U.S. Department of Health & Human Services
2024 - 2027 Climate Adaptation Plan

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U.S. Department of Health and Human Services

2024-2027 Climate Adaptation Plan

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Section 1: Agency Profile

Table 1: Agency Profile

Mission	To enhance the health and well-being of all Americans, by providing for effective health and human services and by fostering sound, sustained advances in the sciences underlying medicine, public health, and social services.
Adaptation Plan Scope	Assistant Secretary for Financial Resources (ASFR), Administration for Strategic Preparedness and Response (ASPR), Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), Indian Health Services (IHS), and National Institutes of Health (NIH), OASH/Office of Climate Change and Health Equity (OCCHE), Substance Abuse and Mental Health Services Administration (SAMHSA)
Agency Climate Adaptation Official	Reginald Taylor, M.S., PE, PMP
Agency Risk Officer	Christine Jones, PMP
Point of Public Contact for Environmental Justice	Sharunda Buchanan, M.S., Ph.D.
Owned Buildings	2,714 Buildings of 34.3 million gross square feet *(U.S. Department of Health and Human Services (HHS) Automated Real Property Inventory System (ARIS)[1]; Data Snapshot Date: 10/3/2023)*
Leased Buildings	1,420 Buildings of 31.4 million square feet *(ARIS, Data Snapshot Date: 10/3/2023)*
Employees	65,761 Agency Staff Full Time 15,011 Agency Staff non-Full Time *(Federal Climate Adaptation Plan Mapping 2024)*
Federal Lands and Waters	4,322 acres *(ARIS, Data Snapshot Date: 10/3/2023)*
Budget	FY 2022: $108.6 billion FY 2023: $115.4 billion FY 2024 Enacted: $117 billion (P.L. citation 118-47) FY 2025 Budgeted: $130.7 billion (President's Budget)
Key Areas of Climate Adaptation Effort	1. Expanding health program implementation for climate adaptation 2. Optimizing workforce and operational footprint through space management. 3. Enhancing climate literacy in the HHS management workforce 4. Promoting sustainable and climate-resilient operations at HHS Facilities. 5. Ensuring a climate-ready supply of products and services

[1] The Automated Real Property Inventory System (ARIS) is a database of all HHS real property data that is used to help develop and direct real property strategies to support the Department's diverse missions. ARIS data is submitted to the Federal Real Property Management System reporting annually.

Climate change poses a serious current and future threat to the health and well-being of all Americans. The Fifth National Climate Assessments concludes:

> "*It is an established fact that climate change is harming physical, mental, spiritual, and community health and well-being through the increasing frequency and intensity of extreme events, increasing cases of infectious and vector-borne diseases, and declines in food and water quality and security. Climate-related hazards will continue to grow, increasing morbidity and mortality across all regions of the US*[2]"

The health and well-being threats from climate change result from a large number of environmental changes and human exposures that are occurring because of climate change. These include:

- Increased frequency and severity of extreme heat
- Increased air pollution, including wildfire smoke and ozone
- Changes in pollens and allergens
- Increases in range and season length of a variety of vector-borne diseases, including West Nile Virus and Lyme Disease
- Increased risks to food and water safety
- Multiple health risks associated with increased extreme weather events, including severe hurricanes and flooding
- Increased mental and behavioral health stressors, including threats to spiritual well-being, especially for indigenous populations
- Threats to livelihood and economic well-being from increased heat and extreme weather, as well as coastal changes, including sea level rise

The threats to health do not affect all populations equally. The Fifth National Climate Assessment highlights the communities throughout the United States that face greater health risks from climate change associated with historic discrimination and marginalization. These include BIPOC (Black, Indigenous, and People of Color), individuals and communities with low wealth, women, people with disabilities or chronic diseases, sexual and gender minorities, and children[3]. In addition, elderly populations are at higher risk of many climate-related adverse health and well-being outcomes.

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[2] Hayden, M.H., P.J. Schramm, C.B. Beard, J.E. Bell, A.S. Bernstein, A. Bieniek-Tobasco, N. Cooley, M. Diuk-Wasser, Michael K. Dorsey, K.L. Ebi, K.C. Ernst, M.E. Gorris, P.D. Howe, A.S. Khan, C. Lefthand-Begay, J. Maldonado, S. Saha, F. Shafiei, A. Vaidyanathan, and O.V. Wilhelmi, 2023: Ch. 15. Human health. In: *Fifth National Climate Assessment*. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://doi.org/10.7930/NCA5.2023.CH15

[3] Hayden, M.H., P.J. Schramm, C.B. Beard, J.E. Bell, A.S. Bernstein, A. Bieniek-Tobasco, N. Cooley, M. Diuk-Wasser, Michael K. Dorsey, K.L. Ebi, K.C. Ernst, M.E. Gorris, P.D. Howe, A.S. Khan, C. Lefthand-Begay, J. Maldonado, S. Saha, F. Shafiei, A. Vaidyanathan, and O.V. Wilhelmi, 2023: Ch. 15. Human health. In: *Fifth National Climate Assessment*. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://doi.org/10.7930/NCA5.2023.CH15

The complex and myriad nature of threats to health and well-being and the many communities at higher risk from climate change-related health and wellbeing outcomes means that all HHS Divisions are affected by climate change, and that all Divisions have important roles to play in protecting people in the United States from the adverse impacts.

Estimates of the financial risk to HHS programs and services are very few and partial. The most directly applicable analysis comes from the Office of Management and Budget, which published "Climate Risk Exposure: An Assessment of the Federal Government's Financial Risks to Climate Change" in April 2022. This analysis estimated that federal healthcare expenditures associated just with climate change could range between $824 million and $22 billion by the end of the century. The authors note, however, that "this may only be a small portion of the increased Federal costs of health care brought on by climate change." The analysis only includes the costs of illness from ozone and fine inhalable particulate matter with a diameter generally less than 2.5 micrometers ($PM_{2.5}$) air pollution, Valley Fever, Southwest Dust, and wildfire smoke. It did not include vector-, food-, or water-borne illnesses, heat-related morbidity, or mental and behavioral health impacts, among other omissions.

The HHS mission is to enhance the health and well-being of all Americans by providing effective health and human services and by fostering sound, sustained advances in the sciences underlying medicine, public health, and social services. The Department is comprised of twelve Operating Divisions (OpDiv), which administer a wide variety of health and human services and conduct life-saving research for the nation, protecting and serving all Americans, and fourteen staff divisions, which provide coordination, enforcement, management, and policy formulation functions for the Department.

The title of the HHS Sustainability Program is "Go Green Get Healthy HHS," which aims to introduce sustainable practices and build resilience and adaptive capacity in every area of HHS' mission activities and operation. HHS advances sustainable practices, resilience, and adaptive capacity through nine (9) Go Green Get Healthy HHS coordinators, whom HHS' Chief Sustainability Officer leads. The nine (9) HHS Go Green Get Healthy workgroups are OpDiv Chief Sustainability Officer (CSO), Sustainability Outreach Managers, Environmental Managers, Pollution Prevention/Waste Managers, Green Procurement Managers, Energy/Water Managers, Fleet Managers, Electronic Stewardship/Data Center Consolidation Managers, and High-Performance Sustainable Building Managers. Go Green Get Healthy HHS workgroups meet regularly to develop plans, implement strategies, and respond to HHS Chief Sustainability Officer data calls to meet the goals of Executive Orders (EO) 14008 and 14057. HHS' adaptation and resilience efforts are embedded within the HHS' Go Green Get Healthy workgroup leads. The Sustainability Outreach Managers are focused on carbon mitigation as climate vulnerability assessments are progressing. HHS is currently drafting a Sustainability and Climate Adaptation Portfolio Charter, which defines an HHS organizational structure, key roles, and responsibilities to systematically distribute climate adaptation/resilience and carbon mitigation workload across the Department. HHS is planning to issue is Sustainability and Climate Adaptation Portfolio Charter by end of Fiscal Year 2024.

In August of 2021, the HHS Office of the Assistant Secretary for Health (OASH) | Office of

Climate Change and Health Equity (OCCHE) was established with the mission to protect the health of people throughout the U.S. in the face of climate change, especially those experiencing a higher share of exposures and impacts. OCCHE provides expertise and coordination related to climate change and health equity to all Department of Health and Human Services divisions, other federal agencies, and the White House. OCCHE also develops and coordinates numerous deliverables and activities, including implementing several EOs, such as EO 14008 and 14057. OCCHE provides climate and health messaging, training, and initiatives within HHS, the federal government, and the public sector. In addition, OCCHE convenes the HHS Climate Change and Health Equity workgroup, which comprises individuals from all HHS Divisions and serves as the primary HHS coordinating platform for programmatic climate change actions.

In 2022, HHS formalized the HHS Climate Literacy Team, comprised of subject matter experts from the HHS Sustainability Office, OCCHE, HHS Office of Human Resources, and OpDiv representatives. The Team works to coordinate climate training, outreach, and messaging for the Department. The HHS Climate Literacy Team developed climate language for incorporation into employee Performance Management Appraisal Programs (PMAPs) and a strategy for implementation. HHS Human Resources staff worked quickly to ensure that the Department-wide executive performance requirements for the appraisal cycle of Senior Executive Service (SES), Senior Level/Scientific or Professional (SL/ST), and Title 42(f) executive equivalents beginning October 1, 2022 included Critical Element 1 – Leading Change to address Executive Order 14008 – *Tackling the Climate Crisis at Home and Abroad*, with the following language added: Performance Requirement – Promote efforts to improve climate literacy across the HHS workforce, emphasizing education for sustainability. As we advance, the Team will continue to organize awareness events and materials and work to develop training.

Through its Climate Adaptation Plan, HHS is also able to advance environmental justice as part of its mission, consistent with EO 14008 and with EO 14096 on *Revitalizing Our Nation's Commitment to Environmental Justice for All*. As HHS implements its Climate Adaptation Plan to increase the resilience of its facilities and operations, the agency will use its best efforts, as appropriate and consistent with applicable law: to address disproportionate and adverse environmental and health effects (including risks) and hazards, including those related to climate change and cumulative impacts of environmental and other burdens on communities with environmental justice concerns; and, provide opportunities for the meaningful engagement of persons and communities with environmental justice concerns. The Office of Environmental Justice (OEJ) within OCCHE coordinates the department's work to protect the health of disadvantaged communities and vulnerable populations on the frontlines of pollution, and other environmental hazards that affect health.

In addition, as a member of the White House Environmental Justice Interagency Council (WHEJAC), HHS received recommendations on Climate Planning, Preparedness, Response, Recovery and Impacts from the WHEJAC. The report includes many recommendations that are relevant to the HHS' work. HHS is reviewing the recommendations and, as appropriate and to the maximum extent permitted by law, is taking steps to address the WHEJAC's recommendations.

Section 2: Risk Assessment

HHS used the Federal Climate Mapping for Resilience and Adaptation Application (Federal Mapping App)— which was developed for federal agencies by the White House Council on Environmental Quality (CEQ) and the National Oceanic and Atmospheric Administration (NOAA) to conduct a high-level screening of climate hazard exposure for federal facilities and personnel.

When considering extreme heat and precipitation, HHS only included buildings that could see more than zero days per year above the 99th percentile. HHS assessed the exposure of its buildings; employees; and lands, waters, and cultural and natural resources to five climate hazards: extreme heat, extreme precipitation, sea level rise, flooding, and wildfire risk.

2.1 Climate Data Used in Agency Risk Assessment

Table 2 Climate Data Used in Agency Risk Assessment

Hazard	Description	Scenario	Geographic Coverage
Extreme Heat	Measured as whether an asset is projected to be exposed to an increased number of days with temperatures exceeding the 99th percentile of daily maximum temperatures (calculated annually), calculated with reference to 1976-2005. Data are from high-resolution, downscaled climate model projections based on the Localized Constructed Analogs (LOCA) dataset prepared for the 4th National Climate Assessment.	RCP 4.5	CONUS
		RCP 8.5	CONUS
Extreme Precipitation	Measured as whether an asset is projected to be exposed to an increased number of days with precipitation amounts exceeding the 99th percentile of daily maximum precipitation amounts (calculated annually), with reference to 1976-2005. Data are from high-resolution, downscaled climate model projections based on the LOCA dataset prepared for the 4th National Climate Assessment.	RCP 4.5	CONUS
		RCP 8.5	CONUS and AK
Sea Level Rise	Measured as whether an asset is within the inundation extents from NOAA Coastal Digital Elevation Models and the 2022 Interagency Sea Level Rise Technical Report. Intermediate and Intermediate-High sea level rise scenarios used as proxies for RCP 4.5 and 8.5, respectively.	RCP 4.5	CONUS and PR
		RCP 8.5	CONUS and PR
Wildfire Risk	Measured as whether an asset is in a location is rated as high, very high, or extreme risk based on the U.S. Forest Service Wildfire Risk to Potential Structures (a data product of Wildfire Risk to Communities), which estimates the likelihood of structures being lost to wildfire based on the probability of a fire occurring in a location and likely fire intensity. Data reflects wildfires and other major disturbances as of 2014.	Historical	All 50 States
Flooding	Measured as whether an asset is located within a 100-year floodplain (1% annual chance of flooding) or 500-year floodplain (0.2% annual chance of flooding), as mapped by the Federal Emergency Management Agency National Flood Hazard Layer.	Historical	All 50 States and PR

Exposure to extreme heat, extreme precipitation, and sea level rise were evaluated at mid- (2050) and late-century (2080) under two emissions scenarios, Representative Concentration Pathway (RCP) 4.5 and RCP 8.5. Exposure to flooding and wildfire risk were only evaluated for the present day due to data constraints.

2.2 Climate Scenarios Considered in Agency Risk Assessment

Table 3 Climate Scenarios Considered in Agency Risk Assessment

Scenario Descriptor		Summary Description from 5th National Climate Assessment
RCP 8.5	Very High Scenario	Among the scenarios described in NCA5, RCP 8.5 reflects the highest range of carbon dioxide (CO_2) emissions and no mitigation. Total annual global CO_2 emissions in 2100 are quadruple emissions in 2000. Population growth in 2100 doubles from 2000. This scenario includes fossil fuel development.
RCP 4.5	Intermediate Scenario	This scenario reflects reductions in CO_2 emissions from current levels. Total annual CO_2 emissions in 2100 are 46% less than the year 2000. Mitigation efforts include expanded renewable energy compared to 2000.

2.3 Climate Hazard Exposures and Impacts Affecting Federal Buildings

Table 4: Climate Hazard Exposure to Buildings for Heat, Precipitation, and Sea Level Rise

Indicators of Exposure of Buildings to Climate Hazards	RCP 4.5 2050	RCP 4.5 2080	RCP 8.5 2050	RCP 8.5 2080
Extreme Heat: Percent of buildings projected to be exposed to more days with temperatures exceeding the 99th percentile of daily maximum temperatures (calculated annually) from 1976-2005	100%	100%	100%	100%
Extreme Precipitation: Percent of buildings projected to be exposed to more days with precipitation amounts exceeding the 99th percentile of daily maximum precipitation amount (calculated annually) from 1976-2005	99%	100%	100%	99%
Sea Level Rise: Percent of buildings projected to be inundated by sea level rise	1%	1%	1%	1%
	High Risk	**Very High Risk**	**Extreme Risk**	
Wildfire: Percent of buildings at highest risk to wildfire	11%	1%	3%	
	100- or 500- year floodplain			
Flooding: Percent of buildings located within floodplains	2%			

HHS owns and leases a considerable number of buildings, over 4,000, spread across the United States (U.S.) and its territories, each facing varying degrees of exposure to climate hazards. This section pertains to the HHS owned buildings and provides an overview of exposures for Representative Concentration Pathway (RCP) 4.5 in the late century where data exists.

Out of the total HHS-owned buildings that have climate exposure data, 100% will experience a rise in temperature due to global warming. High temperatures can strain building cooling systems, leading to elevated indoor temperatures that pose risks to workers' health and hinder productivity. Moreover, buildings can contribute to heat islands during heatwaves, increasing health hazards for outdoor personnel.

100% of HHS-owned buildings are expected to encounter increased precipitation exposure for up to 2 days more on average. Heightened precipitation can infiltrate buildings and damage subsurface utilities, potentially causing operational disruptions and irreversible losses. It can also introduce waterborne illnesses through runoff.

The rising sea level can have several detrimental impacts on infrastructure, including flooding, erosion of supporting soils, building collapses, saltwater surges into waterways, and transportation delays. Flooding can result in property damage, operational disruptions, and transportation delays. In HHS, 2% (46) of buildings are located in either 100-year or 500-year floodplain maps for where we have data. 1% (27) of HHS buildings are projected to be inundated by rising sea levels. Dauphin Island is particularly vulnerable to rising sea levels. The FDA Gulf Coast Seafood Laboratory Site is in Dauphin Island, Alabama. Dauphin Island is a low-lying barrier island with an average elevation of only 7.2 feet, and it has been in a net erosional phase since the 1950s. In 2007, Dauphin Island was 16% smaller than in 1958. The rise in sea level will make Dauphin Island more susceptible to coastal storm surges, including weaker, seasonal storms. These factors could have a substantial impact by increasing erosion, permanently inundating some areas, and leading to higher salinity levels in estuaries and freshwater aquifers.

The FDA is addressing flooding from sea-level rise and storm surges at both the current Dauphin Island laboratory in Dauphin Island, Alabama, and the future site for a new laboratory. Both locations have not historically, nor expected for the foreseeable future, experienced flooding. The existing laboratory is protected by a 25’ sheet-pile seawall which in turn protects numerous Indigenous Historical Shell Mounds that also act as a natural barrier against tidal flooding, and the fact that all buildings have been constructed on elevated piers. Additionally, the facility grounds are intentionally graded to allow for maximum water surge drainage back into the canal and Bay. However, multiple large-capacity pumps are maintained on-site should an unforeseeable flood occur and two, elevated, fully redundant 300-kW Tier 4+ generators and an elevated fuel supply are maintained to provide full-power for up to two weeks after tropical events. FDA is working closely with the design firm for the new laboratory to address current climate risks and prepare for increasing future risks at that site.

HHS has identified 359 HHS-owned buildings, accounting for 14% of the total, with a high, very high, or extreme probability of wildfire exposure. Wildfires have the potential not only to damage or destroy these buildings but also to disrupt critical services such as power, gas, communications, transportation, and water supply. Smoke from wildfires can impact health hundreds of miles from site of the fire. Wildfire smoke can cause respiratory, cardiovascular, and eye issues, along with sinus irritation, fatigue, increased heartbeat, and inflammation.

HHS has 4,214 acres of land predominantly used for institutional work, office building locations, and research and development. HHS is not a federal land management agency, meaning HHS land is generally closed to the public. However, conserving and restoring lands may increase climate adaptation and resilience, including preserving water and restoring ecosystems that support water supply reliability, resiliency to drought, and resistance to flooding. HHS will review existing and planned land conservation activities to discover opportunities for increasing climate adaptation and resilience based on the lands that surround its buildings

2.4 Climate Hazard Exposures and Impacts Affecting Federal Employees

Table 5: Climate Hazard Exposure to Federal Employees for Extreme Heat, Extreme Precipitation, and Sea Level Rise

Indicators of Exposure of Employees to Climate Hazards	RCP 4.5 2050	RCP 4.5 2080	RCP 8.5 2050	RCP 8.5 2080
Extreme Heat: Percent of employees duty-stationed in counties projected to be exposed to more days with temperatures exceeding the 99th percentile of daily maximum temperatures (calculated annually), from 1976-2005	100%	100%	100%	100%
Extreme Precipitation: Percent of employees duty-stationed in counties projected to be exposed to more days with precipitation amounts exceeding the 99th percentile of daily maximum precipitation amount (calculated annually), from 1976-2005	99%	100%	99%	99%
Sea Level Rise: Percent of employees duty-stationed in counties projected to be inundated by sea level rise	8%	14%	8%	16%
	High Risk	**Very High Risk**		**Extreme Risk**
Wildfire: Percent of employees duty-stationed in counties at highest risk to wildfire	6%	1%		1%

HHS has a diverse portfolio of owned and leased buildings, such as hospitals, laboratories, offices, and outpatient healthcare facilities where employees may be exposed to climate hazards. Tables 5 above provide an overview of HHS employee exposure to climate hazards. This section will only expound on projection data related to RCP 4.5 in the late century to provide a general understanding of climate hazard exposure to Federal personnel at HHS.

As indicated in the Federal Mapping App, 100% of personnel will be exposed to extreme heat. HHS projects that as the global temperature continues to rise, 99% of personnel will experience increases of at least 5 to 68 more annual days of temperature surpassing the 99th percentile. These warmer temperatures pose a greater risk for various issues such as heart disease hospitalization, worsening asthma, and chronic obstructive pulmonary disease due to heat exhaustion, leading to heat stroke, dehydration, and kidney injury. Climate projections reveal that heat will remain a future climate hazard for NIH campuses. The number of cooling degree days and days with a heat index above 90ºF will continue to increase significantly, impacting building cooling systems, electrical systems, research quality, employee and patient safety, and healthcare services capacity. Increased temperatures and droughts would lead to more significant occurrence, severity, and variability of wildfires, potentially damaging or destroying facilities and critical infrastructure such as electrical utilities and access roads.

Heat is the most significant climate hazard projected to impact HHS's facilities in the Southwest of CONUS. Increased heat in the Southwest region can lead to droughts and decreased vegetation, making the land vulnerable to soil erosion during precipitation events. Soil erosion from extreme precipitation can expose and damage infrastructure such as utilities and roads, causing unplanned outages and rendering many land areas inaccessible.

Moreover, rising temperatures also lead to an increase in precipitation. As indicated in the Federal Mapping App, 100% of personnel will be exposed to extreme precipitation. HHS projects at least 62% of HHS personnel will experience one or more additional days of annual rainfall surpassing the 99th percentile at various locations. Planting trees to cool HHS facilities during sweltering days offers a nature-based solution that protects human health and reduce energy and carbon emissions.

Flood waters can be hazardous and contain contaminants, germs, physical objects, and wild or stray animals, which may result in health issues such as wound infections, gastrointestinal illness, and tetanus. It is worth noting that over half, on a facility count basis, and comprising of 10% of HHS' direct owned square footage, is HHS family housing real property situated in Tribal areas without floodplain maps. Therefore, HHS is actively working towards obtaining more floodplain map data to assess personnel working in flood-prone areas. Climate data also reveals that the NIH campuses are expected to continue experiencing an increase in the intensity and frequency of precipitation events in the future, which is compromising near end-of-life stormwater management systems. These events will lead to more significant flooding and erosion issues.

Extreme precipitation is projected to increase on HHS's lands in the East. The increased precipitation may result in major flooding in and around land near floodways, low-lying areas, or bodies of water. Flooding may also occur from rainfall, and debris from extreme precipitation runoff can overburden sewer systems.

The rise in sea level is projected to affect a small percentage of HHS land. For example, HHS land on Dauphin Island, Alabama, is particularly vulnerable to rising sea levels and will make Dauphin Island more susceptible to coastal storm surges, including weaker, seasonal storms. HHS land on Dauphin Island is also a National Register Listed property, which has evidence of prehistoric subsistence and settlement patterns during the early colonial period and potential Native American occupation during the early French colonial period. The rising sea level could have a strong impact by increasing erosion and carrying away historical evidence that should be preserved. The rising sea level could also permanently inundate some areas, leading to higher salinity levels in estuaries and freshwater aquifers.

2.5 Climate Hazard Exposures and Impacts Affecting Mission, Operations and Services

Table 6: Climate Hazard Impacts on and Exposures to Mission, Operations and Services

SUMMARY OF KEY CURRENT AND PROJECTED CLIMATE HAZARD IMPACTS AND EXPOSURES		
Area of Impact or Exposure	Identified Climate Hazard	Description
Worker Health	Extreme Heat	Greater than 99% of the HHS workforce will be exposed to an annual increase in days with a maximum temperature greater than the 99th percentile. According to the Occupational Safety and Health Administration (OSHA), extreme heat is a well-known and recognized occupational hazard for outdoor and indoor workers. It can cause severe or fatal illness when workers are not provided the necessary protections or training.
Providing healthcare services to Southwest and Northeast IHS facilities, including Arizona, California, Massachusetts, and Nevada.	The severity of heat hazards (low to high) varies in each state and region. It is related to a rise in the impacts associated with the increase in average temperatures and the occurrence and severity of heat waves.	IHS healthcare services could reach maximum capacity sooner and more frequently due to increased cases of heat-related illnesses and could overburden staff. With severe heat, facility heating, ventilating, and air conditioning (HVAC) systems may be overused or inadequate, negatively impacting healthcare services.
Providing healthcare services to Northeast IHS facilities, including Massachusetts.	High wind hazards in Massachusetts are related to increased low-pressure systems or storm cycles and the resulting impacts from associated gusts.	IHS healthcare services may experience direct property destruction, resulting in the temporary closure of facilities and services. Wind may cause power outages and cause difficulty accessing facilities due to debris. Loss of power and access to healthcare facilities would reduce people's access to essential resources.
Providing healthcare services to Southwest and Great Plains IHS facilities, including Arizona, California, Nevada, and South Dakota.	Wildfire hazards vary by State and result from extended periods of drought or heat and ignition sources from human or environmental causes.	Like impacts from wind hazards, wildfires could lead to direct property destruction, resulting in the temporary closure of facilities and services and loss of power and access to facilities. Wildfire hazards could also lead to IHS facilities reaching maximum capacity sooner and more frequently due to increased cases of smoke-related illnesses.
NIH Campuses' Stormwater Management System	Flood – Increasing intensity and frequency of precipitation.	Several campus stormwater management systems are near the end of life. These systems need to be replaced with greater capacity to accommodate an expected increased frequency and severity of precipitation events. One potential impact from compromised several water management systems is on the NIH Bethesda Campus where a trans-shared

SUMMARY OF KEY CURRENT AND PROJECTED CLIMATE HAZARD IMPACTS AND EXPOSURES		
Area of Impact or Exposure	Identified Climate Hazard	Description
		resource on Electron Microscopy was affected from an increased intensity precipitation event in September 2020.
NIH Campuses' Buildings Cooling Systems	Heat – Increasing number of cooling degree days.	Campus building cooling systems are expected to experience an increased demand due to the increasing number of cooling degree days, which can strain power grid and water infrastructure.
NIH Campus Facilities Power/Communication System Disruption	Wind - Increasing frequency of hurricanes/strong storms.	All NIH campus facilities are expected to experience an annual increase in intense storms. These storms can potentially affect campus access and disrupt operations.
NIH Rocky Mountain Laboratories Campus air quality CDC Fort Collins Campus air quality	Wildfires – Increasing frequency of wildfire events	The Rocky Mountain Laboratories campus in Montana, has experienced poor air quality due to smoke from regional and non-regional wildfires that have increased in frequency from rising temperatures and drought. The Fort Collins Campus experienced a wildfire event in recent years where staff were forced to work remotely due to extremely poor air quality.

This part explores the ways in which shifts in climate and natural phenomena such as heatwaves, strong wind gusts, wildfires, and intense rainfall can influence our missions, operations, and healthcare provisions. HHS will investigate how these occurrences might affect its employees and the services it delivers to the public.

HHS' aim is to gain a deeper comprehension of these hazards and to consider measures for enhanced preparedness. This initiative will ensure the safety of HHS personnel and the continuous availability of healthcare services and biomedical research during such events.

Employees will encounter an increased number of extremely hot days annually. Exposure to such conditions can lead to severe health issues, including fatalities, without appropriate safeguards or education. The prevalence of heat may also escalate the incidence of illnesses related to high temperatures, potentially overwhelming HHS hospitals and exerting excessive stress on the staff. Moreover, excessive temperatures could impair the function of cooling systems in these facilities, complicating the delivery of healthcare services. The anticipated higher utilization of cooling systems due to the rise in hot days will burden HHS' energy and water resources.

Powerful gusts from extreme weather such as hurricanes or tornadoes can inflict damage on HHS buildings, cause utility outages, and obstruct facility access, which compromises HHS from achieving its various missions. Similarly, wildfires can not only cause physical damage to HHS

structures but also complicate service delivery. The increase in individuals requiring medical attention due to smoke inhalation affects facility operations and healthcare services capacity especially in the Northeast and Northwest regions of the CONUS.

The infrastructure of HHS for managing substantial rainfall from its near end-of-life stormwater management systems may be inadequate, as it was not designed to cope with the more frequent and intense rainfalls. This deficiency was evident in the disruptions experienced at the NIH Bethesda Campus in 2020. An uptick in rain could mean that HHS buildings and services may face more disruptions from storms. Anticipated are more severe storms that could challenge the ability for HHS to provide healthcare services and biomedical research reliably.

To navigate these challenges, HHS is planning mitigations to climate hazards and building adaptive capacity modifications to safeguard its workforce and guarantee the persistent provision of healthcare services and biomedical research amidst extreme weather conditions. These adjustments will position HHS to remain proactive and uphold its dedication to serving the American public.

Section 3: Implementation Plan

3.1 Address Climate Hazard Exposures and Impacts Affecting Federal Buildings

Table 7: Prioritized Actions to Address Climate Hazard Impacts on and Exposure to Federal Buildings

PRIORITIZED ACTIONS TO ADDRESS CLIMATE HAZARD EXPOSURES AND IMPACTS AFFECTING FEDERAL BUILDINGS		
Climate Hazard Impact on and/or Exposure to Buildings	Priority Action	Timeline for implementation (2024-2027)
Heat 100% of HHS-owned buildings may be exposed to an increase in annual days with a maximum temperature greater than the 99th percentile.	Revise HHS internal climate adaptation processes with the following guidance: • Minimize heat gain in buildings • Right-size emergency cooling • Maximize clean energy backup power for emergency cooling.	• Revise HHS internal climate adaptation process, which includes climate vulnerability assessments, prioritizations, response planning, budget submissions, tracking, and reporting progress (April 2025) • Stakeholder review period (May 2025) • Finalize HHS internal climate adaptation process (June 2025) • HHS Chief Sustainability Officer approval (August 2025)
Wildfire 14% of buildings have a high, very high, and extreme risk of wildfire exposure.	Revise HHS internal climate adaptation processes with the following guidance: • Use fire-resistant materials • Ensure there is a sufficient defensible area around buildings	• Revise HHS internal climate adaptation process, which includes climate vulnerability assessments, prioritizations, response planning, budget submissions, tracking, and

PRIORITIZED ACTIONS TO ADDRESS CLIMATE HAZARD EXPOSURES AND IMPACTS AFFECTING FEDERAL BUILDINGS		
Climate Hazard Impact on and/or Exposure to Buildings	Priority Action	Timeline for implementation (2024-2027)
	• Give special care and protection to fire-prone areas • Maintain clean indoor air quality	reporting progress (April 2025) • Stakeholder review period (May 2025) • Finalize climate adaptation process (June 2025) • HHS Chief Sustainability Officer approval (August 2025)
Flooding 2% Facilities within 100-year floodplain or within a 500-year floodplain	Update HHS Floodplain Management procedures to implement the Federal Flood Risk Management Standard (FFRMS) Procedures	May 2024 – Publish final HHS Floodplain Management Procedures.

This strategy aims to tackle and enhance the way HHS facilities mitigate their risk and the effects experienced due to climate-related threats. HHS will revise its climate adaptation methodology internally, incorporating guidance for key areas such as reducing heat gain, ensuring emergency cooling, enhancing fire resistance, utilizing renewable energy sources, and mitigating flooding.

The term heat gain describes the temperature rise within a structure, causing discomfort to HHS employees and visitors and increased utility costs. Methods to lower heat gain involve but are not limited to the following: applying reflective materials to roofs, surrounding structures with trees for shade, and fitting windows with insulation.

Emergency cooling is vital to maintain internal temperatures of structures safe during electricity failures or periods of extreme heat. Viable strategies to achieve emergency cooling but are not limited to the following include performing energy evaluations to assess the needed capacity and adopting energy-efficient cooling systems. Employing renewable energy sources can offer dependable backup energy source for emergency cooling without adding to global warming. Installing photovoltaic panels and utilizing battery storage solutions to guarantee power availability during crises.

Constructing facilities with fire resistant materials such as treated lumber, stone, or metallic materials, and apply fire-resistant paints to fire prone areas can markedly lessen the threat of damage from wildfires. Creating a defensible area around structures is crucial for their protection against wildfire. This involves the routine clearing of combustible vegetation and the creation of zones with varying types of flora that serve as fire barriers. Zones that regularly experience high temperatures, dryness, and have combustible vegetation are deemed high-risk for fires. Defensive strategies for areas at risk of fire include the establishment of firebreaks and regular fire safety drills and readiness training for residents. Preserving superior indoor air quality is vital for the health and comfort of individuals within the building. Methods for

purifying indoor air include ensuring ventilation systems are functioning correctly and utilizing air filters to eliminate pollutants.

Revamping procedures for managing floodplains is also vital as floods can cause extensive harm to structures and interrupt their operations. HHS' current floodplain management procedures are outlined in the HHS General Administration Manual Part 30-40-40. HHS published its draft FFRMS procedures in accordance with EO 13690 and EO 14030 on the Federal Register on November 6, 2023, to allow the public to the Federal Register for a 30-day comment period. HHS' FFRMS procedures were viewed 128 times with no comments received over the 30-day comment period. HHS finalized its FFRMS procedures on the Federal Register on May 1, 2024, and HHS will apply the FFRMS to minimize risk to flooding damage and ensure critical infrastructure is water resistant.

Implementing these strategies will safeguard not only the HHS buildings but also promote the safety and comfort of the individuals inside them. HHS is set to integrate these approaches into its guidance for internal climate adaptation planning by April 2025. The plan's amendments will be examined by key HHS stakeholders in May 2025, with the expectation that the revised strategy will be completed within the year and receive endorsement from the HHS Chief Sustainability Officer by August 2025.

3.2 Addressing Climate Hazard Exposures and Impacts Affecting Federal Employees

Table 8: Prioritized Actions to Address Climate Hazard Impacts on and Exposure to Federal Employees

PRIORITIZED ACTIONS TO ADDRESS CLIMATE HAZARD EXPOSURES AND IMPACTS AFFECTING FEDERAL EMPLOYEES		
Climate Hazard Impact on and/or Exposure to Employees	Priority Actions	Timeline for implementation (2024-2027)
Heat 100% of HHS employees are located in areas projected to be exposed to an increase in the annual number of days with a maximum temperature greater than the 99th percentile for RCP 4.5 Late Century. Precipitation 100% of HHS employees are located in areas projected to be exposed to an increase in the annual number of days with precipitation exceeding the 99th percentile for RCP 4.5 Late Century. Wildfire 8% of HHS employees may be exposed to very high and extreme wildfire risks.	Revise HHS internal climate adaptation process, which includes climate vulnerability assessment, prioritizations, response planning, budget submissions, tracking, and reporting guidance and resources to foster mission-essential personnel engagement. Create policies that encourage divisions to share workspace and develop space reservation systems.	• Revise HHS Internal HHS internal Climate Adaptation Process (June 2025) • Facilities Program Manual Update (March 2026)

Climate hazards risks not only affect the general population but also specifically to the HHS workforce. This part outlines a comprehensive strategy to protect HHS personnel from the threats posed by extreme temperatures, intense precipitation, and wildfires. The staff of the Health and Human Services department is particularly vulnerable as they are situated in regions prone to notably higher temperatures than previously recorded. Furthermore, there's an anticipation that areas with HHS employees will experience a significant rise in days with severe rainfall. A smaller subset of the workforce, comprising roughly 8% of HHS staff, faces a substantial risk of wildfires.

To address these challenges, HHS is committed to revising and enhancing its approach to preparing for the impacts of climate change. This entails assessing potential risks, prioritizing them, formulating strategies for mitigation, optimizing financial allocation, and regularly monitoring progress. Immediate steps will be taken to initiate these adjustments. As mentioned in the previous part in Section 3A, by August 2025, HHS aims to have refined its climate preparedness strategies.

The plan includes fostering a more collaborative environment by facilitating office space sharing among different HHS divisions and augmenting the flexibility of work locations for employees to mitigate operational disruptions. Further, HHS is implementing reservation systems for office spaces facilitate 21st Century Workplace Policy implementation.

HHS recently updated its Facility Program Manual in August 2022, drafted a new section in April 2023, and updated sections 3.3.2.4 Paragraph 7, 4.1, and 5.8.3 Paragraph 3 in January 2024. HHS is planning to update its Facility Program Manual to incorporate revised guidance associated with Pre-Project Planning to try and mitigate planning and financial risks associated with facility projects. In addition, HHS will update its Facility Project Approval Agreements submission requirements to align said submission with specific industry standard milestones, as well as the chosen project delivery and contract strategies applicable to each project. Finally, HHS will be updating Chapter 8 to include aspects for net zero emission requirements, high energy and water efficiency, low embodied carbon, climate resilience, and environmental justice.

3.3 Accounting for Climate Risk in Planning and Decision Making

HHS maintains a climate vulnerability assessment database of land, structure, and building assets leased or owned. The climate vulnerability assessment database includes heat, flood, wildfire, and wind likelihood of exposure levels at the county level for each asset and other information relative to performing evaluations such as replacement value, condition index, predominant use, environmental justice index, etc. Each asset receives a priority number on a scale of 1 to 5, with one being the highest priority, based on the asset's mission criticality and likelihood of exposure to the climate hazard. HHS climate vulnerability assessment process guides HHS divisions to evaluate assets in order of priority to determine risk levels based on steps 1 & 2 of the U.S. Climate Resilience Toolkit steps to resilience. After obtaining risk levels from the climate vulnerability assessment, HHS divisions will begin planning projects or activities to address climate risks in order of risk level, i.e., high, medium, or low, and associated financial risk. HHS

divisions develop climate adaptation and sustainability plans in a plan activities database, including an estimated scope, schedule, and cost for each planned activity. The estimated costs with the climate and sustainability plan database are aggregated by each HHS division for the upcoming budget cycle.

3.4 Incorporating Climate Risk Assessment into Budget Planning

The HHS Chief Sustainability Officer (CSO) has collaborated with the Chief Financial Officer to update the instructions for preparing budget justification for HHS (HHSJ) and instructions for preparing budget justifications for the Office of Management and Budget (OMBJ). The instructions require each OpDivs' CSO (i.e., CDC, FDA, IHS, and NIH CSOs) to provide their budget office with funding estimates to meet climate and sustainability goals. The instructions reference the HHS CSO's guidance for the OpDivs' CSO to prepare budgets based on their Climate Adaptation and Resilience Plan (CARP) and Sustainability Plan on the HHS Sustainability Program internal tracking system. Each planned activity includes the scope, schedule, budget, fiscal year, deliverables, and primary goal aligned with federal laws, regulations, and executive orders (e.g., Climate Resilient Infrastructure and Operations, Develop Climate- and Sustainability-Focused Workforce, etc.). Divisions must also include facility-related climate and sustainability activities for projects above the HHS approval thresholds in their Real Property Capital Plan, subject to approval from the Senior Real Property Officer (SRPO) and Capital Investment Review Board (CIRB).

3.5 Incorporating Climate Risk into Policy and Programs

Climate Adaptation and Resilience Policies Reviewed

The following HHS divisions have enhanced policies, methodologies, regulations, tactics, agendas, guides, or directives to integrate abilities more effectively for adapting to climate change and bolstering resilience:

- Assistant Secretary for Administration (ASA)
- Assistant Secretary for Financial Resources (ASFR)
- Administration for Strategic Preparedness and Response (ASPR)
- Centers for Disease Control and Prevention (CDC)
- Centers For Medicare and Medicaid Services (CMS)
- Food and Drug Administration (FDA)
- Office of Assistant Secretary for Health (OASH)
- Program Support Center (PSC)
- National Institutes of Health (NIH)
- Indian Health Service (IHS)

The illustrated examples include:

- National Health Security Strategy offers strategic direction and implementation actions to strengthen the nation's capabilities to respond to and recover from climate disasters and emergencies.

- Hospital Preparedness Program (HPP) provides leadership and funding through cooperative agreements to states, territories, and eligible metropolitan areas to improve the capacity of the health care system to plan for and respond to large-scale emergencies and disasters.
- Public Health Emergency Preparedness Program supports health agencies in augmenting their capacities to efficiently tackle a variety of public health dangers, such as infectious illnesses, natural calamities, and events involving biological, chemical, nuclear, and radiological hazards.
- CMS Emergency Preparedness Rule mandates sufficient planning for all disasters, both natural and human-made, ensuring collaboration with emergency preparedness frameworks at the federal, state, Tribal, regional, and local levels.
- HHS National Environmental Policy Act Procedures incorporates climate knowledge within its floodplain administration practices should any action occur within a floodplain.
- HHS Policy for Electronic Stewardship (Pending), updating the policy with the aim at fostering climate-resilient investments that further climate adaptation while safeguarding HHS information technology systems.
- HHS Facility Program Manual provides guidance to incorporate sustainable design protocol aiming for net-zero emissions structures by 2050, assess climate risks, and to adapt HHS facilities subject to climate hazard risks to ensure operational continuity.
- HHS Occupant Emergency Plans outlines alert procedures for occupants concerning imminent severe weather events.
- HHS Guiding Principles for Sustainable Buildings (pending) builds on the CEQ's Guidelines for Sustainable Federal Building as of December 2020, in alignment with EO 14008 and 14057 to enhance facility energy and water efficiency, reduce carbon footprint, and increase resilience to extreme weather, particularly benefitting marginalized communities.
- HHS Sustainable Acquisitions and Climate Resilience Directive primarily focuses on maximizing the procurement of sustainable goods and services, backing the objective to 'Achieve Net-Zero Procurement by 2050' as outlined in EO 14057 and the Federal Sustainability Plan, which looks towards catalyzing clean energy industries and jobs via federal sustainability efforts.
- FDA Staff Manual Guidance (SMG) Policy encourages ongoing enhancements across all environmental responsibilities and sustainability goals, reflecting the commitments set by federal, state, local, and Tribal directives, Executive Orders, and statutes.
- The NIH and IHS present a design guide and criteria promoting the use of nature-based solutions.
    - The 2022 IHS Architect/Engineer Design Guide, showcasing strategies to improve indoor environments by employing elements of nature to bolster health, well-being, and employee productivity. This initiative is part of leveraging Biophilic Design capabilities for the project, connecting humans to the natural surroundings based on evidence-based design, supported by scientific studies highlighting the comprehensive mental and physical health benefits derived from nature exposure.
    - The NIH Design Requirements Manual (DRM) specifies the use of nature-based solutions, including the conservation, safeguarding, and replenishment of

vegetation in coordination with the NIH Landscape Architect. A notable part of the DRM, Section 3.5.4, stipulates a mandatory one-to-one replacement for any tree removal and proposes up to eight replacements for trees exceeding 40 inches in diameter.

- Policies for climate mitigation established by IHS yield additional advantages for both new and existing facilities. An exemplar is the new Pueblo Pintado Health Center in New Mexico, which utilizes sustainability criteria from the 2022 IHS A/E Design Guide, Chapter 5 during its design phase. The design team sought insight from the 2018 Climate Adaptation Plan for the Navajo Nation to better align the facility's long-term essential functions and Risk Assessment strategies throughout its operation.
- The CMS Innovation Center's proposed Transforming Episode Accountability Model (TEAM) is a five-year mandatory model for select acute care hospitals that includes a voluntary Decarbonization and Climate Resilience Initiative comprised of an emissions reporting element, and technical assistance and learning system supports for participants seeking to improve their climate impact and resiliency. If finalized, the model will be the first time HHS proposes to collect data on health care greenhouse gas emissions.

Environmental Justice Policies Reviewed

HHS supplemented its 2021 Climate Action Plan through issuing the Climate Change and Health Equity Strategy (CCHE) Supplement to describe HHS outward-facing programmatic activities from HHS Divisions. The CCHE supplement further outlines HHS' strategy for meeting EO 14096.

HHS has updated its NEPA procedures, which are outlined in Chapter 10 of its Facility Program Manual to identify and address the human health and environmental effects of HHS programs, policies, and activities on disadvantaged populations.

The CDC, in collaboration with the HHS Office of Environmental Justice, created the Environmental Justice Index (EJI)), a comprehensive, location-specific instrument designed to evaluate the collective impact of environmental burdens through a lens focused on human health and equity. The EJI provides a singular rating for each community, enabling public health authorities to pinpoint and visualize areas at heightened risk for the health repercussions of environmental strain.

HHS has included EJI as part of its Climate Vulnerability Assessment Procedure where it is mandatory for HHS divisions to prioritize evaluations for developing a climate risk strategy. This ensures the influences on underprivileged and environmentally burdened communities are considered in the initial stages of climate adaptation and resilience planning. For communities identified by an EJI rating of 0.70 to 1.0, HHS Divisions are obligated to:

- Forge effective public engagement strategies with disadvantaged communities to delineate a planned agency action.
- Examine the environment influenced, such as living conditions, subsistence, and demographic profiles of disadvantaged populations.
- Propose alternatives that disadvantaged communities prefer.

IHS maintains a close collaboration with Tribal Nations concerning both new and existing facilities – making Tribal consultation a cornerstone of IHS climate adaptation efforts. IHS consistently interacts with Tribal governments as much as feasible and permitted by law to gather feedback on initiatives impacting Tribal Nations. This includes involving Tribes in the NEPA process for facility building, where the public is invited to comment on the project scope, location, and methodology. Responses are considered and integrated into the planning and design phases as necessary.

Climate Change and Health Equity Policies, Tools, and Resources

In response to a specific mandate in Executive Order 14008, the Secretary of Health and Human Services established the Office of Climate Change and Health Equity (OCCHE) on August 31, 2021. OCCHE is building climate adaptation and resilience capacity across all the HHS Divisions and supporting those divisions in introducing climate-related programs and policies that improve resilience and sustainability in communities and facilities across the country outside of HHS' real property portfolio. To that end, OCCHE convenes the HHS CCHE Working Group, which meets quarterly to provide department-wide updates and coordinate new climate change-related initiatives. OCCHE staff also regularly meet one-on-one with staff from other Divisions to promote the development of climate adaptation and resilience.

- Launching the OCCHE Health Sector Resource Hub, a one-stop web destination with support for organizations working on climate resilience and sustainability with tools including a referral guide for providers, a compendium of federal funding resources for work in this area, the Inflation Reduction Act (IRA) Quickfinder and a related webinar series.
- Launching an OCCHE Climate and Health Outlook Portal and other tools to help forecast and document climate-related threats, including an OCCHE and Department of Transportation EMS Heat Tracker, mapping local emergency responses to heat-related illness.
- Supporting individuals, families, and communities as they manage the challenge presented by climate change, including $3.7 billion in Low Income Home Energy Assistance Program (LIHEAP) funds announced by the Administration for Children and Families in October 2023.
- Issuing a categorical waiver from the Centers for Medicare and Medicaid Services to allow many healthcare providers to supply emergency backup power through healthcare microgrid systems (e.g., clean energy technologies like wind, solar, and fuel cells).
- Broadening research on climate health through the National Institutes of Health Climate Change and Health Initiative Strategic Framework - PDF and providing support to states and cities to protect at-risk populations from climate impacts through initiatives like the Centers for Disease Control and Prevention Climate-Ready States and Cities Initiative.

Releasing the newest version of the CDC Heat & Health Tracker. The Heat and Health Tracker provides real-time, local heat and health information so communities can better prepare for and respond to extreme heat events. With the latest update, you can track the annual rate of work-related injuries, illnesses, and deaths due to heat per 10,000 full-time workers by state. Looking ahead to 2024 and beyond, HHS Divisions plan many activities to advance climate health and

equity through their programs and policies (as documented in the strategy supplement). These include a Catalytic Program to help healthcare organizations (and particularly safety net providers) take advantage of the tax credits, grants, and other supports made available by the Inflation Reduction Act (IRA); packaging tools and resources to help states, communities, and other stakeholders prepare for the extreme heat and other catastrophic events of the next summer season; and climate-related updates to the CMS Emergency Preparedness Rule and the Sustainable and Climate-Resilient Healthcare Facilities Toolkit.

3.6 Climate-Smart Supply Chains and Procurement

As mentioned in exposures **Error! Reference source not found.** Part **Error! Reference source not found.**. Addressing Climate Hazard Exposures and Impacts Affecting Federal Employees, HHS is planning to update its Chapter 8 of the HHS Facility Program Manual to include updating aspects for net zero emission requirements, high energy and water efficiency, low embodied carbon, climate resilience, and environmental justice. Utilizing high energy and water efficiency systems and low embodied carbon products support HHS' adaptation and/or resilience strategies.

In consultation with the Environmental Protection Agency (EPA) and the Department of Energy (DOE), HHS will promote environmentally sustainable manufacturing practices that protect the environment and public health, including for communities adjacent to manufacturing facilities. This effort will draw on COVID-19 lessons learned to strengthen the public health industrial base and address the interests and needs of communities with environmental justice concerns.

HHS is investing in research and development efforts to deliver safe and effective long-term waste management strategies to protect human health and the environment. These efforts involve engagement with the medical countermeasure (MCM) industry to promote manufacturing and distribution processes that protect climate sustainability and health equity (e.g., introduce biodegradable products, reduce emissions and other harmful community impacts of the supply chain, and domestic industrial base expansion). Sterilization of medical devices can reduce the need for single-use medical devices, thereby decreasing the overall impact of climate change on the medical supply chain. For example, ethylene oxide (EtO) a commonly used sterilizer for medical devices poses a significant risk to human health and environment, especially for disadvantaged communities. HHS is taking steps through organizing a series of town halls aimed at raising awareness, informing, and providing a future vision to reduce the overall EtO reliance while maintaining a resilient supply of sterilized medical devices.

The National Strategy for a Resilient Public Health Supply Chain aims to "Achieve ethical, sustainable sourcing that includes high standards on labor and environment while combatting unfair trade." Specifically, the Strategy calls for promoting "environmentally sustainable manufacturing practices to limit environmental impacts to the planet and communities located near manufacturing facilities."

HHS has partially developed an implementation plan to address supplies and/or services disruption from climate hazards.

- HHS has issued its Sustainable Acquisitions and Climate Adaptation Directive and Affirmative Procurement Plan as an HHS internal facing documents to incorporate current regulatory guidance and to reduce the adverse impacts of the Department's decisions to acquire goods and services on the environment and human health. The primary focus of this directive is to maximize the procurement of sustainable products and services in support of the goal to 'Achieve Net-Zero Procurement by 2050' laid out in EO 14057, *Catalyzing Clean Energy Industries and Jobs through Federal Sustainability* and the Federal Sustainability Plan. Through this directive, the HHS Sustainable Acquisition Program aims to:
    - Reduce greenhouse gas emissions and pollution,
    - Promote energy efficiency and water conservation,
    - Eliminate or reduce the generation of hazardous waste and the need for special material processing (including special handling, storage, treatment, and disposal)
    - Promote environmental stewardship,
    - Support climate-resilient supply chains,
    - Drive innovation,
    - Divert waste from landfills and drive cost-effective waste reduction, and
    - Incentivize markets for sustainable products and services.
- HHS developed targeted training for the Acquisition Workforce, "Greening HHS Procurements," which provides the activity/program offices with tools and awareness to promote and locate sustainable and climate-friendly products and services.
- HHS' 2021 Climate Action Plan designated medical supplies, utilities (refrigerated sample storage, data collection, surveillance back up services, and IT services), vivarium support services, medical supplies and stockpile warehouse, and vaccines (Policies and Production) categories as critical supplies and services.

Table 9: At Risk Supplies/Services

At risk supplies/services	Outline Actions to Address Hazard(s)	Identify Progress Towards Addressing Hazard(s)
Extreme weather events driven by climate change can disrupt the production, stockpiling, and distribution of medical supplies. This includes disruption of raw material production and manufacturing/distribution of personal protective equipment, depletion of medical supply and vaccine stockpiles, and impeding the movement of goods. Extreme weather events can also increase the demand for medical supplies, further stressing supply chains.	Using the Critical Infrastructure Partnership Advisory Council framework.	HHS carries out multiple activities through the HPH Sector supply chain task groups. HHS gathers input from across industry and government stakeholders to develop strategies and conduct studies to inform and support changes in policies affecting HPH Sector supply chains.

3.7 Climate Informed Funding to External Parties

HHS drafted its National Initiative to Advance Building Code (NIABC) plan and submitted it to the Federal Emergency Management Agency Mitigation Framework Leadership Group (MitFLG) Building Code Task Force (BCTF) on September 25, 2023. HHS' NIABC plan is a viable strategy to increase climate adaptation and resilience in its funding announcements by adopting the latest building codes. HHS' NIABC plan outlines fourteen (14) programs that fund, finance, or provide technical assistance for the construction or transfer of federal real property for public health or homeless assistance conveyance. Half of the HHS programs have been evaluated as either meeting the local building code or the latest state or local code. For the remainder of the programs with just meeting local code or no building code or standard specified, the HHS Office of Climate Change and Health Equity is drafting FY 2025 Notice of Funding Opportunity guidance for HHS programs that fund construction by the end of Fiscal Year 2024 as outlined in Office Management and Budget (OMB) Memo M-24-03: Advancing Climate Resilience through Climate-Smart Infrastructure Investments and Implementation Guidance for the Disaster Resiliency Planning Act.

HHS recognizes that communities are the best resource to immediately respond to the impacts of climate hazards at HHS facilities. Investing in disadvantaged communities where HHS facilities are located not only fulfills HHS's mission but also increases HHS's adaptive capacity to recover from climate disasters because HHS can employ the developed strength and services the local community offers. Many of HHS programs promote climate adaptation and resilience, while also helping to advance environmental justice because they are covered programs within the Justice40 Initiative, which sets a goal that 40 percent of the overall benefits of certain Federal climate and other investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution. For reference, M-29-03 on "Addendum to the Interim Implementation Guidance for the Justice40 Initiative, M-21-28, on using the Climate and Economic Justice Screening Tool (CEJST)," directs agencies to use CEJST to identify geographically defined disadvantaged communities for any covered programs under the Justice40 Initiative and for programs where a statute directs resources to disadvantaged communities, to the maximum extent possible and permitted by law. HHS developed updated Notice of Funding Opportunity guidance to promote equity and environmental justice to serve disadvantaged communities in HHS financial assistance programs, processes, and policies on October 26, 2022. This guidance is annually distributed.

3.8 Climate Training and Capacity Building for a Climate Informed Workforce

Table 10: Training and Capacity Building

Training and Capacity Building	
	Identify the percentage of the agency's Federal staff that have taken a 60+ minute introductory climate training course
Agency Climate Training Efforts	HHS does not offer an introductory training course, so it does not have figures to report. Staff may take climate training through on-HHS offerings, but HHS does not rack participation in these external trainings.

Training and Capacity Building	
	Detail the percent of the agency's senior leadership (e.g., Sec, Dep Sec, SES, Directors, Branch Chiefs, etc.) that have completed climate adaptation training. 100% of Senior Executive Service (SES) staff have received climate training in FY2023.
	Detail the percent of budget officials that have received climate adaptation related training. HHS is developing its budget official training and does not have figures to report.
	Detail the percent acquisition officials that have received climate adaptation related training. 60% of acquisition officials have completed the FAC 093 Introduction to Supply Chain Risk Management training. The acquisition officials include certified Contracting Officers, Contracting Officer Representatives, Program Managers, and Project Managers.
	Detail additional efforts the agency is taking to develop a climate informed workforce. Developing training and workflows to track training and making training mandatory.
Agency Capacity	***Detail the number of full time Federal staff (FTE) across the agency that have tasks relevant to climate adaptation in their job description. Detail if the agency has contracting staff with tasks relevant to climate adaptation in their job description. Additionally, the agency may include information on climate adaptation staffing approaches in the narrative.*** Over 300 federal full-time employees across the agency have tasks relevant to climate adaptation in their job description, and they report their accomplishments and impact quarterly on HHS' SharePoint site. HHS advances sustainable practices, resilience, and adaptive capacity through nine (9) Go Green Get Healthy HHS coordinators as indicated in section 1.

HHS is committed to advancing climate literacy among its workforce. In alignment with Executive Order 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, and the HHS Climate Action Plan, the HHS Climate Literacy Team developed a comprehensive approach to increase climate literacy called the HHS Earth AIR framework: Attention, Intention, and Results. The AIR framework is a systematic approach to change that has been effective in a variety of settings and includes increasing literacy through policies and procedures such as climate requirements in Senior Executive Service Performance Management Appraisals, numerous outreach initiatives to raise climate awareness in the organization, and utilization and monitoring of the Federal Employee Viewpoint Survey (FEVS). In FY 2022, the HHS FEVS scores on a sustainability question increased favorably by nearly 4% in one year. The question specifically was, "My organization promotes sustainability initiatives designed to reduce our impact on the environment and build climate resilience. (Examples include commuting/carpooling programs, using environmentally preferred products, minimizing generation of waste, and minimizing energy and water use)." The survey provided evidence of a

positive shift towards the HHS workforce recognizing that HHS considers sustainability and climate a priority.

HHS updated the instructions for preparing the discretionary budget justification. The instructions require each division's Chief Sustainability Officer to provide their budget office with funding estimates based on their CARP and Sustainability Plan and includes a video tutorial. Climate training for budget officials began in March 2024, and the training model included group discussions and activities.

HHS recognizes that some agencies may create climate adaptation training more relevant to an audience's job function due to the agency's mission. For example, the HHS Climate Change and Health Equity 101 training is more relevant to health professionals in other federal agencies than a general climate 101 training for all employees. Another example is the General Services Administration (GSA) training, FAC 095 Climate Adaptation for Program Managers, offered through their Federal Acquisitions Institutes learning portal. As such, HHS will work through the Climate Engagement and Capacity Building Interagency Group to share mission-specific training with other Federal agencies and identify existing or forthcoming climate adaptation training from other Federal agencies more relevant to job functions such as acquisitions, budgeting, construction, security, etc.

3.9 Summary of Major Milestones

Table 11: Timeline Summary of Major Milestones

Section of the Implementation Plan	Description of Milestone	Climate Risk Addressed	Indicators for success
Sections 2A, 2B, 2C	Complete Climate Vulnerability Assessments for Assets	Heat, wildfire, wind, and flood (due to precipitation and sea level rise)	• Priority 1 assessment completed for all major assets (i.e., buildings, structures, land, and personnel) by 2026 • Essential personnel data integrated with climate exposure data by 2025
Sections 3A.1, 3A.2, and 3A.3	Discrete Climate Adaptation Plans for Assets	Heat, wildfire, wind, and flood (due to precipitation and sea level rise)	Discrete plans for each asset that addresses priority 1 climate risks identified in climate vulnerability assessments by 2027.
Sections 3A.1, 3A.2, 3B	Update Policies, Processes, and Procedures	Heat, wildfire, wind, and flood (due to precipitation and sea level rise)	• Update climate adaption processes with heat and wildfire guidance by 2025 • Update HHS Floodplain Management Procedures by 2024. • Incorporate nature-based solutions and mitigation co-benefits into manuals, policies, or guidance by 2025.

Section of the Implementation Plan	Description of Milestone	Climate Risk Addressed	Indicators for success
Section 3C	Complete Climate Vulnerability Assessments for critical supplies	Heat, wildfire, wind, and flood (due to precipitation and sea level rise)	Top 5 critical supplies assessed for vulnerabilities and risks by 2026
Section 3C	Discrete Climate Adaptation Plan for Critical Supplies	Heat, wildfire, wind, and flood (due to precipitation and sea level rise)	A climate adaptation plan for each of the five critical supplies that address the risk identified in the climate vulnerability assessments by 2027.
Section 3D	Climate financial risk reduction measures incorporated into construction grants	Heat, wildfire, wind, and flood (due to precipitation and sea level rise)	• Update Notice of Funding Opportunity (NOFO) guidance to address climate financial risk in construction grants by 2026. • Centrally pull together data from SF-429 to assess HHS' implementation of climate adaptation for construction grants by 2026.
Section 3E	Workforce completes Climate Change and Health Equity 101 Training	Heat, wildfire, wind, and flood (due to precipitation and sea level rise)	• Post Climate Change and Health Equity 101 Training on Learning Management System by 2025. • The workforce will complete climate change and health equity 101 training by 2025.

Section 4: Demonstrating Progress

4.1 Measuring progress

Table 12: Demonstrating Progress

Key Performance Indicator: Climate adaptation and resilience objectives and performance measures are incorporated in agency program planning and budgeting by 2027.		
Section of the CAP	**Process Metric**	**Agency Response**
3A –Addressing Climate Hazard Impacts and Exposure	Step 1: Agency has an implementation plan for 2024 that connects climate hazard impacts and exposures to discrete actions that must be taken. (Y/N/Partially) Step 2: Agency has a list of discrete actions that will be taken through 2027 as part of their implementation plan. (Y/N/Partially)	Step 1 (Partially): HHS has a system that connects hazard impacts to discrete actions within plans. Step 2 (Partially): Discrete actions will be generated in plans as climate

Key Performance Indicator: Climate adaptation and resilience objectives and performance measures are incorporated in agency program planning and budgeting by 2027.		
		vulnerability assessments are completed.
3B.1 – Accounting for Climate Risk in Decision-making	Agency has an established method of including results of climate hazard risk exposure assessments into planning and decision-making processes. (Y/N/Partially)	(Yes) HHS has a climate budget process that guides divisions in sourcing climate adaptation plans from risks identified in climate vulnerability assessments.
3B.2 –Incorporating Climate Risk Assessment into Budget Planning	Agency has an agency-wide process and/or tools that incorporate climate risk into planning and budget decisions. (Y/N/Partially)	(Yes) HHS has updated its instructions for preparing budget justifications of HHS (HHSJ) and instructions for preparing justifications for Office of Management and Budget (OMBJ) for HHS Divisions to submit to their respective budget office's funding estimates to meet climate and sustainability goals.
3B.5 – Climate Informed Funding to External Parties	Step 1: By July 2025, agency will identify grants that can include consideration and/or evaluation of climate risk. Step 2: Agency modernizes all applicable funding announcements/grants to include a requirement for the grantee to consider climate hazard exposures. (Y/N/Partially)	Step 1 (Yes): HHS has identified several construction grants for climate risk evaluations. Step 2 (Partially): HHS is updating announcement language for applicants to consider climate hazard exposures for certain construction grants. HHS is taking steps to prioritize climate-related hazards and sustainability in grant-funded work.
Key Performance Indicator: Data management systems and analytical tools are updated to incorporate relevant climate change information by 2027.		
Section of the CAP	**Process Metric**	**Agency Response**
3A –Addressing Climate Hazard Impacts and Exposure	Agency has identified the information systems that need to incorporate climate change data and information and will incorporate climate change information into those systems by 2027. (Y/N/Partially)	(Yes) HHS has identified information systems that need climate change data and will integrate with those information systems by 2027.
Key Performance Indicator: Agency CAPs address multiple climate hazard impacts and other stressors, and demonstrate nature-based solutions, equitable approaches, and mitigation co-benefits to adaptation and resilience objectives.		

Key Performance Indicator: Climate adaptation and resilience objectives and performance measures are incorporated in agency program planning and budgeting by 2027.		
Section of the CAP	**Process Metric**	**Agency Response**
3B.3 – Incorporating Climate Risk into Policy and Programs	By July 2025, 100% of climate adaptation and resilience policies have been reviewed and revised to (as relevant) incorporate nature-based solutions, mitigation co-benefits, and equity principles. (Y/N/Partially)	(Partially) Policies have been reviewed and revised to incorporate climate adaptation and equity principles. Nature-based solutions and mitigation co-benefits are forthcoming.
Key Performance Indicator: Federal assets and supply chains are evaluated for risk to climate hazards and other stressors through existing protocols and/or the development of new protocols; response protocols for extreme events are updated by 2027.		
Section of the CAP	**Process Metric**	**Agency Response**
3B.4 – Climate-Smart Supply Chains and Procurement	Step 1: Agency has assessed climate exposure to its top 5 most mission-critical supply chains. (Y/N/Partially) Step 2: By July 2026, agency has assessed services and established a plan for addressing/overcoming disruption from climate hazards. (Y/N/Partially)	Step 1 (Partially): Climate exposure assessments are in varying stages of completion for the top 5 mission-critical supply chains. Step 2 (Partially): HHS developed plans to maintain supply chain visibility and public health emergency response capabilities even during extreme weather events.
	The agency has examined how different climate dangers could affect essential services and goods needed. After discovering the risks, the agency planned and set goals to keep everything safe and running smoothly. (Y/N/Partially)	(Partially) • The National Strategy for a Resilient Public Health Supply Chain aims to "Achieve ethical, sustainable sourcing that includes high standards on labor and environment while combatting unfair trade." Specifically, the Strategy calls for promoting "environmentally sustainable manufacturing practices to limit environmental impacts to the planet and communities located near manufacturing facilities."
Key Performance Indicator: By 2027, agency staff are trained in climate adaptation and resilience and related agency protocols and procedures.		
Section of the CAP	**Process Metric**	**Agency Response**

Key Performance Indicator: Climate adaptation and resilience objectives and performance measures are incorporated in agency program planning and budgeting by 2027.		
3C – Climate Training and Capacity Building for a Climate Informed Workforce	Step 1: By December 2024 100% of agency leadership have been briefed on current agency climate adaptation efforts and actions outlined in their 2024 CAP. (Y/N/Partially) Step 2: Does the agency have a Climate 101 training for your workforce? (Y/N/Partially) If yes, what percent of staff have completed the training? Step 3: By July 2025, 100 % employees have completed climate 101 trainings. (Y/N/Partially)	Step 1 (Yes): 100% of HHS leadership will be briefed on current climate adaptation efforts and actions outlined in this CAP by December 2024. Step 2 (Partially): HHS is developing a climate change and health equity 101 training crafted for HHS staff. Step 3 (Partially): HHS will work to have the climate change and health equity 101 training available in the Learning Management System with sufficient time for 100% of employees to complete it by July 2025.

4.2 Adaptation in Action

The climate crisis was decades in the making and will require significant momentum to tackle and overcome. Namely, it will require everyone worldwide to participate and celebrate their positive contributions towards climate adaptation, great and small. Below are examples of adaptation in actions from various divisions within HHS:

- The NIH has set up a Forest Service contract to manage the forest and reduce wildfire risk. A climate vulnerability assessment of the Research Triangle Park Campus has determined a wildfire risk at Research Triangle Park due to a large section of pines at the same age. Trees that are the same age are expected to die around the same time, which will result in fallen trees and branches that increase the risk of wildfires. The Forest Service contract will evaluate and remove trees to mitigate wildfire risks.
- The NIH is in the final stages of a $10 million Multi-building Utility Energy Service Contract (UESC) at the Poolesville Campus to produce clean energy and reduce energy and water consumption. Thus, making the campus more resilient to energy and water disruptions/limitations while mitigating climate change by reducing greenhouse gas emissions.
- The FDA is implementing climate resiliency projects at the San Juan District Office in San Juan, Puerto Rico, as that site is consistently affected by severe weather. The resiliency projects include a 13.7-kilowatt roof-mounted solar system that can provide enough power for a natural disaster command center, a domestic solar hot water heater, a new 20,000-gallon water storage tank that increased capacity by 120% to enhance preparedness, and a rainwater harvesting system that collects 3,000 gallons per week of condensate water from chillers. Additional energy and water conservation measures have

been implemented to reduce the overall energy and water use intensity to support climate adaptation, mitigation, and resiliency.

HHS believes the most notable outcome is from HHS Earth AIR framework which took steps to include climate language in the SES PMAPs. In fact, because of the PMAP requirement, SES staff have been asking for more information on climate change, mitigation, and adaption. They are asking "What can I do?" Therefore, the Climate Literacy Team is working on an SES Climate Action Toolkit of information for the SES staff to refer to and use with their staff. Attention has been captured and intention of efforts is underway, which will lead to results as more employees learn and integrate actions into their workplace. Additionally, HR is now working on getting the climate-related language included in supervisor and employee PMAPs to ensure that climate literacy is a priority for all HHS employees.

As previously mentioned, the FEVS is used to help measure impact of the HHS AIR Framework. The results of the HHS 2022 FEVS sustainability question show that 48% of respondents agree that their organization promotes sustainability initiatives designed to reduce our impact on the environment and build climate resilience while 39.8% were neutral and 12.3% disagree. This is a positive increase from the 2021 results where 44.2% agreed, 41.4% were neutral, and 14.4% disagreed. These results show the positive impact the program is achieving and portrays the large number of employees who are neutral to the comment. The additional emphasis on the climate that will start at the SES level and trickle down will engage more of these employees who feel neutral to their organization's promotion of sustainability.

The HHS climate and sustainability outreach efforts reach tens of thousands of individual employees quarterly, and often more frequently. The 2022 HHS Earth Day Speaker Series presentations had roughly 850 live viewers in April 2022, and today have a total of nearly 25,000 views on YouTube. Annually, the HHS Climate Literacy Team sends out 6 to 8 agency-wide emails on sustainability programs or initiatives. With a workforce of roughly 80,000 people, this equates to 480,000 to 640,000 potential viewing impressions. The 2023 HHS Kids' Earth Day Poster Contest had nearly 100 participants. As previously mentioned, the OpDivs also disseminate outreach material to their employees such as the monthly NIH Green Zone Newsletter sent to more than 300 NIH staff.

The HHS Earth AIR framework specifically addresses the EO 14057 requirement of increasing climate literacy of the HHS workforce, but it also impacts every other goal of EO 14057. Increasing climate literacy means educating and raising the awareness of HHS employees on how every aspect of their job and everyday life impacts our climate. It means helping our employees understand their climate impact and carbon footprint, and how they can lessen that footprint at their office and home. HHS outreach covers everything from the health impacts of climate change to energy and water efficiency, to waste prevention, to green purchasing, to reducing plastic use, to food, and the environment. HHS also believes that outreach should not only center on the workplace, but also employees' lifestyle, offering tips and actions for both.

Future efforts for the HHS Climate Literacy team include developing an information video for employees addressing how to implement sustainability and climate mitigation or resiliency strategies into their work, mandating agency-wide employee acknowledgement of the HHS Climate Action Plan and outlining available training on climate and sustainability related topics.

The HHS Climate Literacy Team is committed to advancing climate literacy among its workforce. By taking these actions, the HHS Climate Literacy Team will help ensure that all HHS employees have the knowledge and skills they need to address the climate crisis.

Appendix A: Risk Assessment Data

The Federal Mapping App uses the following data:

Buildings
Buildings data comes from the publicly available Federal Real Property Profile (FRPP). The GSA maintains FRPP data and federal agencies are responsible for submitting detailed asset-level data to GSA on an annual basis. Although FRPP data is limited—for example, not all agencies submit complete asset-level data to GSA, building locations are denoted by a single point and do not represent the entirety of a structure or could represent multiple structures, and properties may be excluded on the basis of national security determinations— it is the best available public dataset for federal real property. Despite these limitations, this data is sufficient for screening-level exposure assessments to provide a sense of potential exposure of federal buildings to climate hazards.

Personnel
Personnel data comes from the Office of Personnel Management's (OPM) non-public dataset of all personnel employed by the federal government that was provided in 2023. The data contains a number of adjustments, including exclusion of military or intelligence agency personnel, aggregation of personnel data to the county level, and suppression of personnel data for duty stations of less than 5 personnel. Despite these adjustments, this data is still useful for screening-level exposure assessments to provide a sense of key areas of climate hazard exposure for agency personnel.

Climate Hazards
The climate data used in the risk assessment comes from the data in Climate Mapping for Resilience and Adaptation (CMRA) Assessment Tool. When agency climate adaptation plans were initiated in 2023, CMRA data included climate data prepared for NCA4. Additional details on this data can be found on the CMRA Assessment Tool Data Sources page. Due to limited data availability, exposure analyses using the Federal Mapping App are largely limited to the contiguous United States (CONUS). Additional information regarding Alaska, Hawaii, U.S. Territories, and marine environments has been included as available.