MEMORANDUM

Subject: Data Center Moratorium Study: Noise Monitoring, Water Use, and Electrical Demand

To: Madison Heights Planning Commission
From: Matthew Olson, Planning Commissioner
Date: October 14, 2026

Purpose

This paper offers potential study topics for consideration during the City's data center moratorium. I would like the Commission to receive an update on work underway, the anticipated report or recommendations, and the schedule for considering zoning ordinance changes before the moratorium expires.

The considerations below are intended to support that work. Staff and the City Attorney should determine which requirements are needed, technically practical, and within the City's authority. Any proposed limits should be supported by engineering analysis and applied consistently to comparable facilities.

Noise Monitoring

Data center cooling equipment may operate continuously, while generator testing and backup operation can produce intermittent noise. The City's published industrial standards set property-line limits of 75 decibels from 6 a.m. to 10 p.m. and 70 decibels overnight in M-1 districts, and 80 decibels in M-2 districts. The study should consider whether those limits and the available measurement procedures adequately address data center operations near residential uses. [1]

Items for consideration include:

- An acoustic study before approval, addressing existing conditions and predicted noise at property lines and nearby sensitive uses. The analysis should cover full buildout, nighttime cooling, generator testing, and verification after the facility begins operating.
- Clear measurement procedures, including averaging periods, maximum sound levels, meter accuracy, calibration, and microphone placement. Staff should also evaluate whether tonal and low-frequency noise need separate criteria.
- Permanent monitoring where justified by facility size, equipment, and proximity to residences. The owner would pay for installation, calibration, maintenance, and record retention, with read-only City access to sound-level data and automatic notifications of suspected exceedances.

Monitoring would need to distinguish facility noise from traffic, weather, and other unrelated sources. An alert should prompt investigation rather than automatically establish a violation. The

City should retain independent measurement authority and establish procedures for equipment failures and corrective action. Routine recording of intelligible audio should not be necessary.

Water Use and Wastewater

Madison Heights receives drinking water from the Great Lakes Water Authority (GLWA) and operates the local distribution mains. Review should address the project's demand on treated water, distribution pressure, fire flow, sewer capacity, and costs to existing customers. [2]

Applicants could be asked to provide:

- Average-day, maximum-day, peak-hour, and annual water demand for each phase and full buildout, separating domestic use from cooling and process water.
- The proposed water source and cooling technology, including worst-case summer demand, expected evaporation losses, reuse, and the volume returned to the sewer.
- An engineering analysis of water and sewer capacity, reviewed by the City and coordinated with GLWA as appropriate. Required upgrades and lawful allocation of project-related costs should be established before service commitments are made.
- Separate cooling or process-water metering, City access to consumption records, annual reporting, and a plan for reducing water use during a utility emergency.
- Expected wastewater volume, temperature, chemistry, and treatment additives, with confirmation of applicable discharge and pretreatment requirements. EGLE advises that pretreatment permitting depends on the discharge and receiving system. [3]

The study should compare practical cooling and reuse options before establishing efficiency requirements. Water Usage Effectiveness could be a reporting measure, provided its calculation is clearly defined and actual gallons are also reported. Purchased water and water lost through evaporation should be accounted for separately.

Electrical Demand and Infrastructure

The Michigan Public Service Commission (MPSC) regulates utility rates and service terms. Local review should address service readiness, associated land-use impacts, and emergency operations, with coordination through DTE and the appropriate regulatory agencies. [3, 4]

Items for consideration include:

- Projected peak demand in megawatts, annual consumption in megawatt-hours, phased growth, and full-buildout demand. DTE should confirm service feasibility, necessary studies and improvements, and the conditions and schedule for energization.
- Identification of associated substations, transformers, lines, easements, and utility corridors so the City can evaluate noise, screening, setbacks, and emergency access within its authority.

- Disclosure of backup generators, batteries, fuel storage, testing schedules, and expected operating hours. Emergency plans should explain utility-required curtailment and the resulting use of backup equipment, including noise, air-permit, and fire-safety considerations.
- Annual reporting of peak demand and electricity use, notice of material changes, and a closure plan for owner-controlled equipment. Any financial assurance should address lawful local restoration obligations and distinguish utility-owned assets.

Administration and Legal Review

The study should define which facilities would be covered, including principal-use data centers, accessory server rooms, expansions, and phased campuses. Requirements should reflect the scale of the operation and its potential effects on neighboring properties and public infrastructure.

MCL 125.3504 addresses reasonable conditions on special land uses and other discretionary approvals. The City Attorney should evaluate the appropriate zoning, utility, or other legal mechanism for each proposed requirement, including applicable limits on local authority. [5]

Monitoring also creates work for the City. Before adopting requirements, staff should identify who would review records, respond to alerts, verify compliance, and pursue enforcement. The analysis should estimate staffing and outside technical support costs, consider lawful fees, and establish record retention and public-access procedures, including treatment of legitimately confidential information.

The three topics should be reviewed together. A cooling system that saves water may increase electrical demand or noise. Changes to cooling equipment, generator operations, or utility demand should receive appropriate review when they materially change the impacts evaluated at approval.

Proposed Next Steps

I recommend beginning with a staff update on the moratorium study and identifying where these topics fit within the work already assigned. Periodic updates would allow the Commission to follow progress and discuss issues before draft ordinance language is presented.

As the study proceeds, staff and the City Attorney could return with recommendations identifying:

- What current ordinances, utility procedures, and state permits already address, and where additional local requirements are warranted.
- Recommended application studies, operating standards, monitoring, and reporting requirements, with supporting technical and legal analysis.
- The cost and responsibility for administering those requirements, along with a schedule for Commission and Council consideration before the moratorium expires.

References

Background sources reviewed October 1, 2026. Applicable provisions should be confirmed during staff and legal review.

1. Madison Heights Zoning Ordinance, industrial performance standards, Noise, printed page 149.
2. Madison Heights 2024 Annual Consumers Report on Water Quality, About Our System.
3. Michigan EGLE, FAQ on data centers and environmental review, utility jurisdiction and pretreatment.
4. MPSC, November 18, 2025 notice of DTE data center energy-contract hearing, utility jurisdiction.
5. Michigan Zoning Enabling Act, MCL 125.3504, special land uses and reasonable conditions.