis provides the data necessary to assess the potential for disproportionately high and adverse human health or environmental effects on minority and/or low-income populations that may be associated with the disposition of SSP real and personal property.

4.12.1 Definitions

4.12.2.1 Minority Individuals and Minority Populations

During the Census of 2000, the U.S. Bureau of the Census collected population data in compliance with guidance adopted by the OMB (62 FR 58782). The OMB published its guidelines regarding the aggregation of multiple race data in March 2000 (OMB, 2000). Modifications to the definitions of minority individuals in the CEQ's guidance on Environmental Justice (CEQ, 1997) were made in this analysis to comply with the OMB's guidelines issued in March 2000. The following definitions of minority individuals and population are used in this environmental justice analysis:

Minority Individuals: Persons, as reported by the 2000 U.S. Census, who are members of any of the following population groups: Black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Multiracial (and at least one race which is a minority race under the 1997 CEQ guidance), or Hispanic or Latino (regardless of race).

Minority Population: The total number of minority individuals residing within a potentially affected area.

4.12.2.2 Low-income Individuals and Low-income Populations

Poverty thresholds are used to identify "low-income" individuals and populations (CEQ, 1997). The following definitions of low-income individuals and population are used in this analysis:

Low-income Individuals: Persons, as reported by the 2000 U.S. Census, whose self-reported income is below the poverty threshold.

Low-income Population: The total number of low-income individuals residing within a potentially affected area.

The population for whom poverty status is determined is based on all people except institutionalized people, people in military group quarters, people in college dormitories, and unrelated individuals under 15 years old.

4.12.2.3 Disproportionately High and Adverse Human Health Effects

Disproportionately high and adverse human health effects are those that are significant (per NEPA, 40 CFR 1508.27) or above generally accepted norms, and for which the risk of adverse effects to minority populations or low-income populations appreciably exceeds the risk to the general population.

4.12.2.4 Disproportionately High and Adverse Environmental Effects

Disproportionately high and adverse environmental effects are those that are significant (per NEPA, 40 CFR 1508.27), and that would adversely affect minority populations or low-income populations appreciably more than the general population.

4.12.2 Methodology

The purpose of this analysis is as follows: 1) to identify minority and low-income populations that potentially would be affected by the Proposed Action; and 2) to assess whether the implementation of the Proposed Action would result in disproportionately high and adverse effects on these populations. In the event that human health or environmental risks were found to be NEPA significant, then these risks to minority and low-income populations would be evaluated to determine if they are disproportionately high.

For this analysis, 2000 U.S. Census Bureau Block Groups that are located immediately adjacent to the facility were selected as the study area to identify the minority and low-income populations that may be affected adversely by the disposition of SSP real and personal property. This study area was selected because most of the environmental effects resulting from the disposition of SSP real and personal property are expected to occur within the boundaries of facility. The analysis also included a detailed review of the environmental effects that would result from the disposition of SSP real and personal property, relying principally on the information developed and documented in this Programmatic EA.

4.12.3 Population Characterization and Impact Analysis

For the minority and low-income population analyses, year 2000 U.S. Census data at the Block Group level for all Block Groups immediately adjacent to the boundaries

of the potentially affected facilities, as well as Census data regarding the surrounding county or counties, were collected. The minority and low-income population characteristics of the Block Groups and the counties are illustrated in Exhibit 4-23. As listed in Exhibit 4-23, the majority of the adjacent Census Block

Groups have lower concentrations of minority and low-income individuals than those of the county or counties in which the Census Block Groups are located.

Exhibit 4-23 also indicates the range of potential environmental impacts for each of the facilities for the resource areas (air, biological, cultural, hazardous and toxic materials and waste, health and safety, land use, noise, site infrastructure, socioeconomics, solid waste, and traffic and transportation) for the Proposed Action and the No Action alternatives. The potential impacts were placed into one of the pre-determined classifications, which range from No Impact to Major-Environmental Impacts. Most of the potential impacts for all of the resource areas were identified as Minimal to No Impacts; therefore, they are not expected to be measurable, or would be too small to cause any changes to the environment.

On the basis of this analysis, no adverse impacts are expected as a result of the disposition of SSP real and personal property activities. Therefore, no disproportionately high or adverse impacts to minority and/or low-income populations are expected as a result of the disposition of SSP real and personal property at any of the facilities.

4.13 Cumulative Impacts

Cumulative impacts result from the incremental impact of actions when they are combined with other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

EXHIBIT 4-23
Minority and Low-Income Population Characteristics and Potential Environmental Impacts

Location	Census Block Groups Adjacent to Facilities		Surrounding County/Counties		Potential Impact of Proposed Action	Potential Impact of No Build Alternative
	Minority[1]	Population below Poverty[1]	Minority[1]	Population below Poverty[1]		
Kennedy Space Center	8.2	5.3	16.4 and 18.1[2]	9.5 and 11.6[2]	Minimal to no impact	Minimal to no impact
Johnson Space Center	28.3	5.2	57.9	15	Minimal to no impact	Minimal to no impact
Ellington Field	30.2	2.6	57.9	15	Minimal to no impact	Minimal to no impact
El Paso Forward Operation Location	90.4	24.4	83.0	23.8	Minimal to no impact	Minimal to no impact
Sonny Carter Training Facility	30.2	2.6	57.9	15	Minimal to no impact	Minimal to no impact
John C. Stennis Space Center	3.4	4.3	10.7 and 15.0[3]	14.4 and 9.7[3]	Minimal to no impact	Minimal to no impact
Michoud Assembly Facility	85.0	47.9	73.3	27.9	Minimal to no impact	Minimal to no impact
Marshall Space Flight Center	41.8	10.4	29.0	10.5	Minimal to no impact	Minimal to no impact
White Sands Testing Facility	46.7	9.9	67.5	25.4	Minimal to no impact	Minimal to no impact
Dryden Flight Research Center	32.2	2.8	50.6	20.8	Minimal to no impact	Minimal to no impact
Palmdale	79.8	21.1	69.1	17.9	Minimal to no impact	Minimal to no impact
Santa Susanna Field Laboratory	21.6	4.3	69.1 and 43.4[4]	17.9 and 9.2[4]	Minimal to no impact	Minimal to no impact

Notes:
[1] Numbers represent the percent of the population reported as minority and below the poverty threshold.
[2] Numbers are for Brevard County and Volusia County, respectively.
[3] Numbers are for Hancock County and St. Tammany Parish, respectively.
[4] Numbers are for Los Angeles County and Ventura County, respectively.

The SSP T&R activities addressed in this EA would take place at various NASA Centers. SSP operations at NASA Centers represent a large portion of overall operations. The proposed project relevant for the consideration of cumulative impacts on a programmatic level is the Constellation Program, which is NASA's current plan for human space flight exploration. This program will entail the use of new space vehicles, as well as a new space capsule that will be developed similarly to the ones used during the Apollo program. The Constellation Program will allow for a variety of missions, from Space Station resupply to lunar landings.

It is anticipated that other NASA programs, such as the Constellation Program, would replace the SSP at many of the facilities and that this program would have similar operational requirements as the SSP. Because the use of many existing facilities probably would be transitioned to this new program, the cumulative effect on resource areas (site infrastructure, air quality, noise, geology and soils, hydrology and water quality, biological resources, cultural resources, hazardous materials and waste, health and safety, socioeconomic resources, transportation, and environmental justice) would be expected to be minimal. The evaluation of the NRHP-significant properties across the NASA Centers included in this Programmatic EA resulted in a cumulative impact of use conversions on historic properties that would be considered less than significant if the conversion affected only a small percentage of the total number of structures. It is anticipated that any new activity would be compatible with the existing land use categories or the future land use categories and that no impacts on land use would occur. As stated in the Final Cx PEIS (NASA, 2007t), NASA intends to retain a beneficial socioeconomic footprint in the regional economies surrounding the Centers and to preserve the critical and unique capabilities provided by each NASA Center. Meaningful estimates of the specific work allocations at each Center would be available once the prime contracts have been awarded for all of the Program's major projects and procurements.

If, in addition to SSP, other programs were to mothball or abandon their facilities, the emissions to air and water would decrease and the demand on environmental resources would decrease. Therefore, the cumulative environmental effect would be beneficial. However, if facilities used by many personnel were not replaced, adverse cumulative effects on local employment and related socioeconomic resources would result.

Demolishing facilities in addition to those currently operated by the SSP potentially would result in short-term impacts associated with the demolition. Air emissions would experience a short-term increase as a result of demolition activities and the generation of fugitive dust. Noise would increase temporarily as a result of demolition and the increase in traffic (from workers traveling to the site and the use of demolition equipment). In addition, traffic would increase during demolition. Regional economies would benefit temporarily as a result of contracts for demolition

and hiring of the required workers. Demolition would increase the need for landfill space; however, most of the waste generated during demolition would be inert and either could be recycled or disposed in a landfill designated for construction and demolition waste.

The demolition of existing structures would result in similar cumulative impacts as those described above for conversion of uses of the structures. The evaluation of the total number of SSP-significant properties across the NASA Centers included in this EA showed that the cumulative impact of a single demolition would be considered less than significant, compared to the total number of NRHP-significant structures. The loss of multiple NRHP-significant structures at a single facility and across all of the facilities could have cumulative impacts to NRHP properties.

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