

July 14, 2022

To: Frances Boardman  
From: Claire Whitcomb, Madison Environmental Commission.

The MEC has reviewed the site plans for 5 Central Ave. pursuant to its mandate.

**Overview:**

The project requires multiple variances, including waivers for impervious coverage and parking. Stormwater management, via a blue roof, is innovative, but New Jersey's increasingly heavy rainfalls mean that the project will still contribute to runoff and flooding downtown.

**1. Impervious coverage and stormwater runoff.**

The applicant proposes 100% impervious coverage, vs. 85% allowed and 86.7% currently. It also proposes quadrupling water usage (1,232 gallons per day vs. the current 344 gallons per day) and adding significantly to the Borough's sewer system (1,444 gallons per day vs. the current 395).

Given the increased stress on Madison's infrastructure and the gap between water usage and aquifer recharge, the following points should be considered before approving this variance:

- The blue roof does not capture 100% of stormwater runoff. What could be done to enhance its effectiveness?
- In a downtown setting, excess water cannot be absorbed by vegetation.
- When the original buildings were built a hundred or so years ago, it was normal to send stormwater into the street. Climate change has altered the math. A warming atmosphere holds far more water—7 percent for each degree of Celsius warming.
- Given the paved environment, calculations for a 500 year storm should be included.
  - During Hurricane Ida, rain fell at a rate of 2 to 3 inches per hour.
  - Hurricane Ida “qualified as exceeding 500-year and 1,000-year rainfall events,” according to Cornell's NOAA Northeast Regional Climate Center (NRCC), in the College of Agriculture and Life Sciences.
- Aquifer recharge should be addressed.
  - Water that runs into the sewer/stormwater system does not replenish the aquifer where Madison gets 100% of its drinking water. When water enters the stormwater system, it flows to the Passaic and other rivers.
  - Water levels are dropping at Madison's 5 well sites.
- Can blue roof water be integrated into the building system to be used as gray water?
- Can plans support water conservation with low-flow toilets, waterless urinals (in retail restrooms), and water-saving appliances (dishwashers, washing machines, etc.).
- If an impervious coverage variance were not granted, what opportunities would there be for stormwater capture via pervious surfaces, rain gardens etc.?
  - It seems important to consider what would happen if the variance were not granted so that the Planning Board can assess what an increase in impervious coverage actually means. Perhaps the difference is minimal.

**2. Energy/Utilities**

In filling out the Preliminary Environmental Checklist, the applicant mentions that the roof will be light colored—how does this work with the water storage for the blue roof? Will there be room for solar panels, now or in the future?

The applicant also mentions “building electrification.” Please clarify whether the new construction will be 100% electric (all appliances, heating and cooling) in line with NJ state energy goals, or even if it will be “electric ready” in preparation for eliminating gas as a fuel.

In terms of energy efficiency, the MEC recommends:

- Electric heat pumps.
- Windows and insulation that go above required standards.
- Lighting that features motion sensors, dimmers and timers
- Outdoor bulbs that are yellow toned, not white/blue (for both human health and wildlife protection).

A note on gas as a fuel:

- Currently gas in NJ is 67% fracked, per [www.empowernewjersey.com](http://www.empowernewjersey.com).
- Fracking is accompanied by damaging methane emissions.
- Gas pipelines leak methane routinely. Mapping in Massachusetts has found 4,000 active gas pipeline leaks, about 1,000 of which are “super-emitters” according to the Washington Post. <https://heet.org/gas-leaks/gas-leak-maps/>
- In homes, gas stoves and heating present health and indoor air quality issues. <https://www.vox.com/energy-and-environment/2020/5/7/21247602/gas-stove-cooking-indoor-air-pollution-health-risks>

### 3. Parking

The applicant asks for a parking waiver. This will mean that the building takes no responsibility for EV charging spaces, which are required by ordinance. How will this be resolved?

### 4. Notes on local and state energy goals

—**Madison’s Master Plan states these goals, which must be taken into consideration:**

- Enhance Madison’s resiliency to potentially catastrophic events including pandemics, extreme weather and climate, and critical infrastructure interruptions.
- Improve air, water quality and public health by encouraging sustainable design, green infrastructure, and energy practices.
- Encourage use of sustainable design and green building practices where variances are being considered for building and/or impervious coverage.
- Reduce the Borough’s environmental footprint and carbon emission

—**New Jersey’s Energy Master Plan calls for:**

- 100% clean energy by 2050
  - Solar on new construction
- 90% building electrification by 205
  - Phase out gas boilers and water heaters.
  - Net-zero carbon goals for new construction

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- “Modern air- and ground-sourced electric heat pumps have similar operating costs to natural gas furnaces and are approximately twice as efficient as electric baseboard heating.”
- “While building electrification increases electricity use, it reduces total energy needs because heat pumps are much more efficient than direct combustion of fossil fuels for heat.”
- “If gas use in buildings is retained, further emissions reductions require either substituting natural gas with much more expensive carbon-neutral, bio- or synthetic gasses, or transitioning buildings to electrification by retrofitting gas appliances with heat pumps before their useful life is over.”

Thank you for your consideration.

Respectfully,

Claire Whitcomb  
Madison Environmental Commission, Chair  
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