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The Honorable Brenda Mallory
Chair,
Council on Environmental Quality
730 Jackson Place, NW
Washington, DC 20503

ATTN: Docket ID: CEQ-2021-0003

Re: Climate Adaptation Action Plan Submitted by the Environmental Protection Agency

The American Society of Civil Engineers (ASCE) is pleased to offer the following comments on the Environmental Protection Agency's (EPA) proposed Climate Adaptation Action Plan, drafted in accordance with Executive Order 14008, *Tackling the Climate Crisis At Home and Abroad*.

Founded in 1852, ASCE is the country's oldest civil engineering organization. Representing more than 150,000 civil engineers from private practice, government, industry, and academia, ASCE is dedicated to the advancement of the science and practice of engineering. ASCE members represent the profession that plans, designs, and manages much of the nation's infrastructure. As a result, civil engineers are keenly aware of the effects of climate change and its impact on safe, resilient infrastructure development to support our modern society.

Modern infrastructure must be designed and built to withstand modern risks, and development must account for future risks. Increasingly strong weather events such as hurricanes and floods, significant increases in annual precipitation rates, and more intense and extended periods of drought conditions all pose significant risk to the built environment, as well as the natural environment. It is critical that the nation's 21st century infrastructure be designed and built to withstand these increasingly severe conditions.

Therefore, ASCE believes that ensuring federal agencies are prepared to adapt, and able to assist states, communities, tribes, and other various stakeholders in climate adaptation is essential. ASCE's *2021 Infrastructure Report Card,* which gave the nation's overall infrastructure a grade of "C-", specifically recommends "utiliz[ing] new approaches, materials, and technologies to ensure our infrastructure can withstand or quickly recover from natural or man-made hazards."[1] Most infrastructure is designed and built to provide adequate service to communities for decades, and must remain safe and durable in order to do so. With more frequent, and more intense weather patterns becoming the norm,

[1] https://infrastructurereportcard.org/wp-content/uploads/2020/12/National_IRC_2021-report.pdf

prioritizing climate resilience in design and implementation, remaining engaged with the civil engineering community, and enforcing strict building codes and standards are fundamental to ensuring the nation's infrastructure is able to withstand 21st century challenges.

ASCE Position

ASCE recognizes the threat climate change poses to the nation's infrastructure and supports the implementation of agency actions which strengthen EPA's mission, and account for climate change in its policies, processes, and management. Rapidly changing conditions threaten to limit access to water resources, hinder coastal development, cause designs based on storm frequency to be negatively impacted, and reduce the effectiveness of traditional hazard mitigation tools such as flood mapping, building codes and standards, and more resilient electrical grids.

ASCE Policy Statement 360- Climate Change[2]*,* recommends several approaches to addressing the impact of climate change on infrastructure, including:

- Government policies that anticipate and prepare for impacts of climate change on the built environment.
- Revisions to engineering design standards, codes, regulations and associated laws that strengthen the sustainability and resiliency of infrastructure at high risk of being affected by climate change.
- Cooperative research among engineers and climate, weather, and life scientists to gain a better understanding of the magnitudes and consequences of future climate extremes and improve projection certainty.
- Identifying critical infrastructure that is most threatened by changing climate in a given region, informing decision makers and the public, and enhancing infrastructure resiliency.
- Informing policy makers that impacts of climate change for historically disadvantaged communities should consider social and economic equity and not be based solely on economic benefit to cost ratio.

In keeping with these approaches*,* ASCE asks that the following points be given careful consideration:

Engagement of Civil Engineering Community

ASCE's policy places an emphasis on accounting for and preparing for future challenges posed by climate change, including identifying infrastructure that is most at risk. This is best achieved through a collaborative approach, one that engages policy makers, state and local officials, engineers, and other stakeholders, and provides them with timely and up to date information about infrastructure vulnerabilities.

EPA's Climate Adaptation Action Plan identifies several climate related vulnerabilities of the agency's mission and operations and outlines a set of priority actions to address these vulnerabilities. Among these priority actions is integrating climate adaptation into EPA programs, policies, rulemaking, and enforcement; and consulting with state and local governments, and other stakeholders to strengthen adaptive capacity and increase resilience. Collaborative efforts should also include engagement with the civil engineering community, which is responsible for the planning, design, construction, operations, and

[2] https://www.asce.org/advocacy/policy-statements/ps360---climate-change

maintenance of physical infrastructure. This will help to ensure fully realized policies which account for current science, community needs, and up to date standards and codes.

Building Codes and Standards

EPA identifies implementation of measures to protect the agency's facilities and critical infrastructure from the risks posed by climate change as a primary component of one of its priority actions. The agency states that it will initiate priority climate resilience projects for its facilities within 24 months following completion of a facility climate assessment and project prioritization in order to address this priority. To better protect EPA facilities from the effects of climate change, ASCE recommends that the agency ensure these facilities meet the most up to date building codes and standards as evaluated by civil engineers.

The most reliable way to ensure our nation's infrastructure is resilient is the widespread adoption and enforcement of modern, up to date building codes. Model building codes are developed by experienced volunteer professionals working together under a multi-step, consensus-based process.

ASCE is a trusted source for consensus-based standards that take into account the latest available climate data. ASCE Standards provide technical guidelines for promoting safety, reliability, productivity, and efficiency in civil engineering. Many of our standards are referenced by model building codes and adopted by state and local jurisdiction. They also provide guidance for design projects around the world.

ASCE supports the development, adoption, and enforcement of a national model code as a key method of minimizing climate impact and creating disaster resilience in communities to protect and improve public health, safety, and economic vitality. The following ASCE documents offer a sound basis upon which such a model code can be developed:

- ASCE 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-16)[3], currently an integral part of U.S. building codes, describes the means for determining soil, flood, tsunami, snow, rain, atmospheric ice, earthquake, and wind loads, and their combinations for resilient structural design;
- ASCE 24, Flood Resistant Design and Construction[4], prescribes a standard for cost effectively increasing resiliency by reducing and eliminating risks to property from flood hazards and their effects;
- ASCE Manual of Practice 140, Climate-Resilient Infrastructure: Adaptive Design and Risk Management, provides guidance for and contributes to infrastructure analysis/design in a world in which risk profiles are changing due to climate change per the Fourth National Climate Assessment.

ASCE has furthered its standard development efforts by creating the ASCE-7 Hazard Tool[5]. The tool provides a quick, reliable way to look up hazard data for seven environmental hazards including wind, seismic, ice, rain, snow, flood, and tsunami, to determine multiple types of hazard loads for buildings and other structures, including energy systems. An updated version of the ASCE-7 Hazard Tool is expected to be released in December 2021.

[3] https://www.asce.org/asce-7/
[4] https://ascelibrary.org/doi/book/10.1061/asce24
[5] https://asce7hazardtool.online/

Accounting for Future Threats and Challenges

Climate change brings with it changing weather patterns which become not only less predictable, but also produce even more severe weather events. These effects pose significant challenges to the nation's infrastructure. For example, a severe winter storm in Texas in February of 2021 disrupted the state's electrical grid and water systems, leaving millions in the state without power and with many with limited access to clean water.

Additionally, drastic changes in precipitation levels have significant impact on the built environment, as well as the natural environment. In some areas, increased rainfall brought on by warmer conditions and more severe storms impact the safety of infrastructure such as dams and levees. In other regions of the country, extreme drought conditions create exceedingly dry conditions, leading to more severe wildfires, and decreased water supplies.

ASCE is encouraged by the fact that EPA's Climate Adaptation Action plan recognizes these challenges. It is essential that actions to address climate change not only respond to current challenges, but also account and prepare for future threats. Ensuring and strengthening the best available science is not only necessary to protect the natural environment, but also is also vital to civil engineers who rely on up-to-date data and information when designing critical infrastructure, and implementing building codes and standards. ASCE supports funding for NOAA and other federal agencies to update critical rainfall data so that engineers can design systems based on current weather conditions.

Conclusion

ASCE supports the goals and intentions of EPA's Climate Adaptation Action Plan, and Executive Order 14008 more broadly. The effects of climate change pose significant risks to the natural and built environment, and it is essential to ensure that the nation's drinking water, water treatment and stormwater systems are designed for a long service life. ASCE looks forward to continuing to work closely with EPA to ensure that infrastructure built now will serve generations well into the future.