# 2024 ORD Climate Adaptation Implementation Plan Addendum

### Introduction and summary

This Addendum describes the progress EPA's Office of Research and Development (ORD) has made toward meeting its goal of providing EPA and others with scientific and technical information needed to inform decisions related to climate adaptation and resilience. These efforts, which are continuing, span the range of activities needed to provide high-quality, useful, usable, and accessible scientific information to decision makers and end users. ORD has also made solid progress toward ensuring that it, as an organization, will be able to continue providing this information to EPA and other organizations even as the climate changes.

The Addendum is structured around the five priority actions identified in ORD's 2022-2023 Climate Adaptation Implementation Plan (CAIP):<sup>1</sup>

- Priority Action 1. Identify and address climate adaptation science needs;
- Priority Action 2. Ensure that science gaps related to climate change adaptation are included in solicitations for Agency-sponsored extramural research;
- Priority Action 3. Provide technical support and assistance on climate adaptation;
- Priority Action 4. Build internal ORD adaptive capacity and processes; and
- Priority Action 5. Identify research systems and resources that are vulnerable to impacts from climate change and develop and implement protective measures.

Since the completion of the 2022 CAIP, ORD has:

- Established the Integrated Climate Sciences Division (ICSD) to advance climate-focused initiatives to address priority climate science needs expressed by EPA program, regional, state, and Tribal partners;
- Created the Regional Climate Assistance Network (RCAN), designed to provide a central hub within ORD for regional climate adaptation, resilience, and mitigation science needs, while fostering community-engaged research and translational science for solving real-world climate and environmental justice problems;
- Hired six new social scientists in ICSD focusing on climate change to improve its ability to understand climate adaptation responses and environmental justice, plus an additional nine social scientists in other ORD components to further strengthen ORD's capacity to incorporate social science understanding into ORD's research;
- Released five solicitations for research proposals that incorporate climate responses through the Science to Achieve Results (STAR) and other research grants programs;
- Spent more than 4,000 staff hours in FY22 and FY23 providing technical assistance to EPA, state, local, and Tribal officials as well as academic, corporate, and non-governmental organizations on questions related to climate change and responses;
- Reviewed and modified ORD's health and safety protocols to help protect staff from extreme weather driven by climate change;

<sup>&</sup>lt;sup>1</sup> <u>https://www.epa.gov/system/files/documents/2022-10/bh508-</u> ORD%20Implementation%20Plan%2027%20Sep%202022.pdf

- Provided venues to inform ORD and EPA staff about climate change and climate adaptation, including through the Climate Conversations webinar series co-produced with the Office of Policy;
- Created an informational Intranet site to inform ORD travelers of the greenhouse gas emissions from air travel and provided information about alternatives; and
- Completed climate vulnerability assessments for two ORD facilities.

#### Identify and address climate adaptation science needs (Priority Action 1)

The most significant action taken by ORD to identify and address EPA's climate adaptation science needs was the establishment of the Integrated Climate Sciences Division (ICSD) within the Center for Public Health and Environmental Assessment (CPHEA). ORD established ICSD to advance climate-focused initiatives to address urgent climate priorities expressed by EPA program, regional, state, and Tribal partners. After an extensive planning effort, ICSD began operation in March 2023 with three branches: the Regional Climate Assistance Branch, the Interdisciplinary Climate Assessment Branch, and the Integration and Evaluation Branch. The EPA Climate Adaptation Plan was a strong motivator of the mission and structure of ICSD and its branches, which are designed to create synergies from generation to delivery, use, and evaluation of climate adaptation information to meet EPA needs.

Of particular importance to ORD's ability to identify and address climate adaptation science needs is the Regional Climate Assistance Network (RCAN). RCAN's mission is to provide a central hub within EPA for regional climate adaptation, resilience, and mitigation needs, while fostering community-engaged research and translational science for solving real-world climate and environmental justice problems. RCAN is designed to provide timely responses to questions and information needs of EPA's Regional Offices related to climate change and responses. RCAN staff have instituted quarterly meetings with each Regional Office to stay abreast of their climate science needs and issues that may arise from engagement with states, Tribes, the public, and other agencies in their Regions. RCAN has also reviewed the Regional CAIPs to evaluate the research and science issues identified by the Regions in their adaptation science needs and their priority actions. These efforts significantly increase the opportunities to identify and respond to the Regions' climate science needs. RCAN is being implemented across ICSD and ORD as appropriate to provide access to a broad range of climate science expertise, expand connections with the longer-term ORD research conducted under the Strategic Research Action Plans,<sup>2</sup> and facilitate coproduction of research with and within frontline communities.

To better address the Administration's priorities of climate change and environmental justice, ORD has made a concerted effort to substantially expand its capacity to conduct EPA-relevant social science research. This effort includes structuring the ORD Board of Scientific Counselors (BOSC) to form a Social and Community Science Subcommittee<sup>3</sup> and a Climate Change Subcommittee.<sup>4</sup> These subcommittees met jointly to develop recommendations to guide ORD's incorporation of social sciences into its climate change research.<sup>5</sup> In the past two years, ICSD has filled six new social science positions to develop more effective research related to climate adaptation and environmental justice. For ORD as a whole, 15 new

<sup>&</sup>lt;sup>2</sup> https://www.epa.gov/research/strategic-research-action-plans-fiscal-years-2023-2026

<sup>&</sup>lt;sup>3</sup> https://www.epa.gov/bosc/social-and-community-science-subcommittee

<sup>&</sup>lt;sup>4</sup> https://www.epa.gov/bosc/climate-change-subcommittee

<sup>&</sup>lt;sup>5</sup> https://www.epa.gov/bosc/joint-climate-change-and-social-and-community-sciences-subcommittee-meeting-march-2024

social science positions were added across ORD over the past two years to expand our ability to understand and respond to the social issues of climate change, adaptation, environmental justice, and community resilience.

ICSD staff are also significantly engaged in actions led by the Office of Policy's (OP's) Cross-EPA Climate Adaptation Work Group to incorporate climate adaptation data and information into EPA actions and decisions. ICSD staff are providing perspectives, expertise, information, and data to OP's Resilient Infrastructure Subcommittee on Climate (RISC), specifically for the development of the Climate Resilient Investments Clearinghouse (CRIC) and the Climate Resilience and Adaptation Funding Toolbox (CRAFT). The new Climate Risk Assessment Resources developed through these cross-Office efforts include a guide to conducting climate risk assessments to support EPA actions and links to climate data, information, and tools offered by EPA and other federal agencies. ICSD staff also participate in OP's Resilient Rules Working Group, which is developing language that can be incorporated into EPA rulemaking to strengthen climate adaptation and resilience.

Following the completion of ORD's 2022 CAIP, efforts began to expand and improve the development and delivery of usable information, products, and activities that enhance knowledge and understanding about the impacts of climate change on potential decisions or actions, often referred to as climate services. ORD played an active role in the development of "A Federal Framework and Action Plan for Climate Services"<sup>6</sup> and subsequent efforts that led to the establishment of the interagency Subcommittee on Climate Services (SCS), designed to coordinate federal climate services development and delivery. ORD and OP participation in the SCS ensures that EPA's needs and perspectives related to climate data, information, and tools are presented to other federal agencies to inform the generation of climate data, the creation of climate data tools, and facilitate consistent guidance on the use of climate data and information. For example, ORD's engagement with efforts to develop FEMA's Federal Flood Risk Management Standard (FFRMS) has facilitated the use of the FFRMS in EPA rulemaking and other actions.

#### Research grants (Priority Action 2)

Ten research assistance solicitations were opened during FY23 through several research grant programs: the Science to Achieve Results (STAR) program; the People, Prosperity, and the Planet (P3) program; and Environmental Research Apprenticeship programs for college and university students. Five of the solicitations included climate change and its impacts and responses (including adaptation). Four of the solicitations addressed topics that were not related to EPA's climate adaptation science needs, where including climate adaptation criteria would not have been scientifically appropriate. One of the solicitations did not include climate change factors, although including such factors could have been scientifically appropriate.

# Technical assistance (Priority Action 3)

In FY22, ORD responded to 251 requests for climate-related technical assistance and spent 1,002 personhours responding to those requests, as recorded in the ORD Assists system. Twelve actions and 93 hours provided assistance to Regional Offices; and 28 actions and 109 hours provided assistance to states, Tribes, and localities. The balance of the requests was from EPA program offices, academic institutions,

<sup>&</sup>lt;sup>6</sup> https://www.whitehouse.gov/wp-content/uploads/2023/03/FTAC Report 03222023 508.pdf

private sector firms, and non-governmental organizations. Examples of assistance requests and actions taken included:

- The Oregon Department of Environmental Quality requested scientific and technical support regarding a tradeoff analysis comparing potential impacts of prescribed fire with those from wildfire. CPHEA/ICSD staff reviewed the analysis and provided comments and perspectives.
- Region 4 requested assistance to review the potential climate change impacts on the remediation approach proposed at a Superfund site. CPHEA/ICSD staff identified an expert who reviewed the proposal and provided comments on potential climate impacts.
- OAR's Office of Atmospheric Programs requested ORD assistance with identifying and incorporating appropriate climate-health data into the Framework for Evaluating Damages and Impacts (FrEDI) model. Staff from CPHEA's Public Health & Environmental Systems Division (PHESD) provided assistance and continue to be engaged in the effort.
- Region 9 requested assistance finding simple tools to quantify greenhouse gas (GHG) emission reductions associated with materials management to support Climate Pollution Reduction Grant actions. Staff from ORD's Center for Environmental Solutions and Emergency Response (CESER) staff provided assistance related to supply chain modeling.
- Region 1 requested ORD assistance to evaluate available scientific information to address concerns regarding potential to impact threatened and endangered species potentially related to phytoplankton community changes, including harmful algal blooms (HABs), which may be attributable to pollutant discharge, climate change, or a combination of both. ORD's Center for Environmental Measurements and Modeling (CEMM) staff provided two EPA reports to evaluate and document potential impacts.

In FY23, ORD staff engaged in 185 climate-related technical assistance activities totaling 2,689 hours of assistance. Twenty-six actions and 981 hours of assistance were provided to Regional Offices; 23 actions and 91 hours provided assistance to states, Tribes, and localities.

In addition, through the RCAN initiative, ICSD provided over 400 person-hours of technical assistance to 44 climate-related projects and inquiries responding to climate science needs of Regional Office staff. These actions ranged from connecting Regional Office staff to appropriate climate expertise on smoke from Canadian wildfires to guidance on incorporating climate data into permitting decisions to place-based, co-produced adaptation research.

# Building ORD's adaptive capacity (Priority 4)

ORD has taken actions to build the adaptive capacity of its staff in multiple ways. Health and safety protocols that help researchers prepare to avoid and reduce hazards associated with research activities in the laboratory and field were reviewed and revised to incorporate understanding of climate-related hazards, such as extreme heat, wind, and wildfire smoke. ORD and OP inaugurated a new Climate Conversations Seminar Series, including both informational sessions and interactive opportunities for small-group discussions related to climate change and climate adaptation. The series has informed ORD staff and others about the findings of the Fifth National Climate Assessment, EPA's actions on climate adaptation and resilience, and how to work with Tribes on climate impacts and adaptation, among other topics.

ORD also created an Intranet page, Raising Awareness of GHG Impacts of ORD Work Travel,<sup>7</sup> as a resource for ORD travelers to better understand the GHG emissions associated with their work travel by air. The site shows the estimated amount of air travel GHG emissions ORD has been responsible for due to work travel over the past several years and provides resources for more information about alternative travel modes and non-travel alternatives.

### Facility resilience (Priority Action 5)

ORD worked closely with EPA's Office of Mission Support to develop two detailed (200+ pages) facility climate resilience assessments in FY23 to identify projects that will help ensure the resilience and readiness of EPA facilities in the face of climate and other hazards. One of these evaluated ORD's Gulf Breeze facilities located on Sabine Island in Florida. The other evaluated ORD's facilities located in Narragansett, Rhode Island. The assessments determined relevant climate change risks and other non-climate hazards anticipated over the next 30 years. This was followed by a vulnerability, risk, and consequence assessment to identify critical assets and services. The assessments suggested specific near-term actions and future adaptation measures and recommendations for implementing improvements and monitoring specific assets to enable adaptive management of the facilities to improve climate adaptation and resilience.

Resource availability will determine when priority recommended improvements will be implemented.

<sup>&</sup>lt;sup>7</sup> https://work.epa.gov/travel/raising-awareness-ghg-impacts-ord-work-travel