

National Aeronautics and Space Administration



GODDARD SPACE FLIGHT CENTER

2024 Sustainability Report and Implementation Plan (SRIP)

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Wallops Flight Facility LEED Silver Sustainable Mission Operations Control Center (MOCC)



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Executive Summary

Goddard's Mission and Sustainability

As a global leader in Earth Science, NASA's Goddard Space Flight Center (Goddard) has a unique understanding and obligation to lead the way in identifying and implementing strategies to ensure continued societal progress, productivity, and prosperity while sustaining natural species and systems and reducing Goddard's impact to environmental, institutional, and operational risks. In doing so, Goddard improves the resiliency of space and ground assets, mission operations, and equipment performance.

This document reports the 2023 status of Goddard's sustainability program and outlines initiatives the Center is actively pursuing to address the sustainability goals directed in the previous executive order, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, EO 13990, January 20, 2021, and the HQ NASA 2022 *Sustainability Plan*. The planned 2024 sustainability goals stated in this report will meet the new *EO 14057 Catalyzing America's Clean Energy Economy Through Federal Sustainability*, signed December 8, 2021. This report reflects the performance of Goddard's principal facilities at Greenbelt in Maryland (Greenbelt) and Wallops Flight Facility in Virginia (Wallops). Goddard's sustainability policy is to execute the mission without compromising natural resources so that future generations can meet their needs.

Sustainability Process and Successes

Goddard's sustainability team focuses on reducing environmental impacts of NASA operations by conserving energy and water, using energy savings performance contracts, replacing old, less efficient buildings with new sustainable facilities and infrastructure, commissioning existing buildings, procuring and using greener products and materials, reducing embodied carbon and greenhouse gas emissions from facility and fleet operations, maintaining electronic stewardship, reducing waste generation and disposal, enhancing stormwater management, and increasing pollinator habitat and carbon sequestration through establishment of native plantings and meadows. Goddard continues to reduce the footprint of its built assets through strategic demolition, disposal, lease termination and consolidation efforts and has removed 553,225 gross square feet (GSF) of inefficient space from its inventory from fiscal year FY17 - FY23, saving an estimated \$834,538 per year in operations and maintenance¹. The operation of new and existing sustainable buildings minimizes long-term infrastructure, energy, water, and maintenance costs. The Center's Energy Management Program (EMP) reduces risk to Goddard's mission by reducing consumption of traditional energy resources and energy operating costs. The estimated annual energy savings from implementing performance contracts for FY23 was **\$3.255M**². Goddard completed Existing Building Commissioning (EBCx) studies for 37 buildings between FY18 and FY22 to optimize building performance. Between FY15 and FY20, Goddard certified 11 facilities that meet the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings* (GP). Goddard constructed the LEED Gold and GP certified Instrument Development Facility (IDF) in FY22, increasing the center-wide footage of sustainable assets to 681,107 GSF, or 19% of building assets.



NASA's Ongoing FY23 Sustainability Goals

1. Reduce energy intensity
2. Increase renewable energy
3. Use Performance Contracting
4. Increase sustainable buildings and infrastructure
5. Reduce water consumption
6. Reduce and divert waste from landfills
7. Reduce GHG emissions (fuel consumption) from fleet vehicles
8. Increase sustainable acquisition
9. Reduce GHG emissions from facility operations (tracked at HQ and addressed through energy reduction)
10. Continue electronic stewardship (tracked at HQ and addressed through sustainable acquisition and IT contracts)

NASA's New FY24 Sustainability Goals

1. 100 Percent Carbon Pollution-Free Electricity (CFE)
2. 100 Percent Zero-Emission Vehicle (ZEV) Fleet
3. Net-Zero Emissions Buildings, Campuses, and Installations
4. Reduce Waste and Pollution
5. Sustainable Procurement
6. Climate-and Sustainability-Focused Federal Workforce
7. Incorporate Environmental Justice
8. Accelerate Progress through Partnerships

Goddard Sustainability Priorities

Goddard's strategic priorities and objectives for 2024 are to advance efficiency in Center operations, meet or exceed sustainability goals and requirements driven by the NASA Sustainability Plan, and achieve cost savings by:

- Reducing Energy and Water consumption
- Completing Investment Grade Audits (IGA) at Greenbelt and Wallops to identify and implement energy conservation measures (ECMs)
- Increasing sustainable facilities through Existing Building Commissioning (EBCx), which strives to bring existing buildings back to top energy-efficient performance
- Increasing sustainable horizontal infrastructure through the Envision sustainable infrastructure program
- Reducing the Center's operating costs and carbon footprint by demolishing old, inefficient buildings and replacing them, where necessary, with sustainable, more energy-efficient buildings
- Continuing sustainable acquisition
- Continuing outreach campaigns to increase awareness that supports sustainability and energy efficiency
- Improving landfill waste disposal diversion and recycling rates



- Continuing low impact development through stormwater management and sustainable landscaping (filtration plantings, bio swales, stream restoration), to reduce impervious surfaces and improve stormwater quality
- Increasing pollinator habitat and carbon sequestration while reducing landscape maintenance costs through establishment of native plantings, meadows and reforestation

2023 Sustainability Program at a Glance

Sustainability Goal	GSFC 2023 Updates	Status
1) Reduce Energy Use Intensity (EUI) 30% from FY03 baseline; 0.5% from FY22	Reduced EUI 30.52% (GB) and 38.83% (WFF) from FY03 baseline. Increased EUI 6.48% (GB) and reduced 1.98% (WFF) from FY22	Green
2) Use Renewable Energy (RE) 7.5% of total electricity in FY21	43.64% generated from WFF's airfield and carport solar, 50.96% from wind at GB via its electricity contract.	Green
3) Performance Contracting Increase number of performance contracts	WFF awarded a new base-wide Energy Savings Performance Contract (ESPC) in September 2023.	Green
4) Increase Sustainable Buildings 28% of GSF in FY23 24% of buildings in FY23	16% GSF (681,107 GSF) and 19% bldgs. meet Guiding Principles (GP)	Yellow
5) Reduce Water Use Intensity (WUI) (Gal/GSF) 20% from FY07 baseline; 0.5% from FY22	Reduced potable WUI 43.91% (GB), 12.28% (WFF), relative to FY07 baseline. Increased 16% (GB) , decreased 0.6% (WFF).	Green
6) Sustainable Acquisition (SA) 22% of contract actions have SA requirements 22% obligations have SA requirements	37% of contract actions and 57% of obligations have environmental or energy requirements.	Green
7) Fleet Management: Transition fleet to EVs by 2035	Awarded GSA contract to install 8 EV charging stations at GB and 7 at WFF to support fleet transition to EVs.	Green
8) Waste Reduction: Divert 50% of construction & demolition (C&D) debris and non-C&D (NCD) from landfills. Reduce solid waste 1% from FY21.	GB diverted 100% C&D and 32% NCD from landfill disposal but increased solid waste 42% from FY22 WFF diverted 99.1% C&D and 34.3% of NCD from landfill disposal, and reduced solid waste 8.9% from FY22.	Yellow

Facility Management Facility Energy Efficiency



WFF E Buildings Dry Cooler



GB EBCx (Refurbishment and Coil Restoration)

FY23 Energy Use Intensity (EUI) Progress (Btu/GSF):

Reduced **30.52% (GB)**, **38.83% (WFF)** from the FY03 baseline
(Federal/Agency Goal: reduce 30% from baseline)

Increased **6.48% (GB)**, Reduced **1.98% (WFF)** from FY22
(Agency Goal: reduce 0.5% from FY22)

FY24 EUI Plan:

GREENBELT: Energy reduction goals based on EBCx and UESC (Utility Energy Service Contract) projects

- 13% EUI reduction from FY19 baseline by the end of FY24 (update after phase II of IGA)
- Complete EBCx for 16 buildings by FY28 and within 3 years of receiving funds
- Continue to reduce 0.5% EUI from previous FY

WALLOPS FLIGHT FACILITY: Energy reduction goals based on EBCx and ESPC (Energy Savings Performance Contract) projects

- 20% EUI reduction from the FY13 baseline by FY28
- Achieve an average of 9 EBCx per year with a goal of 44 by FY28
- Continue to reduce 0.5% EUI from previous FY

Implementation Status

Goddard reduces energy consumption and costs through several methods. Core strategies include energy efficiency and renewable energy project implementation, sustainable building design, construction, and



renovation, and employee training, outreach, and awareness through events such as Energy Awareness and Earth Day activities and newsletters.

Energy efficiency projects in progress or completed in FY23 include the following:

- Greenbelt
 - o In progress: 14 Buildings EBCx (1, 3, 7, 10, 11, 13, 14, 15, 21, 28, 29, 30, 31, & 32)
 - Projected energy reduction – 4.5%
 - o Near completion: 15-Building UESC Part I (16 ECMs): Awarded 12/2021:
 - Projected energy reduction – 13%
 - o Near completion: Energy Management Control System (EMCS) Upgrade Project:
 - Projected energy reduction – 3%
 - o Completed: B29 Adding Mini-Splits
 - o Completed: Dedicated HVAC to CCRS Lab B5
- Wallops
 - o F-010 HVAC Efficiency Project: In progress

Priority Strategies & Planned Actions

Goddard will continue to invest in life-cycle cost-effective energy efficiency projects using all available funding streams, including appropriated funds, financed performance contracts, rebates, and Enhanced Use Lease (EUL) Agreements. At Wallops, Goddard will initiate an Energy Management Control System upgrade like the one completed at Greenbelt with a projected energy savings of approximately \$235K³ per year. Wallops has also requested funding to upgrade the HVAC, air handler filtration, lighting, and radiant heating in N159, with a projected cost savings of \$24,740 per year.

Energy Performance Contracting

FY23 Performance Contracting Progress:

WFF is completing Measurement & Verification (M&V) on an existing Energy Savings Performance Contract (ESPC) that will be paid off in 2030, and awarded a new base-wide Energy Savings Performance Contract (ESPC) in September 2023.

FY24 Performance Contracting Plan:

WFF will complete the Preliminary Assessment (PA) for new ESPC. GB will complete construction of UESC Phase 1 for 15 buildings awarded on 12/30/2021, and has initiated a new UESC IGA phase 2 for 16 buildings.

Implementation Status

The EMP utilizes ESPCs and UESCs in concert with other mechanisms to improve system efficiencies and reduce utility expenditures in support of Goddard’s mission. Phase 1 and 2 of Wallops ESPC, awarded in 2010 and 2012 respectively, are valued at \$50.5M⁴ based on estimated life cycle cost savings. Additionally, a 4.3 MW photovoltaic (PV) solar energy system (Phase 3a), was added to the above ESPC in FY20. In 2017, Greenbelt implemented a UESC project under the GSA area-wide contract with the local utility provider PEPCO. The UESC program enabled GB to implement new chiller optimization software

technology while earning rebate funds of \$937K⁵ that were reinvested in the current UESC project at the GB campus. On 12/30/2021, a 15 building, 16 ECM UESC project was awarded at the GB campus. The ECMs include implementing LED lights, chiller replacements, and monitoring-based commissioning. The UESC is projected to reduce campus energy consumption by 13%.

Priority Strategies & Planned Actions

Goddard will complete IGAs and determine the best value ECMs at both campuses.

Renewable Energy



Wallops Airfield Phase 3a Photo Voltaic Panels



Wallops Airfield Phase 3a Photo Voltaic Panels and F6 solar parking canopies



FY23 Renewable Energy Use Progress:

43.64% of WFF electricity was generated from the airfield solar farm and carports. **50.96%** of GB's electricity comes from Renewable Energy Credits (RECs) through its electricity contract with PEPCO.

FY24 Renewable Energy Use Plan:

Goddard will identify renewable energy opportunities in the GB UESC and WFF ESPC projects.

Implementation Status

Goddard campuses employ a diverse mix of renewable energy sources. Wallops deploys onsite solar PV and geothermal heat pump systems while Greenbelt utilizes landfill gas from a local landfill and Renewable Energy Certificate (REC) purchases.

Priority Strategies & Planned Actions

Beginning in FY20, NASA centralized REC purchases at the agency level to reduce costs and gain administrative efficiencies for the Agency.

FY22 Federal Energy Management Program (FEMP) Energy Storage Initiative: WFF participated in a FEMP study intended to help agencies identify opportunities for onsite battery storage (BESS) and provide technical and procurement assistance to accelerate deployment. WFF worked with FEMP to assess the feasibility of adding a Battery Energy Storage System to the Main Base Campus, which will now be considered as an ECM in the WFF new ESPC to be initiated in FY24.

High Performance Sustainable Buildings and Infrastructure



Greenbelt B37 Instrument Development Facility – 2021 Association of Builders & Contractors Excellence in Construction Award Winner

FY23 Sustainable Buildings Progress:

16% GSF (**681,107 GSF**) or **19%** of Goddard’s buildings meet the Guiding Principles
(Agency Goal: 28% GSF or 24% bldgs.)

FY24 Sustainable Buildings Plan:

Goal 28% (GSF) or 24% (bldgs.) meet GP

Implementation Status

Between FY10 and FY18, Goddard built 3 new sustainable facilities (B36, E110, and V27), and renovated/improved 4 existing buildings (B26, B34, B35, and E109), to meet the Silver or Gold certification level for Leadership in Energy and Environmental Design (LEED). Buildings E109, E110 and V27 also meet the Federal Guiding Principles (GP) for sustainable buildings. Sustainable building elements include use of :



- sustainable sites
- energy and water efficient equipment and fixtures
- green roofs
- reserved parking for alternative fuel
- energy efficient and van pool vehicles
- recycling areas on each floor
- water efficient landscaping, bio retention basins and Filtera boxes
- innovative sustainable design
- indoor air quality, and
- construction with recycled content and regionally sourced materials.

Between FY18 and FY19, Goddard completed 17 Existing Building Commissioning (EBCx) studies on Greenbelt Buildings 1, 3, 8, 10, 11, 13, 14, 21, 28, 29, 30, 31, 32, and Wallops Buildings E100, F5, F6, and J20, as the first step towards meeting the Guiding Principles, to bring the facilities back to top performance, and making them more efficient and sustainable.

In FY19, in coordination with HQ NASA, Goddard completed a Post Occupancy Evaluation (POE) on B36 at Greenbelt to further the Agency’s knowledge on the impact of LEED certified sustainability investments.

In FY19 and FY20, after completing additional requirements, the 4 LEED certified buildings at Greenbelt (B26, B34, B35, B36), were confirmed to meet the Guiding Principles, and 4 buildings at Wallops (F5, F6, E100 and J20) were commissioned and GP certified, bringing the number of the Center’s sustainable buildings that meet the Guiding Principles up to **17%** for a total of **620,534 GSF**.

Goddard constructed a state-of-the-art facility for development of instruments and new technology for space flight mass spectroscopic instruments in 2022 that is LEED Gold and GP certified. Now **16% GSF (681,107 GSF)** or **19%** of Goddard’s buildings meet the Guiding Principles, moving the Center closer towards meeting the Agency’s sustainability goal of 28% GSF and 24% of assets.

Priority Strategies & Planned Actions

The 13 Greenbelt buildings with completed EBCx studies (1, 3, 8, 10, 11, 13, 14, 21, 28, 29, 30, 31, and 32), will continue to be repaired, upgraded and commissioned, moving them towards meeting the Guiding Principles for sustainable buildings. After completing the needed repairs and upgrades for these buildings, the Center is estimated to realize an annual energy cost savings of **\$610K**. Starting in 2024, 16 more buildings at Greenbelt will be commissioned over the next 5 years for an estimated annual savings of **\$382K**. Wallops is currently reviewing a new EBCx report for an additional 64 buildings.

Water Conservation



FY23 Water Use Intensity Progress (WUI) (Gal/GSF):

Achieved **43.91%(GB)** reduction, but decreased only **12.28% (WFF)** from the FY07 baseline
(Federal/Agency Goal: reduce 20% from baseline)

16% (GB) annual increase but decreased **0.6% (WFF)** from FY22
(Agency Goal: reduce 0.5% from FY21)2

FY24 WUI Plan (GB) Total Water Reduction Goals (WFF):

GREEBELT:

- Install domestic water meters in 31 buildings through the existing UESC (phase I & II), repair and install steam and chilled water meters by FY28
- GB will aim to achieve a 7% WUI reduction from the FY19 baseline by end of FY24
- Identify significant water users and develop list of water conservation measures by end of FY24
- GB will maintain the 0.5% water use intensity (WUI) reduction goal each year from the previous FY

WALLOPS FLIGHT FACILITY:

- Achieve an average of 9 building-level water meter installations per year with a goal of 44 by FY28
- Assess the water usage from construction, mission, infrastructure, and wastewater treatment with FY21 baseline
- Develop a list of water conservation measures, determine water use reduction goals by FY28
- WFF will continue to reduce total water usage by 0.5% per year.

Implementation Status

Goddard reduces potable water consumption and costs through all available methods. Core strategies include upgrading major water infrastructure and repairing/replacing aging distribution systems, retrofitting bathroom fixtures, installing water meters, using native water efficient plants and eliminating use of landscape irrigation systems. The Greenbelt FY20 water leak study identified an estimated \$2K in annual cost savings⁶. Decentralizing the Wallops steam distribution system in 2012 helped to initially reduce the facility’s water consumption by over 28% from the FY07 baseline.

Goddard is facing increasing challenges to reduce year-over-year water consumption and costs. Goddard does not exclude any facilities from the water intensity metric, so mission activities and facility operations impact performance. For example, during each orbital launch at Wallops, over 230,000 gallons of water are used for flame suppression. At both campuses, large amounts of potable water are used to meet drinking water quality standards that require periodic flushing. Most water projects, whether storage tank maintenance, line replacement, or fire hydrant testing, require flushing. In FY17, Wallops increased water consumption by 23% due primarily to the airfield runway and pavement repair project. In FY22, Wallops used about 15,000 gal/day, 7 days a week, for 3 months for the beach replenishment project dust suppression. Beach replenishment is required about every 5 years depending on the erosion severity from annual storms. A non-potable water alternative could save the facility approximately 1,260,000 gallons used for each beach replenishment project.

Priority Strategies & Planned Actions

Goddard will continue to assess water distribution systems through leak detection audits, repair/replace components as appropriate, identify water conservation measures through audits and assessments, and add water meters. Water meters will help us identify the cause of increased water consumption. For industrial water uses, Goddard will evaluate options to use non-potable water sources for activities such as fire hydrant flushing and orbital launch flame suppression at Wallops. Alternatives to potable water resources will also be addressed for construction projects.

Waste Management and Diversion



Greenbelt B26 Recycling Area and B36 Recycling Pull-Out Drawers

FY23 Non-Hazardous Waste Diversion Progress⁷:

GB: Diverted **100%** of Construction & Demolition (C&D) debris and **32%** of non-C&D waste from landfill disposal. Increased total solid waste **42%** from FY22.

WFF: Diverted **99.1%** (C&D) debris and **34.3%** of non-C&D waste from landfill disposal. Decreased total solid waste **8.9%** from FY22.

(Agency Goal: Divert 50% or more non-hazardous C&D and non-C&D solid waste from landfill disposal and reduce solid waste 1% from FY22.)

FY24 Non-Hazardous Waste Diversion Plan:

Divert 50% or more non-hazardous solid waste from landfill disposal by 2025

Divert 75% or more non-hazardous solid waste from landfill disposal by 2030

Implementation Status

Goddard carefully manages and monitors construction projects and continues to exceed the Agency’s waste diversion goals for Construction & Demolition (C&D) debris. Goddard reaches out to employees through newsletters, signage, a recycling website, and environmental events such as America Recycle and Earth Day to provide pollution prevention awareness, but faces challenges with non-C&D solid waste diversion rates which fall below 50%.



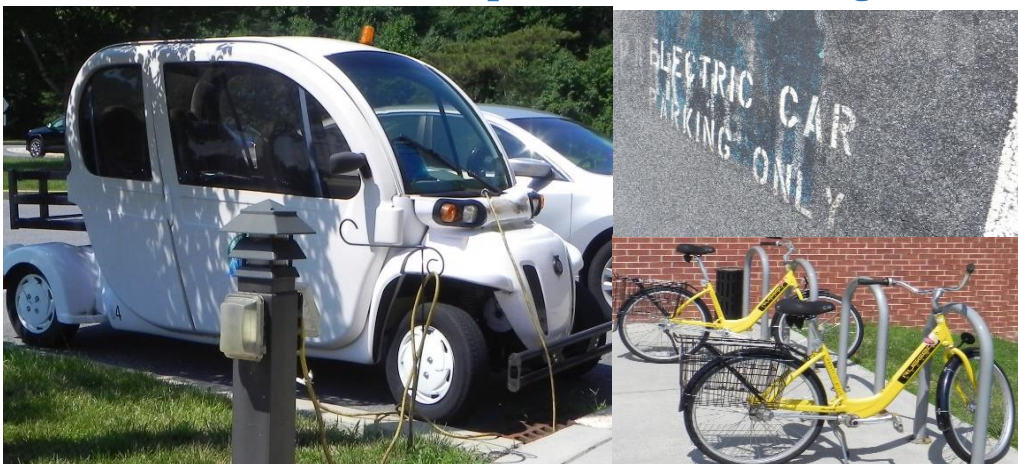
Water Bottle Filling Stations reduce waste of single use plastic water bottles

Priority Strategies & Planned Actions

Goddard will continue to provide outreach activities to increase employee participation in pollution prevention efforts. The sustainability team proposes to establish Sustainability Champions in each directorate to improve non-CD waste diversion rates.

FLEET MANAGEMENT

Transportation/Fleet Management



Greenbelt electric cart parking, bike sharing program bicycles, and new EV charging stations to be installed



FY23 Fleet and Mobility Progress:

Obtained funding to install 8 EV charging stations at GB and 7 at WFF

FY24 Fleet and Mobility Plan:

Construct 15 EV charging stations at Goddard, with additional stations for the next 7-8 years depending on funding, to support electrifying the government fleet by 2035.

Implementation Status

Goddard has reduced Scope 3 indirect and per-mile GHG emissions by **95.7%⁸** since the 2008 baseline, representing a significant reduction in fleet vehicle petroleum use. The Center has aggressively executed its Fleet Management Plan to optimize and right size the fleet to match program needs and mission requirements. This includes replacing standard fuel vehicles with alternative fuel vehicles (AFV), low GHG emitting and zero emission vehicles (i.e., hybrids, electric carts) during end-of-life cycle replacements. The Vehicle Utilization Review Board (VURB) reviews and evaluates vehicle requirements for both existing and new requests, and the Fleet Information Management System (FIMS) is used to improve data and cost information of the fleet.

The Center uses compressed natural gas (CNG)/85, a fuel alternative that produces less GHG emissions than gasoline and diesel fuels. Goddard reduces vehicle use on Center through bike sharing programs, shuttles, interconnected pedestrian friendly campuses, 13 existing Level 1 electric vehicle (EV) charging posts (Level 1 charging stations are 120-volt outlets that provide 2-5 miles of range per charging hour) at Greenbelt (B4, B24, B26, B31), and promoting video teleconferencing and carpooling between campuses. FY20/21 pandemic protocol required telework for all but on-site essential activities, and initially eliminated all business travel.

Priority Strategies & Planned Actions

Because the Center has already optimized its Fleet Management Plan, we do not expect to see significant reduction in future fleet fuel use until petroleum based vehicles are replaced by electric vehicles. In FY24, Goddard plans to install 8 Level 2 EV charging stations (Level 2 charging stations are 240 volt charging stations that provide 10-20 miles of range per charging hour and can collect EV charging data) at Greenbelt and 7 Level 2 stations at Wallops. Goddard anticipates acquiring a few electric vehicles (trucks and passenger sedans) each year to transition the entire fleet to EVs by 2035. Along with the installation of EV charging stations for government vehicles, Goddard has drafted an EV charging policy to allow employees and visitors to charge their personal electric vehicles on a reimbursable basis, to promote the use of more electric vehicles on Center, reducing Goddard's carbon footprint and supporting Goddard's sustainability goals. Return to work protocols will continue to allow telework and minimize business travel to essential travel.



FMD is also collaborating with Protective Services to evaluate EV lease options for their fleet. Electric vehicles may replace the current petroleum based protective service vehicles along with the lease of EV charging equipment. This avoids the need to purchase protective service EVs and construct additional EV charging stations.

PROCUREMENT

Sustainable Acquisition/Procurement

FY23 Sustainable Acquisition (SA) Progress:

37% of contract actions and **57%** of obligations have environmental SA requirements⁹.

(Agency goal: 22% of contract actions or 22% obligations have statutory environmental requirements)

FY24 Sustainable Acquisition Plan:

22% of contract actions or 22% of obligations have SA requirements.

Implementation Status

Goddard conducts periodic reviews to evaluate sustainable acquisition contracts. Goddard requires the use of sustainable or energy efficient products such as Energy Star appliances, Water Sense certified fixtures, Electronic Product Environmental Assessment Tool (EPEAT) Gold-registered computer equipment, LED lighting, regional and low embodied carbon materials, certified woods, less toxic, bio based and recycled content products, low emission adhesives, paints, and flooring in all procurement actions, new construction projects, major renovations, facility repair and maintenance operations and custodial services whenever economically feasible.

Priority Strategies & Planned Actions

Goddard continues to explore opportunities to increase the use of sustainable products and materials for O&M operations and construction including use of regional and low embodied construction materials.

OTHER SUSTAINABILITY HIGHLIGHTS

Notable Projects and Initiatives

In addition to the priorities described above that address NASA's sustainability goals, Goddard has also initiated the following projects, programs, and initiatives:

Envision – Wallops Island Causeway Bridge Replacement Project:

Over the last two years, WFF has evaluated the Envision infrastructure rating program developed by the Institute for Sustainable Infrastructure (ISI) in association with the American Society of Civil Engineers (ASCE). The Envision rating program evaluates the sustainability of infrastructure projects similar to the



LEED rating system for buildings, and addresses sustainability issues such as environmental, natural resources, climate resilience, community, quality of life, environmental justice, and long-term operation and maintenance impacts.

Wallops first tested the system by conducting in-house self-assessments on the completed Airfield Solar project, and the in-progress Airfield Apron Repair project with favorable results. With HQ concurrence, Wallops has now registered the Causeway Bridge Replacement project as NASA’s first Envision project to be rated by the ISI’s sustainable infrastructure system. With approximately 68%¹⁰ of NASA’s construction budget used for horizontal infrastructure, NASA recognizes the importance of improving the sustainability of infrastructure projects and has added the Envision rating system in both the 2023 NASA Sustainability Plan and the NPR 8820.2H.

Wallops’ current Envision self-assessment at 30% project design indicates a rating of 11%. Wallops anticipates a minimum rating of 21% by the 90% design with the possibility of obtaining a maximum rating of 46% by the end of construction. A 30% rating is needed to obtain a Silver level certification.

See table below:

VERIFICATION AWARD LEVELS

To receive recognition, projects must achieve a minimum percentage of the total applicable Envision points. Projects can be recognized at four award levels:

- **Verified:** 20%
- **Silver:** 30%
- **Gold:** 40%
- **Platinum:** 50%



Wallops Island Causeway Bridge Replacement Envision Project

Goddard Sustainability Champions:

Goddard is proposing to establish sustainability champions (SCs) at each Directorate or Division. The SCs would help increase solid waste diversion rates, decrease energy and water consumption, support commuter transportation to increase car pooling, public transit, EV use, sustainable acquisition, beach and campus clean-ups, and other initiatives to reduce Goddard’s carbon footprint.



Greenbelt B33 Meadow-Morphosis:

Greenbelt meadow demonstration projects in front of B33 Earth Science Division. This collaborative partnership between the Environmental Division and the USDA/Natural Resources Conservation Service has turned high maintenance turf grass into teff grass. This is the first step to transition to beautiful, productive, low maintenance meadow, reducing the center’s carbon footprint and increasing pollinator habitat. As part of the demonstration project, each new area of turf transition uses a slightly different approach. There are different methods for removing the existing vegetation, a change in the time of year, seed versus plugs, etc. Each tweak will be studied to perfect the turf/meadow transition process. The more meadows there are on Center, the more GSFC benefits from the environmental and economic benefits that come with them.

Wallops Moon Tree Plantings:

Goddard planted second generation trees at Wallops and Greenbelt from the original seeds that went to the moon on the Apollo 14 Mission.





NOTES

1. FY17-FY23 Real Property Demolition Report pulled from the Real Property Management System on Feb 21, 2024 by Maryellen Ramsey. (Darlene Eltringham/Denise Harrington other POCs). Estimated O&M savings derived from the most recent O&M data reported in the Annual HQ Real Property Data call (in some cases \$0 if the building was abandoned) and does not include the new cost of O&M for any buildings that we replaced.
2. D. Katzenberg. Estimated energy savings from performance contracts is all from ESPCs. Assuming no UESC saving in FY2023 since we have no verified savings through M&V yet.
3. D.Katzenberg. Estimate of \$235K is the sum of the 3 ECM savings instead of using the value in the ECONPACK.
4. Performance contracting data obtained from NASA Environmental Tracking System (NETS).
5. \$937,156 rebate amount reported by Goddard Energy Manager Evelyn Baskin.
6. \$2K estimated water savings from 2020 leak study reported in NETS.
7. Data derived from NETS reports.
8. 2020 Scope 3 GHG reduction from baseline provided by HQ (Erick Tucker/Leidos), prorated according to campus population size. Goddard = GB [(-94.8%)(82%)] + WFF [(-99.6%)(.18%)] = -95.7%.
9. FY23 FPDS report – Therese Patterson.
10. NASA infrastructure budget obtained from Eugene Mszar/HQ.