

Submitted to: *Members of the Mason City Council:*

Subject: *Expert Opinion of Ordinance 266*

My name is Kristen Meghan Kelly. The following is my formal expert summary opinion regarding Amended Ordinance 266 and its provisions.

I am a Senior Industrial Hygienist and Occupational and Environmental Health & Safety (OEHS) professional with over 23 years of experience in anticipating, recognizing, evaluating, and controlling human health, environmental, and infrastructure risks associated with extensive industrial, military, and energy facilities.

My professional background includes military service at two major USAF Air Logistics Centers, where facilities operate under continuous, military-specific industrial processes, with contingency and backup requirements comparable to those of hyperscale data centers. I have professional experience at a large electrical utility company, where I was involved in understanding grid modeling, load analysis, failure risk analysis, contingency planning, and redundancy design. This includes experience assessing the impacts of electrical infrastructure, emergency power systems, environmental exposure routes, and utility-related public health risks.

With this experience, I have a better understanding of full-load behavior, peak-demand stress, and system fragility that goes beyond what is usually considered in local planning and zoning discussions. I find the ordinance deficient and dangerous to public health and to the reliability of infrastructure.

I. Utilities and Infrastructure Deficiencies

This ordinance and the associated utility provisions fail to require any independent, enforceable electrical impact analysis that reflects the actual operational impact of hyperscale data centers, which is critical.

- Hyperscale data centers:
- Operate at sustained near-peak or full electrical load
- Engineered and designed to assume full load utilization upon failure
- Require upstream transmission, substation, and protection system modifications
- Alter grid priority during peak demand and emergency events

Having worked within a large electrical utility, I can confidently state that these facilities are modeled differently because they behave differently. Load diversity is a significant issue. Full-load behavior, peak-demand stress, and system fragility consideration go beyond what is typically considered in municipal planning or zoning discussions.

I find the ordinance to be fundamentally deficient, legally vulnerable, and dangerous to public health and infrastructure reliability during grid stress events, thereby demonstrating a failure of due diligence.

II. Electrical Grid Capacity: Reality

A dangerous misconception arises in these ordinances: that variances and conditional approvals can remedy the lack of actual grid capacity.

- Michigan's grid is already overloaded and strained
- Michigan's grid infrastructure is outdated and deals with high outage frequency
- Large industrial users don't add demand slowly over time like homes and small businesses; they create an instant, heavy load on infrastructure.
- Redundant on-site power keeps the facility online but transfers environmental and safety risks to the community.

Approving this ordinance without proven grid capability creates a foreseeable risk of:

- Residential reliability degradation
- Emergency response hindered
- Water and wastewater treatment disruption
- A power failure during peak demand or severe weather can set off a chain of public safety problems.

III. Wastewater Treatment Compatibility: Questionable Capability

The ordinance fails to require wastewater characterization or treatment compatibility analysis appropriate for industrial use.

To my knowledge, municipal wastewater treatment facilities serving Mason are designed for conventional residential and light commercial waste streams. They are not typically equipped with advanced treatment technologies such as:

- Membrane filtration
- Advanced oxidation processes
- Specialized removal of industrial water treatment chemicals or corrosion inhibitors

This ordinance fails to require:

- Full characterization of proposed wastewater discharges
- Demonstration of treatment plant capability
- Enforceable pretreatment, monitoring, or reporting requirements

From an environmental health standpoint, this omission poses a credible risk that inadequately treated industrial waste will impede municipal systems and downstream waters.

IV. Human Health Impacts: Performance and Operational Standards

The ordinance fails to address known exposure pathways, including:

- Chronic noise from cooling systems and generators
- Low-frequency vibration affecting nearby residences
- Continuous thermal discharge and heat island effects
- Diesel particulate matter and combustion byproducts
- Fuel delivery, storage, and spill exposure risks and response

Facilities of comparable scale at military installations require enforceable monitoring, setbacks, and reporting. Mason's ordinance does not address this.

V. Regulatory Capture: A Transfer of Risk

This ordinance follows the example of other jurisdictions that make it easier for developers, while weakening safeguards and oversight. As written, the ordinance shifts environmental, health, and infrastructure risks to the city and its residents while insulating developers from appropriate accountability, a key indicator of regulatory capture.

Conclusion

If a facility of this size were evaluated under military or utility planning standards, it would not proceed without a comprehensive grid analysis, wastewater capability and compatibility review, and bold public health protections.

I strongly urge the City Council to withdraw its support for Amended Ordinance 266. Approving the ordinance as written places Mason at foreseeable and preventable risk. Mason residents deserve better representation and protection.

Respectfully,

Kristen Meghan Kelly, MS-OSH
Industrial Hygienist & OEHS Professional
Ottawa County, MI resident