

**Audubon Naturalist Society\* • 350 Montgomery County  
Anacostia Riverkeeper\* • Anacostia Watershed Society\*  
Cedar Lane Unitarian Universalist Church\* • Clean Water Action\*  
Coalition for Smarter Growth • Conservation Montgomery\*  
Corazón Latino • Friends of Sligo Creek\*  
Friends of Ten Mile Creek and Little Seneca Reservoir\*  
Little Falls Watershed Alliance\* • Montgomery Countryside Alliance\*  
Montgomery County Faith Alliance for Climate Solutions  
Neighbors of the Northwest Branch\* • Rock Creek Conservancy\*  
Sierra Club Montgomery County\* • TAME Coalition\*  
Watts Branch Watershed Alliance\***

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April 29, 2020

Department of Permitting Services (DPS)  
Montgomery County  
255 Rockville Pike, 2nd floor  
Rockville, MD 20850

**Re: Comments on the Montgomery County adoption of the 2018 International Green Construction Code**

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Dear Montgomery Department of Permitting Services,

Thank you for the opportunity to provide written comments on the adoption of the 2018 International Green Construction Code (IgCC). The commercial buildings sector makes up the second largest source of Montgomery County's greenhouse gas emissions.<sup>1</sup> Acknowledging this fact, a broad coalition of individuals and organizations with expertise in climate change, energy, waste, and stormwater (via the Stormwater Partners Network of Montgomery County) have come together after the March 10<sup>th</sup> DPS stakeholders meeting<sup>2</sup> to jointly write this letter in support of the passage and the adoption of the 2018 IgCC, **with the caveat** that our recommendations, comments, and amendments become part of the final IgCC building code adopted by DPS and the County Council.

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**\*Members of Stormwater Partners Network of Montgomery County**

<sup>1</sup> Montgomery County Climate Action Recommendations. Montgomery County Greenhouse Gas Emissions Profile and Goals. Page 2. Available from:  
<https://www.montgomerycountymd.gov/green/Resources/Files/climate/workgroup-recommendations/overview-of-workgroup-recommendations.pdf>

<sup>2</sup> IgCC 2018 – 2020 Code Adoption Overview Power Point. Department of Permitting Services- Montgomery County. Available from:  
<https://www.montgomerycountymd.gov/DPS/Resources/Files/Green/IgCC2020Adoption.pdf>

We very much acknowledge the current climate crisis and share the need and urgency to reach the county's and the state's greenhouse gas (GHG) reduction goals. Maryland's GHG reduction goals are to reduce 25% of its emissions by the year 2020, and 40% of its emissions by the year 2030.<sup>3</sup> Maryland's Renewable Energy Portfolio Standard (RPS) states that "20% of Maryland's electricity must come from renewable energy sources by 2022."<sup>4</sup> Montgomery County's GHG reduction goals are to reduce 80% of its emissions by the year 2027, and 100% of its emissions by the year 2035.<sup>5</sup> In order for the county and the state to reach these goals, Montgomery County must both significantly increase energy efficiency and actively increase the amount of renewable energy sources to combat the global climate crisis. By adopting the 2018 IgCC and reflecting our community's concerns in this letter in the process, we are ensuring a brighter future with less GHG emissions for all county residents.

In this letter you will find a list of comments, recommendations and questions crafted by our community's individuals and partnering organizations. For easier access, all of our comments are categorized into three parts and explained as follows:

1. **Part I:** (Pages 4 - 5) Lists our ***overarching concerns*** which individuals and organizations collectively have regarding the IgCC, which either fit a broad range of code chapters or are not addressed anywhere specifically in code, but we believe are essential to be incorporated into the final code.
2. **Part II:** (Page 6) Lists our ***questions*** which individuals and organizations collectively have over the IgCC or on a specific section(s) of the IgCC.
3. **Part III:** (Pages 7 – 30) Lists our ***comments*** and ***recommendations*** per code section following the 2018 IgCC chapter and subsection code format. In each section, our comments and recommendations are clearly labeled, numbered, and as a quick summary begin with one key underlined and *italicized* word or phrase.

We ask DPS for the opportunity to comment again once the final draft is released. In addition, we would like DPS to provide us with a reply to our comments, recommendations and questions provided in this document and state which recommendations will be accepted and integrated into the final code document. If any of the recommendations are not accepted, we would like to have clarifying reasons behind why the recommendations are not included. We also ask DPS to continue to do a broad community outreach so as to involve all stakeholders into the IgCC code adoption. We want to express our awareness that it is a monumental task to adopt the IgCC, but it must be done so as to move the county into a greener, healthier, safer and more sustainable future. Please reach out to any of our listed members for future assistance as you continue to draft the final code document.

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<sup>3</sup> Maryland's Climate Change Program. Maryland Department of the Environment. Available from: <https://mde.maryland.gov/programs/Air/ClimateChange/Pages/index.aspx>

<sup>4</sup> EmPower Maryland. Energy Actions. Available from: <https://climatechange.maryland.gov/actions/>

<sup>5</sup> 3 Emergency Climate Mobilization Resolution (2017) Available from: <https://www.montgomerycountymd.gov/green/Resources/Files/climate/Montgomery-County-Climate-ActionResolution.pdf>

If you have any questions regarding this document, please contact Denisse Guitarra, Audubon Naturalist Society Maryland Conservation Advocate, at [denisse.guitarra@anshome.org](mailto:denisse.guitarra@anshome.org).

## **Part I: Overarching 2018 IgCC Concerns**

### **1. Climate Change**

- a. To face the climate crisis, we need to prioritize greener and more efficient building infrastructure. We need to create more resilient, adaptable and sustainable buildings that mitigate the effects of climate change. Smart Growth principles state that building more compact, energy efficient buildings near mass transit will reduce vehicle miles traveled and greenhouse gas emissions. The comments and recommendations provided in our letter tie back directly to climate change mitigation or adaptation and their health benefits to people, wildlife and waterways.

### **2. Stormwater Management**

- a. Water is life. Preserving and protecting the quality of this precious non-renewable resource is important for the health and economic welfare of all inhabitants not only in Montgomery County but throughout the whole world. Under the Clean Water Act, there is a federal mandate to protect water quality that is enforced by the state and implemented by the County, through National Pollutant Discharge Elimination System (NPDES) permits, including the County's stormwater permit (MS4). More efficient buildings help conserve water and protect water quality by infiltrating, treating and collecting stormwater on site.
- b. Most of the County stormwater management requirements under the MS4 pertain to retrofits of existing development. The IgCC pertains to new construction as well as significant modifications of existing structures. We have concerns that DPS might be excessively waiving stormwater management requirements, particularly for residential redevelopment, in exchange for a fee-in-lieu. As a result, county residents have no assurance, absent mandatory IgCC protections of creeks and adjacent wetlands in the commercial construction code, that DPS will adequately protect local water resources and mitigate local impacts of climate change, particularly flooding from more frequent intense precipitation events. Without keeping the IgCC strong as a backstop on stormwater, for instance in full adoption of the IgCC green roof element, there are too many cracks for this very important environmental protection issue to fall amongst DPS, DEP, Planning Department and MDE.

### **3. Interagency Coordination**

- a. With the County Executive's Climate Action and Resiliency Plan and Montgomery County Planning Department's "Thrive Montgomery 2050" – General Plan Revision underway, DPS needs to clarify for the public the processes it is using to ensure that DPS' proposed 2018 IgCC building code requirements are being taken into account by the Climate Action and Resiliency Plan and the new General Plan.

### **4. Affordability, Costs, Benefits and Solutions**

- a. Green and energy efficient infrastructure will prepare us to combat climate change. However, the transition for greener infrastructure should be an equitable, affordable and just one, where all stakeholders can benefit. This change should be affordable to ensure

that building tenants are equally able to make use of and access these new and sustainable buildings, whose energy and other operating costs should be significantly lower in the long run.

- b. We propose that DPS makes retrofitting and the construction of new buildings as affordable as possible by partnering up with existing financial institutions such as the Montgomery County Green Bank.<sup>6</sup> This will ease the financial burden for investors, contractors, and tenants, and increase the energy efficiency of new and old buildings seeking to reach the IgCC standards. DPS should work with green and renewable energy institutions like the Green Bank to encourage more small-scale and multi-residential buildings to become green and save money on utilities in the long run.
- c. While we encourage the DPS and Council's adoption of the IgCC, we also recognize that the County needs to ensure that families and businesses can access affordable space. Families need to be able to rent or purchase apartments or homes at prices that do not absorb an excessive share of their incomes. Businesses need to be able to rent or purchase space at prices that do not undermine their viability and that attract them to the County.
- d. On the other hand, buildings and parking lots need to contribute their fair share to the high costs of reducing and treating stormwater runoff, which is a growing source of pollution to our waterways. In Montgomery County, the Water Quality Protection Charge covers retrofits of older buildings and has a relationship to the amount of impervious surface, but as discussed in the stormwater management section, new developments often receive waivers from stormwater management requirements.
- e. We see a clear connection between imposing new more energy efficient building codes and a wider public health, safety and welfare benefits to people or entities well beyond those directly involved in the building construction. For example, some of these benefits include:
  - More stringent indoor air quality standards would lower public and private health care costs by reducing asthma and other lung disease and by improving respiratory and cardiac health.
  - Site selection and heat-island mitigation requirements would reduce greenhouse gas emissions and, thus, encourage increased walking, biking and use of public transit.
  - On-site water retention standards would reduce costs associated with flooding and stormwater management.
  - By lowering the long-term cost of living and doing business, adoption of the IgCC regulations can improve the County's ability to attract businesses and residents, strengthen the local economy and broaden the tax base.

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<sup>6</sup> Montgomery County Green Bank. Available from: <https://mcgreenbank.org/>

## **Part II: 2018 IgCC Questions**

### **QUESTIONS**

1. DPS and stormwater waivers: How can county residents rest assured that a waiver process that lacks published and transparent criteria will be eliminated under the County's version of the IgCC (as referenced in Part III, Chapter 5 of our comments, below)?<sup>7</sup>
2. FEMA: Which "FEMA requirements" is DPS referring to when proposing to delete Section 501.3.4?
3. 501.3.1.1 Allowable sites: What types of greenfield sites are allowed? Is trip generation/likely mode of transit part of the calculated GHG impact of the project?
4. Accessory Dwelling Units (ADUs): Chapter 2 mentions that "alterations and additions" are excluded from the IgCC. Would accessory dwelling units, recently encouraged by the County Council in Zoning Text Amendment 19-01<sup>8</sup>, also be excluded?

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<sup>7</sup> Mentioned in Part III of our comments in Chapter 5, section 501.3.4 Stormwater Management. Pages 8-10.

<sup>8</sup> ADU - Zoning Text Amendment 19-01. Available from:

<https://www.montgomerycountymd.gov/COUNCIL/Resources/Files/zta/2019/ZTA%2019-01.pdf>

### **Part III: Comments and recommendations listed per 2018 IgCC code section**

#### **Chapter 5 – Site Sustainability**

##### **501.3.1.1 Allowable sites: *Limits building sites to within the envelope of an existing building, brownfield sites, grayfield sites and certain limited types of greenfield sites.***

***Comment:***

1. We support the standards mentioned in sections 501.3.1.1.g and 501.3.1.1.f which prevent building projects from taking place in greenfields that are agricultural and forest lands.

***Recommendations:***

1. ***GHG calculation:*** We recommend that a study which includes GHG reductions due to trip generation and the predicted mode of transit be included as part of identifying allowable sites.
2. ***Protect the Agricultural Reserve:*** We recommend protecting the Agricultural Reserve from future commercial development in accordance with sections 501.3.1.1.g and 501.3.1.1.f. The Agricultural Reserve serves a key role in the local food production in helping to build a climate-resilient, food-secure county.

##### **501.3.1.2 Prohibited Development Activity: *Limits building development relative to elevation of the 100-year flood, near fish and wildlife habitat conservation areas and near wetlands.***

***Comment:*** With climate change bringing heavier storms, we believe the current 100-year flood standard is likely not an adequate boundary to protect fish and wildlife habitat from building construction.

1. ***100-year floodplain assessment:*** Rainfall data for Montgomery County was last estimated in 2000, as published in the 2004 NOAA Atlas.<sup>9</sup> More recent data published for Texas in 2018, in NOAA Atlas 14,<sup>10</sup> it was found that the 100-year floodplain in Austin had increased by 25%, that the 500-year floodplain is now the 100-year floodplain, and the number of buildings in floodplains had increased from 3700 to 6500.<sup>11</sup> According to the Fourth National Climate Assessment (NCA4), “extreme precipitation events are generally observed to increase in intensity by about 6% to 7% for each degree Celsius of temperature increase.”<sup>12</sup> NCA4 also found that the Northeastern US is where the largest increases in heavy precipitation have been observed since 1958. Given these research

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<sup>9</sup> 2004 NOAA Atlas 14 Precipitation-Frequency Atlas of the United States. Volume 2. Available from: [https://www.nws.noaa.gov/oh/hdsc/PF\\_documents/Atlas14\\_Volume2.pdf](https://www.nws.noaa.gov/oh/hdsc/PF_documents/Atlas14_Volume2.pdf)

<sup>10</sup> 2018 Precipitation-Frequency Atlas of the United States - Texas. Available from: [https://www.nws.noaa.gov/oh/hdsc/PF\\_documents/Atlas14\\_Volume11.pdf](https://www.nws.noaa.gov/oh/hdsc/PF_documents/Atlas14_Volume11.pdf)

<sup>11</sup> 2018 Precipitation-Frequency Atlas of the United States - Texas. Available from: [https://www.nws.noaa.gov/oh/hdsc/PF\\_documents/Atlas14\\_Volume11.pdf](https://www.nws.noaa.gov/oh/hdsc/PF_documents/Atlas14_Volume11.pdf)

<sup>12</sup> US Global Research Program (2018) Fourth National Climate Assessment. Available from: [https://nca2018.globalchange.gov/downloads/NCA4\\_2018\\_FullReport.pdf](https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf)

findings, DPS should undertake a thorough study to determine if the current 100-year floodplain boundaries are still adequate given the changing climate.

***Recommendation:***

1. 100-year floodplain assessment: We recommend that DPS undertake an assessment to determine whether the current 100-year floodplain boundaries are still adequate. With increases in both heavy storms and impervious surfaces, the current boundaries of the 100-year floodplain very likely need to be changed.

**501.3.2 Pre-Design Site Inventory and Assessment**

***Comment:***

1. We support the requirement of a predesign inventory and assessment of the natural resources of any commercial building project site. We also support the need for identification of invasive plant species and identification of native plant species on the site, including native tree species, as well as identification of site features designated for preservation.

***Recommendation:***

1. Local Botanical Experts: We recommend that such inventories of onsite plant and tree species are conducted in accordance and with the guidance of local botanical experts from Montgomery Parks staff, academics and the local non-profit organizations specializing in native plant protection and education.

**501.3.3.1 Invasive Plants**

***Comment:***

1. We support the standards in section 501.3.3.1 Invasive Plants, as our organizations know the importance of reducing the number of invasive plant species and instead increasing the number of native plant species for the wellbeing of our local ecosystems and water protection.

**501.3.3.2 Greenfield Sites**

***Recommendations:*** We recommend the following changes to sections 501.3.3.2 a and b. as follows:

1. No Adapted Plants: For section 501.3.3.2 *a and b*, we recommend that 20% of existing native plants only are retained. We believe there could be a misinterpretation if adapted plants are included, since some invasive plants could be counted as adapted plants. Invasive plants compete with native plants for resources and can be harmful for the ecosystem stability of our local environments.
2. 10-20-30 rule: For *section 501.3.3.2 b*, we recommend biodiversity in this section to include tree biodiversity as per the 10-20-30 rule:



- a. The 10-20-30 rule<sup>13</sup> is a general rule for urban street plantings that suggest including no more than 10% of any one tree species, 20% of any one genus, and 30% of any family. Assuring true tree diversity is important for both resilience to pests and climate change, and for minimization of heat island effects<sup>14</sup>.
3. 75 percent native plants: We recommend an additional increase in percentage of the number of native plants to be installed, from 60% as proposed.
4. Organic Lawn Care Act: We agree that invasive species need to be removed and properly disposed of as part of this IgCC code section. We recommend that DPS adopt and implement the County's and state's Organic Lawn Care Act best practices.<sup>15</sup>

#### 501.3.4 Stormwater Management

**Comment:** DPS said it is proposing to delete section 501.3.4 on the basis that "Montgomery County has a robust Storm Water Management Policy and Program Required by state and FEMA". We believe DPS should do a careful reassessment of this proposal as follows:

1. MS4 and Waivers:
  - a. Under the County Municipal Separate Storm Sewer System (MS4) permit, issued by the Maryland Department of Environment (MDE), existing developments not built to modern stormwater standards (pre-2000) must have their stormwater pollution addressed with restoration and retrofit projects over time to treat stormwater runoff to the Maximum Extent Practicable (MEP). New developments are *required* to submit a stormwater management plan that incorporates stormwater management practices and also treat stormwater runoff to the MEP.
  - b. However, DPS seems to be waiving stormwater management requirements in exchange for a fee-in-lieu, creating a detrimental and opposite effect of the provisions set by MEP. According to the 2018 Annual Report on the County stormwater program, DPS issued 220 waivers from stormwater management requirements in 2018 alone.<sup>16</sup> According to DEP, many of these are for teardown/rebuild of single-family homes on existing lots.
  - c. It is not clear how many of these are for commercial developments, but we know of at least one waiver granted to a commercial building redevelopment, Westwood Shopping Center, where DPS failed to protect the stream bed and

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<sup>13</sup>Shade Trees and Biodiversity in the Urban Environment. TRIPOD. Available from: <http://shade-trees.tripod.com/biodiversity.html>

<sup>14</sup> Cowett et al. (2017) Street Tree Diversity in Three Northeastern US States. *Arboriculture & Urban Forestry*. 43 (1); 1-14. [http://www.hort.cornell.edu/uhi/research/articles/1\\_14\\_AUFJan2017.pdf](http://www.hort.cornell.edu/uhi/research/articles/1_14_AUFJan2017.pdf)

<sup>15</sup> Montgomery County DEP - Lawn Care. Available from: <https://www.montgomerycountymd.gov/lawns/>

<sup>16</sup> DEP (2018) FY18 Annual Report. National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit. Page 24. Available from: <https://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/water-reports/npdes/AnnualReport-FY18-2-22-19-Final.pdf>

adjacent area.<sup>17 18 19</sup> However, in many cases, these teardowns are replaced by much larger structures which add more impervious surfaces. It is not clear in these situations how DPS determines whether Environmental Site Design (ESD) is being done to the MEP, the basis for determining that these practices are limited by existing site conditions, and whether options are considered that do not rely on soil conditions, such as rainwater harvesting and stormwater collection and use. In short, there is no indication of measures for determining if ESD is to the MEP.

- d. More information is needed to determine the extent to which these are linked to anecdotal reports of increases in basement flooding. There is also a need for transparency when waivers are granted to indicate their basis, provide public notice, and provide a procedure for appealing the decision.
  - e. Stormwater permits in Montgomery County also require a sediment and erosion control program, which is administered by DEP. However, this requirement only applies to the construction phase of new development.
5. FEMA:
- a. In DPS' rationale for deleting 501.3.4, it is not clear to what FEMA requirements DPS is referring. The County does have a FEMA approved Hazard Mitigation Plan in which the County commits to mitigation actions to improve stormwater management. These mitigation actions include stormwater management improvements in areas that frequently flood, maintaining and upgrading stormwater drainage, and evaluating undersized stormwater infrastructure. It is not clear that any of these activities would apply to on-site management of stormwater runoff from new development.
6. Regenerative Stormwater Conveyances:
- a. Several stormwater code changes, in line with the principles of the IgCC, are long overdue in Montgomery County. These include requiring Regenerative Stormwater Conveyances (RSCs) as the default stormwater conveyance method for all stormwater conveyance projects in new development, redevelopment and retrofit projects. RSCs are allowed by MDE for impervious acre retrofit credit for compliance with MS4 permits. However, this is merely an optional practice in the MDE technical MS4 guidance; it has largely been ignored by Montgomery County in contrast to its widespread use over the past twenty years in other Maryland counties. RSCs have yet to be adopted by MC-DOT, DPS, MCPS, DGS, and DEP as a primary approach or default norm for stormwater conveyance and stormwater

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<sup>17</sup> Westwood Shopping Center Final Site Plan Approval Resolution. MCPB No. 19-033. Montgomery Planning. May 2019. Available from: <https://montgomeryplanningboard.org/wp-content/uploads/2019/05/Westwood-Shopping-Center-Site-Plan-No.-8201580190-MCPB-No.-19-033.pdf>

<sup>18</sup> Bethesda Beat (2019) Westwood Shopping Center Plans Approved. Available from: <https://bethesdamagazine.com/bethesda-beat/development/westwood-shopping-center-plans-approved/>

<sup>19</sup> Westwood and Stormwater Management. Little Falls Watershed Alliance (2019). Available from: <https://www.lfwa.org/westbard-sector-plan>

outfall construction and reconstruction. Montgomery Parks is the only local agency that has adopted RSC-type stormwater conveyance as its norm for outfall retrofits and reconstructions.

7. 95th percentile precipitation: The 2018 IgCC standard, which would require retention of “no less than the volume over a single 24 hour period of the 95th percentile precipitation event” would also strengthen stormwater management requirements, making them more consistent with increases in heavy storms associated with climate change, while mitigating the added impervious surfaces. According to NOAA Atlas 14, the 24-hour annual rainfall event at the 95th percentile confidence limit is 2.87 inches for the Rockville station. However this data, which provides the basis for infrastructure design standards, is derived from values estimated in 2000 and published in 2004. The County Small Lot Drainage Law only requires capture of the first 1.5 inches.

***Recommendations:***

1. Overall: DPS should NOT delete the Stormwater Management section from the 2018 IgCC. That section is not in fact duplicated by existing county programs. Instead, it would provide clarity to DPS and the public on an issue that is not otherwise clearly regulated by any other agency (i.e. by DEP or MDE). As long as DPS is granting extensive waivers from state and county stormwater standards, additional safeguards must be in place within the construction code to reduce the amount of waivers and ensure strong stormwater management in all phases of permitting and regulation.
2. MS4 and Waivers: We recommend that DPS create a transparent system for people to check on stormwater management reports for both commercial and residential buildings to assure the general public that DPS is not waiving stormwater management requirements in exchange for a fee-in-lieu.
3. FEMA: We recommend that DPS clarifies how FEMA requirements will fulfill stormwater requirements.
4. RSCs: We recommend Regenerative Stormwater Conveyances (RSCs) as the default stormwater conveyance method for all stormwater conveyance projects in new development, redevelopment, and retrofit projects
5. 95th percentile precipitation: We recommend the adoption of a 95th percentile precipitation event as the stormwater management standard to account for heavier rainstorms due to climate change.

**501.3.5 Mitigation of Heat Island Effect**

**501.3.5.3 Green Roofs**

***Comment:***

1. We are pleased that DPS is encouraging the use of green roofs for their onsite stormwater management benefits, provision of onsite wildlife habitat, reduction of heat island effect, and potential as a renewable energy source. We see green roofs as an asset to building efficiency which helps to conserve water and protect water quality by infiltrating, treating

and collecting stormwater onsite. However, we provide DPS some additional recommendations on green roofs for consideration as a provision of the 2018 IgCC code adoption.

**Recommendations:**

1. **Energy:** We support all of the provisions in this section and highlight the need to increase the amount of renewable energy sources on roof tops and placement of solar panels on parking lots.
2. **Stormwater:** We recommend the use of green roofs for their onsite flow reduction, and for helping to reduce stormwater runoff into our local streams, rivers and eventually our Chesapeake Bay.
  - a. We recommend sloped green roofs as they capture more stormwater, as seen in American Society of Landscape Architects' sloped green roof building where they were able to capture "27,500 gallons of stormwater, or 78%, going into DC's overburdened sewer and stormwater systems."<sup>20</sup>
  - b. We recommend DPS runs a program similar to the one conducted between DC and the US General Services Administration (GSA),<sup>21</sup> in which GSA requires vegetated rooftops through its lease requirements.
3. **Biodiversity:** Green roofs provide habitat for local insect and bird populations.
  - a. We recommend that green roofs have only native plants.
  - b. We recommend pairing green roofs with a requirement for bird-safe glass or no glass to create safe building environments for birds who might be attracted to the roofs as visitors, especially migratory birds during fall and spring migrations.<sup>22</sup>
4. **Reduce Urban Heat Island Effects:** The plants placed on green rooftops remove heat from the surrounding building and the building itself. Green roofs have been found to reduce roof temperature by 30° to 40°F and reduce city-wide ambient temperatures by as much as 5°F.<sup>23</sup> Reducing heat island effects is critical for improving public health, as heat is the number one cause of weather-related death in the US.<sup>24</sup> By reducing heat islands, DPS will be mitigating the effects of climate change.

### 501.3.6 Reduction of Light Pollution

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<sup>20</sup> American Society of Landscape Architects. Green Roof. Available from: <https://www.asla.org/ContentDetail.aspx?id=28758>

<sup>21</sup> US General Services Administration. Green roofs. Available from: <https://www.gsa.gov/about-us/organization/office-of-governmentwide-policy/office-of-federal-highperformance-buildings/resource-library/integrative-strategies/green-roofs>

<sup>22</sup> American Bird Conservancy (2019) Bird Friendly Building Design. Available from: [https://abcbirds.org/wp-content/uploads/2019/04/Bird-Friendly-Building-Design\\_Updated-April-2019.pdf](https://abcbirds.org/wp-content/uploads/2019/04/Bird-Friendly-Building-Design_Updated-April-2019.pdf)

<sup>23</sup> EPA. Using Green Roofs to Reduce Heat Islands. Available from: <https://www.epa.gov/heat-islands/using-green-roofs-reduce-heat-islands>

<sup>24</sup> Climate Central. Hot and getting hotter: Heat Islands Cooking US Cities. Available from: <https://www.climatecentral.org/news/urban-heat-islands-threaten-us-health-17919>

**Comments:**

1. *No lights on at night*: We would like DPS to consider our vulnerable wildlife populations under section 501.3.6, in particular our birds and our insects, and consider revising this part of the code for their behalf. Bird populations in North America have declined by 3 billion since the 1970s.<sup>25</sup> Migratory bird species can get confused by building lights, especially during their most energy exhausting periods—spring and fall migrations (Spring: March-May; Fall: September-October). DPS could impose a light restriction especially during the spring and fall migrations to help slow the decrease of bird species.
2. *Brightness*: Light pollution should also be considered for insects such as fireflies and moths, (especially Giant Silk Moths) and mayflies.<sup>26</sup> Two types of lights pose significant problems for wildlife: LED and artificial light at night. Studies have shown that artificial light at night impacts nocturnal and diurnal insects through effects on movement, foraging, reproduction, predation risk, and development.<sup>27</sup> LED lamps are typically brighter - sometimes much brighter - than pre-existing halogen or incandescent lamps.

**Recommendations:**

1. *No lights on at night and light brightness*:
  - a. We recommend that DPS prohibit lights from being left on buildings during the night, especially during the spring and fall migrations.
  - b. We recommend using the safe bird building standards as recommended by The American Bird Conservancy's *Bird Friendly Building Design Guidebook* to minimize lights at night and to see examples of acceptable light fixtures. <sup>28</sup> One successful program called *Lights Out*,<sup>29</sup> encourages building owners and occupants to turn off their lights during the night. This program has been successful in reducing adverse impacts from light pollution to wildlife.
  - c. We recommend that DPS revise the IgCC to incorporate lighting design and brightness standards for streetlamps, building lighting, and parking lot lighting to avoid or reduce light trespass and light pollution.

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<sup>25</sup> Cornell lab of Ornithology (2020) Bring Birds Back. Available from: <https://www.birds.cornell.edu/home/bring-birds-back/>

<sup>26</sup> Egri et al (2007). Method to improve the survival of night-swarmer mayflies near bridges in areas of distracting light pollution. The Royal Science Society. <https://doi.org/10.1098/rsos.171166>

<sup>27</sup> Owens et al (2020) Light Pollution is a driver of insect declines. ELSEVIER. <https://doi.org/10.1016/j.biocon.2019.108259>

<sup>28</sup> American Bird Conservancy (2019) Bird Friendly Building Design. Available from: [https://abcbirds.org/wp-content/uploads/2019/04/Bird-Friendly-Building-Design\\_Updated-April-2019.pdf](https://abcbirds.org/wp-content/uploads/2019/04/Bird-Friendly-Building-Design_Updated-April-2019.pdf)

<sup>29</sup> National Audubon Society. Lights Out. Available from: <https://www.audubon.org/conservation/project/lights-out>

- d. We recommend DPS that incorporates the “Modern Lighting Ordinance” place out by the International Dark Sky Association and the Illuminating Engineering Society of N.A. for consistent and wildlife friendly light standards.<sup>30</sup>

### 501.3.7 Mitigation of Transportation Impacts

**Comment:**

1. We agree with creating a safe street environment for both pedestrians and bicyclists in accordance with the County’s Vision Zero Goals<sup>31</sup>, the County’s Pedestrian Master Plan<sup>32</sup> and the County’s Bike Master Plan.<sup>33</sup> We agree also with the limitation placed on onsite parking, but encourage DPS to work with MCDOT and Montgomery Planning in revising and improving our existing transportation system in order to move people out of cars and into a more reliable and efficient transportation system. Many citizens expressed the importance of this issue in the Transportation Working Group Report.<sup>34 35</sup>

**Recommendation:**

1. Vehicle Miles Travelled: We recommend that DPS, in conjunction with other agencies such as DEP, MC-MDOT, and MNCPPC, develop a study to use occupants’ vehicle miles traveled (VMT) as part of assessing a building’s design to encourage reductions in transportation emissions of GHGs.<sup>36</sup>

### 501.3.8.1 Building Site Waste Management Plan.

**Comment:**

1. We approve of new section 501.3.8.1 which requires development of a construction site waste management plan. While this plan deals primarily with preparation of the site for construction, rather than the construction and demolition (C&D) waste created during the construction phase, requiring a building site waste reduction plan will facilitate a variety of IgCC objectives regarding site selection and preparation. Moreover, it is

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<sup>30</sup> Joint IDA – IES Model Lighting Ordinance with User’s Guide. Available from: <https://www.darksky.org/our-work/lighting/public-policy/mlo/>

<sup>31</sup>Montgomery County’ Vision Zero Goals Available from: <https://www.montgomerycountymd.gov/visionzero/>

<sup>32</sup> Montgomery County’ Pedestrian Master Plan. Available from: <https://montgomeryplanning.org/planning/transportation/pedestrian-planning/pedestrian-master-plan/>

<sup>33</sup> Montgomery County’ Bike Master Plan. Available from: <https://montgomeryplanning.org/planning/transportation/bicycle-planning/bicycle-master-plan/>

<sup>34</sup> Montgomery County Overview of Working Group Results. (2020) See Transportation Section. Available from: <https://www.montgomerycountymd.gov/green/Resources/Files/climate/workgroup-recommendations/overview-of-workgroup-recommendations.pdf>

<sup>35</sup> Montgomery County (2020) Climate Action Plan - Overview of Recommendations. Available from: <https://www.montgomerycountymd.gov/green/Resources/Files/climate/workgroup-recommendations/overview-of-workgroup-recommendations.pdf>

<sup>36</sup> Cort and Tu. (2016) Coalition for Smarter Growth. Green Place Certification. Available from: <https://www.smartergrowth.net/wp-content/uploads/2016/09/GreenPlace-report-PUBLIC.pdf>

consistent with the highest priority of waste reduction under the Zero Waste Hierarchy 7.0 recently approved by the Zero Waste International Alliance (ZWIA).<sup>37</sup>

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<sup>37</sup> Available from: [www.zwia.org/zh](http://www.zwia.org/zh)

## **Chapter 6 – Water Use Efficiency**

### **601.3.1.1 Landscape Design**

#### ***Comment***

1. 75% native plants: We recommend requiring a minimum of 75% native plants rather than the proposed 60%, which is consistent with the county’s existing RainScapes program which currently requires a minimum of 75% native plants to get rebates for conservation landscaping.<sup>38</sup> Increasing the percentage has other added benefits such as native plants helping to conserve water use when irrigation systems are used. Furthermore, after the first couple of years during which the native plants establish a sufficient root system, these plants should not need irrigation except during unusual periods of high heat plus drought.

#### ***Recommendation:***

1. 75% native plants: We recommend that a minimum of **75% native plants** be required for landscape design, from 60% as proposed.

### **601.3.2.2 Appliances**

#### ***Comment:***

1. We agree with this section, that only Energy Star Program washers and dishwashers should be installed.

### **601.3.4 Water Consumption Measurements**

#### ***Comment:***

1. We support sections 601.3.5, 601.3.6, and 601.3.7 which regulate water softeners, reverse osmosis water treatment systems and onsite reclaimed water treatment systems. The use of reverse osmosis and distillation on site will help to reduce the amount of nitrogen leaving from the water used in the building.<sup>39</sup>

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<sup>38</sup> RainScapes Rewards Rebates - Conservation Landscaping - Design and Installation. Available from: <https://www.montgomerycountymd.gov/water/Resources/Files/rainscapes/Requirements/ConservationLandscap e2018.pdf>

<sup>39</sup> Robillard et al (2015) Nitrates in Drinking Water. Available from: <https://extension.psu.edu/nitrates-in-drinking-water>



## **Chapter 7 – Energy Efficiency**

### ***Comment:***

1. DPS should have two goals for its proposed 2018 IgCC Chapter 7 requirement on Energy Efficiency:
  - a. To provide commercial builders with clear green building guidance so that they can construct safe, practical, and energy efficient new buildings;
  - b. To provide clear energy efficiency metrics so that the County can monitor progress toward new commercial buildings and achieve net zero energy by 2030. This is important if the County is to reach its target of 100% greenhouse gas (GHG) emissions reduction by 2035.
2. The first goal fits into the County’s traditional role of establishing and updating its building construction codes. The second goal is equally important, as the built environment is the second contributor to GHG emissions in the County. The climate change emergency requires reduction of energy use and GHG emissions from all new buildings.

**701.4 Prescriptive Option: *Includes provisions related to renewable energy systems, the building envelope, HVAC systems, services water heating, lighting and various other equipment.***

### ***Comment:***

1. Our understanding is that for some small commercial buildings, the “Performance Option” may be too expensive. However, it is not clear that a building constructed under the “Prescriptive Option” would achieve the same energy efficiency score as the same building constructed under the “Performance Option”.
2. Even if the elements of the “Prescriptive Option” do lead to an energy efficiency score equal to the national IgCC 2018 standards, it is not clear how Montgomery County should modify the elements of the “Prescriptive Option” if we want to reduce energy and GHG emissions below the national standard.

### ***Recommendation:***

1. *Prescriptive vs. Performance Option:* For these reasons, we recommend that either there be a demonstration that the Prescriptive Option generally assures energy efficiency improvements as great as the Performance Option or that the Prescription Option be limited to very few buildings. These could be only the smallest commercial buildings, or only buildings that for technical reasons cannot use the Performance Option.
2. *Post Occupancy Sustainability Permit:* As we understand it, a "Post Occupancy Sustainability Permit" is being considered as a method to review the performance of the constructed building and ensure it is performing at the energy efficiency level that follows the current code. We generally support this method of verification.

### 701.5.1 Annual Energy Cost - Performance Cost Index (PCI) section

**Comment:**

1. zEPI over PCI: This section from the national IgCC 2018 uses the Performance Cost Index (PCI) from ASHRAE 90-1 2016 appendix G. However, using energy cost as the metric for efficiency is not as helpful to environmental planners as using greenhouse gas emissions or energy use. Energy cost can vary with the market price, so it is possible that low cost natural gas might reduce energy costs but increase energy use and greenhouse gases. We recommend that the Zero Energy Performance Index (zEPI), which measures energy use, replace the PCI.
2. zEPI in schools: Some building types have an easier time achieving high performance standards and there is no reason to defer strict standards for these building types. We believe that new school buildings should immediately meet a net zero energy standard (zEPI=0). Many school buildings in Maryland and Virginia<sup>40</sup> have already been constructed to be net zero energy. From an affordability perspective, we have already seen the costs of construction of net zero energy schools that are no higher than conventional school buildings, and the long-term cost saving from reduced energy use by these schools are substantial.<sup>41 42 43</sup> Requiring school buildings to be net zero energy will also provide experience for builders, allowing them to make other commercial construction more energy efficient.<sup>44</sup> Research shows that constructing net zero energy buildings is feasible if engineered and taken into account from the beginning.<sup>45 46</sup>
3. LEED: LEED should not be included as an alternative pathway. LEED has several weaknesses as compared to the IgCC 2018 Prescriptive and Performance pathways. LEED energy requirements are not as stringent as zEPI. LEED does not require onsite inspections to verify that construction is following design plans as does the IgCC. LEED does not

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<sup>40</sup> Building Brighter Futures through Zero Energy: Discovery Elementary School. USDOE. Available from: <https://www.youtube.com/watch?v=2kTS4UODWwc>; Discovery Elementary School, a net zero school in Arlington, Va. saves \$101k per year in reduced utility costs, which is equal to the salary for two teachers in savings in the 1<sup>st</sup> year.

<sup>41</sup> Sustainable Cities and Society (Feb 2019) Does zero energy building cost more? – An empirical comparison of the construction costs for zero energy education building in United States Sustainable Cities and Society, Pages 324-334.

<sup>42</sup> Greenbiz “4 reasons net zero energy should start with schools” Available from: <https://www.greenbiz.com/article/4-reasons-net-zero-energy-should-start-schools>

<sup>43</sup> ASHRAE’s Achieving Zero Energy Advanced Energy Design Guide for K-12 School Buildings 2018. See page 26 on how the budget for a zero energy or low EUI school may be no more than for a conventional school. The document also indicates on page 28 that the life cycle costs of such buildings are lower than conventional buildings.

<sup>44</sup> Zero Energy Schools – Beyond Platinum. Available from: <http://media.cefpi.org/efp/EFP45-3Hutton.pdf>

<sup>45</sup> Getting to Zero Energy in schools is achievable! Stories from schools on the path to Zero. Available from: <https://newbuildings.org/wp-content/uploads/2019/12/20191216NECaseStudiesWebinarFullDeck.pdf>

<sup>46</sup> NREL A Guide to Zero Energy and Zero Energy Ready K-12 Schools. Available from: <https://www.nrel.gov/docs/fy19osti/72847.pdf>. “Thanks to the focus on energy efficiency during planning, design, construction, and operation, these buildings cost less to operate; provide healthy, comfortable, attractive indoor environments; and can be designed and built on conventional building budgets.”

require reporting after construction to verify energy use as the IgCC does. LEED minimum energy requirements are not as stringent as a zEPI of 40 (and certainly not as stringent as a zEPI of 30), and LEED includes cost in calculating energy reductions that are not optimal for climate change action planners.

***Recommendations:***

1. *zEPI:*
  - a. We recommend replacing the current Performance Cost Index and instead using the Zero Energy Performance Index (zEPI).<sup>47</sup> zEPI was included in the IgCC 2012, and is expected to be included again in the IgCC 2021 as the 2020 version of 189.1 Addendum AR. We recommend that section 701.5.1 be changed, and that the “Performance Option” use the zEPI from the 2020 189.1 addendum AR. At a minimum, the zEPI from the IgCC 2012 should be maintained as the Performance Option in the 2018 IgCC.
  - b. We also recommend that the 2018 IgCC zEPI required score should be in the range of 20-40, with a preferred score of 30, to lead us to a zEPI of zero by 2027. If new national IgCC codes are adopted when they come out every three years, a zEPI of 30 in the 2018 code would move us toward achieving this goal and would be consistent with District of Columbia’s goal of net zero for new commercial buildings by 2026.
2. *zEPI in schools:* We recommend that new school buildings should immediately be designed and constructed to achieve a zEPI score of zero beginning when the County adopts its version of the 2018 IgCC.
3. *LEED:* We recommend that DPS not include LEED as an alternative pathway in the County’s adoption of the 2018 IgCC as part of its commercial energy and green building codes.

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<sup>47</sup>zEPI Scale (2020) New Buildings Institute. Available from: [https://newbuildings.org/code\\_policy/zepi/](https://newbuildings.org/code_policy/zepi/)

## **Chapter 8 – Indoor Environmental Quality (IEQ)**

### **801.3.1.3. B Ozone**

#### ***Comment:***

1. Particulate Matter: We support Section 801.3.1.3 for providing guidance on assuring that particulate matter smaller than 10 Micrometers (which includes particles less than 2.5 Micrometers) are filtered out of buildings.
2. Ozone: We support that other gas pollutants such as ozone are also included as part of the filtering processes in the IgCC. However, we believe it is critical to not only filter out the air pollutants; we must decrease them by reducing our coal and fossil fuel consumption via the transportation sector.

#### ***Recommendations:***

1. Particulate Matter: We recommend that all new and old retrofit buildings include an ozone air cleaning device or filtering component. Ozone reduction equipment is needed because Montgomery County falls in to one of the National Ambient Air Quality Standard (NAAQS) “non-attainment” areas<sup>48</sup>, meaning the county has areas where air quality is worse than national standards as defined by the Clean Air Act.<sup>49</sup> Furthermore because of the scientific research linking ozone to higher asthma rates, requiring higher and more strict air quality and air filtering provisions will improve the health of county residents.<sup>50</sup>
2. Ozone: We recommend and encourage DPS to work with MDOT and other state and regional transportation agencies to coordinate the reduction of air pollution contaminants such as ozone which degrade the respiratory health of people and degrade the local environment.

### **801.3.1.7 Environmental Tobacco Smoke**

***Comment:*** We support having no smoking signage at the entrance and 10 feet from buildings.

#### ***Recommendations:***

1. We recommend encouraging property and building owners to create smoke free buildings for their tenants. Smoking, especially secondhand smoke, can be detrimental for the health of adults and children alike, causing problems like asthma, heart attacks and lung cancer.<sup>51</sup>

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<sup>48</sup> EPA (March 2020) Current Nonattainment Counties for all Criteria Pollutants. Available from: <https://www3.epa.gov/airquality/greenbook/ancl.html>

<sup>49</sup> EPA – NAAQS. Available from: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

<sup>50</sup> Air pollution and Asthma. Available from: <https://www.aafa.org/air-pollution-smog-asthma/>

<sup>51</sup> CDC. Smoking & Tobacco Use. Available from: [https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/secondhand\\_smoke/general\\_facts/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/general_facts/index.htm)

2. Although the 2018 IgCC recommends designating a 25 ft distance between the building and the smoking area, we think this distance should be greater, as at the lesser distance 46% of smoke particles can still reach other people nearby<sup>52</sup>.

### 801.3.7 Glare Control

**Comment:** We believe the current IgCC glare control standards are not adequate to prevent bird collision to buildings.

**Recommendation:** We recommend using the safe bird building standards as recommended by The American Bird Conservancy's *Bird Friendly Building Design Guidebook* to minimize bird collisions.<sup>53</sup> Bird friendly building design includes three components, with each one having a specific material or design solution:

1. Use minimal glass
2. Place glass behind a type of screening
3. Add anti-collision materials to glass

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<sup>52</sup> Inogen. Secondhand Smoke & You. Available from: <https://www.inogen.com/resources/health/breathing-space/>

<sup>53</sup> American Bird Conservancy (2019) Bird Friendly Building Design. Available from: [https://abcbirds.org/wp-content/uploads/2019/04/Bird-Friendly-Building-Design\\_Updated-April-2019.pdf](https://abcbirds.org/wp-content/uploads/2019/04/Bird-Friendly-Building-Design_Updated-April-2019.pdf)

## **Chapter 9– Materials and Resources**

### ***Comment:***

1. We support the standards requiring the conservation and efficient use of raw materials, standards requiring diversion of materials from landfill or incineration, standards requiring a minimum amount of use of salvaged and recycled materials in new construction and other conservation provisions of this chapter.
2. The Zero Waste Hierarchy 7.0 includes (i) rethink/redesign, (ii) reduce, (iii) reuse, (iv) recycle/compost, (v) material recovery, (vi) residuals management through biological treatment and stabilized landfilling, and (vii) incineration of waste-to-energy facilities, in that order, as the hierarchy for dealing with waste.<sup>54</sup> Chapter 9 of the IgCC essentially follows this hierarchy. Section 901.3.1.3 (9.3.1.3) requires creating a construction waste management plan, one of many examples of the rethink/redesign approach in the IgCC. 901.3.1.2 (9.3.1.2) Total Waste is an example of a standard reducing the amount of waste created. Section 901.3.1.1 (9.3.1.1) Diversion supports a combination of methods to reduce, reuse and recycle waste.
3. Generally, reductions in construction and demolition (C&D) waste can be achieved by (a) source reduction, *i.e.*, reducing materials used and generating less waste<sup>55</sup>, (b) deconstruction and salvage of C&D materials, (c) recycling and (d) reusing, buying or repurposing salvaged or recycled materials for use in new construction<sup>56</sup>. The IgCC includes standards supporting all of these methods.
4. Many of the standards in the IgCC can be supported by other strategies which the Montgomery County Department of Environmental Protection may be considering as part of its ongoing effort to develop the required update to its 10-year Solid Waste Plan.<sup>57</sup>

### **901.3 Construction Waste Management**

#### **901.3.1.1 (9.3.1.1) Diversion.**

##### ***Recommendation:***

1. 60% diversion: We support a diversion standard but recommend a 60% diversion requirement. C&D materials separated at the source can achieve reuse and recycling rates as high as 75-95 percent.<sup>58</sup> C&D reuse and recycling can provide many benefits:

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<sup>54</sup> Available from: [www.zwia.org/zwh](http://www.zwia.org/zwh)

<sup>55</sup> Source reduction can include, for example, preserving existing buildings rather than constructing new ones, designing buildings that can periodically be modified to prolong their useful lives, prefabricated materials to fit site dimensions, and reducing delivery of excess materials to the work site. All of these methods are reflected in various Chapter 9 IgCC provisions which we accordingly support. Available from:

<https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America>.

<sup>56</sup>Ibid., especially the section titled “What You Can Do: Reduce, Reuse, Recycle and Rebuy C&D Materials.”

<sup>57</sup> See, ES Table 5 Recovery Options, C&D Materials and Section 7.1 Recommendations for Recovery Options, pp.12-14 in Technical Memorandum #3, “Considered Enhancements/Expansions to the Current Diversion/Recycling System,” Available from: <https://www.montgomerycountymd.gov/sws/master-plan.html>

<sup>58</sup> “Sustainable Waste Management by Design: Designing Buildings to Optimize Environmental Performance During Construction and During Occupancy,” Waste Management webinar at [www.wm.com/octwebinar.pdf](http://www.wm.com/octwebinar.pdf), The

- a. Reduced greenhouse gases and other environmental hazards resulting from the production of virgin materials,
- b. Lower overall project expenses,
- c. Preserved landfill space, and
- d. Additional jobs.<sup>59</sup>

The 50% diversion requirement represents the existing standard from the 2012 IgCC which the County adopted in 2017. In the intervening years more robust diversion standards have been implemented in other jurisdictions.<sup>60</sup> Increasing the diversion requirement would also assist the County's effort to move toward zero waste. Accordingly, we recommend a 60% diversion rate with future increases as local C&D salvage, reuse and recycling markets strengthen.

#### **901.3.1.2 (9.3.1.2) Total Waste.**

**Recommendation:** Weight-based ordinances: Weight-based ordinances favor diverting heavier materials (e.g., concrete) rather than more valuable but less dense materials such as lumber or architectural structures. Volume-based ordinances favor diverting larger but possibly less easily salvageable and reusable materials. We support a total waste standard that permits as alternatives either a volumetric or weight standard per new building floor area. The impact of this type of standard is enhanced, however, when paired with specific requirements for reuse or recycling of specified materials to ensure that lighter but more valuable materials, such as wood, metals and shingles, are also diverted. Similarly, separate minimum waste diversion requirements for particularly heavy materials such as concrete could be used to address the problems with a general weight-based ordinance.

#### **901.3.1.3 (9.3.1.3) Construction Waste Management Plan.**

**Comment:** We support this standard as an example of the highest strategy under the Zero Waste Hierarchy -- rethink/redesign.

**Recommendation:** We recommend this section be strengthened over time by requiring or creating financial incentives to encourage more source separation. Source separation would facilitate salvage and reuse for higher value purposes compared with recycling of mixed waste

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webinar provides excellent information on strategies used effectively by other communities and government entities

<sup>59</sup> Available: <https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America>, especially the section titled "Benefits of Reducing the Disposal of C&D Materials"; <https://www.epa.gov/smm/recycling-economic-information-rei-report>.

<sup>60</sup> The City of Berkeley, California requires that newly constructed nonresidential buildings, and additions, alterations and demolition of existing buildings divert 100 percent of asphalt, concrete, excavated soil and land-clearing debris and a minimum of 65 percent of other nonhazardous construction and demolition waste. <https://www.cityofberkeley.info/wastediversion/>. San Francisco requires that all C&D debris be recycled or reused. <https://sfenvironment.org/construction-demolition-requirements>. King County, Washington requires that readily recyclable materials from construction and demolition projects be recycled. Clean wood, cardboard, metal, gypsum scrap, asphalt paving, bricks and concrete are all banned from landfill disposal. <https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/construction-demolition.aspx>

materials into such low value uses as road construction fill, site fill in commercial construction projects or alternative daily cover for landfills.

#### **901.3.4 (9.3.4) Areas for Storage and Collection of Recyclables and Discarded Goods.**

***Comment:***

1. We support all of the requirements of Section 901.3.4. Montgomery County's Department of Environmental Protection is currently updating its 10-year solid waste management plan.
2. High diversion rates have been targeted. HDR, the consultant to the County, has indicated that achieving high diversion rates would require, among other things, the participation of all sectors, including multi-family residential units and non-residential buildings, *i.e.*, the types of buildings covered by the IgCC.
3. HDR advises that the County will also need to provide more convenient collection of materials, particularly for more difficult to recycle materials such as textiles and electronics.
4. The consultant's recommendations are consistent with the types of materials for which multi-family residential buildings and other commercial buildings would be required under Section 901.3.4 to maintain separate collection and storage facilities, although specific requirements under the County's version of the IgCC should be made congruent with County recycling programs and priorities, with built-in flexibility to evolve as these County programs evolve.<sup>61</sup>

***Recommendation:***

1. *We support* and encourage DPS to work with DEP to achieving high diversion rates as prescribed in section 901.3.4.

#### **901.4 (9.4) Prescriptive Option**

***Comment:*** In general, we support offering both prescriptive and performance options to provide builders greater flexibility in satisfying the Chapter 9 waste reduction standards.

##### **901.4.1.1.1 Recycled Content**

***Comment:*** We support the priority afforded to salvage and reuse over recycling in Section 901.4.1.1.1. Salvage and reduce greenhouse gas emissions more effectively than does recycling, particularly if recycled materials are used to produce lower value products. Deconstruction, salvage and reuse of C&D material is typically more labor intensive than demolition and, thus, has greater potential for local job growth. Reuse industries frequently work with 501(c)(3) non-profit

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<sup>61</sup> Technical Memorandum #5, Develop Options for Collection and Disposal of "What's Left", pp. 11-12 and Tables 4 and 5 (Estimated Tons Diverted and Disposed from Multi-Family and Non-Residential, respectively) in Appendix A (Waste Projections); See link to report at <https://www.montgomerycountymd.gov/sws/master-plan.html>



organizations, including some located in Baltimore and Prince George’s County that serve Montgomery County. Some of these organizations also provide training and job opportunities. Deconstruction and salvage can also spur related local economic activities in reprocessing or manufacturing new products from salvaged materials.<sup>62</sup>

**Recommendation:** We recommend that the standards in section 901.4.1.1 be increased over time.

1. Regulatory requirements or financial inducements are needed to encourage deeper and more reliable markets for construction materials with recycled content and salvaged material content.
2. Both supply and demand need to be stimulated simultaneously.<sup>63</sup> The county could, for example:
  - a. Impose higher recycled and salvaged content requirements in county government construction projects;
  - b. Promote research at local and state public universities and colleges to develop new building materials with recycled content and expand markets for hard-to-recycle building materials;
  - c. Reduce barriers to entry in the deconstruction and salvage industries by providing convenient and inexpensive training to demolition companies to enable them to acquire the additional skills needed in the deconstruction process, and by facilitating development of a co-operative arrangement among these companies to allow them to aggregate enough salvaged material to permit competitive resale;
  - d. Work with adjacent county and municipal governments, builders, developers, large construction firms, small home improvement contractors, sub-contractors, demolition firms, deconstruction firms, C&D recyclers and re-use stores to create specialized regional C&D eco-parks to facilitate salvage and re-use of C&D debris.

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<sup>62</sup> “Deconstruction & Building Material Reuse: A Tool for Local Governments & Economic Development Practitioners” (May 2018) sets out a range of government actions that can promote a deconstruction and building material reuse market. [https://delta-institute.org › uploads › FINAL-Decon-Go-Guide-Refresh](https://delta-institute.org/uploads/FINAL-Decon-Go-Guide-Refresh).

<sup>63</sup> Government support could include facilitating conversion of underutilized industrial parks or other properties into C&D eco-parks, providing loan guarantees using a revolving loan fund, reducing taxes on energy and equipment purchases for companies and nonprofits located in the C&D eco-parks, supporting computerized systems to facilitate access to information as to the location and available quantities of particular types of building materials, or providing promotional and educational efforts on the county’s website or at recycling/reuse fairs. These types of efforts could be considered as part of the 10-year master plan being developed by the County’s Division of Recycling and Materials Management. We urge coordination between the Department of Permitting Services and the Division of Recycling and Materials Management to facilitate development of robust regional C&D deconstruction, salvage, reuse and recycling markets.

3. In addition to these IgCC regulatory requirements, local ordinances and financial inducements, and government programs are needed to stimulate local supply and demand and encourage broader and more reliable markets.<sup>64</sup>

#### **901.4.1.2. Regional Materials**

***Comment:***

1. We support the requirement of 15% regional building materials, along with its related exception, in Section 901.4.1.2. This standard promotes the regional economy and may positively impact local C&D recovery and reuse markets.

***Recommendation:***

1. We recommend that the standards in section 901.4.1.2 be increased over time as described in the recommendations for section 901.4.1.1.

#### **901.4.1.3 Biobased Products and 901.4.1.3.1 Wood Building Components**

***Comment:***

1. We support Section 901.4.1.3 and 901.4.1.3.1 requiring a minimum of 5% of building materials be biobased products. The national market for reuse of wood products is robust.<sup>65</sup>

***Recommendation:***

1. We encourage development of similar directories, whether national, regional or local, for other construction materials to help strengthen salvage and reuse markets. As these markets develop, the minimum standards for each component of Section 901.4.1 should be increased.

#### **901.5.1.1 Performance Metric.**

***Comment:***

1. We support the performance option life-cycle assessment metric as an alternative to the prescriptive option to create flexibility.

***Recommendation:***

1. We recommend that the percentage improvements in impact categories need to be increased over time as recycling, deconstruction, salvage and reuse markets strengthen.

#### **901.4.1.3.1 Wood Building Components**

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<sup>64</sup> “Deconstruction & Building Material Reuse: A Tool for Local Governments & Economic Development Practitioners” (May 2018) sets out a range of government actions that can promote a deconstruction and building material reuse market. [https://delta-institute.org › uploads › FINAL-Decon-Go-Guide-Refresh](https://delta-institute.org/uploads/FINAL-Decon-Go-Guide-Refresh).

<sup>65</sup> In 2015 the American Wood Council, Canadian Wood Council and the Building Material Reuse Association developed an online North American directory outlining reuse and recycling options for wood and wood products. The website, at ReuseWood.org facilitates awareness of opportunities to recycle and reuse wood products. Similar construction material directories, whether national, regional or local, combined with reuse requirements in local building codes, would promote more robust reuse markets. Weight of materials, availability of inexpensive transportation and other factors will determine the optimum scope of these types of directories.

**Comment:**

1. We support the 901.4.1 standards requiring minimum amounts of recycled and salvaged materials, regional materials and biobased products.
2. We support Section 901.4.1.1 requiring use of recycled and salvaged materials in new construction. This requirement creates demand for these materials, thereby encouraging the supply of these materials as well. EPA estimates that the U.S. generated 548 million tons of C&D waste in 2015, more than twice the amount of municipal solid waste. Demolition waste represents more than 90 percent of total C&D debris generation, while construction represents less than 10 percent.<sup>66</sup>

**Recommendation:**

1. *Increase local, recycled materials:* By increasing the demand for recycled and salvaged materials in new construction, Section 901.4.1.1 encourages diversion of demolition waste as well.

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<sup>66</sup> Available from: <https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America>

## **Chapter 10 – Construction and Plans for Operation**

### **1001.3.1.1.1.2 Activities Prior to Building Occupancy for Facilities Using the FPT Process.**

***Comment:***

1. We support requiring that operation and maintenance (O&M) documentation be provided to both the building owner and facility manager since over time, one or both may change.
2. The EPA identifies source reduction, reuse and recycling, in that order, as the methods for reducing C&D waste.<sup>67</sup> This hierarchy is similar to that developed by the Zero Waste International Alliance.<sup>68</sup> Source reduction includes, among other things, preserving existing buildings rather than constructing new ones and designing buildings that can periodically be modified to prolong their useful lives. Requiring that O&M documentation be provided to the building owner and the facility manager will facilitate proper operation and maintenance of all systems to extend their useful life and the life of the building.
3. Extending the life of the building and its systems defers the need to replace systems or the building itself. This, in turn, reduces creation of waste that may need to be disposed of through landfill or incineration. In addition, it defers the consumption of virgin materials and energy to produce, transport and install replacement systems or structures, any of which may create greenhouse gases.
4. More generally, whenever documentation regarding operation and maintenance of building systems and components is required under Chapter 10 to be provided by the building owner or facility manager, we recommend that the IgCC standard adopted by the county require that the relevant documentation be provided to both the building owner and facility manager, and that each of them be required to pass that documentation to the subsequent building owner or facility manager, as the owners and facility managers change over time. In effect, the building code or operating permit should require that this type of documentation pass with the building through both the building owner and facility manager.

***Recommendation:***

1. *Building owner and the facility manager O&M.* We recommend that warranty information also be required to be provided to both the building owner and facility manager.

### **1001.3.1.1.1.3 (10.3.1.1.1.3) Documentation**

***Comment:***

1. We support Section 1001.3.1.1.1.3 but suggest that the project design and FPT documentation also be provided to the facilities manager.

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<sup>67</sup> Available from: <https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials#America>, particularly the section “What You Can Do: Reduce, Reuse, Recycle and Rebuy C&D Materials.”

<sup>68</sup> Available from: <http://zwia.org/zwia>

**Recommendation:**

1. We recommend the completed project design and FPT documentation shall be provided to the owner and shall be retained with the project records. The County building code should require that this documentation be passed to subsequent building owners and facility managers as they change over time.

**1001.3.1.2 (10.3.1.2) Building Project Commissioning (Cx) Process.**

**Comment:** We support the requirement to include certain documents and records in a systems manual for building operating and maintenance staff, plus the further detailed sections under 10.3.1.2, to ensure that information needed to foster optimum operation and maintenance of the building and systems are available and transmitted to the staff responsible for the day-to-day maintenance of the building and systems. Training and transmission of information at this level further supports extending the life of systems and the building.

**1001.3.1.10 (10.3.1.10) Construction Waste Management.****1001.3.1.10.1 (10.3.1.10.1) Collection.**

**Comment:** We support the requirements to provide specific areas for collection of recyclable and reusable materials. Higher rates of diversion are achieved when C&D materials are separated at the source rather than through specialized C&D materials recovery facilities (MRF). Moreover, construction of a new specialized C&D MRF is unlikely given the other major facilities that the County likely will need to renovate or rebuild as part of its required 10-year solid waste management master plan.<sup>69</sup>

**1001.3.1.9 Soil-Gas Control: Requires radon testing after construction.**

**Comment:** We support the requirements that the building shall be tested, post-construction, for radon. Montgomery County is designated by the U.S. EPA<sup>70</sup> as a radon Red Zone 1. According to U.S. EPA estimates,<sup>71</sup> radon is the number one cause of lung cancer among non-smokers. MCPS parents have been concerned in seeing reports of high and dangerous levels of radon in school buildings.<sup>72</sup>

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<sup>69</sup> Technical Memorandum #3, Considered Enhancements/Expansions to the Current Diversion/Recycling System, ES Table 5 Recovery Options, C&D Materials; See link to report at <https://www.montgomerycountymd.gov/sws/master-plan.html>

<sup>70</sup> EPA Map of Radon Zones - Montgomery County Zone 1. Available from: <https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information>

<sup>71</sup> EPA. Health Risk of Radon. Available from: <https://www.epa.gov/radon/health-risk-radon>

<sup>72</sup> Lewis (2015) MCPS promises transparency amid radon scandal, later bans press from schools. Available from: <https://wjla.com/news/local/mcps-promises-transparency-amid-radon-scandal-later-bans-press-from-schools>

## Conclusion

In conclusion, we would like to thank DPS for the opportunity to comment on this important milestone to create greener, sustainable, energy efficient buildings in our county, helping us reach our county and state's greenhouse emission reduction goals. We look forward to engaging and being part of the final IgCC code adoption.

Sincerely,

### Organizations:

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