



January 19, 2021

Albemarle County Board of Supervisors

% Charles Rapp, Planning Director

410 McIntire Road, North Wing

Charlottesville, VA 22902

(Transmitted via email)

Re: ZMA201900004 Breezy Hill

Dear Board of Supervisors:

The Piedmont Environmental Council (PEC) supports the Albemarle County Department of Community Development staff recommendation to deny the Breezy Hill rezoning request ([ZMA201900004](#)). The rezoning request does not conform to the recommendations contained in the Albemarle County Comprehensive Plan nor the Village of Rivanna Master Plan (VRMP). **PEC recommends denial of this rezoning request, as it does not conform to the intent of the Comprehensive Plan nor the VRMP.**

The inclusion of renewable energy (solar panels) is both appreciated and necessary, in order for Albemarle County to reach the goals of its Climate Action Plan; however, **only 8.5% of the total units could be powered by the proffered solar panels (200 kW)**. The 200 kW solar panels **could reduce onsite carbon emissions by 54.3 tons annually**; however, the 130 units proposed **could result in between 1,671.7 and 3,434.7 tons of annual carbon emissions** due to transportation impacts.<sup>1</sup>

In addition to the comments presented in PEC's letter submitted to the Planning Commission on November 23, 2020 (**Attachment A**) which addressed concerns related to density and transportation impacts, PEC raises the following concerns regarding the updated proffers included in the January 20, 2021 agenda packet.

**Inclusion of Solar Panels** (Proffer 6. Climate Action)

PEC is an advocate for solar energy, especially distributed solar power generation -- small scale solar (usually rooftop) primarily designed to meet the immediate demands of the property in which it is located. We are pleased to see the applicant's proffer to include 200 kilowatts (kW) of solar panels. However, we raise the following concerns:

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<sup>1</sup> These calculations were based on the distance between Breezy Hill and the Albemarle County boundary with the City of Charlottesville at the Free Union Bridge in Pantops. This distance is not necessarily indicative of actual miles per TPD.

- Additional Clarity Needed: Proffer 6. Climate Action does not fully address the implementation of solar panels. Solar panels can be either roof mounted or ground mounted -- which method is the applicant proffering? **PEC recommends that solar panels be installed via roof mounted systems to the maximum extent possible, so as to maximize use of open space on the site for future residents.**
  - The solar industry generally presumes that ground mounted solar arrays require between 8 and 10 acres to produce 1,000 kW of power. Therefore, a 200 kW ground mounted array would require between 1.6 and 2 acres.
    - Ground mounted solar panels (vs. roof mounted) could cause additional on site stormwater impacts, if stormwater engineering is not appropriately designed or maintained.
  - The applicant has proposed a total of 31 acres of greenspace, composed of *stream buffers, floodplain, preserved steep slopes, open space, and recreation areas*. If solar panels are to be ground mounted, where will they be located?
- Estimated Solar Production: The applicant has proffered 200 kW of solar panels; however, rated capacity is not indicative of true energy production. It is estimated that 200 kW of solar production would be capable of producing 118,038 kW hours (kWh) of solar energy per year, providing energy production for approximately 11 residential utility customers annually.<sup>2,3,4</sup>
  - Given the applicant's requested 130 units, **approximately 8.5% of the total units could be powered via solar production**; however, this is a best case scenario, as efficiency factors can be greatly reduced by weather patterns and peak sun hours.
  - **The proposed 200 kW solar system could rescue overall onsite CO<sub>2</sub> emissions by approximately 54.3 tons annually.**<sup>5</sup>
  - Battery storage was not discussed as a component of the solar installation(s). Without adequate battery storage, solar production cannot be fully utilized, as excess energy is sent back to the electrical grid and can go unused with limited peak demand.
  - PEC applauds the applicant's inclusion of renewable energy; however, the limited nature of *Proffer 6. Climate Action* is not sufficient to warrant the transportation impacts and associated greenhouse gas emissions created by 130 units located outside of the county's proposed development areas; nor do they resolve the density implications of the rezoning.

### **Estimated Greenhouse Gas Impacts**

The 130 proposed units could produce between 923 trips per day (TPD) and 1,898 TPD.<sup>6</sup> **The potential transportation impacts of 130 units at Breezy Hill could produce between 4.6 and 9.4 tons of CO<sub>2</sub>**

<sup>2</sup> [Clean Energy Reviews](#). Biased-high solar panel efficiency of 22%.

<sup>3</sup> [Climatemps.com](#). Average of 7.37 hours of sunlight per day in Virginia.

<sup>4</sup> [U.S. Energy Information Administration](#). Average annual energy consumption of 10,649 kW per year per U.S. residential utility customer.

<sup>5</sup> [U.S. Energy Information Administration](#). Frequently Asked Questions. How much carbon dioxide is produced per kilowatt hour of U.S. electricity generation? "0.92 pounds of CO<sub>2</sub> emissions per kWh."

<sup>6</sup> VDOT (p.27) "95 percent confidence interval for any single neighborhood is between 7.1 and 14.6 trips per dwelling unit."



**daily, resulting in between 1,671.7 and 3,434.7 tons annually.**<sup>7</sup> Given its separation from jobs and services in the urban areas of Albemarle and Charlottesville, nearly every trip will require a car. Transportation impacts will be more severe in this proposed location than would the same number of units in an area with closer proximity to the urban core.

- If each TPD was approximately 6.3-miles<sup>8</sup>, the proposed 130 units at Breezy Hill could create between 11,629.8 and 23,914.8 miles driven per day.
- Given the average miles per gallon of new vehicles in 2018, between 467.06 and 960.43 gallons of gasoline would be consumed per day.<sup>9</sup>

Based on the above, in addition to our previous comments (**Attachment A**), the overall project does not appear to be environmentally beneficial, nor does the proposed density conform to the Village of Rivanna Master Plan, which could cause impacts to public infrastructure (e.g. Route 250 traffic, water and sewer capacity, and EMS response times). Before considering greater density in this area, the public infrastructure needs highlighted in the VRMP, as well as multimodal transportation options, should be addressed. **It is for these reasons that PEC continues to recommend denial of this rezoning.**

Thank you for taking the time to review PEC's thoughts on this important matter. Please include this letter in the county's public submission forum, and feel free to contact me with any questions or requests for additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Hawk", written in a cursive style.

Christopher Hawk  
Land Use Representative - The Piedmont Environmental Council  
(804)337-6716

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<sup>7</sup> Environmental Protection Agency, [Greenhouse Gas Emissions from a Typical Passenger Vehicle](#). "Emissions from a gallon of gasoline: 8,887 grams CO<sub>2</sub>/gallon."

<sup>8</sup> It is approximately 6.3-miles from Breezy Hill to the Rivanna River crossing at the Free Union Bridge in Pantops via Route 250, resulting in a 12.6-mile round trip.

<sup>9</sup> Environmental Protection Agency, Automotive Trends Report. [New vehicle estimated real-world CO<sub>2</sub> emissions increased slightly from last year's record low.](#)



**Attachment A**  
**Breezy Hill Public Comments**  
**Piedmont Environmental Council**  
**November 23, 2020**



November 23, 2020

Albemarle County Planning Commission

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The applicant has requested to rezone this site to *R4 Residential* (permitting 4 units/acre density) and construct 130 housing units on 84 acres (averaging 1.55 units/acre).

- The VRMP clearly defines the density desired for the entire VRMP area, including the area in which this site would be located (east of Carroll Creek).
  - Maximum density east of Carroll creek is defined as 1 unit/acre.
  - *Developed land on the east side of Carroll Creek is not expected to change in character, as it provides for a transition to the Rural Areas.*<sup>1</sup>
- The VRMP seeks for higher density in the Village Area, with density decreasing towards the outer boundaries.
  - This rezoning request is located east of Carroll Creek, along the VRMP boundary.

The VRMP clearly defines the density goals for this subarea, indicating the need for rural area preservation, population capacity and future rezonings, and public infrastructure planning.<sup>2</sup>

- The requested density (1.55 units/acre) would be over 50% larger than the 1 unit/acre stipulation outlined in the VRMP.
- If this rezoning is approved, the applicant or future property owners could (by right) construct up to 336 units.

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<sup>1</sup> Village of Rivanna Master Plan, p. 5, p. 25

<sup>2</sup> Id sec. p. 11, p.43



- The potential 336 units on site would be 400% larger than the 1 unit/acre stipulation outlined in the VRMP.
- *An additional 300 to 400 new units may be possible, if water and sewer usage in the Glenmore development continues at the same usage.*<sup>3</sup>
- Albemarle County has documented the need for additional affordable housing in the county; however, the need for more housing overall has not been adequately researched or analyzed, especially for this specific area.<sup>4</sup>
  - PEC recommends conducting a housing assessment to identify the need for new housing overall, in addition to updating the county's *Affordable Housing Policy*.

Density requirements impact the rural feeling of a property, in addition to public infrastructure (e.g. Route 250 traffic, water and sewer capacity, and EMS response times). Before considering greater density in this area, the public infrastructure needs highlighted in the VRMP should be addressed. **It is for these reasons that PEC recommends denial of this rezoning.**

Thank you for taking the time to review PEC's thoughts on this important matter. Please include this letter in the county's public submission forum, and feel free to contact me with any questions or requests for additional information.

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<sup>3</sup> Id sec, p.43

<sup>4</sup> <https://www.albemarle.org/government/community-development/learn-more-about/housing/housing-albemarle>