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Testimony of
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"Building Climate Resilient Communities" Hearing
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Thank you for inviting me to talk about the importance of climate action and climate resilience to cities, and specifically to Madison. I am proud to be the Mayor of Madison, Wisconsin – a city with a strong sense of community, a growing economy, and great natural amenities. Madison is a mid-sized city of over 250,000 people; it is home to the Wisconsin State Capitol, the flagship campus of the University of Wisconsin, and it is situated between numerous lakes in the middle of dairy country.

Madison is a city that often shows up on top ten lists for its livability, but those nationally recognized amenities are not shared equally amongst all of our residents. In fact, parts of our community experience a disproportionate burden of environmental risks and injustices. A 2013 study has shown that Dane County, where Madison resides, ranks among the worst counties for racial disparities.[1] This is equally true for the impacts of climate change. We have work to do to protect our residents and ensure that assets and opportunities are accessible to all.

Madison is a growing city. While growth is not a bad thing, it does present challenges - largely related to increasing housing costs and traffic congestion. One of my primary goals as Mayor is to ensure Madison can grow without becoming unaffordable, and without crippling traffic congestion. To that end, we are working hard to build a bus rapid transit system in Madison with support from federal partners. We are also working hard to increase our housing supply, including affordable housing in particular.

Our community is also contending with a changing climate that exacerbates preexisting challenges and creates new risks. I'll speak more about that in a moment.

I want to first note that I serve as a Co-Chair of Climate Mayors, a national network of mayors representing 476 U.S. cities who have committed to fighting climate change. I work closely with our Chair, Mayor Sylvester Turner of Houston, and Co-Chair, Mayor Kate Gallego of Phoenix. Together, we

[1]Wisconsin Council on Children & Families. *Race to Equity: A Baseline Report on the State of Racial Disparities in Dane County.* 2013. http://racetoequity.net/wp-content/uploads/2016/11/WCCF-R2E-Report.pdf

seek to advance ambitious policies locally and nationally to address one of the greatest challenges of our time.

The past year has been daunting for many of our communities. But we have an incredible opportunity to recover and rebuild in a more resilient and sustainable way that will benefit millions of Americans in the near-term and generations to come.

In July 2020, Climate Mayors launched the National Dialogue on Green and Equitable Recovery series, a livestream leadership series highlighting the role of mayors in addressing the critical need for a "green and equitable recovery." Thank you, Chair Castor, for participating in the first event focused on the Southeast region.

As a result of the initiative, Climate Mayors just released its *Green and Equitable Recovery* report this April, capturing the key messages and priorities identified during these discussions. The report provides a roadmap for what cities can and should be doing to ensure an economic recovery rooted in sustainability and equity, but it also underscores the important role the federal government plays in amplifying and expanding cities' efforts.

I have attached highlights from the report to this statement, and included a link to the full report.[2]

We encourage policymakers to look to local governments to identify meaningful solutions to these shared challenges and scale those programs as we work to rebuild our economy and infrastructure in a way that is resilient to future climate shocks.

Cities are dealing with the impacts of our changing climate now, and we need the support of the federal government now to overcome barriers, resource innovation, and scale solutions. It is critical that we invest in a broad range of infrastructure, but it is equally important that we design that infrastructure for the climate of the future, not the climate of the past – and in a manner that avoids further harm to our climate. To do this, we need a true partnership between the federal government and local governments. Local government is closest to the impacts of climate change, and we are ready and able to identify the most effective ways to deploy resources to support resilience in our communities.

Climate Impacts in Madison

In Madison, the primary climate impacts of concern to our community are related to heat and rain. We have warmer summers and warmer winters, and therefore we experience more precipitation and more intense storms. These are not projections for the future: these impacts are already here.

Warmer winters mean more freeze/thaw cycles and more damage to pavement, requiring more frequent, costly repairs to our streets. They also mean more ice storms, creating dangerous conditions for transportation and presenting a challenge to city workers that are skilled at removing snow but still adapting to dealing with ice.

Warmer summers increase the dangerous urban heat island effect, which impacts Madison like so many other cities. It's important to note that this is not just a factor of external temperature, but temperature

[2] Climate Mayors Green and Equitable Recovery Synthesis Report. 2021. https://climatemayors.org/wp-content/uploads/2021/04/ClimateMayors_SynthesisReport.pdf

relative to our bodies' acclimation. The impacts people feel from heat are dependent on whether the buildings and communities they inhabit were created to withstand increasing temperature extremes.

In Wisconsin, not all homes are built with air conditioning, especially in the rental housing that comprises more than half of our housing stock locally. We also have a lot of dark asphalt shingle roofs that soak in the heat. Our temperatures swing a lot season to season, but also sometimes week to week, which is a challenge for people trying to acclimate to the temperature. Because of those aforementioned factors, the most heat-sensitive cities in the U.S. are in the Midwest and Northeast.[3] Heat is the leading cause of weather-related deaths and it exacerbates other health issues. Here in Dane County, we saw a 47% increase in heat-related emergency room visits from 2010 to 2014.[4]

Heat is just one threat to our public health. As policymakers, we must anticipate how climate change will interact with other environmental stressors to avoid these adverse impacts, including worsening health outcomes, injuries, or even premature deaths.

As we measure recent climatic changes and examine future projections in Wisconsin, we look to the Wisconsin Initiative on Climate Change Impacts at the University of Wisconsin, and I've included a link to their 2021 report.[5] One of the more concerning projections related to summertime heat increases isn't related to daytime heat, but nighttime heat. Our summer nights are projected to stay warmer, which will limit the ability of our bodies and our buildings to cool down. This is linked to more severe health impacts of heat that we see. By mid-century, the number of extremely hot days we see is expected to triple, and the number of extremely hot nights is expected to quadruple.

In terms of rainfall and storms, we are experiencing more flooding locally. While our Midwestern city does not contend with hurricanes or sea level rise, we are now experiencing more rain and more severe storms. Wisconsin experiences about 15% more rainfall annually than it did in 1950. The 2010s were the wettest decade on record in Wisconsin. And our precipitation is projected to increase another 5-15% by mid-century.

A wetter climate coupled with an increase in extreme rain events can wreak extreme havoc on our city. This was most prominent in Madison in August of 2018 when nearly 12 inches of rain fell west of Madison in a single day. Some places reported 14-15 inches. For context, the National Weather Service defines around 10 inches as a 1000-year flood.[6] Flood damage from storms in late August and early September that year caused $154 million in damage in the County.[7] And as terrible as that was, it was pure luck that these storms didn't hit the downtown and east side, which is on lower land situated between two lakes. The flood damage there would have been much, much worse.

There are other climate-related impacts that Wisconsinites are facing, but I will focus my remarks on these threats.

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[3] Wisconsin Heat Network. *Major Heat Impacts.*
[4] Ibid.
[5] Wisconsin Initiative on Climate Change Impacts. *Report to the Governor's Task Force on Climate Change.* July 31, 2020. https://wicci.wisc.edu/wp-content/uploads/wicci-report-to-governors-task-force.pdf
[6] Wright, Dan. What WisContext. *What Could Happen Next Time Madison Gets Hit by Extreme Rainfall.* October 2, 2018. https://www.wiscontext.org/what-could-happen-next-time-madison-gets-hit-extreme-rainfall
[7] Novak, Bill. Wisconsin State Journal. *Flood Damage Exceeds $154 Million in Dane County, Officials Say.* Sept. 5, 2018. https://madison.com/wsj/weather/flood-damage-exceeds-154-million-in-dane-county-officials-say/article_0635e674-c057-57a0-a888-fe2983367b76.html

Resilience Strategy

Now, turning to resilience, I think of our strategy in two ways. It is in part related to physical solutions and systems – we need our roads, buildings, parks, and ecosystems to withstand the impacts of more intense storms, more flooding, and hotter summers. But we also need our people and neighborhoods to be able to survive and thrive while dealing with these impacts. There are many components to that work, but at its heart, it's about ensuring that our residents have stability and the resources they need to manage increasingly regular stressors (like higher temperatures) and the increasing risk of a crisis (like flooding) to their home, family, or community.

I believe our best solutions to the crisis are those that address climate change holistically – mitigating our risks, while supporting our city and both our local and national economy. I want to talk about how Madison is addressing this challenge, and how I believe we could leverage federal support to go further and increase the benefits of the work. And while my remarks are focused on our city, I think these examples are relevant to many cities, as local officials are all trying to innovate and seeking solutions to address multiple problems at once.

1. Flood protection investments for our communities

The 2018 flooding was a wake-up call for us in Madison. We are now undertaking 23 individual watershed studies to determine what we need citywide to avoid both persistent flooding problems and catastrophic events. We have finished a handful of the 23 studies, and we already have a very costly list of necessary infrastructure investments, with $75 million of important projects identified in the first four studies. And the other assessments are only just getting started.

The bottom line is that our entire stormwater system was built to carry less water than we now need it to carry; unless we make some major investments in infiltration, storage and increased stormwater system capacity, we will not be able to prevent serious flooding. I have included a link to our Flash Flooding Resilience website[8] for some visuals of just how many of our pipes are over 60 years old, installed when we could not have imagined we would be seeing these stormwater flows.

We need to make major infrastructure investments for handling stormwater. We just updated our stormwater requirements for new construction so that our urban development will be responding to floods of the future, not the floods of the past. And we are investing in and testing green solutions and green infrastructure with the USGS right now to learn more about its multiple benefits.

This is an area where the federal government has long played a role – in supporting infrastructure investments. While we need stormwater pipes and detention ponds, a more holistic solution and expansive view of infrastructure could help us achieve more. For example, green infrastructure like bioswales, raingardens, trees, compost-amended soils, and pervious pavements can help retain and infiltrate water on site with reduced runoff. This is a way to manage our daily stormwater while increasing biodiversity, reducing urban heat island effects, and improving surface water quality.

[8] City of Madison Flash Flooding Resilience website: https://cityofmadison.maps.arcgis.com/apps/Cascade/index.html?appid=410417d0691a4166977b9fa6223536e9

Further, we need the federal government to reclaim its historic role in funding basic infrastructure via grants to local governments, not just low interest loans. These investments will create good, family supporting jobs, boost our economy, and improve our climate resilience.

2. Lake impacts of more runoff from storms

Madison sits on a thin isthmus of land between two lakes – two of several lakes in the region. These lakes are central to Madison's identity, our quality of life, and our economy. We have numerous waterfront parks and beaches, a healthy community of people fishing, boating and kayaking, and we have a tourism economy that is dependent on our lakes. They are a major part of what makes Madison such a beautiful and livable city.

Heavier rainstorms and warmer temperatures impact the quality of our lake water. Our lakes have long had a nutrient-loading problem, and more algae growth than they should have. We have been combatting this in both urban areas and rural areas in many ways for many years.

In Madison, a lot of the urban phosphorus in our stormwater outlets comes from fall leaves. We have developed an initiative and campaign encouraging people to mulch their leaves or collect them alongside the street where we have trucks that pick them up. We help support a regional partnership called Yahara WINS, which helps reduce phosphorus throughout the watershed and beyond the city limits.

Unfortunately, the progress this partnership anticipated has been virtually erased. Not because more nutrients are in the environment, but because so many more of those nutrients are finding their way into the rivers and lakes due to the increase in severe storms we are experiencing. Local studies indicate that if precipitation had remained constant over the last 30 years, we could have expected a 36% reduction on the amount of phosphorus flowing into our largest lake, Lake Mendota.[9] But given the water increases we have seen and the associated runoff, phosphorus loading has increased by about 15%.[10]

By the first week of June this year – before school was even out – we had to close three beaches or lake access points in Madison due to blue-green algae, which is dangerous and potentially toxic. But it impacts more than beaches – the dying algae use up the oxygen in the lake and create dead zones. This impacts our lake ecosystems, fishing, and water-based recreation and tourism, which hurts the economy overall.

It is a challenging problem without quick fixes, but we know there is more we can do. We can continue doing our part in Madison, and our farmers also need more resources for nutrient management. A major source of the nutrient-loading in the lakes is manure from surrounding farms. We greatly value our farms in Wisconsin, and we want to help our farms thrive. We need solutions that help our farms and allow our lakes to thrive. Dane County and numerous partners have been working to support that for years by supporting best practices for manure management, conservation farming, and building manure digesters.

[9]Fundamental Concepts on Water Quality of the Yahara Chain of Lakes (Mendota, Monona, Wingra, Waubesa, and Kegonsa). Yahara CLEAN 3.0 Steering Team, June 2020.

[10] Yahara CLEAN Phosphorus Reduction Strategy Recommendations. Yahara CLEAN 3.0 Steering Team, March 2021.

This is an opportunity to generate renewable energy as well. Dane County has invested in a renewable natural gas (RNG) processing and offloading site[11] to accept RNG from private manure digesters, where it can be injected right into a pipeline. Projects like these support farmers, help support clean lakes and rivers, and create local renewable energy, which is a revenue source as well. We need to double-down on these strategies with continued research, education, and investment.

3. Our community is at risk of heat- and mold-related health impacts

As I mentioned earlier, Madison is experiencing urban heat island effects, like so many other cities, posing a public health risk; extreme or extended heat is linked to heat-related illness and exacerbating chronic illness. Again, many older rental buildings lack air conditioning, have poor insulation, and soak in heat through their dark, asphalt roofs. Improvements to our building stock could improve health outcomes and reduce greenhouse gas emissions.

Employing reflective roof technologies can reduce heat impacts in homes and cities.[12] Adding electric heat (and cool) pumps are a logical, and increasingly common, solution. By installing heat pumps, we could provide people with energy efficient cooling in the summer, and offer efficient heating in the winter. And because they are electric, they reduce the health risks associated with carbon monoxide, and they can connect to renewable energy.

Our wetter climate is also leading to wetter basements, which leads to mold growth. Exposure to mold can cause respiratory problems. We've heard stories from nurses that see children suffering from asthma. Their parents talk about the mold issues in their building; they worry that if they report it, their landlord won't renew their lease. And so they live with the impact instead, and their families suffer. This is a public health problem with disparate impacts, affecting the most vulnerable and those with fewer resources to address the problem.

Whether we are talking about painting rooftops, installing cooling, or dealing with mold, the City's toolbox to address this systematically is small. By state law, we aren't allowed to set local energy codes, and we aren't allowed to proactively or regularly inspect rental property unless responding to a complaint. What we can do – and are doing – is to develop a voluntary incentive program to persuade landlords to take on building improvements. This work started with local partners focused on making energy and water efficiency improvements to lower- and moderately-priced apartment buildings. These are non-subsidized buildings that may not qualify for low-income weatherization support, but whose renters nonetheless are paying below-market rents in housing that is often in need of upgrades.

As we move forward with the energy and water efficiency program, we are now looking at the feasibility of expanding activities to cover mold and lead issues in the buildings, as well as adding solar PV to their roofs. This is a great opportunity to conduct work that provides multiple benefits – improving efficiency, lowering utility bills, creating more comfortable homes, improving indoor air quality, and improving health outcomes for residents. These programs are necessary to improve our housing stock and ensure

[11] Renewable Natural Gas Processing and Offloading Station. Dane County Department of Waste and Renewables. https://landfill.countyofdane.com/services/Renewable-Natural-Gas

[12] Yale Environment 360. *Urban Heat: Can White Roofs Help Cool World's Warming Cities?* March 7, 2018. https://e360.yale.edu/features/urban-heat-can-white-roofs-help-cool-the-worlds-warming-cities

it will be resilient in the face of climate impacts. And we support local jobs in the trades to conduct all of this work.

We are also focused on our commercial buildings and municipal facilities. For example, the City runs a Green Power Solar Workforce Training Program to train and hire local workers from underrepresented populations. To date, our Green Power trainees have helped install 1 MW of solar on our municipal facilities. We hope to scale up this program to add 1 MW annually by 2022 to help achieve our municipal goal of 100% renewable energy by 2030.

These programs are intensive efforts that require significant resources and create jobs with family-supporting wages. Funding for energy efficiency, renewable energy, technical assistance, and education would be appreciated by local officials. The federal government's support for these efforts could be very impactful, and I think it would be most impactful if oriented in consideration of the following two points:

1. When considering what infrastructure means, please consider the work we do in our building stock as core infrastructure work in our cities. We need that expansive perspective of what cities need to be ready for the 21st century impacts of climate change.

2. The most efficient solutions are ones that address multiple problems and create multiple benefits. Federal funding is always appreciated. But if it is singularly-focused, we can't solve the full scale of the problem. We can't install insulation in an attic while ignoring the leaky roof. We shouldn't send contractors to address energy efficiency and ignore water efficiency or the opportunity to install solar. And we should never ignore serious impacts to the health of our residents, whether from heat, mold, or lead. Cities always work at the nexus of multiple issues, and we need federal grants and other programs to think in those broad terms as well.

Local governments would welcome investments through existing federal funding streams including:

- The Weatherization Assistance Program administered by the Department of Energy;
- The Community Development Block Grant Program, the Sustainable Communities Initiatives, and the HOME Investment Partnership administered by the Department of Housing and Urban Development; and
- The Bus and Bus Facilities Program and the Capital Investment Grant Program administered by the Department of Transportation, which have provided invaluable resources to our community as we implement our first Bus Rapid Transit (BRT) system.

Policymakers should also explore reforms that enhance flexibility of these funds or create new programs that enable us to address the multitude of climate-focused needs. For example, any efforts to weatherize homes or retrofit for energy efficiency should also include installing renewable energy sources like solar and geothermal, and on electrifying building systems. Any program to create or preserve affordable housing should also ensure affordable utility bills and healthy indoor air quality. Any investment in transit should be scaled to ensure vehicles are zero-emission.

As discussions focused on infrastructure progress, I applaud proposed investments in electric vehicle charging infrastructure, carbon emissions reduction strategies, building retrofits, and other resilience programs. I also applaud the increased levels of funding for transit that were included in the INVEST in

America Act. The restoration of the Energy Efficiency and Conservation Block Grant Program administered by the Department of Energy would also enable local jurisdictions to make consequential investments in sustainability.

Finally, federal investments in workforce development and training can help create new career pathways for those historically underrepresented in these sectors or dislocated by the pandemic. This is a critical component to climate resilience, and one where cities need your support.

Cities across this country are trying to address multiple problems at once, and I would urge the federal government to consider shaping their support to local governments in ways that recognize the greater wins possible by working across disciplines and toward multiple goals.

I hope from the testimony today, you are hearing a few key themes:

- The changing climate is impacting our cities and our residents in multiple ways, and cities have no choice but to come up with innovative solutions.
- The negative impacts of climate change are borne disproportionately by low income and BIPOC communities, so we must focus our efforts in these communities.
- Cities need federal partnership to scale our efforts, and we are eager to partner.
- The best solutions are designed to address multiple problems and yield multiple benefits, and federal action – whether it be policy, funding, or technical assistance – would be most helpful if also designed with flexible eligible activities.

Climate change is the defining challenge of our time. We must respond accordingly. Cities need the federal government to support our ability to innovate, to clear away barriers, and to bring viable solutions to scale. We have less than a decade to make a difference. Thank you for your time today, but thank you more for your action.

Attachment:

Summary Points of the Climate Mayors Green and Equitable Recovery Report

General

- We are at a historic, pivotal moment. We can rebuild the status quo or we can build something better.
- We have an incredible opportunity to generate sustainable and equitable economic growth while reducing greenhouse gases – and we must seize it.
- Cities across America have long demonstrated that economic growth and environmental stewardship go hand in hand.
- Now, the federal government can show the world that investments in a zero-carbon economy are investments in our future workforce and the well-being of generations.
- The climate crisis cannot be separated from the ongoing effort to achieve health, economic, and racial justice. This moment demands that we accelerate our efforts to drive ambitious, systemic and equitable progress.
- We encourage policymakers to look to local governments and communities to find meaningful solutions to these shared challenges.
- If fully funded, effectively implemented, and flexible enough to be adapted locally, the policies highlighted in the Green and Equitable Recovery report will have a lasting impact on our ability to meet the scope and scale of the challenges we face.

Guiding Principles for a Green Recovery

- Build for a Better Future: Returning to the pre-Covid-19 status quo will not help us meet the challenges of a world increasingly destabilized by climate change. We must strengthen our resolve and ambition to reduce emissions and increase the resilience of America's communities.
- Lead with Equity: Federal investments in our municipalities must prioritize historically disadvantaged and frontline communities—including people of color and low-income households—who are disproportionately hurt by both climate change and Covid-19.
- Prioritize Multiple Benefits: The same investments that will help us mitigate and adapt to climate change will also create high-quality jobs that strengthen social cohesion, improve health outcomes in our cities and towns, and can withstand future economic downturns.

Workforce

- As we accelerate the nation's transition to a clean energy economy, we need to ensure that our fossil fuel workers—who have served as our nation's energy and economic backbone—are continually supported.
- We must directly invest in communities currently reliant on coal, oil, and gas jobs, and provide meaningful support, sustainable funding, and workforce training programs, as well as practical guidance to ensure these workers secure a central role in a decarbonized economy.

- Transition plans are not one-size-fits-all. Local officials are best positioned to work with community-based leaders to design a plan that meets their unique needs.

Cities-Federal Partnership

- The federal government can use its considerable financial and technical resources to act as a catalyst for additional local action by providing funding and capacity building.
- Mayors have the best assessment of what their constituents need. They therefore are well-positioned to implement a tailored approach to policies and programs to ensure resources reach the most vulnerable communities.

Transit and Mobility

- Federal transportation continues to support carbon-intensive highway expansions and new roads that lead to increased emissions and fewer jobs.
- Instead, policymakers should ensure that infrastructure and transportation funds are directed to local governments, and should prioritize public transit, active transportation modes, electric vehicle (EV) infrastructure deployment, and improving existing roads.
- This will result in safer mobility, less local pollution, and better access to economic opportunities and essential services.

Buildings

- In order to reach our climate goals, buildings need to swiftly move toward becoming highly efficient, grid-interactive, and all-electric.
- America's existing commercial and residential building stock cannot be neglected. Two-thirds today's building will still stand in 2050, necessitating deep retrofits that significantly reduce energy use, increase efficiency, and elevate the quality of life for those inside and out.
- Increasing efficiency and "futureproofing" our buildings to better withstand disasters and extreme weather will pay huge dividends for our communities and create numerous meaningful jobs.

Renewables

- To achieve clean electricity by 2035, we need to accelerate the transition to renewable energy.
- As mayors, we are on the frontlines; many cities have already committed to 100% renewable energy goals.
- By pursuing multifaceted strategies to further accelerate local decarbonization efforts within our communities, we can grow a green economy and workforce, and enable all our residents to share in the benefits of renewable energy.
- Mayors must be at the forefront of deploying projects in our cities and engaging with utilities and regulators to create a cleaner grid to build a better, more equitable future.

Nature-based Solutions

- Mayors are investing in urban greening initiatives that produce multiple benefits in mitigating carbon emissions and adapting to a warming planet.

- As cities grow, Mayors are embracing efforts to enhance and expand natural ecosystems, greenspaces, and tree canopy to improve residents' lives while increasing resilience.
- Enhancing natural systems sequesters carbon, improves air quality, reduces the heat-island effect, mitigates flooding, and reduces the potential for landslides.
- Investments in "green infrastructure" can often offset the need for more costly investments in "gray infrastructure."

Conclusion

- The success stories of Climate Mayors across the country demonstrate that environmental stewardship, fiscal responsibility, and economic growth are not mutually exclusive.
- But city and local budgets are under enormous strain as a result of lost tax and fee revenue, combined with emergency spending related to COVID-19.
- Simultaneously, communities across the country are facing the devasting effects of climate change.
- Direct, flexible funding to city and local governments is crucial as we pursue a sustainable economic recovery.
- The Climate Mayors National Dialogue on Green and Equitable Recovery exemplifies mayors' commitments to a sustainable and just recovery but also emphasizes the absolute need for federal funding and support to effectively meet the scope and scale of the challenge.
- Federal commitment is essential to fully meet this moment and put the U.S. on a path to limit warming to 1.5°C.
- Building back a green economy led by local governments and supported by the federal government is a critical first step in achieving our climate goals, while ensuring a just, equitable, and sustainable economic recovery that is resilient for generations to come.