This response to “NASA’s Public Access Plan—Increasing Access to the Results of Scientific Research” request for public input is submitted on behalf of the Open Research Funders Group. The Open Research Funders Group (ORFG) is a partnership of 26 philanthropic organizations committed to the open sharing of research outputs. We believe openness is better for philanthropy, better for research, and better for society. Open research accelerates the pace of discovery, reduces information sharing gaps, encourages innovation, and promotes reproducibility. Collectively, the ORFG members hold assets in excess of $250 billion, with total annual giving in the $12 billion range. Members’ interests range the entirety of the disciplinary spectrum, including life sciences, physical sciences, social sciences, and the humanities. This response has been prepared by Greg Tananbaum and Dr. Erin McKiernan, Director and Community Manager (respectively) of the ORFG, in conjunction with representatives of the ORFG membership. "[Name, affiliation} also contributed to this response."

The Open Research Funders Group appreciates the opportunity to comment on the NASA Public Access Plan. This form of public engagement reinforces the federal government’s stated desire to co-develop equitable access strategies in a transparent and deliberative manner. The plan is consistent with both the letter and the spirit of the White House Office of Science and Technology Policy’s August 2022 memo, “Ensuring Free, Immediate, and Equitable Access to Federally Funded Research".

NASA has requested feedback on five specific areas, which the ORFG provides below. Our perspective is that this guidance should be considered by all federal agencies and departments as they develop plans to address the OSTP’s memo. Consistency across federal funding bodies with respect to best practices and standards will make it easier for (a) adjacent sectors (including private philanthropies and higher education institutions) to align their incentive structures to reinforce the key principles of the OSTP memo; and (b) funded researchers to understand and adhere to emerging research sharing norms and good practices.

- **How to Best Ensure Equity in Publication Opportunities for NASA-Supported Investigators.** The proposed NASA guidance promotes compliance via the archiving of articles in agency-designated repositories (the Clearinghouse for the Open Research of the United States; the NASA Scientific, Technical and Research Information discoVEry System; the Astrophysics Data System; and/or the NASA Technical Report Service). This guidance wisely balances the broad freedom that funded researchers enjoy in deciding where to publish their results with the taxpayers’ interest in ensuring federal funds don’t inadvertently exacerbate

research ecosystem inequities. Paywalls limit access to knowledge, limit replication and reproducibility, and stifle civic engagement in science. Replacing paywalls with exorbitant open access article processing charges (APCs) would potentially trade one set of inequities for another, creating a two-tiered system in which authors outside of well-funded R1 institutions lack the financial wherewithal to publish in some prestigious, brand-name journals. A repository-mediated ("green") route to federal policy compliance, as NASA allows/supports through manuscript deposit in the aforementioned repositories is an effective way to reduce the impact on younger researchers, women, scholars at minority-serving institutions, and others who are more likely to be disadvantaged by an APC-dominant publishing system (see, for example, the AAAS survey "Exploring the Hidden Impacts of Open Access Financing Mechanisms"). To that end, we encourage NASA to engage with the U.S. Repository Network (USRN) to identify additional repositories that meet the agency's criteria for depositing publications.

Additionally, NASA should consider providing funded researchers clear guidance on rights retention, building on guidance developed by other funder groups (e.g., cOAlition S) and the larger academic community. Expecting scientists to be experts not only in biomedicine, but also in the labyrinthine world of copyright law, presents an undue burden. NASA should make it as easy as possible for grantees to retain sufficient rights to make copies of their papers available and reusable in PubMed Central. We appreciate NASA's inclusion of rights retention considerations in this RFI as a signal of this issue's centrality to a comprehensive public access strategy.

- **Steps for Improving Equity in Access and Accessibility of Publications.** One area of potential improvement for NASA's draft plan is with respect to reuse rights for shared research, which the OSTP guidance includes as an important consideration. The draft plan is relative sparse on this topic stating, "Awards of NASA funding by any instrument (e.g., grant, contract, or cooperative agreement) may be made conditional upon the recipient's granting to the Government a broad license that enables the repository to transfer more limited rights to users of publications drawn from the repository. An alternative would be an award requirement for the recipient to ensure that any publishing agreement would allow the author-accepted manuscript to be posted to PubSpace collection within NTRS, NASA's designated repository, under its Terms of Service." The plan does not include an open licensing requirement that would codify and maximize reuse rights. This lack of specificity means researchers could potentially deposit both articles (and data) under a variety of licenses or conditions that could significantly restrict how these materials can be built upon by researchers and the broader community. A CC BY license or functional equivalent is the best way to enable text and data mining computational uses, and educational reuse. Importantly, from an inclusivity standpoint, this form of licensing is the best way to ensure

content accessibility via assistive devices. The ORFG also recommends that NASA adopt a more expansive concept of "accessibility" to consider that a range of individuals and communities - including those needing assistive devices and community members not well-versed in scientific jargon - are not presently able to fully engage with federally funded research. We would be pleased to engage with NASA to identify practical solutions to these limitations.

- **Methods for Monitoring Evolving Costs and Impacts on Affected Communities.** Monitoring implementation costs is a critical component of ensuring NASA's plan combats rather than exacerbates the inequities inherent within the current research dissemination system. The draft NASA plan is somewhat contradictory on the topic of publishing costs. It states both "NASA intends for researchers to pay *reasonable costs* to publish an article as open access, and that grant proceeds may be used for such purposes" (p.13, emphasis added) and "For authors who wish to publish in an open access journal, NASA allows *all Article Processing Charges* (APCs) to be included in the grant proposal budget" (p.15, emphasis added). In addition to clarifying the extent to which the agency will support APCs, NASA should consider the steps it can take to promote self-archiving (green open access) as the preferred compliance route. The APC model can be exploited to perpetuate a system where access to knowledge is restricted to those who can afford to pay the publication fees (directly, through institutional subsidy, or via grant support), creating an inequitable disparity in the dissemination of research findings. By contrast, self-archiving in established repositories compliant with federal recommendations eliminates the financial burden on authors and ensures that participation in the research conversation is accessible to all, regardless of their financial means or institutional affiliation.

- **Input on Considerations to Increase Findability and Transparency of Research.** NASA should include specific, actionable guidance on persistent identifiers (PIDs) and metadata to its funded researchers. The ORFG encourages NASA and other federal agencies to embrace de facto community standards where they exist. These include digital object identifiers (DOIs) for articles, datasets and data management plans, ORCIDs for authors, and RORs for institutions. In the interest of making policy compliance as easy as possible for individual researchers, NASA should coordinate with other agencies and the National Science and Technology Council's (NSTC) Subcommittee on Open Science, to align on PID and metadata best practices. The ORFG would welcome the engagement of NASA and other federal agencies in the community we have nurtured since fall 2022 to improve research output tracking. This group is uniquely positioned – with its cross-sector expertise drawing from funders, higher education, technology providers, publishers, standards bodies, and international organizations – to provide such guidance on best practices.

- **Suggestions on Sharing and Archiving of Software.** To ensure that access to research software is optimized to enable reproducibility and accelerate discovery, NASA should consider supplementing its draft plan in a number of ways. As part of the allowable costs that grantees can request to help them meet research sharing requirements, NASA should encourage prospective grantees to budget for not only "reasonable costs of software development and sharing" (p.20), but also the expense associated with maintaining research software in a manner that maximizes accessibility and reusability for as long as is practical.

  Consistent with the Administration's approach to cybersecurity, NASA should provide clear guidance on measures grantees are expected to undertake to ensure the security and integrity of research software. This guidance should encompass the design, development, dissemination, and documentation of research software. Examples include the National Institute of Standards and Technology's secure software development framework and Linux Foundation's open source security foundation.

  NASA should also explicitly encourage grantees to apply licenses to their research software that facilitate replication, reuse, and extensibility, while balancing individual and institutional intellectual property considerations. Agencies can point grantees to guidance on desirable criteria for distribution terms and approved licenses from the Open Source Initiative. The *PLOS Biology* perspective "Policy recommendations to ensure that research software is openly accessible and reusable", co-written by the authors of this response, provides additional guidance on research software's centrality to equity, transparency, and reproducibility.

The Open Research Funders Group wishes to again express our gratitude and support for the work of NASA, the OSTP, and other federal agencies to advance a more open, equitable, and inclusive research ecosystem. We appreciate the opportunity to comment on this draft plan, and we are eager to assist in its eventual rollout.