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AMES RESEARCH CENTER'S LEASE MANAGEMENT PRACTICES

August 4, 2022

Report No. IG-22-015





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RESULTS IN BRIEF

Ames Research Center's Lease Management Practices

August 4, 2022

IG-22-015 (A-21-001-00)

WHY WE PERFORMED THIS AUDIT

Located at Moffett Field in California's Silicon Valley, NASA's Ames Research Center conducts research and development in aeronautics, exploration technology, and science. In 2002, Ames issued the NASA Ames Development Plan that called for the transformation of the Center into a shared-use research and development and education campus and the establishment of collaboration partnerships between Ames and tenants from private industry, academia, government, and nonprofit organizations. In support of the goals outlined in the plan, Ames has been leasing portions of its property using enhanced-use leases (EUL)—an authority granted by Congress which permits the Center to accept cash and in-kind consideration from federal and non-federal entities for real property leases at fair market value. The leases vary in scope and duration—from individual rooms within existing buildings under agreements that last for a few years to large parcels of underutilized land that will be developed into laboratories, retail, office space, and housing with terms that may last up to 99 years. Ames uses lease revenues to repair and maintain aged facilities and provide its tenants infrastructure support including security, fire protection, emergency response, utilities, and road maintenance. In fiscal year 2020, Ames had 41 active leases with non-government tenants and collected over \$11.3 million in EUL revenue.

In this audit we assessed the effectiveness of Ames' management of its lease process to further the goal of developing a collaborative research and development campus; whether the process complied with federal laws and NASA requirements; and the benefits, costs, and risks associated with Ames' leasing approach. To complete this work, we reviewed Ames' leasing process and agreements; the NASA Ames Development Plan; revenue reports and financial transactions associated with leases; and federal, NASA, and Ames criteria, policies, and procedures. We also judgmentally sampled 15 lease agreements and interviewed NASA officials at Headquarters and Ames.

WHAT WE FOUND

Ames' lease process is inadequate to ensure agreements are in the best interest of NASA and has resulted in millions of dollars in foregone revenue. Moreover, controls over Ames' lease process are inadequate to ensure accountability and compliance with federal laws and NASA policies. The NASA Research Park (NRP) Office, which manages Ames' lease process, bypassed two key controls that require the involvement of the Center's Real Property Accountable Officer (RPAO)—responsible for ensuring the lease process complies with NASA policy—and Headquarters' Facilities and Real Estate Division (FRED)—responsible for reviewing and approving all EULs.

We found the Ames RPAO participated in the lease process inconsistently and Ames officials at times involved FRED late in the decision-making process after Center personnel already negotiated the terms of leases. As a result, leases did not include a life-cycle cost analysis that accurately determined the lease's economic value to NASA and all costs for the lease's duration, lacked required competition during the award phase, did not consistently include certifications to indicate the property was needed for future NASA missions or would not negatively impact NASA's missions, and lacked required termination clauses to protect NASA's interest. Further, some lease records were not centrally stored and did not include documentation including justifications for lease terms and tenant selections.

Inconsistent RPAO involvement also led to inadequate and untimely coordination among several key Center organizations that the NRP Office did not consistently include in the review and approval of leases. As a result, the Office of the Chief Financial Officer did not audit tenants' financial records to ensure financial accountability and the Center Protective Services Office (PSO) could not ensure applicable security requirements were identified to inform tenants of their responsibilities. Further, Ames' lease process did not consistently ensure fair market value assessments were conducted and that the Agency received fair market value rent as required by NASA's EUL authority, resulting in the Agency being bound to some leases for many years, some 90 years or longer, and foregoing millions of dollars in leasing revenue that could be used to improve aging facilities and infrastructure.

Additionally, Ames' vision of creating a collaborative research and development campus is hindered by not managing the implementation of the NASA Ames Development Plan holistically and by issuing leases that are not financially advantageous to the government. The Center lacks an effective strategic and programmatic approach to manage and measure its progress in implementing its vision and is instead issuing individual leases piecemeal without a clear overall strategy. The absence of detailed planning led to an imbalance in management structure, insufficient internal and external stakeholder coordination, and a burden on institutional resources. It has also led to Ames not monitoring whether tenants successfully provide mission-enhancing or programmatic benefits to the Agency. Specifically, we found the Center had active collaborative research and development agreements with only 5 of 36 tenants and is foregoing partnership opportunities with other entities interested in collaborating with NASA.

Finally, we found security risks were not thoroughly evaluated for the Center's existing research and development campus and its planned expansion. Despite direction to do so, Ames PSO has not conducted a detailed security vulnerability risk assessment due to a lack of funding. A growing population on Ames' main campus and adjacent properties will require the Center to fully understand and mitigate the security vulnerabilities and risks associated with the future research and development campus and its occupants which includes ensuring security personnel are appropriately resourced and trained.

WHAT WE RECOMMENDED

To improve the Ames' lease process and implementation of the NASA Ames Development Plan, we recommended NASA and Center senior leadership (1) conduct reviews (no less than every 5 years) of Ames' lease process to ensure compliance with federal and NASA requirements; (2) update real estate policies and NASA-wide guidance to comply with EUL authority and require maintaining documentation, documenting decisions, and fostering timely and transparent coordination and communication with stakeholders; (3) update real estate policies and NASA-wide guidance to enhance requirements and standardize financial practices associated with leases; (4) update real estate policies and NASA-wide guidance to incorporate security requirements and agreement clauses in leases; (5) implement written procedures in the lease process to ensure compliance with federal and NASA requirements regarding RPAO involvement, competition, life-cycle cost analysis, fair market value assessments, certifications, and termination clauses; (6) ensure FRED and Center organizations' management are involved in the entire lease process; (7) establish a formal management structure for implementing the Development Plan; (8) establish a documented process with defined performance metrics to objectively measure progress and success for the research and development campus program; (9) conduct a Center-wide security vulnerability risk assessment to ensure compliance with federal and NASA requirements; and (10) implement mitigation strategies and resource requirements to address security vulnerability assessment risks.

We provided a draft of this report to NASA management who concurred with our recommendations and described planned actions to address them. We consider the proposed actions responsive and will close the recommendations upon completion and verification.

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Acronyms

CMU	Carnegie Mellon University
EUL	enhanced-use lease
FRED	Facilities and Real Estate Division
FY	fiscal year
MVHV	Mountain View Housing Ventures LLC
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NRP	NASA Research Park
OCFO	Office of the Chief Financial Officer
OIG	Office of Inspector General
OPS	Office of Protective Services
PSO	Protective Services Office
RPAO	Real Property Accountable Officer

INTRODUCTION

Located at Moffett Field in California’s Silicon Valley, NASA’s Ames Research Center (Ames) conducts research and development in aeronautics, exploration technology, and science. Since 2003, Ames has been leasing portions of its property to further its goal of developing a world-class, shared-use research and development and education campus. The leases are intended to support the Center’s vision by attracting tenants from private industry, academia, government, and nonprofit organizations as potential partners for collaboration. The leases vary in scope and duration—some are for individual rooms within existing buildings and last for a few years while others are for large parcels of underutilized land that will be developed into laboratories, retail, office space, and housing units with terms that may last up to 99 years.

Ames uses the net revenue from these leases to repair and maintain aged facilities and provide its tenants infrastructure support such as security, fire protection, emergency response, utilities, and road maintenance—all of which affect the costs and risks to NASA associated with the leases. In fiscal year (FY) 2020, Ames had 41 active leases with non-government tenants and collected over \$11.3 million in enhanced-use lease (EUL) revenue.¹ In this audit, we assessed the effectiveness of Ames’ management of its lease process to further the Center’s vision of developing a collaborative research and development and education campus. We also assessed whether the lease process complied with applicable federal laws and NASA requirements and evaluated the benefits, costs, and risks associated with Ames’ leasing approach. See Appendix A for details on the audit’s scope and methodology.

Background

Moffett Field was originally commissioned in 1933 as a Naval Air Station. Ames Aeronautical Laboratory—which later became Ames Research Center—was built adjacent to the Air Station at Moffett Field and began operations in 1941 as part of the National Advisory Committee for Aeronautics, the predecessor agency to NASA. In 1994, the U.S. Navy closed its Air Station and transferred 1,500 acres of land and its 60-year-old facilities to NASA. In 2002, Ames issued the NASA Ames Development Plan (Development Plan) that detailed how the Center would integrate its original 500-acre campus with the newly acquired land and its aging facilities and use them in a cost-effective manner.² The plan called for the transformation of Ames into a shared-use research and development and education campus. The goal is to establish collaboration partnerships between Ames and tenants from private industry, academia, government, and nonprofit organizations in research areas that Ames specializes in such as information technology, biotechnology, nanotechnology, and astrobiology.³ The Development Plan

¹ We used FY 2020 lease and revenue data because the information was readily available at the time of our review. In addition, we judgmentally selected a sample of 15 lease agreements between Ames and private industry and academia to review as part of this audit (see Appendix B for a complete listing of leases and our sample).

² Ames Research Center Office of the Assistant Director for Development, [NASA Ames Development Plan](#) (December 2002).

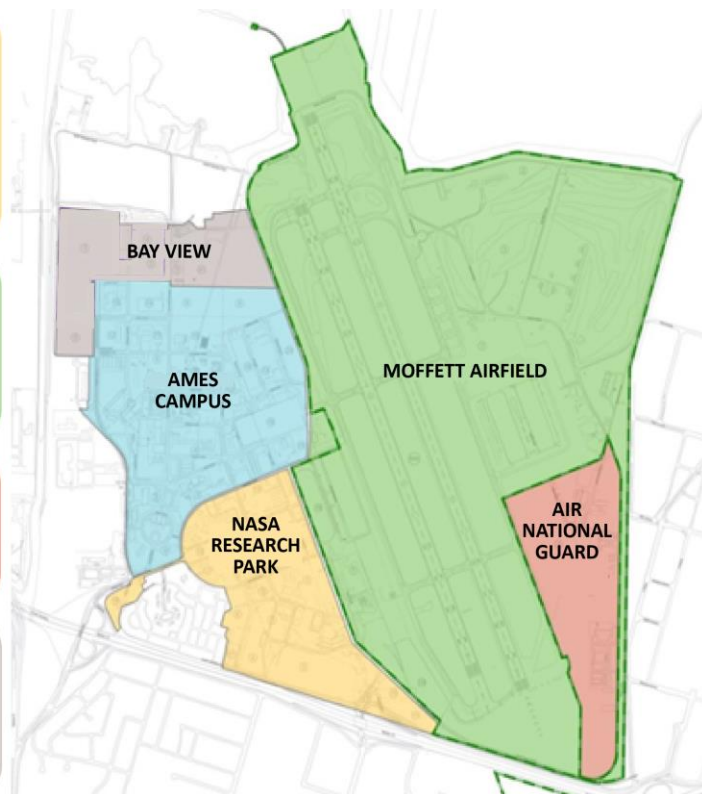
³ Biotechnology uses living organisms to make products that provide a new use. Nanotechnology involves the manipulation of matter at the atomic level to impart materials or devices with performance characteristics that far exceed those predicted for bulk materials and single atoms or molecules. Astrobiology is the study of the origins, evolution, distribution, and future of life in the universe.

provides the long-term vision and high-level implementation strategies for developing and managing a research and development campus utilizing adjacent properties for collaboration and development, but separated by a fence from the secured Ames Campus where NASA operations occur.

To accomplish this goal, the Development Plan outlined changes to 234 acres inside the Ames Campus and the establishment of the NASA Research Park (NRP) district consisting of 140 structures on 213 acres located just outside the Ames Campus fence. Other areas included the Bay View district, which was envisioned as the primary location for short-term housing while the Moffett Airfield district was considered essential to continuing NASA’s aerospace research and development activities. Figure 1 shows the property districts adjacent to Ames Campus—all owned by NASA.

Figure 1: Ames’ 2002 Property Districts and Development Plans

- District:** NASA Research Park
Number of Acres: 213
Development Plan: Build about 2,000 housing units and develop university campus and ancillary facilities for sports, fitness, dining, parking, and other campus-style amenities.
- District:** Moffett Airfield
Number of Acres: 952
Development Plan: Refurbish Hangar 1 and build an educational facility, with an option to rebuild the control tower.
- District:** Air National Guard
Number of Acres: 100
Development Plan: No plans to develop property.
- District:** Bay View
Number of Acres: 42
Development Plan: Build about 1,000 housing units, office spaces, and ancillary facilities.



Source: NASA Office of Inspector General (OIG) presentation of 2002 NASA Ames Development Plan.

Twenty years after the Development Plan was established, Ames continues to use it as a roadmap to develop its shared-use campus. As part of this plan, the Center is leasing space within existing buildings in the NRP district and hangars in the Moffett Airfield district. Additionally, Ames is leasing parcels of underutilized land in the Bay View and NRP districts with the intention of developing the space into offices, research facilities, and housing. For example, Ames entered into multiple leases with Planetary Ventures, LLC (a subsidiary of Google LLC) to develop offices and housing units in the Bay View district and refurbish hangars, use the airfield and golf course, and develop an educational facility in the Moffett Airfield district. Additional leases include one with The Regents of the University of California, Berkeley (UC Berkeley) to develop land in the NRP district into laboratories, offices, classrooms, and retail shops and with Mountain View Housing Ventures LLC (MVHV) to construct housing units along with recreational and dining facilities in the NRP district.

Ames is using leases managed by the NRP Office to attract tenants as potential partners for collaboration with the Center. The NRP Office has overall responsibility for issuing and managing the leases, determining and monitoring rent and service charges, and coordinating tenant needs with other Ames offices.⁴ In October 2020, the Center had 41 active leases with 36 tenants managed by the NRP Office (see Appendix B for a complete list of leases). Since that time, 14 of those leases have expired or been terminated and one additional lease has been added, resulting in 27 active leases as of December 2021.

Enhanced-Use Lease Authority and Requirements

NASA enters into leases for underutilized assets that support current or future NASA mission requirements.⁵ Since 2003, Congress has granted NASA the authority to develop underutilized property using EULs, initially only at two of NASA's Centers—Ames and Kennedy Space Center—which the Agency selected.⁶ Specifically, the law allowed NASA to accept cash and in-kind consideration from federal and non-federal entities for real property leases at fair market value and for the Agency to retain the proceeds.⁷ NASA's ability to include in-kind consideration as part of new EULs ended on December 31, 2008, except in limited circumstances.⁸

EUL benefits for NASA include establishing programmatic relationships and joint missions with external partners, as well as obtaining a revenue stream to support NASA facilities. Under the EUL authority, 35 percent of the net revenue is managed by NASA Headquarters while the remaining 65 percent is available to the Center to be used for maintenance, revitalization, and improvements of real property assets.⁹ Congress extended NASA's EUL authority in 2007, 2017, 2018, 2019, and 2022; however, the current authority to enter into new EULs is set to expire on December 31, 2022.¹⁰

Ames oversees the largest inventory of leased property and receives the most rent revenue at NASA. As shown in Table 1, in FY 2020 Ames received over \$9 million in net revenue, of which it retained almost \$6 million for improvements and revitalizations to the Ames Campus while the remainder went to NASA Headquarters.

⁴ In December 2020, NASA management approved the centralization of the real estate program to the Facilities and Real Estate Division at Headquarters.

⁵ NASA Procedural Requirements (NPR) 8800.15C, *Real Estate Management Program* (February 24, 2015). The NPR is currently being updated and is expected to be finalized in 2022.

⁶ Consolidated Appropriations Resolution, 2003, Pub. L. No. 108-7 (2003). While Ames and Kennedy Space Center were the only two Centers initially selected for EUL authority, since 2008 all NASA Centers have the authority to enter into EULs.

⁷ In-kind consideration is a non-cash payment from the lessee such as maintenance, construction, modification, or improvement of facilities on NASA real property, as well as the provision of services to NASA. Fair market value is the value of property as determined by the marketplace (or objective purchasers) rather than as determined by a subjective individual. Fair market value is developed through an appraisal using a certified appraiser, the U.S. Army Corps of Engineers, or other appropriate means that can substantiate the fair market value of the rent determined.

⁸ The Agency's ability to include in-kind consideration as part of a new EUL was limited after December 31, 2008. Ames was permitted to accept in-kind consideration if the EUL related to the development of renewable energy production facilities; all other EULs entered into after that date could be for cash only.

⁹ The Consolidated Appropriations Act, 2010, Pub. L. No. 111-117 (2009).

¹⁰ Pub. L. No. 110-161 (2007), Pub. L. No. 115-10 (2017), Pub. L. No. 115-403 (2018), Pub. L. No. 116-94 (2019), and Pub. L. No. 117-103 (2022).

Table 1: FY 2020 Ames' Enhanced-Use Lease Revenue

Rent Revenue Breakdown	Amount (Dollars in Millions)
Base Rent Collected	\$11.3
Minus: Total Costs Associated with Leases	\$2.1
Net Revenue from Leases	\$9.2
Revenue Allocation	
NASA Headquarters' Share (35 percent of Net Revenue)	\$3.2
Retained by Ames (65 percent)	\$6.0

Source: NASA OIG presentation of data from the NASA FY 2020 Enhanced-Use Lease Revenue report.

Note: Dollar amounts are rounded.

NASA has established policy and a desk guide for Ames and other Centers to follow and consult when executing their EUL authority.¹¹ Under these requirements, Ames must submit all EULs, regardless of scope, duration, or amount of revenue, to the Facilities and Real Estate Division (FRED) Director at NASA Headquarters for review and approval.¹² The Center is also required to certify that the property is underutilized, required to support current or future missions, and leasing the property will have no negative impact on NASA's mission. Prior to advertising the property for lease, Ames must prepare and submit a business case to FRED that provides an in-depth description including requirements, risks, mitigation, and benefits as well as the financial justification based on a life-cycle cost analysis for the EUL. EULs with non-government entities must be competed to ensure fairness to all parties and the best value to the government. Ames is required to ensure that rent or in-kind consideration under the EUL is not less than the fair market value of the property and use a certified appraiser or other appropriate means to substantiate the value of the rent. Additionally, termination language that protects the best interest of NASA and the government must be included in the lease.

Finally, the EUL should be coordinated with the Center's Chief Counsel and the Finance, Safety, and Environmental offices. NASA guidance also recommends that any Ames lease be immediately reported to Ames Protective Services Office (PSO) to ensure the Security office can take the appropriate steps to maintain adequate security as set forth by NASA policy. NASA requirements also place restrictions on EULs such as not (1) permitting EULs between NASA and another federal agency, (2) including the cost of additional services such as custodial or trash collection services, and (3) charging civil servant management activities against EUL revenue.

Key Roles and Responsibilities

Multiple organizations at both the Headquarters and Center levels have responsibility over NASA's leasing and EUL process. FRED maintains overall authority for NASA's real estate program. This includes responsibility for establishing and ensuring compliance with federal and NASA real estate requirements, as well as reviewing and approving all EUL documents and amendments. FRED is also responsible for non-EUL leases such as those under the National Historic Preservation Act.¹³ At the local level, Center

¹¹ For purposes of this report, real estate requirements are outlined in NPR 8800.15C and guidance in *NASA Real Estate Desk Guide* (June 2016). The Desk Guide is designed to assist in compliance with policy, federal laws, and regulations.

¹² In June 2016, Ames received limited delegated authority to execute amendments to lease terms from 2016 through 2019.

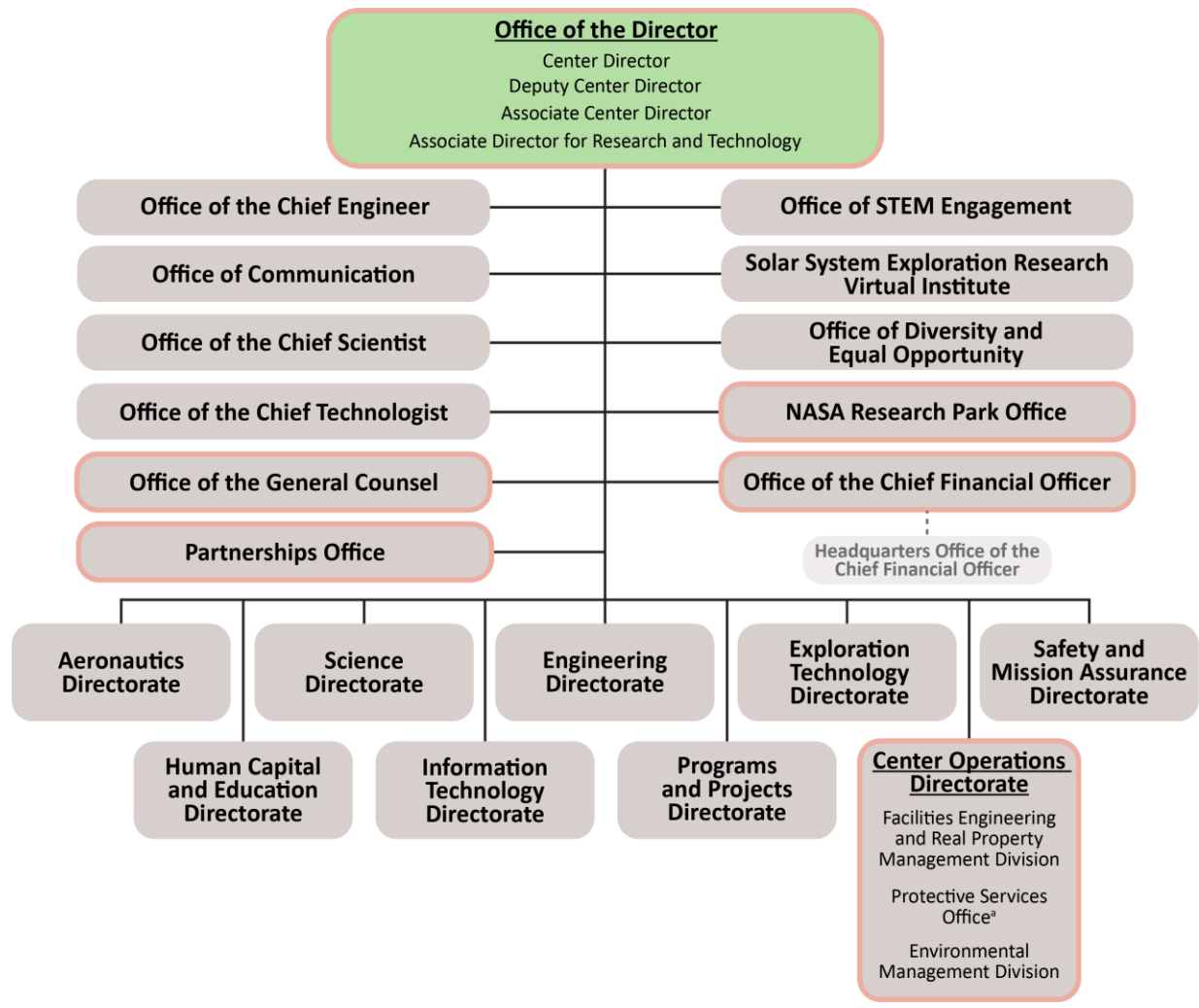
¹³ National Historic Preservation Act, 54 U.S.C. 100101.

Directors are considered the “owners” of all real property at their location and are required to appoint a Real Property Accountable Officer (RPAO) to be party to and support coordination of all real property agreements from concept to finalization and be a representative in all meetings pertaining to real property agreements. NASA requirements state the RPAO is responsible for developing strategies for real property and overseeing the development, review, and approval of all out-grant agreements (including EULs).¹⁴ Specifically, the RPAO sends the EUL to FRED for review and ensures the Center Director’s certifications related to the future use of the asset and the lease not having a negative impact on NASA’s mission are included. The RPAO is also responsible for ensuring the Center complies with laws, regulations, and NASA policy when conducting real estate transactions and maintaining coordination with both NASA Headquarters and Center offices such as Security, Facility Operations, Environmental, and the Chief Counsel. The current RPAO at Ames was appointed in 2017 and up until December 2020 reported to the Facilities Engineering and Real Property Management Division within the Center Operations Directorate. Beginning in August 2021, RPAOs began reporting to FRED at Headquarters.

Figure 2 illustrates the organizational structure at Ames and highlights those offices (outlined in pink) with major involvement in the Center’s lease process.

¹⁴ Out grants are real estate agreements granting the use of NASA real property to another party. Out grants include EUL agreements, Space Act Agreements, Commercial Space Launch Act Agreements, and Commercial Antenna Siting Agreements.

Figure 2: Ames' Organization Chart and Offices Involved in the Lease Process (as of April 2022)



Source: NASA OIG depiction of Ames information.

^a Ames PSO was managed and funded by the Center until 2020. Since that time, the office was transferred to the Headquarters Office of Protective Services.

NASA Research Park Office

The NRP Office at Ames manages the Center's lease process. The office employs seven civil servants, three contractor staff, and a consultant, and in FY 2020 had a budget of approximately \$3.5 million. The NRP Office is headed by a director who reports to the Ames' Office of the Director's management team. In June 2020, Ames developed a policy directive for real estate development and the management of leases that outlined the NRP Office's responsibilities.¹⁵ Prior to this time, Ames did not have such a written policy. As stated in Ames' policy, the NRP Office is responsible for providing ongoing oversight, operations, and maintenance of the NRP district and managing the real estate program in

¹⁵ Ames Policy Directive 8812.1, *NASA Research Park Office* (June 30, 2020).

accordance with NASA requirements. This includes managing the programmatic mix of tenants; coordinating lease agreements; overseeing the pre-development, development, and long-term occupancy stages of leases; review and approval of tenants; and negotiating lease agreements and amendments with new and existing tenants. The NRP Office coordinates the review and concurrence of leases from other Center offices such as the Office of the Chief Financial Officer (OCFO), PSO, Facilities Engineering and Real Property Management Division, and Partnerships Office.¹⁶ In addition, the NRP Office is also responsible for coordinating permits and licenses from concept to finalization and coordinating tenant needs with other Ames offices. The NRP Office represents Ames in all meetings pertaining to lease agreements and ensures fair market value is received through appraisals or other appropriate means. Finally, the NRP Office is responsible for reviewing and approving all land use, planning, and development decisions related to proposed tenant and existing tenant development.

Ames Office of the Chief Financial Officer

The OCFO at Ames supports lease activities by providing monthly reports of tenant rent collections and delinquencies to the NRP Office account managers, calculating annual institutional service pool rates applicable to tenants, preparing the annual EUL revenue report, conducting a rent analysis in coordination with the NRP Office, and evaluating proposed lease payment schedules when needed.¹⁷ In addition, the OCFO prepares the Center's annual budget by coordinating with mission directorates and other institutional offices such as the PSO.

Ames Protective Services Office

Ames PSO was managed and funded by the Center until 2020. Since that time, the office has been transferred to the Headquarters Office of Protective Services (OPS). The Ames PSO provides security, fire, and emergency response services 24 hours a day, 7 days a week to protect Ames' property, employees, contractors, and tenants. In FY 2020, Ames PSO employed 12 civil servants and managed a security, fire, and emergency services contract with 124 contractor employees with a budget of approximately \$22.6 million. NASA's real estate guidance recommends Centers involve the PSO in the lease process to ensure adequate security standards are met for the property.¹⁸ Further, NASA security requirements state the PSO must integrate and maintain oversight of all Center security activity, including that of tenant organizations, and ensure security requirements and provisions are identified at the outset of new or changing programs and construction activities.¹⁹ Lastly, all NASA managers must support the PSO in implementing comprehensive security programs and services.

Ames Facilities Engineering and Real Property Management Division

The Facilities Engineering and Real Property Management Division at Ames provides the Center several support services including facility engineering (engineering analysis, design, and construction), Center maintenance, grounds care, energy conservation, minor construction, facility planning, facility

¹⁶ The Partnerships Office provides Center-level strategic policy and procedural guidance for all domestic and unclassified partnerships.

¹⁷ Service pools are a means of accumulating and distributing similar costs that cannot be directly associated with a particular project at the time the costs are incurred. These costs are subsequently distributed to projects by an assignment or allocation methodology that best represents the types of costs in the pools.

¹⁸ *NASA Real Estate Desk Guide* (June 2016).

¹⁹ NPR 1600.1A, *NASA Security Program Procedural Requirements* (August 12, 2013).

utilization, real property management, and support to all occupants. The division is also responsible for implementing and managing the construction process including approving all applications, construction and design documents, and permits submitted by Center personnel and tenants.

Ames' Lease Process

As previously noted, Ames did not have a Center-specific policy addressing real estate development and management of leases by the NRP Office until June 2020. The Center's current written policy states that the NRP Office is to manage the leasing process and follow Agency-level policy when executing leases. Since 2003, the NRP Office has used flowcharts detailing the lease process, however, the detailed written procedures to carry out the lease process remain undocumented. The procedures described below are based on discussions with the NRP Office Director and staff personnel. According to NRP personnel, property available for lease is posted on the NRP website. Interested parties submit requests to the NRP Office Director through written communication by letter or an intake form that requests information on the entity such as the type of business and whether it has any prior or current work with NASA. According to the NRP Office Director, officials from the Center's directorates, Office of the Director, and other Center employees often refer entities to the NRP Office as potential lessees.

Once requests are received, the NRP Office reviews the requests, validates whether the technical capability or work provided by the entity aligns with NASA's and Ames' missions, matches the entity to available properties, conducts research as needed to determine the financial stability of the entity, and provides the entity's business information to Center management that includes Ames' members of the Executive Council—which is composed of executives from the Center's mission organizations (Aeronautics, Science, Exploration and Technology, and Programs and Projects) and other organizations, including OCFO and General Counsel for review and approval. Once approved, the NRP Office Director, in coordination with the Ames Office of the General Counsel, negotiates with the proposed tenant and drafts the lease agreement which includes the rent, amount of space, security terms, and liability insurance. The draft lease is uploaded to NASA's Partnership Agreement Maker system so it can be routed to the appropriate Center offices for review including Ames' OCFO, Facilities Engineering and Real Property Management Division, Environmental Management Division, and PSO, as well as to the Center's Counsel and RPAO. After comments are addressed and proposed revisions are concurred to by internal Ames personnel, the agreement is routed to Headquarters. Finally, the FRED Director approves the lease and the Ames Center Director signs the agreement.

AMES' LEASE PROCESS IS INADEQUATE TO ENSURE AGREEMENTS ARE IN THE BEST INTEREST OF NASA AND HAS RESULTED IN MILLIONS OF DOLLARS IN FOREGONE REVENUE

Ames' lease process lacks adequate controls to ensure accountability, does not adequately protect NASA's interests, and is not in compliance with federal laws and NASA policies. We found the process is inconsistent with NASA policies and does not always utilize the Real Property Accountable Officer (RPAO) and the Facilities and Real Estate Division (FRED) at Headquarters. The process has resulted in non-compliance with NASA policies and procedures pertaining to property leases. We also found Ames did not perform life-cycle cost analyses, compete leases, incorporate appropriate clauses and certifications in the lease documentation, document decisions adequately, coordinate among key Center offices involved in the lease process, and ensure fair market value rent was consistently obtained. As a result, Ames at times entered into leases that are not in NASA's best interest. Moreover, Ames' actions have resulted in the Agency foregoing millions of dollars in leasing revenue that could be used to improve its aging facilities and infrastructure.

Ames' Lease Process Lacks Adequate Controls to Ensure Accountability

The Center's process is inconsistent with NASA policies to award and manage Center leases and lacks the accountability and transparency necessary to ensure fidelity and protect the best interests of NASA and the government. The process is unique to Ames and deviates from the Agency's official lease process.

The NRP Office, responsible for managing the lease process at Ames, bypassed two key controls in NASA policy that require the involvement of (1) the RPAO at Ames who is responsible for ensuring the lease process complies with policy and (2) FRED at Headquarters to review and approve leases and amendments. According to NASA policy, in the absence of another NASA official designated by the Center Director (in writing), the RPAO is responsible for developing and negotiating lease agreements for the Center and bringing these leases to completion by planning the proposals, submitting them to FRED for approval, and managing related documentation. At Ames, however, the NRP Office Director rather than the RPAO is primarily responsible for managing the Center's lease process even though no written designation exists, as required by NASA policy, for the NRP Office Director to perform these duties. The RPAO, despite being the Center's trained real estate expert responsible for developing and negotiating leases, has been participating in lease negotiations only when invited by the NRP Office Director. According to the NRP Director, most of Ames' leases need expedited reviews and approvals, which in our view is the reason the leases are executed without the RPAO's input.

NASA policy requires that FRED review and approve all EULs regardless of their length and leases other than EULs with terms 5 years or longer.²⁰ For the 11 non-development leases we reviewed, 6 were amended and extended on a year-by-year basis to durations far beyond 5 years with some tenants leasing property for more than 10 years without the appropriate FRED reviews or approvals.²¹ In two of the four development leases included in our sample, Ames involved FRED late in its decision-making process after Center personnel negotiated the terms of the leases.²² According to FRED officials, Ames did not provide their office sufficient time to review and approve the lease terms. For example, in October 2020 Ames entered into a 70-year EUL agreement with UC Berkeley to develop over 36 acres of land in the NRP district into laboratories, offices, classrooms, and retail shops. The EUL includes two options for UC Berkeley to unilaterally extend the lease for a total lease length of 99 years. Center and Agency personnel wanted to execute the lease prior to NASA's EUL authority expiration, which at that time was December 31, 2020. However, despite previously identified concerns from FRED staff related to incomplete agreement documents and lease clauses permitting the tenant to demolish NASA facilities without compensation, Ames' Office of the Director officials bypassed FRED and presented the lease to the NASA Administrator to expedite its approval. In addition to FRED, other Headquarters organizations expressed concerns. For example, OPS was concerned about the security costs associated with the lease and the OCFO expressed concerns over the fair market value of the property.²³ Consequently, FRED officials said they felt pressured to approve the lease despite these concerns, and even noted in their documentation that they were "directed" to approve the lease.

In another example, in December 2018 Ames executed a 72-year EUL with Mountain View Housing Ventures (MVHV) for the design, construction, and management of about 2,000 housing units as well as accompanying recreational and dining facilities in the NRP district. Contrary to NASA requirements, Ames did not timely route the original agreement to the RPAO, FRED, or other Headquarters' offices for approval before executing the lease. In fact, FRED did not review the agreement until 2 months after it was signed by the Ames Center Director.²⁴ The first amendment to the lease, developed in December 2020, was not approved in the Partnership Agreement Maker system and FRED was only given 24 days to review and approve the second amendment—which in their opinion is not sufficient time for a lease of this magnitude. As of July 2018, the fair market value of the leased land was \$190 million.

²⁰ 14 C.F.R. § 1204.504, *Delegation of authority to grant leaseholds, permits, and licenses in real property* (2014), imposed other restrictions on the delegation to grant a leasehold, permit, or license to any person or organization, including other government agencies, a state, or political subdivision or agency thereof.

²¹ Of the 15 leases in our sample, 13 are EULs, one is a National Historic Preservation Act lease of historic property (Carnegie Mellon University), while the other is an Adaptive Reuse lease of the Ames Moffett Airfield. All leases fall under NPR 8800.15C purview.

²² For the purposes of this report, we defined a development lease as a lease for land whereby the tenant is responsible for designing, developing, financing, constructing, and managing the conversion of land into research facilities, offices, housing, classrooms, shopping centers, or other facilities.

²³ Headquarters OPS's approval of the lease in March 2020 was based on Ames' assurance that the Center would provide the necessary funding for the appropriate security enhancements in the areas that a waiver cannot be justified. In addition, funding would be provided to OPS to support increased contractor services that are a direct result of the agreement.

²⁴ According to Ames personnel, the official concurrences in NASA's Partnership Agreement Maker system were impacted by the FY 2019 federal government shutdown. However, the routing to stakeholders began on December 21, 2018, with the objective of completion before expiration of the EUL authority on December 31, 2018.

The Ames Center Director expressed concerns over FRED's ability to respond timely given the threat of expiration of the Center's EUL authority. In our opinion, these concerns can be addressed by following the NASA policy to involve the RPAO and FRED at the beginning of the lease process to assist in planning and coordinating timelines and resources needed for reviews and approvals.

By not consistently involving the RPAO or FRED in lease reviews and approvals, Ames is bypassing Agency requirements and controls to ensure the leases are in the best interest of the Center and NASA. Involving the RPAO and FRED up front would enable an iterative process of reviews to ensure leases are supported by the required elements (life-cycle cost analysis, competition, certifications, termination clauses) and the agreements include terms and conditions that ensure fair market value for the property.

Life-Cycle Cost Analysis Not Performed

During the lease planning and proposal phases, key documents such as the life-cycle cost analysis were not prepared for the four development leases in our sample: Planetary Ventures at Bay View and Moffett Airfield, MVHV, and UC Berkeley. Without these documents, Ames management lacked accurate information on the short- and long-term costs to the Center and the significant workload and resource impact these types of leases may impose on Ames' institutional offices. A life-cycle cost analysis is important because it provides a basis to determine the lease agreement's economic value to NASA and alternatives for efficiently managing the leased property, as well as ensures the Center has evaluated all costs related to the property under the proposed lease's duration.²⁵ A life-cycle cost analysis provides a detailed estimate of NASA's projected full costs including non-reimbursable costs for facility maintenance or repair; reimbursable costs such as security and fire protection; and the cost to administer the lease, which includes costs for site preparation, appraisals, real property agreement management and administration, and building maintenance and repairs.

In four of the development leases we reviewed, Ames personnel did not develop a life-cycle cost analysis for any of the leases. Instead, Center staff conducted an analysis of reimbursable costs only, significantly less comprehensive than a full life-cycle cost estimate. The life-cycle cost analysis is crucial for Ames to understand the full cost of administration and management of the lease and help ensure decision makers have sufficient information before deciding whether to execute a lease. The reimbursable cost analyses did not include lease management and administration costs incurred by Center personnel for legal, financial, and other administrative services (such as building inspections and construction permits) related to administering the leases. While these costs are not billable to the tenant, they are important for decision makers when weighing the level of effort needed to administer and manage leases. In our opinion, these costs can be significant and a failure to identify all relevant costs up front can lead to institutional offices experiencing staffing and funding issues to support the leases.

²⁵ NPR 8800.15C requires the life-cycle cost analysis to conform with Office of Management and Budget Circular No. A-94 Revised, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs* (1992) which guides the benefit-cost and cost-effectiveness analyses.

Leases Were Inconsistently Competed, Lacked Required Certifications and Clauses, and Were Inadequately Stored or Missing Documentation

We found that Ames' leases were not consistently competed and lacked required certifications or termination clauses, and that a centralized database of necessary lease documentation was not maintained. First, except for two development leases, Ames' lease process did not adequately follow NASA's competition requirement in awarding leases. We found 13 of 15 leases we sampled were not competed as required, nor did Ames seek a competition waiver in these cases. NASA requirements stipulate that for leases with non-government entities, competition must be used, and Centers must ensure the opportunity is made available to the widest possible competitive market. NASA's intent is to ensure fairness to all parties and best value to the government. Competition may be accomplished through public announcements or other federally authorized advertising methods. Further, a waiver from FRED is required if competition is not utilized. According to the NRP Office Director, only two leases at Ames were competed since inception of the Center's EUL authority in 2003.²⁶ The NRP Director contended that the competition requirement was fulfilled by advertising properties on the NRP website and through other avenues such as open house events or word-of-mouth outreach to existing tenants. In our opinion, advertising on the Ames website and conducting open house events are for informational purposes and only serve to solicit future interest; these activities do not meet the definition of competition in NASA's leasing policy because they lacked specifications such as vacancy location, size, and rent. In addition, word-of-mouth advertising does not sufficiently reach all potential interested parties.

Second, Center Director's required certifications were not consistently prepared or submitted to FRED. Of the 15 leases we reviewed, 1 lease included 2 required certifications, 9 leases had only 1 certification related to "no negative impact to NASA's missions," while 5 leases did not include any certifications. Absent these certifications, it is unclear whether the leased property was needed for future NASA missions and whether the lease would not have a negative impact to NASA's mission.

Third, Ames did not consistently incorporate termination clauses as required to protect NASA's interests.²⁷ Our review found that 6 of the 15 sampled leases did not include the required termination clauses. Not incorporating termination clauses violates a statutory requirement, but more importantly the Agency is at a disadvantage in the event that NASA determines the need to terminate a lease is in the interest of the space program, national defense, or public welfare. In such a scenario, the Agency may be liable for the cost of terminating the lease, including legal and tenant costs such as moving and related expenses.

Finally, NRP Office and Office of the General Counsel personnel stored some of the lease records and associated documentation in a decentralized manner. In some instances, lease negotiation documents such as justifications or decisions on lease terms, review comments and decisions, and tenant selection justifications were not documented. Without robust documentation and an accompanying process, the

²⁶ Ames had 41 active leases as of October 2020. After excluding 6 federal, state, and local government leases, 35 leases should have been competed as required by NASA policy. The two competed leases were for Planetary Ventures at Moffett Airfield and MVHV's lease.

²⁷ 14 C.F.R. § 1204.504 requires the inclusion of termination clauses in the leases without cost to the government if there has been: (1) a failure to comply with any term or condition of the grant or (2) a determination by the Assistant Administrator for Strategic Infrastructure, the Director, Integrated Asset Management Division, or the Center Director concerned that the interests of the national space program, national defense, or public welfare require the termination of the interest granted.

decisions Ames is making on \$11.3 million in annual EUL revenue and associated in-kind consideration lacks transparency and accountability and may not represent the best economic interest of NASA and the government.²⁸

Inadequate and Untimely Coordination with Center Offices

The NRP Office did not consistently involve several key Center offices such as the OCFO and PSO in the review and approval of leases as required by NASA policy. Inadequate and untimely coordination among these offices occurred because the RPAO—the official responsible for coordinating lease reviews and concurrence with Center offices—was not consistently involved during the entire lease process. This lack of coordination has led to issues such as the OCFO failing to review tenant’s financial records to ensure financial accountability and the PSO not being involved to ensure security requirements were identified and agreed upon. Furthermore, as stated previously, the lack of documentation for negotiation, review comments and decisions, and tenant selection justifications hampered our ability to determine the rationale for various outcomes on leases.

Lack of Coordination with Ames Office of the Chief Financial Officer

Our review found two leases that lacked sufficient review by the Ames OCFO which resulted in agreements not in the best financial interest of NASA. The OCFO is responsible for ensuring agreement costs, revenues, and liabilities are properly recorded; providing an estimate of NASA’s full costs of resources (facility, land, lease costs, services, and other costs); and auditing the tenants’ financial records since the rent for certain leases is based on the entity’s revenue.

LifeSource Biomedical, LLC. In July 2008, Ames entered into a 5-year EUL agreement with LifeSource to rent space within the Ames Campus’ Space Biosciences Laboratories.²⁹ The OCFO did not audit the tenant’s financial records and the lease contradicted the EUL authority regarding fair market value rent requirements and resulted in a significant rent credit to the tenant.

The lease was signed by Ames months before Congress rescinded NASA’s authority to accept in-kind consideration for EULs in December 2008. The lease terms included operation and maintenance of the facility and animal care services. Initial rent for the first 5 years was set at 10 percent of the tenant’s annual net revenues but could be offset by facility maintenance costs and animal care services at fair market value.³⁰ In FY 2017, almost 9 years after the authority for in-kind consideration expired and 4 years after the initial lease term ended, Ames retroactively extended the lease with LifeSource to FY 2019, unilaterally lengthening the in-kind consideration authority to a total of 11 years, and further decreasing rent from 10 to 4 percent of the tenant’s net revenues. Meanwhile, the tenant continued to

²⁸ NASA FY 2020 Enhanced-Use Lease Revenue report.

²⁹ LifeSource is a research facility that offers technical services, housing, and husbandry options for a variety of species such as rodents, mice, and rats. The premise behind the EUL with LifeSource was to enable Ames’ Science Directorate to develop its animal research program.

³⁰ Net revenue or income is the amount of money a business brings in from sales and services in a given period minus the expenses it incurred over the same period, whereas gross revenue or income is the amount of money a business brings in from sales in a given period without any deductions.

charge NASA for animal care services at market rates. The difference between the less than fair market value of rent charges of \$906,600 (4 percent of net revenues) and fair market in-kind animal services at \$1,134,400 resulted in tenant services exceeding its rent for FYs 2014 through 2019 and NASA owing the tenant \$227,800 for those services.

Since inception of the lease, Ames OCFO has not conducted an audit of the tenant's income, expenses, or percentage of net revenues, or a rent analysis prior to the tenant's rent decrease from 10 to 4 percent. We could not determine the reason for the retroactive rent decrease because documentation of the negotiations was not maintained. While the lease agreement stipulated that LifeSource must make available full and accurate books of account and records related to gross revenue and animal support services for NASA inspection and audit, Ames OCFO officials indicated that such records have never been formally audited for accuracy. The Center Operations Directorate and NRP Office did not coordinate the terms and conditions of the lease with the OCFO, and therefore they were unaware of the requirement to conduct the reviews and analyses.³¹ Further, OCFO personnel explained that administration of the lease from an accounting perspective has been a challenge. It was not until 2018 that the Ames Office of the General Counsel noted the significant excess rent credit generated by the in-kind considerations and reviewed the lease arrangement.

In an effort to remediate the excess rent credit, Ames Office of the General Counsel worked with FRED to reinstate fair market value rent starting in FY 2020, which turned out to be almost three times more than the FY 2019 rent which was calculated based on 4 percent of the tenant's net revenues. We estimated that had Ames charged rent at fair market value from FYs 2014 to 2019, the Agency could have realized at least \$1.13 million in net lease revenues even after paying for animal care services. While the current lease expires in September 2022, FRED indicated that moving forward they will ensure the animal care facility lease is competed and fair market value rent is charged as required per NASA policy.

Carnegie Mellon University. In January 2003, Ames entered into a lease agreement under the National Historic Preservation Act with Carnegie Mellon University (CMU) to renovate and use 19,000 square feet of space in Buildings 23 and 24 in the NRP district. The lease was for a minimum term of 30 years with two options to extend the lease for a total of 48 years. As a condition of the lease, Ames allowed CMU to offset its fixed quarterly rent with a credit amount of \$5.5 million spent for building improvements (an in-kind consideration). Ames also agreed to CMU accumulating interest annually on the unpaid credit balance. According to the 2003 lease schedule, Ames fixed CMU's annual rent for the first 15 years at \$5.3 million but found that amount insufficient to cover the \$5.4 million of

**Ames Building 23 in the NRP District
Leased to Carnegie Mellon University**



Source: NASA.

³¹ The Center Operations Directorate negotiated and issued the LifeSource lease. In 2018, the NRP Office took over management of the lease.

accumulated interest. Ames established these unfavorable lease terms that increased rather than reduced the in-kind credit balance at the end of the first 15 years, resulting in over \$60,000 interest added to the credit balance.

Our analysis found significant inequity in the financial arrangement that resulted in Ames not collecting any rent for the first 15 years of the lease, but also the Center owing more in credit to CMU than seems reasonable. For comparison purposes, if this arrangement were a home mortgage loan, this would be considered a negative amortization loan in which the customer makes regular payments, but the amount owed continues to rise rather than decrease because not enough is being paid to cover the interest. Such practices are prohibited in the State of California and District of Columbia. The NRP Office Director stated that the OCFO was consulted as a financial subject matter expert; however, there is no documentation of such a review. Additionally, Ames OCFO personnel have yet to review CMU's financial records since inception of the lease nearly 20 years ago, despite the agreement requiring those documents to be available for audit.

Furthermore, after Ames conducted a fair market value rent reappraisal in 2017, the Center did not use the reappraised value to establish a higher annual rent payment. That reappraised value would have increased CMU's rent by over 150 percent, and even then, we estimate the credit will still not be exhausted until September 2026. Subsequently, Ames applied lease agreement appraisal adjustment terms and conditions, and agreed to a lower rent which we calculated to be about 70 percent of the reappraised fair market value.³² In our view, this lease appraisal adjustment process favored the tenant while Ames established lease terms and conditions that put NASA in an unfavorable position to accelerate the drawdown of the rent credit. Thus, the credit amount will not be exhausted until June 2031. As a result, CMU will not pay rent for at least 28 years of the 30-year lease term. Overall, the Center will forgo rent totaling approximately \$2.4 million over the next 10 years by not establishing rent based on the reappraised value.

Lack of Coordination with Ames Protective Services Office

The NRP Office did not consistently and timely coordinate with the Ames PSO throughout the lease process, creating unforeseen costs and gaps in security. The inconsistent and untimely coordination presented a challenge for the PSO to timely assess security, fire, and emergency risks associated with the prospective four development leases in our sample; provide recommendations to mitigate those risks; estimate resource requirements for the leases' added services without negatively impacting existing operations; or advocate for needed funding to support the additional services the leases will require.

For example, we found a lack of consistent and on-going coordination and involvement of the PSO and NRP Office related to the MVHV lease. In 2018, the PSO Chief provided a recommended location for one primary security gate to enter both the Ames Campus and NRP district to avoid traffic backup on local roads considering the influx of cars entering the Center. However, his recommendation was not adopted, and instead, the NRP Office and tenant identified alternate location options for consideration without the PSO Chief's participation. In November 2021, Ames management subsequently decided to relocate the security gate to the PSO Chief's recommended location. According to the PSO Chief, since

³² Ames lease agreement with CMU allows an appraisal adjustment process to resolve landlord and tenant disagreement if the fair market value appraisals differ by more than 10 percent. Both parties engage a third appraiser to determine an agreed upon fair market value.

April 2022, this security gate location has been placed on hold because Center management decided to include the opinions of tenants (MVHV, UC Berkeley, and Planetary Ventures) on the gate's design, location, cost, and benefit to the tenants. Four years later Ames has not made a final determination on the gate location. This decision will negatively impact the tenant's cost and schedule as construction designs will have to be revised to ensure compliance with Agency policy. As a result of the NRP Office's decision to inconsistently include the PSO Chief in gate location discussions, Ames and the tenant will now have to devote more time and resources to addressing this issue.

Ineffective coordination among the NRP Office, PSO, and tenants is creating security gaps. As the office responsible for negotiating leases with tenants, the NRP Office did not include all applicable security requirements in the leases to inform tenants of their responsibilities as tenants on federal property. Most Ames leases we reviewed include a general term that tenants need to comply with federal and NASA security requirements but provide no references to specific requirements or point to any NASA guidance. As a result, tenants may be unaware of all the applicable requirements, such as providing the PSO advance notification of foreign national visitors coming onto the Center. For example, in 2018 the PSO was aware of a foreign national on-site from a designated country whose citizens require review and approval before entering federal property.³³ While the PSO requested that the NRP Office inform all tenants of NASA's foreign national requirements, the NRP Office did not provide complete requirements to tenants. In 2019, another NRP tenant brought a student intern on-site from a designated country requiring prior notification, review, and approval. The NRP Office explained that if they provided the advance notice requirement to tenants it could create the appearance that Ames was influencing tenant hiring or university enrollment decisions. In our view, the NRP Office should consistently coordinate with subject matter experts such as the PSO and Ames General Counsel to address their concerns while ensuring compliance with federal law and NASA security requirements.

Ames Lost Millions in Potential Revenue Due to Inadequate Use of Fair Market Value Assessments

NASA's EUL authority requires the Agency to receive fair market value rent. However, we found Ames' lease process did not ensure that an effective fair market value assessment of the leased property was obtained prior to negotiation or that fair market value was used to set a tenant's rent. Ames did not negotiate and receive fair market value for at least three EUL agreements we reviewed: Planetary Ventures at Bay View, UC Berkeley, and MVHV. As stated previously, the lack of negotiation and decision documentation has precluded us from evaluating the rationale for leases with other than fair market rent. These three leases provide the majority of the Center's lease revenues and, absent corrective action, will likely bind NASA to the terms of those leases for many years, in some cases 90 years or longer, resulting in millions of dollars of foregone rent revenue.

Planetary Ventures at Bay View. In May 2008, Ames entered into a 90-year EUL agreement with Planetary Ventures for the development and occupancy of a maximum of 1,205,000 square feet on approximately 42 acres in the Bay View district for office, research and development uses, daycare, fitness facilities, and residential housing. At the time, the land's discounted appraised fair market

³³ A designated country is a country with which the United States (1) has no diplomatic relations, (2) determined by the U.S. Department of State to be "State Sponsors of Terrorism" or identified by the U.S. Department of Commerce as "Terrorist Supporting Countries," (3) has a Sanction or Embargo, and (4) determined "Countries of Missile Technology Concern."

value was \$52.3 million.³⁴ The lease agreement included multiple clauses that would either cap the rent amount or reduce the basis for calculating rent. In our view, the lease terms are generous and provide the tenant multiple options to pay less than fair market value rent. These clauses are summarized below:

- *Reduced basis for calculating rent.* Every 10 years, the appraised fair market value of the premises will be reduced by the remaining balance of a \$20 million in-kind consideration.
- *Rent is capped.* Every 10 years, regardless of the fair market value appraisal and resulting rent calculated in the clause above, any rent increase is capped at 216 percent of the base rent in effect for year one of the preceding 10-year lease period.
- *Inflation rate is limited.* Rent increase is every 10 years between scheduled appraisals; however, increases should not exceed 15 percent in any 5-year period and no more than 3 percent inflation per year (the rate of increase in prices over a given period of time).

We determined the Agency will receive significantly less than fair market rent for at least the next 80 years. Specifically, lease terms restrict or limit rent increases regardless of fair market value of the land even though Ames also accepted in-kind consideration as a credit against the fair market value base rent. Per the lease's first rent reappraisal which occurred in 2018, over the 10-year period of the lease the fair market value grew by 254 percent (from \$52.3 million to \$185 million), yet Planetary Ventures' rent was increased by only 116 percent. At this rate, if property values continue to increase, Planetary Ventures' rent will never reach fair market value. We estimate that Ames is foregoing at least \$2.6 million in rent annually, or \$26 million over the next 10 years. Further, limiting the inflation rate to 3 percent or less per year for 90 years does not provide adequate flexibility for rent increases over time that are commensurate with the potential increases in inflation.



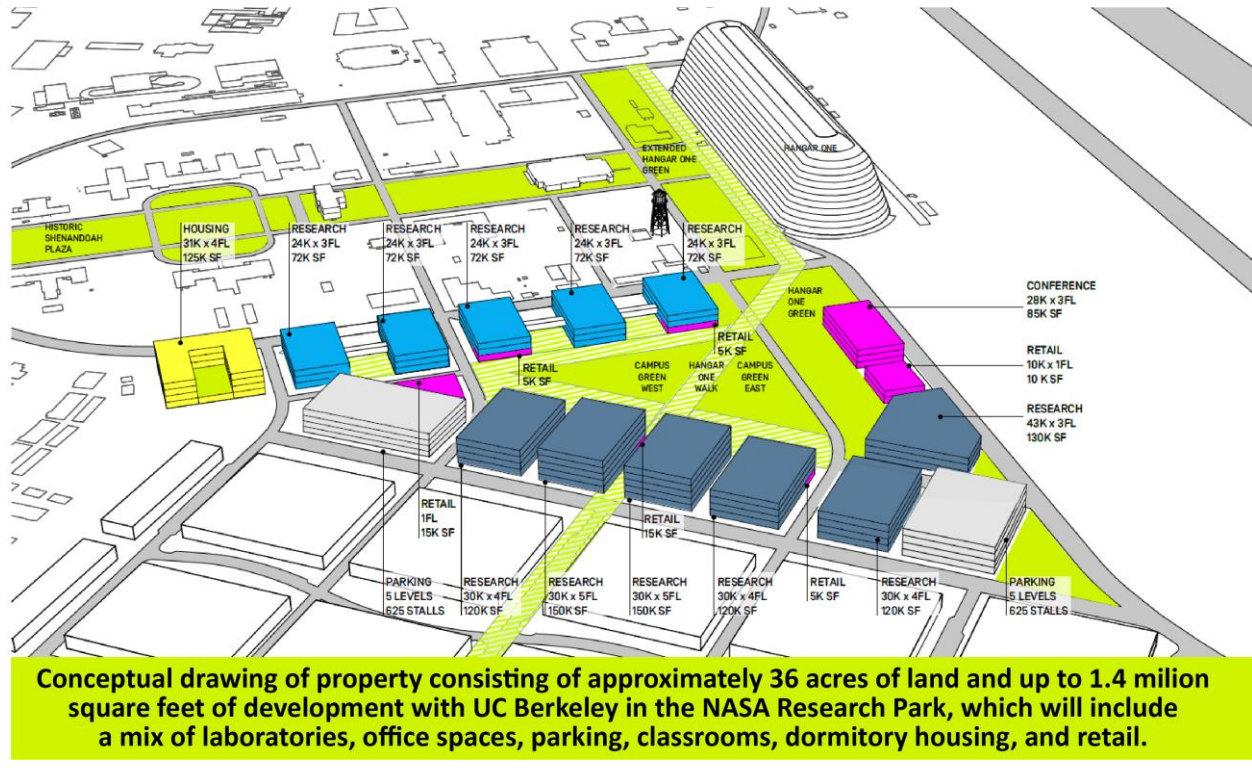
In addition, the lease includes a contingency clause that indirectly links the performance of an unrelated lease that if not met, would allow Planetary Ventures to abate rent (provides a period of free rent). As a result, Ames could potentially forego \$737 million worth of rental income over 30 years. There are few remedies available to Ames as these lease terms and conditions are likely irreversible unless the tenant breaches the contract.

University of California, Berkeley. In October 2020, Ames entered into a 70-year EUL agreement with options to extend the lease up to 99 years with UC Berkeley for the development of laboratories, offices, classrooms, and retail shops in the NRP district (see Figure 3). Ames did not utilize fair market value when negotiating rent with UC Berkeley despite the fair market assessment report that was issued in February 2020 after the lease was negotiated. Furthermore, Ames is charging minimal rent during the 3-year pre-development phase of the lease. We determined that had Ames negotiated rent based on fair market value, the Center could have earned between \$196 million to \$575 million for a period of 10 years instead of the \$8.7 million established in the lease. Additionally, Ames did not charge

³⁴ The non-discounted appraised value of the land in 2007 was \$72.4 million.

UC Berkeley rent during the first year of the lease, the transition phase, while the lessee was securing financial support and performing environmental assessments. As a result, the Center has forgone \$7.3 million of rental income associated with this transition phase.

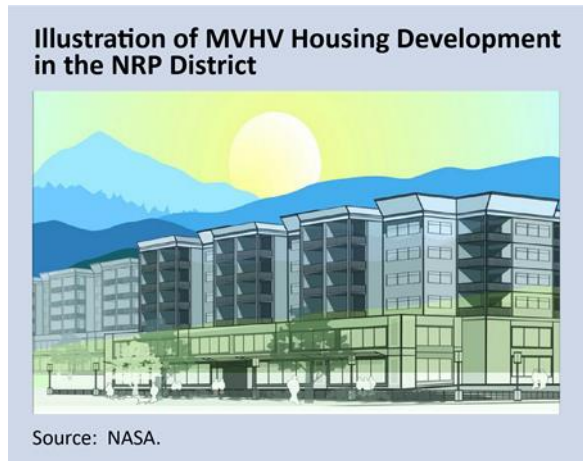
Figure 3: Illustration of UC Berkeley Development in the NASA Research Park District (as of March 2020)



Source: NASA.

Mountain View Housing Ventures. In December 2018, Ames entered into a 72-year EUL agreement with MVHV for the development, construction, and management of about 2,000 housing units as well as accompanying recreational and dining facilities in the NRP district. Ames negotiated the lease with MVHV using terms and conditions that were not in compliance with NASA requirements. In addition, the Center will not receive rent for the first 7 years of the project’s development.

Moreover, Ames did not determine MVHV’s rent based on fair market value of the land, which was valued at \$190 million. This rent arrangement does not comply with the EUL authority to charge rent based on fair market value. Additionally, Ames allowed MVHV to not pay rent as consideration to occupy government property for the first 7 years of the lease agreement. Initial rent will commence in January 2026 after the buildings are constructed and ready for occupancy. The rent will be based on the greater of \$100,000 or lesser of (1) the base rent percentage times the value of the land or



(2) 7.5 percent of the tenant's gross income. According to FRED's estimate, NASA could have received at least \$36 million in the first 7 years of the lease. In addition, NASA's annual rent after the eighth year could have been \$14.2 million based on an estimated fair market value instead of 7.5 percent of an unknown gross income amount. Charging rent based on percent of gross income creates an unstable and unpredictable revenue stream. This is not advantageous for NASA considering that EUL revenues will be used for projects to improve and enhance Center facilities that generally will require consistent funding. Furthermore, it would require additional OCFO resources to regularly audit MVHV's books and records to ensure accuracy of the reported gross income.

The Ames Center Director's opinion is that tenants can bring other non-monetary value to the research and development campus and that this value should be considered when determining a lessee's rent. However, in our view without documentation identifying and quantifying such non-monetary benefits or comparing them to the rent received in a manner consistent with a life-cycle cost analysis, decision-makers cannot fully understand the overall benefits to NASA.

AMES' LACK OF STRATEGIC AND PROGRAMMATIC APPROACH HINDERS PROGRESS TOWARD IMPLEMENTING ITS VISION OF A RESEARCH AND DEVELOPMENT CAMPUS

Ames' vision of creating a collaborative research and development campus is hindered by the Center not managing the implementation of the Development Plan holistically and by issuing leases that are not financially advantageous to the government. The Center lacks an effective strategic and programmatic approach to manage and measure its progress in achieving this vision and implementing the plan. Ames' Office of the Director relied primarily on the NRP Office to develop a research and development campus through the leasing of properties; however, as previously discussed, many of the leases we reviewed were not in the best interest of NASA or the federal government. Because Ames is not tracking the tenant's contributions to the Development Plan, the Center is unable to measure the benefits to NASA or the Center's strategic goals. As a result, Ames is foregoing partnership opportunities with other entities who are interested in collaborating with NASA, draining institutional resources, and increasing security risks to the Center.

Lack of an Effective Strategic and Programmatic Approach

Ames' vision is to develop a world-class, shared-use research and development campus through partnerships with industry, academia, nonprofits, and government entities where interaction between researchers and students will benefit NASA's and the Center's current and future missions. As outlined in its 2002 Development Plan, the intent is to collaborate with tenants in research areas in which Ames is leading the Agency such as information technology, biotechnology, nanotechnology, and astrobiology.

We found that the Center has not established metrics to determine whether it has been successful in achieving its vision of creating such a research and development campus. Instead of a holistic approach, Ames is implementing the vision piecemeal by issuing individual leases to industry, academia, and government entities without a clear overall strategy. While NASA has no specific requirements for how it implements a research and development campus, the *NASA Governance and Strategic Management Handbook* (Handbook) outlines a governance framework and lays the groundwork for the Agency to establish goals and objectives, formulate and implement strategies, allocate resources effectively, and manage safe and successful programs and projects in accordance with applicable federal laws and NASA requirements. In fact, the governance principles outlined in the Handbook can be utilized as a guide for

the Development Plan's implementation.³⁵ In general, the governance framework provides guidance on converting a vision into a program then planning, monitoring, and reporting progress, and assessing risks.³⁶

In our view, leases are a tool but not the only mechanism for creating a development and research campus. Implementing the Development Plan requires a more comprehensive approach than simply entering into leases and should consider other needs at the Center such as safety, security, and transportation.³⁷ The lack of a holistic approach has resulted in issues that may have significant short- and long-term financial impacts to the Center.

For example, Ames relied on the 2002 Programmatic Environmental Impact Statement and 2002 draft Transportation Demand Management Plan, which are components of the Development Plan, to address implementation of traffic, transportation, and roads by Ames' tenants.³⁸ However, these documents do not provide detailed planning with delineated actions for Ames to direct, manage, and coordinate developments by tenants to effectively achieve its goal of a research and development campus. Additionally, the documents do not reflect an overarching, systemic plan for traffic management; road construction to accommodate all employees, contractors, and tenants that will enter the Center; or utility services required from neighboring cities. The lack of a holistic approach has resulted in issues that may have short- and long-term impacts to the Center. Ames is currently experiencing traffic and utility issues associated with the new developments as discussed in this report. Remedying these various issues will involve both Ames and Headquarters personnel and resources to participate in meetings and document reviews—efforts that will not be reimbursed by the tenants.

Lack of Detailed Planning Inhibits Success

The absence of a detailed planning process to implement the Center's Development Plan resulted in an imbalance in management structure, insufficient stakeholder coordination, and an additional burden on institutional resources. While the Development Plan states that it would serve as a departure point for subsequent more specific planning documents and implementation activities, Ames has not developed such documentation. The Development Plan provides an overall goal of developing a world-class research and development campus but is not a detailed, executable implementation plan. The Center also prepared business plans in 2003, 2006, and 2020; however, neither the Development Plan or business plans incorporate cost, schedule, and risks, nor do the documents include details on the execution of key components such as environmental mitigations, traffic, roads, utilities, and leases

³⁵ NASA Policy Directive 1000.0C, *NASA Governance and Strategic Management Handbook* (January 29, 2020).

³⁶ NASA's governance structure ensures that management uses a disciplined approach to ensure a holistic perspective when weighing options and making decisions. Governance relates to consistent management; cohesive policies; and effective guidance, processes, and decision-making.

³⁷ The Development Plan references other planning documents such as the *Preliminary Environmental Impact Statement* which identified development of the research and development campus would increase the demand for transportation infrastructure and services and have significant impact to the three highways within 1 mile of Ames' entrance. In 2002, it was estimated that an additional 15,000 people would enter the Center.

³⁸ An Environment Impact Statement is required by the National Environmental Protection Act to assess the environmental consequences associated with the development such as noise, traffic, air quality, animal habitats, wetlands, historical resources, airport operations, hazardous materials, and public space and an assessment of various actions to mitigate the impact to the environment. The Transportation Plan informs tenants of traffic requirements to reduce environmental impact, among other things, for development on NASA property.

that are essential to fulfill this vision.³⁹ Considering the number of entities involved in new tenant development efforts—including Ames, NASA Headquarters, and local governments—as well as the numerous federal regulations and NASA and EUL authority requirements associated with new developments, the Agency would benefit from more detailed and documented plans related to the execution of the Development Plan. According to NASA’s governance framework, a vision should be converted into a program with detailed plans for execution. In our view, the Center’s implementation of the Development Plan lacked key components of the planning and implementation process such as establishing a management structure that enables checks and balances in the process, involving internal and external stakeholders consistently and timely throughout the process to identify development requirements and compliance with applicable security laws and policies, and identifying institutional resource needs.

Imbalance in Management Structure

Overall, we found Ames has not designated a program manager within a formal program management structure to plan, implement, execute, and manage the Center’s vision for developing a research and development campus. In general, NASA program managers are responsible for the safety, success, and performance of a program. Specifically, they define, fund, evaluate, advocate, and oversee the implementation of the program to ensure outcomes meet schedule, cost constraints, and performance requirements. The Development Plan encompasses both development and management of real estate as well as management of intended programmatic achievements such as collaboration with tenants in the research and development campus. In our view, these programmatic achievements are comparable to NASA’s management of achieving exploration and scientific missions. However, the NRP Office is primarily tasked with implementing the vision by managing leases and real property, which we believe is only part of what’s needed to fully implement the Development Plan. There is no documented implementation plan or formal management structure to oversee the development, accountability, and success of Ames’ research and development campus, including planning, execution, and monitoring responsibilities.

Furthermore, as delineated in the Handbook, an important element supporting the achievement of a mission or the Development Plan, which we view as a close proximity to a mission, is a management system that incorporates a robust system of checks and balances. Such a system maintains balance between organizations, promotes open communication, incorporates processes to ensure decisions benefit from different points of view, and achieves a proper balance between flexibility and formality. Particularly, a management system that incorporates processes for independent life-cycle reviews, tailoring requirements to fit specific tasks and dissenting opinions.

Currently, the NRP Office manages the real property side of the Development Plan under the auspice of the Office of the Director, unlike NASA missions in which the Center Director does not have programmatic authority. In our opinion, this organizational structure may create ambiguities in authorities and responsibilities among stakeholders, particularly coordination and communication may be perceived as a de facto directive to subordinate organizations. As a result, an imbalance among organizations may not sufficiently promote open communication, integrate different viewpoints, address dissenting opinions, and incorporate life-cycle reviews. Utilizing the principles outlined in the Handbook would allow the Center to take advantage of the different perspectives that each of its individual organizations—such as the OCFO and PSO—could bring in a more collaborative environment.

³⁹ NRP Business Plans dated June 2003 (draft), September 2006 (draft), and June 2020.

Insufficient Stakeholder Coordination

To establish a research and development campus, in conjunction with leasing activities, Ames needs to modify and expand infrastructure such as utilities and roads; expand security, fire, and emergency support; update and add required physical security measures; oversee new tenant construction; demolish facilities; and establish research and development collaboration with partnership agreements. To complete these efforts, numerous Ames institutional offices such as the OCFO, PSO, Facilities Engineering and Real Property Management Division, Partnerships Office, Office of the General Counsel, Environmental Management Division, and the NRP Office need to work closely together to ensure each has adequate information and funding to perform its respective function. Furthermore, external stakeholders, such as nearby cities and local authorities, must be involved early in the planning as well as throughout development of the research and development campus and all actions related to establishing the campus must be compliant with federal, state, and local regulations, as well as NASA requirements.

The lack of detailed planning has omitted essential coordination among internal and external stakeholders, caused undue delays in property development, and increased the risk of lapses in security and emergency support services. We found the Office of the Director did not consistently coordinate with institutional organizations such as the PSO, who is integral in implementing the Development Plan vision, or with local governments who provide utilities to the areas being developed. For example, the Center used a support service contractor to perform a security assessment of a development property; however, it did not obtain the input of the Ames PSO Chief, the Center's security resource manager and expert with the most familiarity with federal and NASA regulations.⁴⁰

Additionally, a 2018 security review conducted by Headquarters OPS recommended that Ames PSO be involved as new projects and construction continues around the Center to ensure security requirements are met. However, as discussed previously, the Ames PSO Chief (as a security subject matter expert) was not continually and consistently involved in all decisions or discussions to determine the location of a security gate related to the MVHV lease. The Office of Inspector General (OIG) identified a similar issue in a prior report that found Center PSOs were not consistently involved in assessing the level of effort, costs, or personnel requirements for commercial use of NASA properties and PSO managers had only limited involvement in both near- and long-term Center planning for such tenants. Ames' personnel, facilities, and operations may be at greater risk when the PSO is not involved early or in decisions and discussions throughout the process to ensure federal and NASA requirements are being met.

We also identified issues pertaining to Ames' lack of coordination and inclusion of external stakeholders such as the local governments that provide the Center's utility services. For example, MVHV's ability to build housing is predicated upon the construction of a sanitary sewage system, which is currently at risk because the cities that can provide the service do not have the capacity to accommodate MVHV's additional sewage discharge needs. As part of MVHV's master utility plan—approved by Ames in April 2020—the tenant proposed options to discharge sanitary sewage through either (1) the City of Mountain View under a new agreement or (2) the City of Sunnyvale, Ames' current sewage discharge service.⁴¹ Although the utility plan was approved more than 2 years ago, the sewage discharge issue

⁴⁰ Ames PSO is responsible for providing security, fire, and emergency services to occupants on federal property, both inside and outside of the Ames Campus, and ensuring the Center complies with security and fire requirements. The PSO does not provide security services to the Bay View district which is under the jurisdiction of Santa Clara County; however, the PSO provides fire protection.

⁴¹ Mountain View and Sunnyvale are the two neighboring cities to Ames located south and east, respectively, of the Center.

remains unsettled and Ames continues to have discussions with MVHV and both neighboring cities to determine the best option for the issue.

In a second example, in April 2020 Ames and MVHV agreed that one of the stormwater sewer lines required for the project would be located under a road within the NRP district. However, as of November 2021 Ames planned to relocate a key section of that road which would affect the tenant's construction of the stormwater sewer line. According to MVHV's January 2022 letter to an Ames official, if the road is relocated, NASA and MVHV will need to agree on a new location for the storm sewer and the utility plan would need to be revised, causing additional costs to MVHV and schedule delays. MVHV stated it cannot continue to proceed with the detailed design of the utility system until Ames finalizes the location of the road. In our view, these incidents of changing construction plans are indicative of the Center's lack of overall planning and proactive coordination with necessary internal and external stakeholders that result in additional Ames personnel costs to review MVHV's changed plans and potential impacts to other leases.

Additional Burden on Institutional Resources

The increase in security and facility services resulting from the implementation of the Development Plan is causing a burden on Ames personnel and funding that could have been mitigated with proper planning. Representatives such as the Ames PSO Chief and Facilities Engineering and Real Property Management Division Director should have been included in all meetings and discussions related to research and development campus activities to adequately convey the resource requirements and risks associated with the Development Plan. Various Ames personnel have informed us that the NRP Office involves representatives from organizations such as the PSO or Facilities Engineering and Real Property Management Division in initial meetings or those that are at a summary high level; however, these offices are not routinely and consistently involved in subsequent meetings or when issues and decisions are changed. In our view, because these organizations lack routine and consistent involvement during the lease process, they are not given the opportunity to provide the NRP Office and Center management with their expertise and advice. Furthermore, the offices cannot adequately plan for staffing and funding needs to support the tenants' development efforts.

Ames PSO is currently understaffed and challenged to meet current minimum security and fire requirements. According to the PSO Chief, for FY 2022 the PSO needs 4 additional civil service security employees, 18 additional security support service contractors, and 16 additional fire support service contractors to meet current and expected near-term security, fire, and emergency requirements. Staffing shortages within the PSO have been identified as an issue for more than a decade through internal security reviews and during a prior OIG audit.⁴² PSO staffing issues will be further exacerbated as additional civil service and contractor security and fire personnel will be needed when the development leases allow people and residents access to the Planetary Ventures' Bay View properties around 2025, MVHV properties after 2026, and the UC Berkeley facilities after 2030. Headquarters OPS and Ames management will need to assess, plan, and adequately fund Ames PSO staffing needs to ensure that when the additional people come onto NASA property that Ames PSO will be able to perform all their duties as stated in various NASA security requirements. For these three developments, the future influx of people is projected at about 15,000 in an estimated 3,000 housing units, plus retail

⁴² NASA Headquarters' internal security reviews conducted in 2010 and 2018 identified staffing challenges. In addition, a prior OIG audit determined that the PSO at Ames had an inadequate number of security personnel which resulted in staff being responsible for multiple duties that prohibited security from focusing on their specific protective services responsibilities.

and university space. For comparison, Ames Campus has about 2,500 employees and contractors occupying 500 acres, none of whom reside on the campus. Given the expected growth in the number of people on Center over the next 3 to 10 years, Ames PSO management will have to plan for the additional staff and supporting equipment needed and incorporate the associated costs into NASA's budget for the outyears.

Similarly, we found the Facilities Engineering and Real Property Management Division was not adequately and consistently involved in planning for the implementation of the research and development campus, and its staff is challenged to support competing Center and tenant facility services. The division provides tenants support services from contractors and NASA personnel to review numerous design and construction documents (from the tenants) that require NASA approval. Tenants pay for contractors' support costs, but they are not charged NASA civil servant personnel support costs. According to the Center Operations Director—who has overall responsibility for the Facilities Engineering and Real Property Management Division—there is insufficient capacity to support current Ames and tenant activities. As of March 2021, due to the large increase of reviews of tenant documents, prioritization and phasing of tasks is required to adequately review and approve tenants' property development construction documents, permits, and environmental assessments. While tenants are responsible for constructing and managing the buildings included in their development, NASA must approve their plans and designs in accordance with federal and state regulations. With the influx of building and construction in the NRP district from the MVHV and UC Berkeley leases, the Facilities Engineering and Real Property Management Division will require additional resources to support concurrent NASA projects and tenant development projects.

In addition, Ames will need to absorb costs associated with relocating NASA employees and tenants who are currently occupying spaces on properties being leased to MVHV, UC Berkeley, and a federal tenant.⁴³ Some previous relocation costs were not paid by the tenants because the costs were not included in the leases, and according to a Center Operations Directorate official these costs were absorbed by the Center Operations Directorate. In 2021, Ames required another federal tenant leasing space at the Center to pay relocation costs; nevertheless, there is no written requirement for all tenants to pay relocation costs going forward. According to a Center Operations Directorate official, in addition to civil service staff the division needs over \$1.4 million to support its current workload. The official further explained that in FY 2021 requests for services such as maintenance and facility design increased to a point that the division could not provide a response to meet the original schedule request. In our view, with the MVHV housing project looming in the future, it will be untenable for the division to support all necessary facilities services. The two ongoing Bay View and Moffett Airfield lease projects along with the MVHV housing development will add at least 15 buildings to the Center that will require construction permit reviews and inspections. The demand will be further compounded by the upcoming UC Berkeley development.

Finally, it will be necessary to demolish over 100 existing buildings and structures as part of the property developments. Ames must ensure the tenant's demolition process complies with federal laws, identify the scope of the demolition, coordinate with internal and external stakeholders, and satisfy federal real property requirements. However, despite the Office of the Center Director being aware that NASA buildings and structures need to be removed for the NRP district's development leases (UC Berkeley, Planetary Ventures at Moffett Airfield, and MVHV), a detailed demolition plan has yet to be established.

⁴³ The federal tenant is the U.S. Geological Survey which leases multiple offices in buildings at Ames.

Lack of Performance Measurements, Monitoring, and Assessing Success

We found Ames did not monitor whether tenants provided mission-enhancing or programmatic benefits to the Agency. NASA policy states that the use of EUL authority supports relationships with the private sector that can provide mission-enhancing, programmatic benefits to the Agency. In light of the Center’s vision to develop a collaborative research and development campus, we determined that the most tangible and measurable benefit to NASA is derived from leases where collaboration agreements are in place or partnerships with the Agency exist. We analyzed NASA and Ames agreements with tenants from private industry, academia, nonprofit organizations, and other government entities that benefited NASA in research areas where Ames is leading the Agency such as information technology, biotechnology, nanotechnology, and astrobiology.⁴⁴ As shown in Table 2, Ames had active collaborative research and development agreements with 5 out of 36 tenants. For one of those tenants—Verdigris Technologies, Inc.—Ames has a partnership agreement through 2026 to develop advanced sensing and health management techniques for sustainable habitats in support of the Gateway Program, a component of the Artemis mission.⁴⁵ In addition, Ames and four other tenants had research and development agreements which have since expired. Nevertheless, those tenants’ yearly leases have been extended without evidence of continued partnerships that directly benefit NASA. For example, Vasper Systems LLC had a non-reimbursable agreement for health and fitness technology to evaluate the potential of advanced exercise and physiology technology for long-term human space flight. That agreement expired in August 2017, yet the entity’s lease has been extended every year since without a new partnership agreement.

Table 2: Agreements to Partner with Tenants (as of October 2020)

Lease Entity Type	Number of Tenants (Potential Collaboration Partners)	Number of Tenants with Active Agreements
Total Non-Government Entities	32	5
Private Industry	26	3
Academia	2	2
Nonprofit Organizations	4	0
Federal, State, and Local Government	4	0
Total	36	5

Source: NASA OIG analysis of Agency information.

⁴⁴ We used NASA’s Partnership Agreement Manager system—a database to record and publish partnerships with NASA—to identify agreements for partnership and collaboration. We defined collaboration agreements as those non-reimbursable agreements that involve NASA and one or more partners working together in a mutually beneficial activity to further the Agency’s mission and where each party bears the cost of participation and no funds are exchanged. We did not consider contracts or reimbursable agreements as collaboration since these involve the procuring of services.

⁴⁵ Ames collaborated with the tenant to develop, test, enhance, and evaluate intelligent sensing systems, health management algorithms, and adaptive control technologies for electrical devices that are not currently available in the commercial sector. This research supports the Gateway, a vital component of NASA’s Artemis program that will serve as a multi-purpose outpost orbiting the Moon and provide a staging location for lunar missions and deep space operations.

Even after we excluded 4 government tenants, the vast majority of the non-government tenants, 27 out of 32 (85 percent), have no current agreement to partner with NASA. As a result, the Agency is not gaining mission-enhancing and programmatic benefits from the leases as required by NASA policy.⁴⁶ Additionally, after removing the 4 tenants with past research and development agreements as mentioned above, the remaining 23 tenants had not entered into collaborative research and development agreements to partner with NASA or Ames despite most of these being private industry tenants with leases in place for more than 5 years and one as long as 18 years.

NASA's routine extension of leases without periodically ensuring beneficial collaboration agreements resulted in missed opportunities to potentially acquire new tenants as potential partners to support the Center's vision. The missed opportunities are further exacerbated by the extension of leases with four tenants whose businesses do not perform scientific, information technology, or research work. For example, Planners Collaborative, Inc. is a contractor Ames hired for business and technical services to support its operations from 2003 to 2011. The entity had a 6-month lease that started in December 2011, which was continuously extended each year until March 2021 despite not contributing research and development benefits to NASA.

According to an Office of the Director official, a research and development partnership can take the form of providing space for tenants to perform functions that further research and technologies that may eventually benefit future NASA missions. Additionally, the official explained that the true value of a research and development campus cannot be measured solely by the revenue generated by leases, but by the impact of those partnerships on NASA's missions and research goals. In our opinion, while providing spaces for tenants to further their technology contributes to the greater good and benefits the exploration and science community, any benefit gained is difficult to measure relative to the cost of supporting that initiative. At a minimum, Ames is leasing property with a fair market value exceeding \$500 million to support tenants' probable business successes in potential NASA mission-related ventures while having no control over their progression nor return from their successes.

Existing and Potential Risks May Affect the Center's Security and Safety Posture

Due to the Ames PSO's lack of involvement in the implementation of the Development Plan, we found security risks were not thoroughly evaluated for the Center's existing research and development campus and its planned expansion. We analyzed the four development leases (UC Berkeley, MVHV, Planetary Ventures at Bay View, and Moffett Airfield) and found multiple cross-cutting security issues associated with prior and current risks.

In March 2010, Headquarters OPS conducted a review of Ames' security operations and found security procedures at the NRP district were not in compliance with NASA requirements. Specifically, inadequate integration of the NRP district into the Center was problematic and required Ames to assume too much security risk. OPS directed Ames to conduct a detailed security vulnerability, risk, and threat assessment of the entire Center, including all areas of potential threats with particular attention to visitor procedures, badging operations for visitors and tenants, compliance with federal security requirements, foreign national access and escort procedures, vulnerabilities associated with on-site housing, and law

⁴⁶ We did not include the four government tenants because NASA policy requires Centers to give preference to other federal entities when real estate is available; therefore, any collaboration and a benefit to NASA is not required.

enforcement jurisdictional responsibilities. We found that almost 12 years after the review was conducted, Ames had yet to perform the vulnerability assessment. The Ames PSO Chief explained the office never received Center funding to perform the assessment. Further, OPS did not follow up on the physical security vulnerability risk assessment as part of their 2014 and 2018 security reviews as required.⁴⁷ The Associate Administrator for Protective Services explained that functional reviews of Center security operations have ceased because Headquarters OPS is now operating as an enterprise organization and the reviews will be replaced in time by programmatic reviews focused on areas such as physical security, personnel security, or access management.⁴⁸ Our concern is whether the follow up on the physical security vulnerability risk assessment may be overlooked during this transition period.

While a comprehensive physical security vulnerability, risk, and threat assessment has not been conducted, various security concerns have been identified at the Center.

- A 2008 Ames PSO security assessment concluded that with an unfenced tenant campus, the probability of crime increases as the population increases, which would pose an unacceptable level of risk to public safety. The assessment found the level of crime was 5 to 10 (in some cases 100) times greater within the communities of the San Francisco Bay Area than it is inside the secured Ames Campus.⁴⁹
- Four buildings within the NRP district where NASA employees are located and Ames operations are conducted do not have appropriate physical access controls such as video monitoring, locking mechanisms, or NASA badge readers. Ames management has been aware of these issues since 2014 when OPS cited the Center for violating NASA requirements. However, Ames has not yet addressed these security violations within the NRP district.
- In a 2021 inspection, PSO security specialists identified approximately 180 deficiencies in over 120 fence locations that did not meet NASA requirements. These deficiencies represent vulnerabilities to the Center including broken fences, signs, and locking mechanisms that become vulnerabilities to unauthorized access. See Appendix C for more details.

Furthermore, in 2008, a limited Ames security assessment concluded a potential increase in crime resulting from a growing population presents three significant challenges for Ames: loss of resources, diminished public safety, and unclear law enforcement authority. For example, the PSO had to respond to domestic disturbances at the NASA lodge within the NRP district and child abuse allegations at U.S. Army housing adjacent to the NRP district.⁵⁰ Responding to increasing property and violent crimes deviates from the PSO's primary duties of protecting property, occupants, and information from intrusions to NASA's operations.⁵¹ With the influx of approximately 15,000 occupants from the

⁴⁷ Per NPR 1620.2A, *Facility Security Level Determinations* (October 7, 2015), the results of the physical security assessments are used to determine the appropriate level of protection needed to safeguard Center facilities adequately and economically.

⁴⁸ As a result of the Mission Support Future Architecture Program, Ames PSO now reports to Headquarters OPS. The goal of this Program is to transform mission support services such as security, procurement, facilities, and information technology to an enterprise operating model while maintaining mission focus, improving efficiency, ensuring local authority, and valuing the workforce.

⁴⁹ The San Francisco Bay Area is home to areas such as Napa Valley, Sonoma, and Silicon Valley.

⁵⁰ According to the PSO Chief, the Sheriff's office has primary jurisdiction for Army property; however, the PSO is occasionally requested to respond to incidences due to the distance of the Sheriff's office to the Army property.

⁵¹ According to NASA requirements, NASA security personnel are responsible for visitor access, classified information, inspections of personal effects, trespass, weapons, foreign national management, anti-terrorism considerations, and insider threats.

Planetary Ventures at Bay View, UC Berkeley, and MVHV leases, an increase in domestic crime is likely to occur resulting in an unacceptable risk to safety at Ames. Based on our analysis of surrounding areas' crime rates in 2019, we extracted the following crime statistics as shown in Table 3.

Table 3: 2019 Crime Statistics for Ames Research Center's Surrounding Communities

Locality	2019 Crime Statistics				Percent of Locality Population	
	Property Crimes		Violent Crimes		Property Crimes	Violent Crimes
	Number of Cases	Rate per 100,000	Number of Cases	Rate per 100,000		
San Jose-Sunnyvale-Santa Clara	48,078	2,401	6,508	325	2.4	0.3
San Francisco-Oakland-Berkeley	167,013	3,523	22,317	471	3.5	0.5

Source: NASA OIG depiction of information extracted from Federal Bureau of Investigation's Crime Report.

While not meant to be interpreted as a projection of the future crime rate in the developed properties, the surrounding communities' crime rates ranging from 2.4 to 3.5 percent provide context for the prevalence of cases involving property and violent crimes among the population from which the research and development campus inhabitants primarily will be drawn. According to the PSO Chief, the Center's security personnel do not have the appropriate training to handle domestic disturbance cases that may arise with occupants who do not have a NASA badge and pass federal security requirements, a situation that does not typically occur with NASA employees.⁵² Since Ames Campus is separated only by a fence from the tenants, this risk must be considered across the Center to ensure consistent and timely management of similar incidents and minimize the Center's liabilities. Otherwise, security staff will be challenged in prioritizing incidents among the tenants and NASA personnel.

In addition to property and violent crimes, the PSO compiled a history of access violations through NASA's three entry points to Moffett Field. These violations included gate runners, intoxicated drivers, and drivers with criminal histories, which may increase with the influx of additional occupants. In 2021, the PSO recorded over 16,000 security incidents related to non-NASA personnel, including denial of over 6,000 attempts to access government property for no official business; over 4,000 traffic citations; and other occurrences of property crimes, drug- and alcohol-related incidences, gate runners, and lost drivers. In our opinion, Ames needs to fully understand and mitigate the security vulnerabilities and risks associated with the future development of a research and development campus and its occupants which includes ensuring security personnel are appropriately resourced and trained. Failure to do so may have serious consequences for the safety and security of tenants, employees, and visitors to the Center.

⁵² NPR 1600.4A, *Identity and Credential Management* (April 8, 2016), requires all people entering NASA property be vetted and badged; however, the Office of the Director determined this requirement did not apply to Ames' tenants. According to an OPS official, a waiver to this requirement is required but was not requested.

CONCLUSION

Ames is developing a research and development campus with tenants who complement NASA's space and science missions by issuing leases that at times do not adhere to NASA requirements nor yield the best financial or operational interests to the Agency. Many of the leases we reviewed were not in the best interest of the government due to the Center's inadequate lease process which resulted in the negotiation of unfavorable financial terms and conditions, including the lack of required termination clauses. The negative financial impact on NASA resulting from these poor lease terms and conditions could reach hundreds of millions of dollars while the Agency's ability to remedy the shortfalls is severely restricted by lease terms and long-term lease commitments.

Overall, we found no assurances in the (1) fidelity of the leasing process, as it lacks key controls, oversight, and transparency relative to competition, selection, and process documentation; (2) fair return to NASA when there are no objective assessments of benefits and costs, inconsistency in revenue terms and conditions, and rental amounts not based on fair market value; and (3) protection of NASA's interests with the required certifications, termination clauses, and collaborative coordination among key stakeholder organizations. Additionally, the nature of some of the leases raise security concerns as Ames and Headquarters security personnel were not consistently consulted in a timely manner during lease negotiations. While most development properties are under long-term leases, the Center still has buildings protected under the National Historic Preservation Act that are being leased on a continuous basis. Ensuring a consistent, fair, transparent, and effective lease process will allow Ames to further its efforts in achieving a world-class research and development campus.

Furthermore, the Center lacks a strategic and holistic approach to implementing and managing its Development Plan. While leasing is an important part of the plan to attract potential partners, it is not the only consideration. We believe Ames officials need to focus more on research and development collaborations, Center infrastructure expansion, and Center and tenant security and safety risks. Without establishing a disciplined, coordinated, and collaborative approach to implementing the Development Plan, Ames cannot achieve its vision of creating a world-class research and development campus.

RECOMMENDATIONS, MANAGEMENT'S RESPONSE, AND OUR EVALUATION

To improve the Ames lease process, we recommended the Assistant Administrator for Strategic Infrastructure:

1. Conduct cyclical reviews (no less than every 5 years) of the Ames lease process to ensure compliance with federal and NASA requirements.
2. Update applicable real estate policies and NASA-wide guidance to enhance requirements and procedures to comply with EUL authority and to require maintaining appropriate documentation, documenting decisions, and fostering transparent coordination and communication with internal and external stakeholders in a timely manner.

We recommended the Assistant Administrator for Strategic Infrastructure in coordination with the Chief Financial Officer:

3. Update applicable real estate policies and NASA-wide guidance to enhance requirements and standardize applicable financial practices (such as benefit and cost analysis, life-cycle cost analysis, and audits of tenants' books and records when required) associated with leases.

We recommended the Assistant Administrator for Strategic Infrastructure in coordination with the Assistant Administrator for Protective Services:

4. Update applicable real estate policies and NASA-wide guidance to incorporate applicable security requirements and agreement clauses in leases.

We also recommended the Ames Center Director:

5. Implement written procedures in the lease process to ensure compliance with federal and NASA requirements applicable, but not limited to, timely involvement of the RPAO, competition, life-cycle cost analysis, fair market value assessments, certifications, and termination clauses as appropriate.
6. Ensure FRED and Center organizations' management such as the PSO, OCFO, and Facilities Engineering and Real Property Management Division are involved in the entire lease process from initial planning through termination to identify and assess resources, budgets, schedules, risks, and compliance with federal and NASA requirements.
7. Establish a formal management structure for implementing the NASA Ames Development Plan that includes a documented and transparent process and emphasizes continuous internal and external stakeholder coordination for the research and development campus.

8. Establish a documented process with defined performance metrics to objectively measure progress and success for the research and development campus program, including evaluating tenant and partner contributions to NASA missions, and monitoring and reporting the performance metrics at least annually.

Finally, we recommended the Assistant Administrator for Protective Services, in coordination with the Ames Protective Services Office Chief and Ames Center Director:

9. Within the next 3 years, conduct a Center-wide security vulnerability risk assessment, including the districts outside Ames Campus, to ensure compliance with federal and NASA requirements.
10. Identify and implement mitigation strategies and resource requirements to address security vulnerability assessment risks.

We provided a draft of this report to NASA management who concurred with our recommendations and described planned actions to address them. We consider the proposed actions responsive to our recommendations and will close the recommendations upon completion and verification of the actions.

Management's full response to our report is reproduced in Appendix D. Technical comments provided by management and revisions to address them have been incorporated as appropriate.

Major contributors to this report include Tekla Colón, Mission Support Director; Stephen Siu, Project Manager; Monique Brewer; Anh Doan; and Lynette Westfall. Lauren Suls provided editorial and graphics assistance. Earl Baker and Adhana Davis provided legal assistance.

If you have questions about this report or wish to comment on the quality or usefulness of this report, contact Laurence Hawkins, Audit Operations and Quality Assurance Director, at 202-358-1543 or laurence.b.hawkins@nasa.gov.

Paul K. Martin
Inspector General

APPENDIX A: SCOPE AND METHODOLOGY

We performed this audit from November 2020 through May 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The objective of this audit was to assess the effectiveness of Ames' management of its lease process and agreements to further the Center's goal of developing a collaborative research and development campus. Our scope included evaluating the benefits, costs, and risks associated with Ames' leasing process. To evaluate the use of the EUL program, we reviewed Ames' leasing process, lease agreements, and the Center's 2002 Development Plan. We discussed NASA's use and plans for the leasing program with cognizant and responsible NASA officials at Headquarters and Ames.

To assess the controls Ames has in place to ensure accountability and transparency to protect the Agency's interest, we judgmentally sampled 15 of 41 active lease agreements (as of October 2020) and discussed the selected lease arrangements with NASA Headquarters officials in the Office of Strategic Infrastructure and FRED, as well as NRP Office personnel at Ames.⁵³ Our judgmental sample of 15 leases included 4 development leases. We obtained budget information for the NRP and PSO offices and the FY 2020 EUL revenue report. We used FY 2020 data in this report to align with the time period of our judgmental sample of leases. In addition, we interviewed personnel from Ames OCFO and the Center Operations Directorate, including the PSO and Facilities Engineering and Real Property Management Division. We also discussed leases with an official from the Office of General Counsel. We obtained the Center's records of the financial transactions associated with the selected leasing agreements and attempted to reconcile these records with the leases and support agreements. We also had discussions with NASA officials regarding in-kind consideration transactions and fair market value rent and appraisal.

Finally, we reviewed federal and NASA criteria, policies, and procedures and supporting documentation; prior audit reports; external reviews; and other documents related to the lease process. We reviewed each public law establishing and extending NASA's EUL authority. Additionally, we reviewed the following:

Federal Requirements

- National and Commercial Space Programs, Pub. L. No. 111-314 (2010)
- National Historic Preservation Act, 54 U.S.C. 100101 (2016)
- Title 42 U.S. Code Part 2459j, *Enhanced-use lease of real property demonstration* (2007) and *Lease of non-excess property* (2009)
- Title 14 U.S. Code of Federal Regulations Part 1204.501, *Delegation of authority to take actions in real estate* (2012)
- Title 14 U.S. Code of Federal Regulations Part 1204.504, *Delegation of authority to grant leaseholds, permits, and licenses in real property* (2014)

⁵³ As of October 2020, Ames had 41 active leases from 36 tenants.

- Executive Order 13327, *Federal Real Property Asset Management* (February 6, 2004)
- Presidential Memorandum, *Accelerating Technology Transfer and Commercialization of Federal Research in Support of High-Growth Businesses* (October 28, 2011)
- Government Accountability Office, *Principles of Federal Appropriations Law, Third Edition, Volume III* (GAO-08-978SP, September 2008)

NASA Policy

- NASA Policy Directive (NPD) 1000.0C, *NASA Governance and Strategic Management Handbook* (January 29, 2020)
- NPD 1600.2E, *NASA Security Policy* (April 2, 2015)
- NPD 1600.4, *National Security Programs* (July 28, 2016)
- NPD 8800.14E, *Policy for Real Estate Management* (June 3, 2015)
- NPD 8810.2A, *Master Planning for Real Property* (February 20, 2015)
- NASA Procedural Requirements (NPR) 1600.1A, *NASA Security Program Procedural Requirements* (August 12, 2013)
- NPR 1600.3A, *Personnel Security* (August 03, 2020)
- NPR 1600.4A, *Identity and Credential Management* (April 8, 2016)
- NPR 1620.3B, *Physical Security Requirements for NASA Facilities and Property* (May 13, 2019)
- NPR 8800.15C, *Real Estate Management Program* (February 24, 2015)
- NPR 9610.1A, *Accounts Receivable, Billing, and Collection* (October 29, 2015)
- NASA Advisory Implementing Instruction 1050-3A, *NASA Partnerships Guide* (September 27, 2017)
- NASA Business Case Guide for Real Property and Facilities Project Investments (November 29, 2010)
- NASA Real Estate Desk Guide (June 2016)

Ames Policy

- Ames Policy Directive 8800.1, *Real Property Management* (June 21, 2017)
- Ames Policy Directive 8800.5, *Space Assignment and Management* (June 21, 2017)
- Ames Policy Directive 8812.1, *NASA Research Park Office* (June 30, 2020)
- Ames Procedural Requirements 8822.1, *NASA Research Park Design Review Program* (June 21, 2017)

Assessment of Data Reliability

We used limited computer-processed data such as Ames OCFO payment schedules and NASA's Partnership Agreement Maker system. We assessed the reliability of the data by (1) performing electronic testing, (2) reviewing existing information about the data and system that produced them,

and (3) interviewing Agency officials knowledgeable about the data. We determined that the data was sufficiently reliable for the purposes of this report. Generally, we concluded the data was valid and reliable for the purpose of the review.

Review of Internal Controls

We reviewed internal controls associated with Ames' management of the lease process. Control weaknesses are identified and discussed in this report. Our recommendations, if implemented, will improve those identified weaknesses.

Prior Coverage

During the last 10 years, the NASA OIG and Government Accountability Office have issued 10 reports of significant relevance to the subject of this report. Unrestricted reports can be accessed at <https://oig.nasa.gov/audits/auditReports.html> and <https://www.gao.gov>, respectively.

NASA Office of Inspector General

Ames Research Center Protective Services Contract ([IG-19-017](#), April 25, 2019)

Audit of NASA's Historic Property ([IG-19-002](#), October 22, 2018)

NASA's Management of Reimbursable Agreements ([IG-18-018](#), May 29, 2018)

NASA's Use of Space Act Agreements ([IG-14-020](#), June 5, 2014)

NASA's Infrastructure and Facilities: An Assessment of the Agency's Real Property Leasing Practices ([IG-12-020](#), August 9, 2012)

Government Accountability Office

Homeless Veterans: VA Should Improve Reporting on the Benefits Provided by Leases of Unneeded Property ([GAO-17-636](#), July 20, 2017)

High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others ([GAO-17-317](#), February 15, 2017)

Federal Real Property: GSA Should Inform Tenant Agencies When Leasing High-Security Space from Foreign Owners ([GAO-17-195](#), January 3, 2017)

Homeland Security: Action Needed to Better Assess Cost-Effectiveness of Security Enhancements at Federal Facilities ([GAO-15-444](#), March 24, 2015)

APPENDIX B: AMES' FY 2020 PROPERTY LEASES

The two tables below contain the 41 enhanced-use and historic property leases at Ames as of October 2020.⁵⁴ Table 4 identifies the 15 leases judgmentally selected for review by the NASA OIG. The annual base rent collected from the tenants ranged from no rent to \$15.5 million. Nine tenants paid less than \$100,000 each, four tenants paid between \$100,000 to \$500,000, and two paid more than \$500,000 each.

Table 4: List of FY 2020 Property Leases Sampled by the NASA OIG

Lessee	Space Being Leased	Audit Sample
Private Industry		
Crown Consulting Inc.	Building spaces	1
Planetary Ventures, LLC	Land parcels, Moffett Federal Airfield, air traffic control tower, building spaces, hangars, and golf course	2
Planetary Ventures, LLC	Land parcels	3
Planetary Ventures, LLC	Land parcel	4
ispace Inc.	Building spaces	5
LifeSource Biomedical, LLC	Building spaces	6
Made In Space, Inc.	Building spaces	7
Mountain View Housing Ventures LLC	Land parcels	8
Planners Collaborative, Inc.	Building space	9
SkyTran, Inc.	Building spaces	10
Vasper Systems LLC	Building spaces	11
Verdigris Technologies, Inc.	Building spaces	12
Academia		
CM SPE, LLC (Carnegie Mellon University, Silicon Valley Campus)	Building spaces	13
CM SPE, LLC (Carnegie Mellon University, Silicon Valley Campus)	Building spaces	14
The Regents of the University of California, Berkeley ^a	Land parcels	15

Source: NASA OIG depiction of Ames information.

Note: Dollar amounts are rounded.

^a The tenant list includes the University of California, Berkeley lease, which was signed on October 22, 2020.

⁵⁴ In addition to EULs, leases may be proposed for NASA real property that is listed on the National Register of Historic Places. The National Historic Preservation Act authorizes a federal agency to lease such historic real property and retain the proceeds for two fiscal years to defray the costs of the Agency's historic preservation efforts.

Table 5 lists the remainder of the 41 FY 2020 leases at Ames not included in our sample.

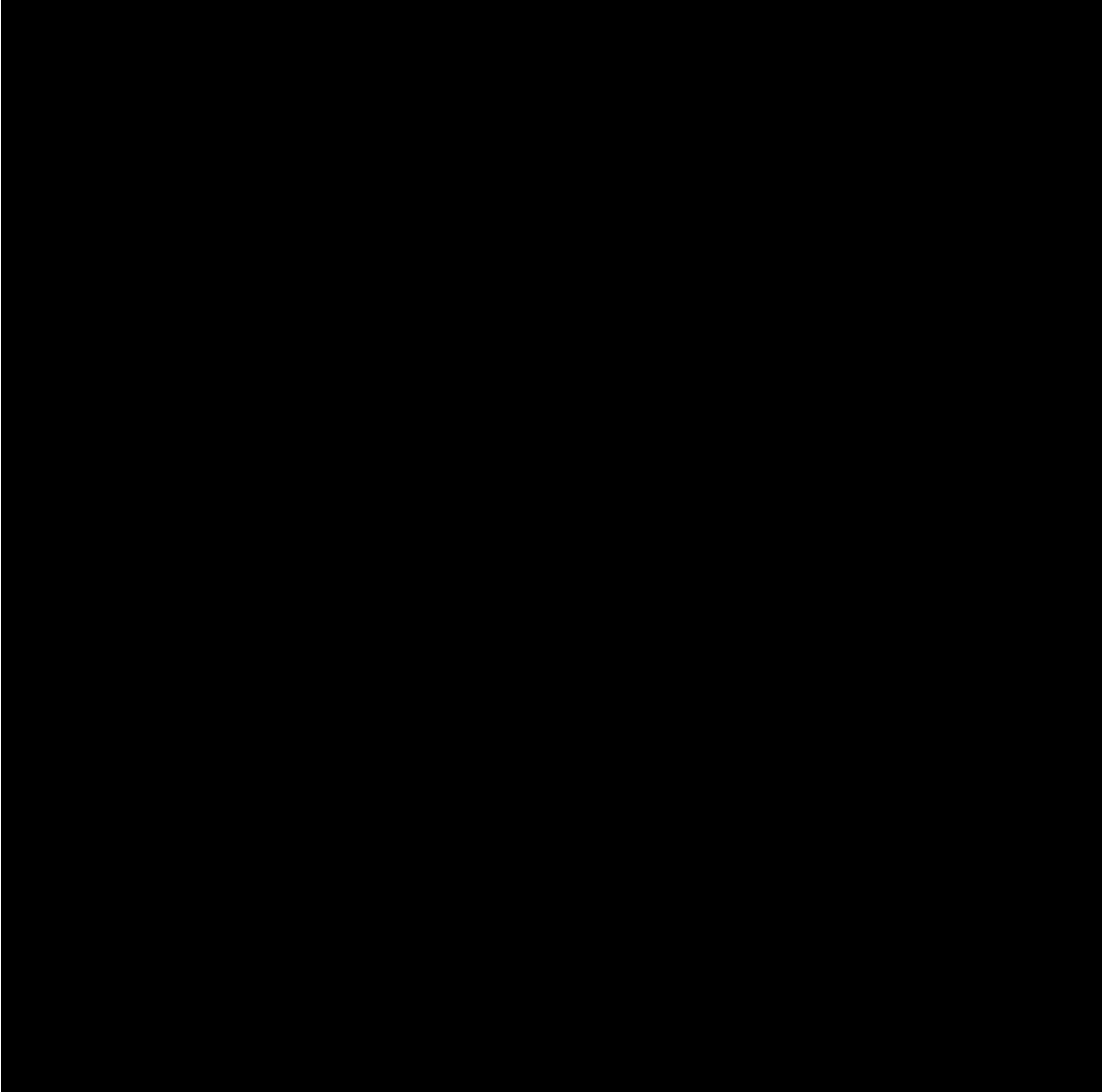
Table 5: List of FY 2020 Property Leases Not Sampled

Lessee	Space Being Leased
Private Industry	
Bloom Energy Corp	Building spaces
GeoG2 Solutions, Inc.	Building spaces and hangar
Geometrics Inc.	Building spaces
GOLL, LLC	Building space
H211, LLC	Building spaces
Higher Ground LLC	Building spaces
Intrinsyx Technologies Corporation	Building spaces
Kitty Hawk Corporation	Building space
Millennium Engineering and Integration Services	Building spaces
Metis Technology Solutions, Inc.	Building space
Neerim Corporation	Building space
Rhombus Power	Building spaces
RMV Technology Group LLC	Building space
Science and Technology Corporation	Building space
Teton Aerospace, LLC	Building space
Wyle Laboratories, Inc.	Building spaces
Nonprofit Organizations	
Association for Unmanned Vehicle Systems International	Building spaces
Bay Area Environmental Research Institute	Building spaces
Breakthrough Prize Foundation	Building spaces
Moffett Field Historical Society Museum	Building spaces
Federal, State, and Local Government	
U.S. Army	Building spaces
California Air National Guard	Moffett Airfield and airfield control tower
County of Santa Clara, Office of the Sheriff	Building spaces
U.S. Geological Survey	Building spaces

Source: NASA OIG depiction of Ames information.

APPENDIX C: AMES' CAMPUS PERIMETER FENCE SECURITY DEFICIENCIES

PSO security fence review identified approximately 180 deficiencies in over 120 fence locations at Ames.



APPENDIX D: MANAGEMENT'S COMMENTS

National Aeronautics and
Space Administration

Mary W. Jackson NASA Headquarters
Washington, DC 20546-0001



Reply to Attn of: Ames Research Center

TO: Assistant Inspector General for Audits

FROM: Center Director, Ames Research Center
Assistant Administrator for Office of Strategic Infrastructure
Assistant Administrator for Protective Services
Chief Financial Officer

SUBJECT: Center Response to OIG Draft Report, "Ames Research Center's Lease Management Practices" (A-21-001-00)

The National Aeronautics and Space Administration (NASA) appreciates the opportunity to review and comment on the Office of Inspector General (OIG) draft report entitled, "Ames Research Center's Lease Management Practices" (A-21-001-00), dated June 24, 2022. NASA will develop a responsive corrective action plan that will improve the lease processes and alignment of the lease partners and NASA's missions and goals.

Through the lease program, NASA has achieved many tenant partnerships that have created important opportunities for the Agency. Collaboration between partners, tenants, and NASA has produced ground-breaking research and technology aligned with NASA's mission and goals. Tremendous progress has been made towards establishing a strong lease program among Government, academic, and industry partners. Key investments by lease partners in infrastructure improvements at NASA have resulted in significant cost avoidance and includes direct savings to NASA and/or the United States (U.S.) Government. Examples include the refurbishment of the historic Hangar One on Moffett Field, the runway improvements and repairs on the Federal airfield, the replacement of NASA's supercomputing cooling towers, numerous security improvements, and improved access gates at the Ames Research Center. These cost avoidances and savings to the Government, and infrastructure investments by tenants, are a valuable part of the complete assessment of overall value of the leases achieved to date.

In the draft report, the OIG makes ten recommendations addressed to: the Facilities and Real Estate Division Director (two recommendations); the Facilities and Real Estate Division Director in coordination with the Chief Financial Officer (one recommendation); the Facilities and Real Estate Division Director in coordination with the Assistant Administrator for Protective Services (one recommendation); the Center Director for Ames Research Center (four recommendations); and the Assistant Administrator for Protective Services in

coordination with the Ames Protective Services Office Chief and the Center Director for Ames Research Center (two recommendations).

Specifically, the OIG recommends the following:

To improve the Ames lease process, the OIG recommends the Assistant Administrator for Strategic Infrastructure:

Recommendation 1: Conduct cyclical reviews (no less than once every 5 years) of the Ames lease process to ensure compliance with Federal and NASA requirements.

Management's Response: NASA concurs with this recommendation. The Office of Strategic Infrastructure (OSI) will develop a Lease Functional Review process that will be used to conduct triennial reviews of all Center lease processes. As noted in the response to Recommendations 5 and 6, Ames will update its processes and controls as it continues to propose potential out-grants and land leases with the Headquarters OSI Facilities and Real Estate Division (FRED) and will also continue to conduct executed lease management. As the real estate functional owner, FRED will take the lead and partner with Ames on new solicitations, negotiation, and agreement execution of all real estate agreements at Ames until internal controls, approved by FRED, are established and implemented. Upon implementation of the new internal control, FRED will conduct triennial functional reviews of all real estate processes and agreements at Ames.

Estimated Completion Date: December 31, 2023.

Recommendation 2: Update applicable real estate policies and NASA-wide guidance to enhance requirements and procedures to comply with EUL authority and to require maintaining appropriate documentation, documenting decisions, and fostering transparent coordination and communication with internal and external stakeholders in a timely manner.

Management's Response: NASA concurs with this recommendation. NASA Policy Directive (NPD) 8800, NASA Procedural Requirement (NPR) 8800, and 14 CFR 1204.501-504 updates are currently in technical review and will be submitted into the NASA Online Directives Information System and the Federal Register respectively. As a part of the technical review, the recommendations from this audit will be incorporated. FRED will work with all Centers, and specifically Ames (see Recommendation 5 response), to cancel Center policies, specifically Ames Policy Directives (APDs), and review, and as needed, eliminate or update the Center-level real estate procedural requirements, Ames Procedural Requirements (APRs).

Estimated Completion Date: December 31, 2022.

Additionally, the OIG recommends the Assistant Administrator for Strategic Infrastructure in coordination with the Chief Financial Officer:

Recommendation 3: Update applicable real estate policies and NASA-wide guidance to enhance requirements and standardize applicable financial practices (such as the benefit and cost analysis, life-cycle cost analysis, and audits of tenants' books and records when required) associated with leases.

Management's Response: NASA concurs with this recommendation. OSI and the Office of the Chief Financial Officer (OCFO) will coordinate necessary updates to policies and procedures to enhance requirements and standardize applicable financial practices associated with real estate agreements.

Estimated Completion Date: December 31, 2023.

The OIG recommends the Assistant Administrator for Strategic Infrastructure in coordination with the Assistant Administrator for Protective Services:

Recommendation 4: Update applicable real estate policies and NASA-wide guidance to incorporate applicable security requirements and agreement clauses in leases.

Management's Response: NASA concurs with this recommendation. OSI will coordinate with the Office of Protective Services (OPS) to incorporate security requirements in the NPR 8800 update. Additionally, FRED will work with the OPS to ensure required security agreement clauses are incorporated and included in all future real estate agreements and will be added to the Real Estate Agreement Management System templates.

Estimated Completion Date: September 30, 2023.

The OIG also recommends the Ames Center Director:

Recommendation 5: Implement written procedures in the lease process to ensure compliance with Federal and NASA requirements applicable, but not limited to, timely involvement of the RPAO, competition, life-cycle cost analysis, fair market value assessments, certifications, and termination clauses as appropriate.

Management's Response: NASA concurs with this recommendation. Ames will implement written procedures in the lease process to ensure compliance with applicable Federal and NASA requirements and policies, such as NPRs and NPDs. This will include ensuring the timely involvement of the Real Property Accountability Officer and OSI/FRED office, ensuring competition, performing a life-cycle cost analysis, gathering fair market value assessments, capturing cost avoidances to NASA enabled by the tenants, validating tenants by establishing a business case to align with Ames' mission and research goals, ensuring certifications, and including termination clauses as appropriate. Ames will coordinate with OSI to gather the updated applicable policies/procedures (see response to Recommendation 2) and review and update the Center-level APRs and cancel APDs to be in alignment.

Estimated Completion Date: September 30, 2023 (No earlier than the completion of the NPD and other policy updates noted in management response to Recommendation 2).

Recommendation 6: Ensure FRED and Center organizations' management such as the PSO, OCFO, and FRED are involved in the entire lease process from initial planning through termination to identify and assess resources, budgets, schedules, risks, and compliance with Federal and NASA requirements.

Management's Response: NASA concurs with this recommendation. Building on current ongoing leasing engagements with FRED, Ames will refine internal practices and efforts to ensure FRED and Center organizations' management such as the Protective Services Office (PSO), OCFO, and Facilities Engineering and Real Property Division are involved in the entire lease process from initial planning through termination. These organizations will identify and assess resources, budgets, schedules, risks, and compliance with Federal and NASA requirements and policies, such as NPRs and NPDs. This effort will include the development of a complete business case with all above offices to the scope, value, and goals of the leasing effort.

Estimated Completion Date: September 30, 2023.

Recommendation 7: Establish a formal management structure for implementing the NASA Ames Development Plan that includes a documented and transparent process and emphasizes continuous internal and external stakeholder coordination for the research and development campus.

Management's Response: NASA concurs with this recommendation. Consistent with Ames' responses to Recommendations 5 and 6, Ames will evaluate, and update as needed, the formal management structure to develop and document a transparent process for implementing the NASA Ames Development Plan (NADP) which will emphasize continuous stakeholder coordination for the research and development campus consistent with Agency policies and procedures.

Estimated Completion Date: September 30, 2023.

Recommendation 8: Establish a documented process with defined performance metrics to objectively measure progress and success for the research and development campus program, including evaluating tenant and partner contributions to NASA missions, and monitoring and reporting the performance metrics at least annually.

Management's Response: NASA concurs with this recommendation. Ames will document the process used and include defined performance metrics to objectively measure progress and success for the research and development campus program, including evaluating tenant and partner contributions to NASA missions (consistent with the NADP), and will establish procedures to monitor and report the performance metrics at least annually.

Estimated Completion Date: September 30, 2023.

The OIG recommends the Assistant Administrator for Protective Services, in coordination with the Ames Protective Services Office Chief and Ames Center Director:

Recommendation 9: Within the next 3 years, conduct a Center-wide security vulnerability risk assessment, including the districts outside Ames Campus to ensure compliance with Federal and NASA requirements.

Management's Response: NASA concurs with the recommendation. OPS, in coordination with the Ames Protective Services Office Chief and Ames Center Director, will conduct a Center-wide security vulnerability risk assessment to ensure compliance with Federal and NASA requirements no later than June 2025. The assessment scope will include the Ames Campus, the NASA Research Park (to include all proposed and new developments), the Moffett Federal Airfield, the Eastside (e.g., Golf Course, California Air National Guard, Hangars 2 and 3), and all other leased premises. Conducting the Center-wide vulnerability risk assessment is contingent upon OPS having sufficient resources (personnel and funding).

Estimated Completion Date: June 30, 2025.

Recommendation 10: Identify and implement mitigation strategies and resource requirements to address the security vulnerability assessment risks.

Management's Response: NASA concurs with the recommendation. OPS, in coordination with the Ames Protective Services Office Chief, will work to identify minimum required mitigation strategies while the Center-wide security vulnerability risk assessment is in process. The Center-wide security vulnerability risk assessment will identify required mitigation strategies and the resources required to implement those strategies. Implementation of identified minimum mitigation strategies and required mitigation strategies from the assessment is contingent upon OPS having sufficient resources (personnel and funding).

Estimated Completion Date: June 30, 2025.

NASA has reviewed the draft report for information that should not be publicly released. As a result of this review, we have identified information that should not be publicly released.

Once again, thank you for the opportunity to review and comment on the subject draft report. If you have any questions or require additional information regarding this response, please

contact Michael Lehner at michael.m.lehner@nasa.gov and Rhonda Baker at rhonda.baker@nasa.gov.

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Center Director
Ames Research Center

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Office of Strategic Infrastructure

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Margaret Vo Schaus
Chief Financial Officer

APPENDIX E: REPORT DISTRIBUTION

National Aeronautics and Space Administration

Administrator
 Deputy Administrator
 Associate Administrator
 Chief of Staff
 Chief Financial Officer
 Assistant Administrator for Strategic Infrastructure
 Assistant Administrator for Protective Services
 Ames Center Director

Non-NASA Organizations and Individuals

Office of Management and Budget
 Deputy Associate Director, Climate, Energy, Environment and Science Division

Government Accountability Office
 Director, Contracting and National Security Acquisitions
 Director, Financial Management and Assurance
 Director, Physical Infrastructure

Congressional Committees and Subcommittees, Chairman and Ranking Member

Senate Committee on Appropriations
 Subcommittee on Commerce, Justice, Science, and Related Agencies

Senate Committee on Commerce, Science, and Transportation
 Subcommittee on Space and Science

Senate Committee on Homeland Security and Governmental Affairs

House Committee on Appropriations
 Subcommittee on Commerce, Justice, Science, and Related Agencies

House Committee on Oversight and Reform
 Subcommittee on Government Operations

House Committee on Science, Space, and Technology
 Subcommittee on Investigations and Oversight
 Subcommittee on Space and Aeronautics

(Assignment No. A-21-001-00)