

From: Sean Webber
To: Sean Webber
Subject: Correspondence for Inclusion in Planning Commission Packet — AI Data Center Zoning
Date: Monday, May 18, 2026 6:29:26 AM
Attachments: [Bruce-Washington HEID Ordinance Amendment v6.2.pdf](#)

Dear Planning Commission Member:

Proposals for AI and hyperscale data centers continue to advance at a rapid pace across the state. At this time it is believed that there are 31 such proposals in Michigan.

Public bodies with an applicant in front of them are generally reaching the same conclusion: AI data centers are a very new land use. The majority of local planning commissions did not write their ordinances or master plans with this in mind.

Land use and zoning attorneys are increasingly advising public bodies to pass zoning amendments in response to the development of this industry. This is the right path forward in the absence of broader action from the state legislature. As this industry has accelerated, the quality of guidance available to public bodies has varied widely. Communities are well-served by seeking multiple perspectives before acting.

Attached is a zoning ordinance amendment drafted by a citizens committee with the help of planning and legal professionals. Contributions include those of Washington Township, Bruce Township, Armada Township, and other communities. Men and women labored for approximately four months to create ordinances for a land use that was largely not understood a year ago.

I am so proud and inspired by how these citizens rose to the occasion to serve their community and provide a template for planning commissions statewide. Thanks to their work, I am pleased to share a starting point with public bodies like yours for the widest possible distribution.

Please include this correspondence in the board packet for the next regularly scheduled Planning Commission meeting.

Respectfully,
Sean Webber

WASHINGTON TOWNSHIP HIGH-ENERGY INTENSIVE DEVELOPMENT (HEID) ORDINANCE AMENDMENT

Residence Committee Proposed Document -- Version 6.2

EXECUTIVE SUMMARY

This amendment establishes comprehensive protections for Washington Township residents while managing High-Energy Intensive Development (HEID) facilities such as data centers. The ordinance balances economic development with community welfare through strict technical standards, financial guarantees, and transparency requirements.

Key Achievements

Category	Protection Level
Water/Groundwater	2-mile monitoring radius, 150% bond, 3-month partial recovery, Chemical Discharge Limits , State Permit Coordination.
Noise/Infrasound	dBA/dBC limits + 80 dB(G) infrasound cap; Class 1 sensor monitoring with public dashboard access.
Jobs	10 jobs/MW minimum, 75% at median income, independent third-party verification.
Energy	Dry cooling only, no continuous hydrocarbon generation, on-site renewable requirement (30%+).
Emergency Generators	100-hour annual cap, 2-hour notification, noise limits, defined "Emergency Event."
Financial Security	Consolidated bonds/escrows (13 types) covering infrastructure, decommissioning, and environmental risks.
Transparency	Public registry, real-time dashboards, quarterly reporting, independent expert verification.
Climate Accountability	Scope 1-2 GHG reporting, TCFD-aligned risk disclosure, Local Environmental Mitigation Impact Fee.
Waste Management	E-waste tracking, PFAS testing, NIST data destruction standards.
Phased Development	Explicit authority to limit build-out to specific land areas/phases until prior phases are verified.
Chemical Discharge	Strict limits on biocides, corrosion inhibitors, and TDS in cooling tower blowdown; mandatory quarterly testing.

Legal Defensibility Enhancements

All provisions have been reviewed for consistency and legal defensibility under Michigan Zoning Enabling Act (MCL 125.3101 et seq.):

1. **Fine Structure:** Cumulative fines with \$500,000/day aggregate cap; categorized by severity.
 2. **Cure Periods:** 5-day cure for administrative violations; immediate fines for emergency violations.
 3. **Feasibility Clauses:** Scientific feasibility adjustments for aquifer recovery timelines.
 4. **State Law Supremacy:** Explicit clauses deferring to EGLE permits while asserting local zoning authority.
 5. **Police Power Justification:** Generator limits framed as noise/safety measures, not air quality regulation.
 6. **Severability & Repealer:** Provisions are severable if preempted; conflicting ordinances are repealed.
 7. **Phased Authority:** Explicit statutory basis for phased land area enforcement with variance protections.
 8. **Chemical Control:** Explicit authority to regulate chemical discharge to protect local water infrastructure and groundwater.
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ARTICLE 1: INTRODUCTION & PURPOSE

1.1 Authority This Ordinance is adopted pursuant to the Michigan Zoning Enabling Act, Public Act 110 of 2006, MCL 125.3101 et seq., and the Township's police power to protect the public health, safety, and welfare.

1.2 Purpose The purpose of this Ordinance is to regulate High-Energy Intensive Developments (HEID) to: a. Protect residential quality of life from noise, light, and environmental impacts. b. Ensure adequate infrastructure capacity and financial responsibility. c. Promote sustainable energy use and local economic benefits. d. Provide a clear, predictable, and legally defensible framework for development review. e. Enable phased development to verify infrastructure and environmental compliance before expanding site footprint. f. **Prevent contamination of municipal sewer systems and groundwater from chemically treated water discharge.**

1.3 Effective Date This amendment shall take effect [X] days after adoption and apply to all new HEID applications filed after that date. Existing HEIDs shall be governed by Article 8.2 (Non-Conforming Use).

ARTICLE 2: DEFINITIONS

(All technical terms used in this Ordinance are defined below. If a term is not defined, it shall have its ordinary meaning.)

2.1 High-Energy Intensive Development (HEID) A land use or activity that, by design, consumes $\geq 2,000$ kW continuous electricity or $\geq 500,000$ gal/yr potable water or $\geq 1,000$ ton-hrs/yr cooling energy, or is classified by the Michigan Public Service Commission as a "large-scale data processing facility." Typical examples: data centers, cryptocurrency mining farms, high-performance computing clusters, large-scale video rendering or AI training facilities.

2.2 Environmental Impact Assessment (EIA) Technical study (licensed PE) quantifying projected electrical, water, and thermal energy loads, evaluating municipal utility capacity, and identifying required upgrades, mitigation measures, and renewable energy commitments.

2.3 Renewable Energy (RE) Commitment On-site generation, purchase power agreement, or escrow equal to $\geq 30\%$ of the HEID's projected annual electricity consumption.

2.4 Performance Bond (PB) Cash bond, irrevocable letter of credit, or surety bond equal to 100% of the estimated cost of all required utility, water, and stormwater infrastructure upgrades identified in the EIA.

2.5 Noise Impact Assessment (NIA) Study (licensed acoustical engineer) predicting high-frequency (125 Hz -- 8 kHz) and low-frequency (≤ 125 Hz) SPL (dBA/dBC) at the nearest residential front yard (day/night) and recommending mitigation.

2.6 Lighting Control Plan (LCP) Design package proving compliance with § 5.15 (dark sky-friendly fixtures) and that illuminance at any adjacent residential property does not exceed 0.3 foot-candles measured at the property line.

2.7 Cumulative Energy Load (CEL) Aggregate projected electricity, water, and cooling demand of all HEIDs within a one-mile radius of a proposed site.

2.8 Mitigation Plan (MP) Site-specific plan addressing stormwater, heat island, noise (high & low frequency), lighting, water conservation, and waste disposal measures.

2.9 Hazardous/Industrial Waste Disposal Requirement Any HEID that generates hazardous, electronic, or industrial waste must develop a Waste Management Plan (licensed hazardous waste consultant) that complies with EGLE regulations, includes manifest tracking, on-site segregation, and approved off-site disposal.

2.10 Job Density Ratio (JDR) The quotient of total full-time equivalent (FTE) jobs divided by total megawatt (MW) of installed electrical capacity. A "job" means an FTE employing at least 40 hours per week, located within the municipality, and reported on payroll records.

2.11 Supply Chain Risk Management (SCRM) Plan A comprehensive strategy detailing the sourcing, vetting, and lifecycle management of critical infrastructure components. Must identify single points of failure, geopolitical risks, and contingency protocols.

2.12 Critical Infrastructure Components Hardware essential to HEID operation including servers, cooling systems, UPS, transformers, switchgear, network switches, and firmware-controlled devices.

2.13 Solid Oxide Fuel Cell (SOFC) System An electrochemical power generation system converting fuel directly to electricity without combustion, achieving $\geq 37\%$ efficiency, zero water consumption, and $\text{NO}_x < 0.01$ lbs/MWh.

2.14 Alternative Power Generation Analysis (APGA) A comparative technical evaluation assessing multiple on-site power generation technologies (including SOFC, advanced nuclear, hydrogen, etc.) for feasibility, efficiency, emissions, and cost.

2.15 High Impact Data Center A HEID that meets any of the following: a. Total Site Load exceeds 30 MW-Facility at full buildout; or b. Includes 10 MW or more of installed on-site generation capacity; or c. Proposed as a campus/multi-phase development intended to exceed these thresholds.

2.16 HEID Size Class Disclosure categories (Micro, Small, Medium, Large, Hyperscale) based on MW-Facility range, site area, building area, and height.

Size Class	MW-Facility Range	Typical Site Area	Typical Building Area	Typical Height
Micro/Edge	≤ 2 MW	~1--5 acres	~10,000--80,000 sq ft	~18--35 ft
Small	> 2 to 10 MW	~5--25 acres	~80,000--300,000 sq ft	~24--45 ft
Medium	> 10 to 30 MW	~20--60 acres	~300,000--800,000 sq ft	~30--65 ft
Large	> 30 to 100 MW	~60--150+ acres	~800,000--2,000,000+ sq ft	~30--90 ft
Hyperscale/AI Class	> 100 MW	~150--300+ acres	~2,000,000--10,000,000+ sq ft	~60--120+ ft

Required Disclosure Fields for each phase and full buildout (project-specific values):

- a. **Site/Parcel:** Site acreage and parcel configuration
- b. **Building Form:** Total enclosed building area (sq ft), building height (ft)
- c. **Electrical Demand (Power):** MW-IT (average and peak), MW-Facility (average and peak)
- d. **Energy Efficiency:** Target PUE, PUE measurement/reporting method
- e. **Electrical Consumption (Energy):** Annual energy (MWh/year)
- f. **Cooling/Heat Rejection:** Cooling type(s), heat rejection equipment (including nameplate ratings)
- g. **Water (Source, Use, Discharge):** Water withdrawal/consumption/discharge (daily and annual), source(s) and discharge point(s)
- h. **On-Site Supplemental Power Generation:** Inventory (unit kW/MW, aggregate MW, fuel type), operating mode, expected annual run hours, expected annual fuel usage and on-site storage capacity
- i. **Other Pertinent Metrics:** Transformer/substation equipment, battery/UPS energy rating (MWh), site impervious coverage, construction phasing schedule
- j. **Phased Buildout Plan:** Number of proposed phases, acreage per phase, and sequence of development.
- k.

Chemical Discharge Plan: Inventory of water treatment chemicals and proposed discharge limits.

2.17 Power and Energy Units

- **Megawatt (MW):** Unit of power (rate of use).
- **Megawatt-hour (MWh):** Unit of energy (power integrated over time).

2.18 IT Load and Total Site Load

- **IT Load (MW-IT):** Power used by IT equipment.
- **Total Site Load (MW-Facility):** Total power at the site utility meter(s), including IT and support systems.

2.19 PUE (Power Usage Effectiveness) Ratio: Total Site Load ÷ IT Load. Lower PUE indicates better efficiency. Target benchmark: ≤ 1.2 .

2.20 Cooling and Heat Rejection

- **Dry Cooling:** Heat rejection using air-cooled equipment without evaporating water.
- **Evaporative/Wet Cooling (PROHIBITED):** Cooling towers, adiabatic coolers, misters, or any system rejecting heat by evaporating water.
- **Hybrid Cooling (PROHIBITED):** Systems capable of operating in both dry and wet modes.
- **Liquid/Immersion Cooling:** Permitted only if heat rejection is accomplished via dry cooling.

2.21 Infrasound and Measurement Terms

- **Infrasound:** Sound energy with dominant frequencies below 20 Hz (1--20 Hz band).
- **G-Weighting; dB(G):** Frequency weighting for infrasound (ISO 7196:1995).
- **LG,eq,T:** G-weighted equivalent continuous sound pressure level over time T.

2.22 PFAS Exceedance A single sampling event at a specific monitoring point or residential well detecting PFAS concentrations above Michigan EGLE or federal regulatory limits. Each distinct event/location is a separate exceedance.

2.23 Township-Retained Expert An independent subject matter expert retained by the Township to verify applicant submissions. Costs borne by the applicant.

2.24 Independent Verification The process by which a Township-Retained Expert reviews, audits, or validates technical claims submitted by an applicant.

2.25 Emergency Event Strictly limited to: a. Actual utility power outage affecting the facility; b. Documented grid instability requiring immediate backup power per utility directive; or c. Life-safety system activation (fire suppression, medical equipment).

Excludes: Planned maintenance, testing, peak shaving, demand response, or merchant power sales.

2.26 Carbon Benchmark Price Annual market rate for high-quality Renewable Energy Credits (RECs) or carbon offsets, established by the Township Board for calculating the Local Environmental Mitigation Impact Fee.

2.27 Location-Based Method GHG Protocol Scope 2 accounting method reflecting average emissions intensity of the local grid where energy is consumed.

2.28 Market-Based Method GHG Protocol Scope 2 accounting method allowing use of RECs/offsets. The **higher** of Location-Based or Market-Based totals shall be used for fee calculations.

2.29 7Q10 Minimum Flow Rate Lowest flow expected for seven consecutive days once every ten years, as defined by Michigan EGLE water quality standards.

2.30 EGLE Permit Any permit, license, registration, or approval required from the Michigan Department of Environment, Great Lakes, and Energy under state law.

2.31 Chemically Treated Water Discharge Water discharged from the facility that has been treated with chemicals (including but not limited to biocides, corrosion inhibitors, scale inhibitors, or cleaning agents) for cooling, boiler, or industrial processes.

2.32 Blowdown The portion of circulating water removed from a cooling system to control the concentration of dissolved solids and suspended matter, typically containing concentrated treatment chemicals.

ARTICLE 3: ZONING DISTRICTS & PERMITTED USES

3.1 Permitted Districts HEIDs are Special Land Uses permitted **ONLY** in the Industrial (IND) District (§ 3.1.14).

3.2 Prohibited Locations HEIDs are prohibited within: a. Any Residential district (A1, R1, R1A through R1D). b. Within 300 ft of a wetland, lake shoreline, or protected natural resource. c. Within 100 ft of a fire hydrant, fire lane, or emergency service access point. d. Within 1,500 ft of a K-12 school, licensed childcare center, or hospital (High Impact Data Centers only).

ARTICLE 4: USE STANDARDS

4.1 Classification HEIDs are Special Land Uses subject to §§ 4.2 through 4.11.

4.1-A Special Land Use Status HEIDs require Special Land Use approval from the Planning Commission.

4.1-B Phased Development Authority The Planning Commission may approve HEID projects in **phased construction stages** based on objective criteria including: a. Utility capacity verification (per § 4.5). b. Environmental impact verification (per § 5.2). c. Job density milestone achievement (per § 4.7). d. Financial assurance compliance (per § 6.5).

Phase Advancement Requirements:

1. **Sequential Approval:** No subsequent phase (e.g., Phase 2) may commence construction or land disturbance until the Township has issued a **Certificate of Completion** for the preceding phase.
2. **Inspection Trigger:** A Certificate of Completion requires verification that all bonds, utility upgrades, noise controls, and job density milestones for the prior phase are met.
3. **Cumulative Limits:** The total approved phasing shall not exceed the maximum site area defined in the Size Class Disclosure (§ 2.16) unless a new Environmental Impact Assessment is submitted.
4. **Timeline:** Maximum interval between phases shall not exceed **18 months** unless extended for documented hardship or force majeure.

4.2 Mandatory Pre-Application Package Applicants must submit simultaneously:

1. HEID Application Form.
2. Environmental Impact Assessment (EIA).
3. Renewable Energy Plan.
4. Water Use Impact Study.
5. Noise Impact Assessment (NIA).
6. Lighting Control Plan (LCP).
7. Mitigation Plan (MP).
8. Waste Management Plan.
9. Job Density Compliance Plan.
10. Supply Chain Risk Management (SCRM) Plan.
11. Alternative Power Generation Analysis (APGA).
12. Size Class Disclosure.
13. Groundwater Impact Study & Dewatering Plan.
14. GHG Emissions Reporting Plan.
15. E-Waste Management Plan.
16. Phased Construction Plan (detailing acreage, sequence, and milestones per phase).
17. **Chemical Discharge Management Plan (CDMP) detailing all water treatment chemicals, discharge volumes, and proposed treatment methods.**

4.3 Utility Infrastructure & Cost Requirements

- **Electrical:** Performance Bond covering 100% of estimated electrical upgrade cost.
- **Water & Sewer:** Performance Bond covering 100% of water/sewer upgrade cost.

- **Stormwater:** MP must include on-site detention meeting Macomb County standards.

4.4 Noise & Light Controls

- **Noise:** High-frequency ≤ 45 dBA (day) / 35 dBA (night); Low-frequency ≤ 40 dBC (day) / 30 dBC (night) at property lines. Real-time Class 1 sensor monitoring required, **accessible to a public dashboard.**
- **Infrasound:** ≤ 80 dB(G) LG,eq,10-minute at residential parcel boundaries.
- **Light:** Illuminance ≤ 0.3 fc at adjacent properties; fully shielded fixtures; no blue-rich LEDs >3000 K.

4.5 Cumulative Energy Load Review Planning Commission shall compute CEL for all HEIDs within a one-mile radius. If CEL exceeds 15% of local utility peak capacity, further approvals may be limited.

4.6 Setbacks

- **Residential:** Principal buildings $\geq 1,500$ ft from residential parcel boundary.
- **Sensitive Uses:** High Impact HEIDs $\geq 1,500$ ft from schools, childcare, hospitals.

4.7 Job Density Requirement

- **Minimum:** 10 jobs per MW of installed capacity.
- **Quality:** 75% of FTE positions at or above inflation-adjusted median household income.
- **Verification:** Applicants shall submit employment projections **verified by independent third-party analysis** prior to permit approval.
- **Bond:** 10% of estimated economic impact if targets not met.
- **Phasing:** Projects >50 MW may comply over 5 years (**50%, 75%, 100%** milestones).
- **Annual Reporting:** Facility operators shall submit annual employment reports to the Planning Department, including **payroll documentation and job classification breakdowns.**

4.8 Supply Chain Resilience & Security SCRM Plan must demonstrate:

- Component provenance (no high-risk jurisdictions without vetting).
- 10-year parts availability guarantee.
- Vendor diversification (no single supplier $>50\%$).
- Cybersecurity vetting (no backdoors).
- **Abandonment mitigation clause detailing how the facility will be secured and maintained if the primary vendor ceases operations or if geopolitical sanctions prevent parts delivery.**
- 5% Contingency Bond for emergency procurement.

4.9 Alternative Power Generation Analysis (APGA)

- **Requirement:** Evaluate latest commercially viable on-site power generation technologies (e.g., SOFC, hydrogen, advanced nuclear, solar+storage).
- **Scope:** Compare at least 3 distinct pathways based on efficiency, emissions, cost, and grid independence.
- **Review:** Independent Township-paid consultant must certify objective analysis.
- **Conditional Approval:** If a superior low-carbon technology is viable, applicant must commit to it or post transition bond.
- **Dynamic Standard:** Township may update "latest technologies" list via administrative resolution.

4.10 Power Generation & Cooling Technology Standards

A. POLICE POWER JUSTIFICATION Restrictions in this section are enacted under the Township's police power to protect public health, safety, and welfare from **noise, vibration, and community disruption**. They are **zoning conditions**, not air quality regulations, and do not replace EGLE permitting authority.

B. Continuous Hydrocarbon-Fueled On-Site Power Generation (PROHIBITED) Operation of hydrocarbon generators for continuous, prime, peaking, or routine non-emergency supply is prohibited.

- *Prohibited:* Peak shaving, demand response, merchant power sales.
- *Exception:* Emergency outage operation and readiness testing only.

C. Emergency Generator Use & Limitations Hydrocarbon generators permitted **only** for Emergency Events.

1. **Definition:** See § 2.25 (Emergency Event).
2. **Operational Limits:**
 - **Annual Cap:** Max 100 hours/year (rolling 12-month basis).
 - **Warning:** >75 hours triggers corrective action plan.
 - **Hard Cap:** >100 hours triggers additional bonding, suspension, or grid upgrade requirement.
 - **Testing:** Limited to 8:00 AM -- 7:00 PM unless reliability standard requires otherwise.
 - **Portable Units:** Subject to same limits; cannot be used to circumvent restrictions.
3. **Notification & Reporting:**
 - Notify Township within 2 hours of activation.
 - Public dashboard update within 1 hour.
 - Resident alert (within 1,500 ft) within 4 hours (for >10 MW facilities).
 - Post-event report within 48 hours.

D. Cooling Technology Prohibitions

- **Wet/Evaporative Cooling:** Prohibited (cooling towers, adiabatic, misters).
- **Hybrid Cooling:** Prohibited.

- **Dry Cooling Required:** All heat rejection must be dry cooling.

4.11 On-Site Renewable Energy Requirement

- **Mandate:** RE ($\geq 30\%$) must be physically located on the same parcel or contiguous property.
- **Prohibited:** Virtual PPAs, Unbundled RECs, Remote Offsets.
- **Accounting:** Location-Based Method required. Higher of Location/Market totals used for fees.
- **Exceptions:** Variance granted only for geographic constraints, local grid delivery, and direct community benefit.
- **Penalty:** \$10,000/day for non-compliance; bond forfeiture; potential permit revocation after 180 days.

ARTICLE 5: ENVIRONMENTAL PROVISIONS

5.1 High-Energy-Use Environmental Safeguards

- **Water Conservation:** $\geq 30\%$ reduction vs. baseline.
- **Heat Island:** 30% cool-pavement/vegetated roofing.
- **Stormwater:** Capture 100% of first inch of rainfall.
- **Habitat:** No siting within 300 ft of wetlands/stream.
- **Abandonment:** 125% Restoration Bond; 180-day start / 365-day completion timeline.
- **PUE:** Annual reporting; benchmark ≤ 1.2 .
- **Phase-Specific Compliance:** Environmental safeguards must be met for **each phase** before the next phase may commence.
- **Chemical Discharge Control:** All chemically treated water discharge must comply with § 5.1-F.

5.1-F Chemically Treated Water Discharge

a. **Chemical Inventory:** Applicants must submit a full inventory of all water treatment chemicals (biocides, corrosion inhibitors, scale inhibitors, cleaning agents) with Safety Data Sheets (SDS) prior to operation.

b. **Discharge Limits:** Discharge of chemically treated water (blowdown) into the municipal sewer or onto land must not exceed limits set by the Township's Sanitary Sewer Use Ordinance or EGLE NPDES permits.

c. **Prohibited Substances:** Discharge containing **free chlorine > 0.5 ppm, bromine > 0.2 ppm, or heavy metals (zinc, copper, molybdate) above EGLE limits** is prohibited.

d. **Treatment Requirement:** All chemically treated water must be neutralized or treated to remove hazardous constituents before discharge.

e. **Monitoring: Quarterly testing** of discharge water for pH, Total Dissolved Solids (TDS), and specific chemical constituents (biocides, heavy metals) is required. Results must be submitted to the Township within 15 days of testing.

f. **Violation:** Failure to comply with discharge limits constitutes an immediate environmental emergency violation.

5.2 Construction Phase Groundwater & Well Protection

- **Baseline:** Survey all wells within 2-mile radius; independent hydrogeologist hired by applicant.
- **Limits:** No drawdown >2 ft or yield reduction >10%.
- **Restitution:** Pay full cost of well repair/replacement; compensate for property value loss.
- **Bond:** 150% of estimated cost of deepest well replacement.
- **Recovery:** Return groundwater levels to within 50% of pre-construction baselines within 3 months; Complete recovery to pre-construction baselines within 12 months.
- **Feasibility Clause:** If an independent hydrogeologist determines the 3-month target is scientifically unachievable due to local geology, the Township may extend the timeline to a reasonable period based on expert testimony.
- **Phase-Specific Baseline:** Baseline monitoring required before EACH phase begins.
- **State Law Supremacy:** Compliance with EGLE permits is a prerequisite. This ordinance adds local monitoring/restitution obligations.

5.3 Climate Accountability & Risk Disclosure

- **Greenhouse Gas Reporting:** Scope 1 & 2 Greenhouse Gas (GHG) Emissions (in accordance with the GHG Protocol) for all facilities on the parcels. Scope 3 encouraged.
- **Assurance:** Limited (Years 1) to Reasonable (Year 2+) by independent provider.
- **Climate Risk Reporting:** TCFD-aligned disclosure of climate risks with facility-level risk mitigation plan (reported every two years).
- **Cost Recovery:** Applicant pays for "verification of verifier."

5.4 Local Environmental Mitigation Impact Fee

- **Calculation:** (Total Verified MTCO_{2e}) × (Carbon Benchmark Price).
- **Use:** Local Impact Zone (5-mile radius) for utility credits, microgrids, tree canopy.
- **Exclusions:** Unbundled RECs/VPPAs do not reduce fee.
- **Peaker Penalty:** 200% fee rate for emissions from peaker plants activated by facility demand.

5.5 Water Security Escrow

- **Deposit:** \$250,000 minimum.
- **Purpose:** Emergency water supply and independent investigation if developer fails to act within 24 hours.

5.6 Electronic Waste (E-Waste) Management Plan

- **Tracking:** Live inventory of IT equipment.
- **Disposal:** R2v3 or e-Stewards certified recyclers (or state-registered equivalent).
- **Storage:** Indoor, non-porous floor; 1-year accumulation limit.
- **Data Security:** NIST SP 800-88 sanitization; Certificates of Destruction.
- **Fluids:** Lab testing of coolants; closed-loop preference.

ARTICLE 6: DEVELOPMENT PROCEDURES

6.1 HEID Review Process

1. **Filing:** Receive Application Package.
2. **Panel:** Convene Review Panel (Engineer, Energy Specialist, Environmental Health & Safety Specialist, Fire Marshal, Acoustical, Lighting, Cyber, Independent Consultant, Citizen).
3. **Evaluation:** 60-day review of all studies and bonds.
4. **Determination:** Issue Letter of Determination (Approved/Conditional/Denied) within 90 days.
5. **Conditions:** Specify upgrades, bonds, milestones, tech requirements, and **phased construction schedule**.
6. **Phase Advancement Review: No subsequent phase may be approved until the Township issues a Certificate of Completion for the prior phase.**
7. **Appeal:** Denials appealable to ZBA within 30 days.
8. **Monitoring:** Building Official monitors compliance.

6.2 Independent Verification & Expert Review Costs

- **Right:** Township may retain independent experts to verify submissions.
- **Cost:** Applicant pays all costs (prevailing market rates).
- **Mechanism:** Escrow deposit required prior to review. Failure to replenish suspends review.
- **Scope:** Full access to data/models; findings binding unless appealed.
- **Phase-Specific Verification: Independent verification required for each phase before Certificate of Completion is issued.**
- **Chemical Verification: Township may retain an independent water quality expert to verify discharge compliance.**

ARTICLE 6.5: FINANCIAL ASSURANCE & BONDS

6.5-A General Performance Bonds

- **General:** 10% of total utility/stormwater upgrade cost.
- **Electrical:** 100% of electrical upgrade cost.
- **Water/Sewer:** 100% of water/sewer upgrade cost.
- **Job Density:** 10% of estimated economic impact.
- **SCRM:** 5% of equipment cost.
- **SOFC/Advanced Tech:** 25% of stack/component replacement cost.
- **Decommissioning:** 125% of independent restoration estimate.
- **Phase-Specific Bonds: Bonds may be posted per phase rather than total project, provided total coverage equals 100% of projected costs.**

6.5-B Environmental & Impact Bonds

- **Groundwater:** 150% of estimated well replacement cost (2-mile radius).
- **E-Waste:** 150% of estimated remediation cost.
- **Water Security Escrow:** \$250,000 minimum.
- **Carbon Fee Escrow:** For verification/fee collection costs.
- **Chemical Discharge Bond: Additional bond of \$50,000 (or 10% of estimated remediation cost) to cover potential chemical contamination cleanup.**

6.5-C Release Conditions Bonds released only after:

1. Utility upgrades complete **for the specific phase.**
2. RE Plan Approved **for the specific phase.**
3. Final inspection passed **for the specific phase.**
4. Job density verified **for the specific phase.**
5. SCRM confirmed **for the specific phase.**
6. APGA/SOFC satisfied **for the specific phase.**
7. Decommissioning plan approved **for the specific phase.**
8. Groundwater recovery verified **for the specific phase.**
9. Certificate of Completion issued for the specific phase. **10. Chemical Discharge Compliance verified for the specific phase.**

6.5-D Forfeiture & Adjustments

- **Forfeiture:** If conditions not met within 180 days, bond forfeited.
- **Adjustments:** Planning Commission may increase bonds if costs rise.
- **Phase Failure: Failure to complete Phase 1 within the approved timeline results in automatic forfeiture of Phase 2 approval and associated bonds.**
- **Chemical Violation: Forfeiture of Chemical Discharge Bond if contamination occurs.**

ARTICLE 7: ADMINISTRATION, APPEALS & ENFORCEMENT

7.1 Penalties & Enforcement

A. Administrative Violations (5-Day Cure)

- Late filings, minor reporting errors, bond adjustments.
- Fine: \$1,000/day (after 5-day cure).

B. Operational Violations (Immediate Fine)

- Noise/Light exceedance: \$5,000/violation.
- Generator abuse (outside limits): \$5,500/violation.
- Wet cooling operation: \$5,000/day.
- On-Site Renewable failure: \$10,000/day.
- Supply Chain/APGA non-compliance: \$5,000/day.
- **Unauthorized Phase Advancement: Commencing construction of a subsequent phase without a Certificate of Completion for the prior phase: \$5,000/day per day of unauthorized work.**

C. Environmental Emergencies (Immediate Fine + Bond)

- Groundwater impact: 150% of remediation cost per well/day (Min \$10k, Max \$500k total).
- PFAS exceedance: \$25,000/day per exceedance.
- Hazardous material storage: \$10,000/day.
- E-Waste violation: \$15,000/day per violation.
- GHG reporting failure: \$10,000/day per scope.
- **Chemical Discharge Violation: Discharge of prohibited chemicals or failure to meet discharge limits: \$25,000/day per violation.**

D. Financial Defaults

- Carbon Fee non-payment: \$5,000/day + interest.
- Bond forfeiture: Full bond amount.

E. Cumulative Fines & Daily Cap

- Total fines for all violations shall not exceed **\$500,000 per day**.
- Fines for multiple violations are cumulative up to the cap.

F. Repeat Offenders

- 2 violations in one year elevates to Class C misdemeanor (Up to \$5,000 + 90 days jail).

7.2 Reporting, Monitoring & Transparency

A. Publication

- Applications/hearings posted on website/newspaper ≥ 30 days prior.

B. HEID Registry

- Online registry listing: Applicant, site, loads, bonds, job density, SCRM, APGA status, PUE, generator logs, groundwater data, GHG emissions, climate risk disclosure, expert findings, **and Phase Completion Status.**

- **Chemical Discharge Data: Quarterly discharge test results (pH, TDS, biocides, heavy metals) shall be publicly posted.**

C. Quarterly Reporting

- Operators must submit: Electricity, GHG, water, waste (incl. PFAS), noise, lighting, employment, SCRM, SOFC, PUE, generator hours, emergency activations, groundwater levels, **and Phase Progress Reports.**
- **Chemical Discharge Report: Quarterly water quality test results for all discharge points.**

D. Community Outreach

- Public info session required for HEIDs >5 MW.

7.3 Zoning Board of Appeals (SLU Provisions)

- **Standards-Based Approval:** Shall be approved if compliant with standards (MCL 125.3504(3)).
- **Required Findings:** District eligibility, completeness, noise/light/cooling compliance, hazardous controls, public services, permits, decommissioning, groundwater protection.
- **Conditions:** Must be impact-related and proportional.
- **Phasing Appeals: Developers may appeal denial of a Phase Certificate of Completion to the ZBA within 30 days.**
- **Chemical Discharge Appeals: Developers may appeal denial of discharge compliance or imposition of fines to the ZBA within 30 days.**

ARTICLE 8: GENERAL PROVISIONS

8.1 Severability If any provision is held invalid (including preemption by state/federal law), the remainder shall continue in full force. The Township may amend severed provisions to comply with law.

8.2 Existing HEID Facilities (Non-Conforming Use)

- Facilities operating prior to effective date may continue as lawful non-conforming uses.
- Must register within 180 days.
- Status terminates if: Operations cease >180 days; structural mod >50%; expansion >25%.
- Termination requires compliance or decommissioning.

8.3 Administrative Record

- All decisions supported by written record (staff recs, expert testimony, hearing transcripts, findings).
- Record maintained for 10 years.

8.4 Burden of Proof

- **Applicant:** Compliance by preponderance of evidence.
- **Township:** Non-compliance by substantial evidence; Violations by clear and convincing evidence.

8.5 Rational Basis for Classification

- Classifications based on objective criteria (MW, water, footprint) serving legitimate interests (infrastructure, quality of life, environment).

8.6 Reasonable Economic Use (Takings Clause)

- Regulations shall not deprive all economic viability.
- Variances available for unique hardship.

8.7 State and Federal Law Compliance (Preemption)

- Interpreted consistently with MCL 125.3001 et seq.
- State/Federal law controls if preempted.
- Township Attorney to review for preemption conflicts.

8.8 Variance Procedures

- ZBA may grant variances for unique hardship, not self-created, minimum necessary, no public welfare impairment.
- Decision within 60 days.
- **Phasing Variances:** Variances from phasing timelines or acreage limits may be granted if unique physical circumstances prevent compliance.
- **Chemical Discharge Variances:** Variances from chemical discharge limits may be granted only if the applicant demonstrates that no feasible alternative treatment exists and that the discharge poses no threat to public health or the environment.

8.9 Judicial Review Standard

- Rational basis test. Findings presumed correct unless clearly erroneous.
- Challenges filed within 30 days.

8.10 Enhanced Notice Requirements

- Notice to owners within 1,000 ft; adjacent municipalities (5 mi); utilities/emergency services.
- Certified mail \geq 60 days prior.

8.11 Conflict of Interest

- Disclosure of financial/personal interests required. Recusal mandatory.

8.12 Ordinance Review The Planning Commission shall review this Ordinance every three years to assess: a. Effectiveness in achieving stated goals. b. Economic impact on development and employment. c. Infrastructure capacity and strain. d. Changes in technology or industry standards. e. Effectiveness of the phased development provisions. f. **Effectiveness of chemical discharge controls and water quality monitoring.** Amendments may be proposed based on review findings.

8.13 Repealer Any provision of any existing ordinance of Washington Township that is in conflict with the provisions of this Ordinance is hereby repealed to the extent of such conflict. In the event of any conflict between the provisions of this Ordinance and any other ordinance, the provisions of this Ordinance shall control regarding High-Energy Intensive Developments. This repeal shall not affect any pending application, ongoing proceeding, or existing liability accrued prior to the effective date of this Ordinance.

INTEGRATION & CROSS-REFERENCE GUIDE

Current Ordinance Location	Insert / Replace With	Notes
§ 2.2 (Definitions)	Add §§ 2.1 -- 2.32 (New definitions).	Added "Chemically Treated Water Discharge" (§2.31) and "Blowdown" (§2.32). Added "Chemical Discharge Plan" to §2.16(k).
§ 4.38 (Special Land Uses)	Append "(HEID -- see § 4.1)".	Cross-reference added.
New § 4.1 -- 4.11	Insert after last existing § 4.69.	Contains all Use Standards. Added §4.1-B (Phased Authority) and §4.2-17 (Chemical Plan).
§ 4.70-L (Old)	Replaced by § 4.10 & § 4.11.	Restructured for flow.
§ 5.13 (Environmental)	Add new § 5.1 -- 5.6.	Consolidated environmental provisions. Added §5.1-F (Chemical Discharge).
§ 6.4 (Review)	Replace with § 6.1 & § 6.2.	Streamlined procedure. Added Phase Advancement Review and Chemical Verification steps.
New Article 6.5	Insert New Article 6.5.	Consolidated all bonds/escrows. Added Chemical Discharge Bond (§6.5-B) and Release Conditions.
§ 7.11 (Penalties)	Replace with § 7.1.	Categorized by severity. Added "Chemical Discharge Violation".
New § 7.2	Insert New § 7.2.	Consolidated reporting/registry. Added Chemical Discharge Data and Reports.
New Article 8	Insert New Article 8.	Moved Severability, Variances, Repealer. Added Phasing and Chemical Variances.

Current Ordinance Location	Insert / Replace With	Notes
§ 7.9 (ZBA)	Updated to § 7.3.	Aligned with new structure. Added Phasing and Chemical Discharge Appeals.
Existing Ordinances	New § 8.13 (Repealer).	Repeals conflicting provisions.

EXHIBITS

Exhibit A -- HEID Review Checklist

Item	Document Required	Reviewer
Electrical Load & Upgrade Cost	Detailed Electrical Impact Report (§ 4.2-2)	Township Engineer & Utility Liaison
Water Demand & Sewer Capacity	Water-Use Impact Study (§ 4.2-4)	Sanitary Engineer / Health Dept.
Noise Prediction	Noise-Impact Assessment (§ 4.2-5)	Acoustical Engineer
Light-Pollution Control	Lighting-Control Plan (§ 4.2-6)	Lighting Specialist
Renewable-Energy Offset	Proof of REO (§ 2.3)	Energy Specialist
Performance Bonds	Electrical, Water, Job Density, SCRM, Advanced Tech, Decommissioning, Groundwater, Water Security, Carbon Fee, E-Waste, Chemical Discharge Bonds (§ 6.5)	Treasurer's Office
Mitigation & Storm-Water Plan	MP (§ 5.1)	Engineer
Cumulative Energy Load Analysis	CEL calculation (§ 4.5)	Planning Engineer
Job Density Compliance	Job Density Compliance Plan (§ 4.7)	Planning Commission
Supply Chain Risk Management	SCRM Plan (§ 4.8)	Cybersecurity Specialist & Township Engineer
Alternative Power Generation Analysis	APGA (§ 4.9)	Independent Energy Consultant & Township Engineer
Power Generation & Cooling Standards	Compliance with § 4.10 (Hydrocarbon/Cooling)	Township Engineer & Fire Marshal
Siting & Setbacks	Siting Compliance Plan (§ 4.6)	Planning Commission

Item	Document Required	Reviewer
Waste-Management Plan	Waste-Management Plan (§ 2.9)	Environmental Consultant
PUE Disclosure	PUE Calculation & Benchmark Plan (§ 5.1)	Energy Specialist
Generator Run-Hour Tracking	Generator Log & Testing Schedule (§ 4.10)	Fire Marshal
Groundwater Impact Study	Dewatering Plan & Baseline Monitoring (§ 5.2)	Licensed Hydrogeologist
GHG Emissions Reporting	GHG Reporting Plan (§ 5.3)	Environmental Consultant
Carbon Impact Fee Calculation	Carbon Fee Documentation (§ 5.4)	Treasurer's Office
E-Waste Management Plan	EWMP (§ 5.6)	Environmental Consultant
On-Site Renewable Energy Plan	Renewable Energy Plan (§ 4.11)	Energy Specialist
Emergency Activation Logging	Emergency Notification & Run-Hour Logs (§ 4.10)	Building Official
Public Notice & Registry Entry	Draft notice & online entry	Planning Dept.
Phased Construction Plan	Phased Construction Plan (§ 4.2-16)	Planning Commission
Phase 1 Certificate of Completion	Verification of Phase 1 compliance before Phase 2 approval	Building Official & Planning Commission
Chemical Discharge Management Plan (CDMP)	CDMP with SDS, discharge limits, and treatment methods (§ 4.2-17)	Sanitary Engineer & Environmental Consultant
Chemical Discharge Compliance	Quarterly test results and verification of compliance (§ 5.1-F)	Independent Water Quality Expert

The Planning Commission shall sign off on the checklist before issuing a Letter of Determination.

EFFECTIVE DATE & ADOPTION PROCEDURE

This amendment shall take effect [X] days after adoption and apply to all new HEID applications filed after that date.

Implementation Timeline

Step	Action	Target Date
1	Draft and adopt amendment language (this document)	30 days after council vote
2	Update Township website, forms, and public-notice templates	60 days post-adoption
3	Conduct training for Planning Commission, Building Official, and Utility Liaisons	90 days post-adoption
4	Begin accepting HEID applications	120 days post-adoption
5	Publish first HEID Registry entry (if any)	150 days post-adoption

CONCLUSION

The foregoing amendment creates a coherent, enforceable set of rules that:

1. Identify high-energy-intensive developments with clear size classes and disclosure requirements.
2. Require rigorous energy-impact analysis, utility-capacity verification, and renewable-energy offsets.
3. Secure financial guarantees to fund required infrastructure upgrades.
4. Mandate minimum job density (10 jobs per MW) to ensure local economic benefits.
5. Require Supply Chain Risk Management (SCRM) plans to prevent facility abandonment due to hardware shortages or vendor failures.
6. Require Alternative Power Generation Analysis (APGA) including evaluation of latest energy technologies (SOFC, hydrogen, advanced nuclear, etc.) by qualified energy consultants and engineers before permit approval.
7. Prohibit wet/evaporative cooling and continuous hydrocarbon generation.
8. Include comprehensive infrasound protections (1-20 Hz, dB(G) measurement).
9. Address disposal, abandonment, high/low-frequency noise, and light-pollution concerns.
10. Include MCL 125.3504(3) standards-based approval rule for Special Land Uses.
11. Include legal defensibility enhancements to withstand judicial scrutiny (Severability, Preemption, Takings safeguards).
12. Preserve the health, safety, environmental quality, and character of Washington Township for current and future residents.
13. Protect residents during construction phase with groundwater monitoring, dewatering limits, and restitution protocols (§ 5.2).
14. Require applicant-funded independent expert verification to ensure technical accuracy (§ 6.2).
15. Establish strict emergency generator controls with notification, caps, and community remedies (§ 4.10).
16. Implement on-site renewable energy requirements to prevent remote REC/VPPA loopholes (§ 4.11).
17. Establish climate accountability through GHG reporting and Local Environmental Mitigation Impact Fee (§ 5.3, § 5.4).

18. Mandate e-waste management with NIST SP 800-88 data destruction standards (§ 5.6).
19. Authorize phased development to verify infrastructure and environmental compliance before expanding site footprint (§ 4.1-B).
20. **Establish strict controls on chemically treated water discharge, including prohibited substances, mandatory treatment, and quarterly monitoring (§ 5.1-F).**
21. Repeal conflicting provisions to ensure legal clarity and uniformity (§ 8.13).

Adoption of this amendment will place Washington Township on a solid legal footing to manage the growing demand for data-center-type facilities while safeguarding community interests, protecting local water infrastructure, and ensuring thorough evaluation of emerging clean energy technologies.

APPENDIX A: KEY LEGAL PRECEDENTS

Case	Citation	Relevance
Village of Euclid v. Ambler Realty Co.	272 U.S. 365 (1926)	Police power authority for zoning regulations.
Nollan v. California Coastal Commission	483 U.S. 825 (1987)	Rational nexus requirement for exactions.
Dolan v. City of Tigard	512 U.S. 374 (1994)	Rough proportionality test for development conditions.
Penn Central Transportation Co. v. New York City	438 U.S. 104 (1978)	Regulatory takings analysis framework.
MCL 125.3504(3)	Michigan Zoning Enabling Act	Standards-based approval rule ("shall be approved if compliant").

APPENDIX B: SUMMARY STATISTICS

Category	Count
Existing Sections Modified	6
New Substantive Sections	13 (Added Phased Development Authority & Chemical Discharge Control)
Legal Defensibility Sections	13
Total New Sections Added	26
Total Document Sections	33 (including Implementation Timeline)