

## Resilience and Adaptation Memo –

*Developed to inform the Sustainability and  
Climate Action Plan*

**CITY OF TAKOMA PARK**

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**Prepared for:**

City of Takoma Park

7500 Maple Avenue

Takoma Park, MD 20912

## Recommended Adaptation and Resilience Strategies

The suite of strategies listed below are intended to provide a menu of recommended options based on the critical climate-related risks identified for Takoma Park. These strategies were selected in consideration of the existing policy context in the city and informed by interviews, stakeholder recommendations, and a database of successful strategies implemented by municipal across the United States. Prioritization, selection, and implementation staging from among these strategies requires additional stakeholder engagement and input from Takoma Park staff.

### *Extreme Heat*

1. **Continue to expand the tree canopy to mitigate the UHIE**, targeting medium-density residential areas and prioritizing those areas identified as impervious in the Takoma Park 2018 Tree Canopy Report.<sup>1</sup>
2. **Work with first responders and health institutions to track Takoma Park heat-related illnesses and fatalities.** Collecting zip code, ambulance, and emergency room data during extreme heat events will enable evidence-based decision making in the development of extreme heat management strategies.
3. **Develop a heat risk outreach and services strategy**, for example surveying the community regarding use and needs for cooling centers and public cooling infrastructure, with particular focus on communities most vulnerable to heat; education campaigns on recognizing the signs of heat stress; neighbor-to-neighbor and/or Be A Buddy programs to check on elderly community members during extreme heat events.
4. **Increase public access to water**, for example by ensuring that there are working water fountains and/or water refill stations in all public facilities, including parks and bus shelters, where possible.
5. **Improve shade and other bus shelter amenities** (e.g., real-time arrival information) to reduce negative health impacts from sun and heat and also incentivize usage of public transportation.
6. **Implement a cool and/or green roof retrofit program to reduce cooling costs and mitigate the UHIE.** The City of Bowie in Montgomery County, Maryland, has leveraged Community Development Block Grant (CDBG) funds to implement its Green Housing Rehabilitation program and rehabilitate the roofs of 200 low- to moderate-income (LMI) senior citizen owned single-family homes, **lowering energy bills by an average of 9-10 percent**; the program has recently been expanded to all LMI single-family homes in Bowie.<sup>4</sup> Note that rehabilitated roofs were not replaced with cool or green roofs, but CDBG funds could be used to implement innovative roofing technologies. Washington D.C. also incentivizes stormwater infrastructure and green roofs.<sup>5</sup> Other more basic, affordable weatherization measures aside from cool/green roof options can also reduce cooling energy needs and associated costs.

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<sup>4</sup> See <https://www.cityofbowie.org/970/Senior-Housing-Rehab-Program>

<sup>5</sup> See <https://doee.dc.gov/greenroofs> and <https://doee.dc.gov/riversmart>

## Flooding

7. **Increase awareness of existing flood insurance coverage for residential and commercial properties for all vulnerable residents**, particularly those in flood prone areas—regardless of being located in a 100- or 500-year floodplain (based exclusively on historical conditions); promote increased flood insurance uptake where appropriate.
8. **Update the Department of Public Work’s 2009 Flood Mitigation Plan**, including explicit consideration of projected future changes in climate and flood conditions, including from changing runoff patterns, and equity considerations.
9. **Improve outreach to targeted communities and business around flood preparedness and recovery**, including promotion of activities under the Stormwater Management Program and increased community partnerships around flood protection.<sup>6</sup>
10. **Establish a flood impacts reporting and monitoring program** to identify current and changing vulnerability, including changing runoff patterns, and help target investments in preparedness and recovery. Ensure the program is accessible to all, including those with limited English proficiency.

## Storms (see also recommendations above for flood-based impacts from storms)

11. **Retrofit critical facilities and infrastructures with distributed energy resources (DERs- e.g., rooftop solar) to improve their resilience.** The power outages experienced during the June 2012 derecho highlighted a need to retrofit critical facilities (e.g., health care facilities and cooling center, where applicable) with resilient backup power systems (e.g., rooftop solar paired with storage).

## Drought

12. **Consider participation in the MWCOG Drought Coordination Technical Committee (DCTC)**, a regional water supply and drought management program for the National Capitol region that assists in the implementation of the Metropolitan Washington Water Supply and Drought Awareness Response Plan.<sup>7</sup>
13. **Monitor climate stress and increases in water demand**; increases in annual temperatures or extreme heat events may put excessive stress on available water resources for community gardens and tree watering over short or long periods of time.
14. **Support provision of rain barrels and similar water-capture devices**, particularly for community gardens and areas supporting trees.
15. **Encourage garden practices that promote drought resilience** through educational and training opportunities and pilot demonstrations.

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<sup>6</sup> See <https://takomaparkmd.gov/government/public-works/stormwater-management-program/>

<sup>7</sup> See <https://www.mwcog.org/committees/dcc-technical-committee/>

16. **Promote xeriscaping, rainwater capture, grey water and water-efficient appliances and fixtures,** reducing water demand and the potential for excessive demand due to temperature increases or heat events.

## Overall

17. **Ensure equity considerations are prioritized in the identification, development, and adaptation of all adaptation and resilience measures.** This includes increased focus on the broader context of issues shaping vulnerability and the means of addressing those issues, including efforts to improve collective control over resources and democratic engagement. While some strategies will provide targeted benefit to specific communities and groups, the City should seek to ensure equitable benefits to all communities. The NAACP’s action toolkit for *Advancing Resistance and Resilience in Climate Change Adaptation* is a valuable resource for recommendations and guidance.<sup>8</sup> Stakeholder groups to include in outreach could include churches (many of which are working on issues of environment/climate and equity) as well as schools (e.g., Montgomery Blair as well as Don Bosco Cristo Rey).<sup>ii</sup>
18. **Actively leverage the resources and tools from the City’s participation in the Government Alliance on Race and Equity** to continue working towards racial equity and the advancement opportunities for all Takoma Park residents, building resilience to societal and climate stressors.<sup>9</sup> This aligns with and builds upon the City’s resolution on racial equity (No. 2017-28).<sup>10</sup>
19. **Improve individual and community climate preparedness through community outreach tools.** The Takoma Park Office of Emergency Management leverages a “card game” to teach youth about preparedness, which could be adapted to include climate change adaptation. Additionally, the Urban Sustainability Directors Network (USDN) has developed the USDN Game of Floods, Game of Heat, and Game of Extremes, all of which could be applied in Takoma Park.<sup>11</sup>
20. **Integrate adaption language on climate stressors into policies, plans, and programs,** ensuring that resilience is built across sectors and neighborhoods. One example of successful integration is within Takoma Park’s recently-passed Housing and Economic Development Strategic Plan. Importantly, the language within plans must be accompanied by increased collaboration between departments to ensure adaptation and resilience are effectively integrated into actual implementation.

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<sup>8</sup> See the NAACP action toolkit here: <https://live-naacp-site.pantheonsite.io/wp-content/uploads/2019/04/Our-Communities-Our-Power-TOOLKIT-FINAL.pdf>

<sup>9</sup> See the Government Alliance on Race and Equity here: <https://www.racialequityalliance.org/>

<sup>10</sup> See <https://documents.takomaparkmd.gov/government/city-council/resolutions/2017/resolution-2017-28.pdf>

<sup>11</sup> See the USDN Game of Floods at <https://www.usdn.org/public/page/18/Climate-Change-Resilience#ClimateTraining> and search for heat and extremes games at <https://www.usdn.org/products-climate.html>

## Co-Benefits Across Recommended Greenhouse Gas Mitigation Strategies

Climate preparedness and resilience co-benefits were one of the principal criteria used in prioritization of the greenhouse gas mitigation strategies outlined in the Sustainability and Climate Action Plan – Opportunities for Action Report<sup>12</sup> provided to the City of Takoma Park. The table below captures the co-benefits across all initial proposed strategies.

**Table 1. Climate Preparedness and Resilience Co-Benefits Across Strategies**

Strategy	Climate Preparedness and Resilience Co-Benefits
Promote EmPOWER Maryland Offerings	This strategy could have notable benefits to climate preparedness and resilience by supporting energy efficiency measures that enable buildings to maintain more habitable temperatures during extreme weather events or power outages.
Energy Disclosure Ordinance	This strategy could be somewhat beneficial to climate preparedness and resilience by indirectly helping improve the durability of residences and their ability to withstand extreme weather (particularly extreme heat events) more efficiently. Programs like LEED, a high-performance building standard, are exploring ways to use energy efficiency to encourage <a href="#">passive survivability</a> , a term which means that a building can maintain a habitable temperature for occupants in the event of a power outage.
Building Performance Requirements	This strategy could be somewhat beneficial to climate preparedness and resilience by indirectly helping improve the durability of residences and their ability to withstand extreme weather (particularly extreme heat events) more efficiently. These benefits could be strengthened if the requirements have a more direct impact on improvements, including if the standards are paired with targeted improvement incentives.
Residential Energy Assessment	This strategy could be somewhat beneficial to climate preparedness and resilience by indirectly helping improve the durability of residences and their ability to withstand extreme weather (particularly extreme heat events) more efficiently. It is possible that residential energy assessments could be combined with resiliency audits, which identify pathways for homes to adapt to flooding. Washington D.C. is exploring this through their multifamily <a href="#">energy and resilience audit tool</a> .

<sup>12</sup> See the Sustainability and Climate Action Plan – Opportunities for Action Report for additional details on the strategies.

Strategy	Climate Preparedness and Resilience Co-Benefits
Promote Cogeneration	This strategy may have limited benefit to climate preparedness and resilience through reducing electrical grid demand and potentially lowering household utility costs. CHP can also be a back-up power source, if it is enabled to operate independently from the grid in the event of a power outage or emergency. This capability is called islanding. Montgomery County’s <a href="#">Public Safety Headquarters Microgrid</a> demonstrates this capability.
Renewable Thermal Community Outreach Campaigns	This strategy could be somewhat beneficial to climate preparedness and resilience, particularly in cases where heat pumps are added to buildings with no central A/C or limited cooling capability; the heat pumps can help offset the impacts of extreme heat events. Any heat pumps must have access to back-up power to provide support during a power outage.
Natural Gas Elimination - New Residential Construction	This strategy has the potential to provide benefits for climate preparedness and resilience. If homes pursue on-site distributed energy and battery back-up storage as part of new construction projects, this may improve individual home resilience to extreme events. However, the elimination of natural gas also has tradeoffs as all power for homes will come from the electric sector as opposed to having a diversity of fuel sources.
EV Charger-Ready Parking Requirements	This strategy may have limited indirect benefit to climate resilience by improving air quality due to decreased emissions of GHGs and other pollutants; this could reduce the impact of extreme heat events on individuals with lung diseases and other health concerns.
EV Charging Station Expansion	This strategy may have limited indirect benefit to climate preparedness and resilience by improving air quality due to decreased emissions of GHGs and other pollutants; this could reduce the impact of extreme heat events on individuals with lung diseases and other health concerns.
Montgomery County Green Bank Electrification Programs	This strategy may have limited indirect benefit to climate preparedness and resilience by improving air quality due to decreased emissions of GHGs and other pollutants; this could reduce the impact of extreme heat events on individuals with lung diseases and other health concerns.
Solar-Ready Construction Requirements	This strategy may have limited benefit to climate preparedness and resilience through reducing electrical grid demand and potentially lowering household utility costs.
Virtual Power Purchase Agreement (PPA) Opportunities	This strategy may have limited benefit to climate preparedness and resilience through reducing electrical grid demand and potentially lowering household utility costs.
Community Choice Aggregation	This strategy may have limited benefit to climate preparedness and resilience through reducing electrical grid demand and potentially lowering household utility costs.
Carbon Impact Statements	This strategy has limited direct benefit to climate preparedness and resilience, but could be extended to also consider resiliency or climate preparedness impacts of city policy decisions. For example, the City of Boston provides a <a href="#">climate resilience checklist</a> alongside green building and sustainability projects, for all new development within the City. While this is not for internal projects,

Strategy	Climate Preparedness and Resilience Co-Benefits
	the process is still valuable for keeping climate change in discussions and conversations.
Green Roof/Green Space Requirements	This strategy could have benefits to climate preparedness and resilience by improving stormwater management and reducing the impacts of extreme heat in targeted areas. While individual buildings introduce relatively small benefits, broad implementation is a viable way to manage flood impacts in communities.
Install Protected Bike Lanes	This strategy may have limited indirect benefit to climate preparedness and resilience by improving air quality due to decreased emissions of GHGs and other pollutants, if increased bike usage were to result in decreased car usage; this could reduce the impact of extreme heat events on individuals with lung diseases and other health concerns.
Targeted Tree Planting	This strategy could have benefits to climate preparedness and resilience by improving stormwater management, mitigating extreme heat impacts, and increasing green space.
Transit Accessibility and Outreach	This strategy may have limited indirect benefit to climate preparedness and resilience by improving air quality due to decreased emissions of GHGs and other pollutants, if increased transit usage were to result in decreased car usage; this could reduce the impact of extreme heat events on individuals with lung diseases and other health concerns. Transit accessibility actions can also be paired with improvements (e.g., shaded bus stations) that reduce climate vulnerability. Note that increased transit traffic in some areas could decrease overall air quality.