GROVELAND TOWNSHIP

Oakland County, Michigan

Draft August 2026

ORDINANCE NO. _____-2026

AN ORDINANCE ESTABLISHING PROTECTIVE STANDARDS FOR DATA CENTERS AND BATTERY ENERGY STORAGE SYSTEMS (BESS) TO PROTECT PUBLIC HEALTH, THE MARSHALL FORMATION AQUIFER, WETLANDS, FORESTS, PARKS, AND THE RECREATIONAL CHARACTER OF GROVELAND TOWNSHIP

INCLUDING ARTICLES XII AND XIII — MANDATORY SURETY BOND REQUIREMENTS

PREAMBLE

WHEREAS, Article VII of the Michigan Zoning Enabling Act, MCL 125.3701 et seq., and the Michigan Home Rule Township Act, MCL 41.801 et seq., authorize Groveland Township to regulate land uses through its zoning ordinance to protect the public health, safety, and general welfare of its residents; and

WHEREAS, Groveland Township's adopted Master Plan identifies the Township as a recreation, natural resource, and rural residential community, with designated preservation areas encompassing forested lands, wetlands, and recreation corridors including Holly Recreation Area and boundary wetlands, and the Master Plan expressly contemplates that future development shall be compatible with these natural resource and recreational goals; and

WHEREAS, The Marshall Formation aquifer underlying Groveland Township is the sole source of drinking water for Township residents, it has no practical alternative water supply, and its recharge areas, sustainable yield, and vulnerability to contamination require extraordinary protection not fully addressed by existing state and federal minimum standards; and

WHEREAS, Large-scale data centers require tens of megawatts of electrical power, consume hundreds of thousands of gallons of water daily for cooling, operate banks of diesel emergency generators whose NO_x emissions are 200 to 600 times higher per unit of energy produced than natural gas-fired equivalents (EPA AP-42), and rely upon Battery Energy Storage Systems (BESS) that pose acute fire, thermal runaway, and air toxics risks; and

WHEREAS, The irreplaceable nature of the Marshall Formation aquifer as the Township's sole source of drinking water creates a unique and non-delegable obligation upon the Township to require that any industrial facility of the scale and character of a data center post financial security sufficient to

fund the complete replacement of the Township's water supply system if the aquifer is impaired or destroyed, without burdening Township taxpayers; and

WHEREAS, The history of abandoned industrial facilities across Michigan demonstrates that without mandatory, independently held, Oakland County-custodied decommissioning bonds refreshed every five years, data center operators may cease operations, declare bankruptcy, or transfer ownership, leaving communities with stranded toxic infrastructure they cannot afford to remediate; and

WHEREAS, The Township Board has determined that data centers and BESS facilities as defined herein may only be authorized by Special Land Use Permit (SLUP) following a finding of Master Plan compatibility, and only upon posting of all required surety bonds, including the Environmental Impairment and Infrastructure Surety Bond and the Decommissioning and Site Restoration Bond established in Articles XII and XIII of this Ordinance;

NOW, THEREFORE, BE IT ORDAINED by the Groveland Township Board of Trustees as follows:

ARTICLE I — TITLE, PURPOSE, FINDINGS & MASTER PLAN CONSISTENCY

Section 1.01 — Title

This Ordinance shall be known as the Groveland Township Data Center and Energy Storage Protection Ordinance.

Section 1.02 — Purpose

The purpose of this Ordinance is to:

(a) Protect public health by establishing air quality standards for PM2.5 and NO_x that exceed applicable federal and state minimums;

(b) Protect the Marshall Formation aquifer — the Township's sole drinking water source — from depletion and contamination through withdrawal limits, mandatory well testing, post-construction monitoring, and presumptions of operator liability;

(c) Protect wetlands, forests, parks, and recreation corridors identified in the Master Plan from incompatible industrial uses;

(d) Require posting of an Irrevocable Environmental Impairment and Infrastructure Surety Bond sufficient to fund a complete alternative public water supply system for the entire Township in the event of aquifer failure attributable to data center operations;

(e) Require posting of a Decommissioning and Site Restoration Bond held in escrow by Oakland County sufficient to fund complete facility removal, remediation, and ecological restoration; and

(f) Ensure that any data center or BESS facility approved in the Township undergoes rigorous environmental review, continuous monitoring, and meaningful public notification and enforcement.

Section 1.03 — Master Plan Consistency Finding Required

No SLUP for a data center or BESS facility shall be approved unless the Planning Commission makes an affirmative written finding of compatibility with the Groveland Township Master Plan. A proposed use shall be presumed incompatible where: (a) the parcel is within a Master Plan–designated recreation, natural resource, or rural residential corridor; (b) the facility would be within 1,000 feet of a designated park, trail, campground, or public recreation area; or (c) the facility's projected water withdrawal would reduce the sustainable yield of the Marshall Formation aquifer available for residential use.

Section 1.04 — Findings of Fact

(a) Diesel generators emit NO_x 200 to 600 times greater per unit of energy than natural gas turbines (EPA AP-42).

(b) PM2.5 above 12 $\mu g/m^3$ annual mean is causally linked to cardiovascular mortality, respiratory hospitalization, and reduced pediatric lung development (EPA CASAC, 2022).

(c) BESS thermal runaway events release ultrafine particulate matter, hydrogen fluoride, and toxic combustion gases.

(d) The Marshall Formation aquifer is a fractured-bedrock, slow-recharge system with no practical alternative supply for Township residents.

(e) Michigan's history of brownfield sites demonstrates that facilities without independently held, adequately funded, regularly refreshed decommissioning bonds may leave communities with unremediated toxic sites.

(f) Groveland Township lacks any EGLE ambient air monitoring station within its boundaries, making fence-line monitoring the only practical local health protection mechanism.

ARTICLE II — DEFINITIONS

As used in this Ordinance:

Battery Energy Storage System (BESS): Any electrochemical energy storage device or system with a nameplate capacity of 100 kWh or greater used in conjunction with a data center, regardless of whether energy is stored for on-site or off-site use.

Data Center: Any facility with a total IT load of one (1) MW or greater, or gross floor area exceeding 20,000 square feet, used primarily for housing computer servers and associated network, power, and cooling infrastructure. Includes server farms, cryptocurrency mining, and blockchain processing facilities.

Data Center Accessory Use: Ancillary structures incidental to a Data Center including administrative buildings, security buildings, diesel emergency generators, electrical substations, cooling towers, water holding facilities, and fire suppression systems, on the same unified development parcel. Does not include energy generation for normal operations.

Decommissioning Bond: The Decommissioning and Site Restoration Bond required by Article XIII of this Ordinance, equal to 125% of an independent cost estimate for complete facility removal,

remediation, and ecological restoration, held in escrow by Oakland County. All cost estimate, contingency, peer-review, and no-substitution requirements are governed exclusively by Article XIII.

Diesel Emergency Generator (DEG): Any compression-ignition engine fueled by diesel used for standby, emergency, or peak-shaving power at a data center, including any engine rated above 50 horsepower.

Environmental Impairment Bond: The Environmental Impairment and Infrastructure Surety Bond required by Article XII of this Ordinance, equal to 125% of an independent cost estimate to design, engineer, acquire easements for, and construct a Township-wide public water distribution system as an alternative to the Marshall Formation aquifer. All cost estimate, contingency, peer-review, and no-substitution requirements are governed exclusively by Article XII.

Fence Line: The legal property boundary of the data center facility parcel at any point along its perimeter.

Marshall Formation Aquifer: The Marshall Sandstone formation underlying Groveland Township constituting the sole practical source of potable groundwater for Township residents, recognized as a vulnerable, slow-recharge fractured sandstone aquifer.

Sensitive Receptor: Any residential dwelling, school, preschool, child or adult daycare, hospital, assisted-living facility, long-term care facility, nursing home, community center, place of worship, park, playground, campground, dormitory, or other land use where children, elderly, or medically vulnerable populations regularly congregate.

Sustainable Yield: The annual quantity of groundwater safely withdrawable from the Marshall Formation without depleting storage, degrading quality, impairing existing water rights, depleting surface water by induced infiltration, or causing land subsidence.

Township Environmental Officer (TEO): The designated Township official or contracted environmental professional responsible for monitoring, enforcement, and reporting under this Ordinance.

ARTICLE III — APPLICABILITY & SPECIAL LAND USE PERMIT

Section 3.01 — Applicability

This Ordinance applies to any data center or BESS facility that: (a) is proposed for construction or expansion within Groveland Township after the effective date; (b) is an existing facility adding diesel generators totaling more than 500 kW or any BESS of 100 kWh or greater after the effective date; or (c) changes its use in a manner increasing power demand, water withdrawal, or air emissions above the thresholds herein.

Section 3.02 — Special Land Use Permit Required

No data center or BESS facility subject to this Ordinance may be constructed, operated, or expanded without a SLUP from the Groveland Township Planning Commission. No SLUP shall be issued and no building permit shall be approved until both required surety bonds (Articles XII and XIII) are confirmed in place.

Section 3.03 — Application Requirements

A complete SLUP application shall include: (a) a facility operations narrative; (b) an Environmental and Community Impact Analysis (Article IV), including electromagnetic field (ELF-EMF) analysis as required by Section 4.01(l); (c) a Hydrogeologic Study and Groundwater Monitoring Plan (Article V); (d) an Air Quality Assessment and Emission Inventory (Article VI); (e) a Sound Impact Study by a certified acoustical engineer, including C-weighted (dBC) and G-weighted infrasound analysis as required by Section 7.01; (f) a Fire Protection and BESS Emergency Response Plan, including worst-case hydrogen fluoride (HF) dispersion model as required by Section 9.02; (g) a Community Host Agreement proposal; (h) a Master Plan Consistency Statement; (i) a 12-month pre-construction baseline air quality monitoring campaign at a minimum of four fence-line locations; (j) a certified cost estimate for the Environmental Impairment and Infrastructure Surety Bond (Article XII); (k) a certified cost estimate for the Decommissioning and Site Restoration Bond (Article XIII); (l) a pre-construction ELF-EMF baseline study as required by Section 7.04; (m) a property value impact analysis as required by Section 17.03(e); and (n) a Dark Sky Lighting Plan and photometric analysis as required by Section 16.01(d).

Section 3.04 — SLUP Review Procedure

The SLUP review shall include at least two (2) public hearings. The Township may retain independent technical consultants at the applicant's expense. No SLUP shall be granted where the required surety bonds (Articles XII and XIII) have not been posted and confirmed.

Section 3.05 — Community Host Agreement

The Township Board may enter into a voluntary Community Host Agreement addressing community impact fees allocated to public safety, parks, recreation infrastructure, open space preservation, road maintenance, and Township environmental monitoring. The CHA shall be reviewed every three (3) years.

ARTICLE IV — ENVIRONMENTAL AND COMMUNITY IMPACT ANALYSIS

Section 4.01 — Required Analysis

The Applicant shall submit an ECIA prepared by a licensed PE, ecologist, or environmental planner addressing: (a) air quality impacts from all stationary and mobile sources; (b) Marshall Formation aquifer, surface water, and wetland impacts (Article V); (c) noise and vibration impacts (Article VII); (d) light and glare impacts; (e) traffic and road infrastructure; (f) stormwater management; (g) emergency services impacts; (h) solid and hazardous waste; (i) heat island impacts; (j) wildlife and

wetland habitat impacts; (k) municipal revenue and expense impacts; and (l) electromagnetic field (ELF-EMF) impacts from all proposed electrical substations, transformers, and transmission infrastructure, as required by Section 7.04.

Section 4.02 — Anti-Idling Requirement

Anti-idling signage shall be posted where 15 or more trucks may park or congregate. No diesel vehicle shall idle for more than three (3) minutes on or adjacent to the facility property.

Section 4.03 — Extraordinary Event Reporting

Upon any fire, BESS thermal runaway, hazardous material release, significant personal injury, or other catastrophic event, the operator shall notify the Township within two (2) hours and submit a full written report within 48 hours. Three (3) extraordinary events within 36 months trigger a mandatory SLUP review and potential bond drawdown.

ARTICLE V — GROUNDWATER & WATER RESOURCE PROTECTION

Section 5.01 — Marshall Formation Aquifer — Special Protections

In recognition of the Marshall Formation aquifer as the Township's sole drinking water source with no practical alternative supply, the following standards apply in addition to all NREPA Part 31 requirements:

(a) No facility shall withdraw groundwater in excess of 25,000 gpd averaged over any consecutive 30-day period.

(b) The Applicant shall demonstrate that proposed withdrawals will not reduce the sustainable yield of the aquifer available for residential use.

(c) No SLUP shall be approved where the hydrogeologic study cannot demonstrate with reasonable scientific certainty that 180-day continuous pumping at the proposed rate will not impair the yield of any existing well within 5,000 feet of the facility boundary.

Section 5.02 — Hydrogeologic Study

The Applicant shall submit a hydrogeologic study by a licensed Michigan professional geologist, including: (a) hydrological setting analysis; (b) full aquifer test per Michigan DEQ Document 394-2125-001; (c) analysis of hydraulic conductivity, transmissivity, storage coefficient, and safe yield; (d) one-in-ten-year drought availability analysis; and (e) impact assessment and remediation feasibility for all wells within the cone of depression.

Section 5.03 — Pre-Construction Neighbor Well Testing

The Applicant shall notify, by certified mail, all property owners within 5,000 feet and offer to test each well for water quality, depth, and static and pumping water levels. All testing shall be performed by a certified laboratory and licensed hydrogeologist at the Applicant's full expense.

Section 5.04 — Groundwater Monitoring Plan

A minimum of one (1) upgradient and three (3) downgradient monitoring wells with continuous automated water-level loggers shall be installed. Monthly well inspections and quarterly water quality sampling (results posted publicly within 30 days) are required throughout facility operations.

Section 5.05 — Adverse Impact Presumption & Remediation

The Operator is presumed responsible for any adverse impact to wells within the AOI occurring within 60 months of full pumping commencement. Confirmed adverse impacts require remediation at no cost to the affected property owner.

Section 5.06 — Neighbor Well Financial Security

Prior to SLUP issuance, the Applicant shall deposit financial security equal to $10,000 multiplied by the number of water supply wells within 5,000 feet, held for 60 months. This is separate from and does not reduce the Environmental Impairment Bond required by Article XII.

Section 5.07 — Wetland & Surface Water Protection

No principal structure, BESS, or DEG shall be located within 300 feet of any regulated wetland, inland lake, or stream, or 2 times the applicable EGLE-required buffer, whichever is greater. No net loss of wetland function or acreage shall occur.

ARTICLE VI — AIR QUALITY PROTECTION STANDARDS

Section 6.01 — General Standard

No facility shall cause or contribute to ambient air pollutant concentrations in excess of the thresholds in this Article at any point on or beyond the facility fence line. Compliance with NAAQ5 or EGLE rules does not substitute for compliance with this Ordinance where this Ordinance is more protective.

Section 6.02 — PM2.5 Thresholds

(a) Annual Average: ≤ 8 $\mu g/m^3$ (33% more protective than EPA NAAQS 12 $\mu g/m^3$)

(b) 24-Hour Average: ≤ 25 $\mu g/m^3$ (29% more protective than EPA NAAQS 35 $\mu g/m^3$)

(c) DEG Property-Line Limit: ≤ 2.5 $\mu g/m^3$ at fence line; all DEGs shall meet EPA Tier 4 Final ≤ 0.01 g/bhp-hr

(d) BESS: Zero routine PM2.5 emissions; ≤ 1.0 $\mu g/m^3$ at fence line during any thermal event

(e) Cumulative Net Increase: ≤ 0.5 $\mu g/m^3$ annual; ≤ 2.0 $\mu g/m^3$ 24-hr above pre-construction baseline

Section 6.03 — NO_x Thresholds

(a) Per-Engine Rate: ≤ 0.50 g/bhp-hr annual average (25% below EPA Tier 4 Final)

(b) Fence-Line Concentration: ≤ 2 ppm NO_2 (1-hr avg.); alert level at 1 ppm

(c) Facility Annual Cap: ≤ 10 tons/year total NO_x from all DEGs

(d) Ambient NO_2: ≤ 70 µg/m³ annual mean; ≤ 130 µg/m³ 1-hour avg.

(e) Generator Testing: ≤ 100 hrs/year; weekdays only 8:00 AM–5:00 PM; no weekends or holidays. [Amended to match Section 7.02 window: 8 AM–5 PM year-round supersedes prior 9 AM–4 PM window. Section 7.02 governs in the event of any conflict.]

(f) Ozone Precursor: Combined net VOC+NO_x ≤ 25 tons/year; annual photochemical dispersion model

Section 6.04 — Monitoring & Reporting

Minimum four (4) EPA FRM/FEM certified continuous fence-line monitors measuring PM2.5 and NO_2; real-time public data portal updated within 24 hours; semi-annual certified emission inventory (January 31 and July 31).

ARTICLE VII — NOISE, VIBRATION & LIGHT

Section 7.01 — Noise Standards

Noise limits at any Sensitive Receptor property boundary — measured at the Sensitive Receptor property line, not solely at the facility fence line: (i) Daytime (7 AM–10 PM): ≤ 55 dBA LEQ; (ii) Evening (10 PM–11 PM): ≤ 50 dBA LEQ; (iii) Nighttime (11 PM–7 AM): ≤ 45 dBA LEQ. The 55 dBA CNEI limit applies to daytime hours only and does not constitute a nighttime standard. Non-Sensitive Receptor: daytime ≤ 65 dBA, evening ≤ 60 dBA, nighttime ≤ 55 dBA. All noise compliance measurements shall include C-weighted (dBC) and G-weighted (infrasound) measurements in addition to standard A-weighted (dBA). A dBC – dBA differential exceeding 15 dB shall constitute an independent violation requiring additional low-frequency acoustic mitigation at the Operator's expense. At least two (2) continuous noise monitoring stations shall be sited at the nearest Sensitive Receptor properties, in addition to fence-line monitors.

Section 7.02 — Generator Testing — Seasonal Restrictions

Generator load testing is permitted year-round on weekdays only, 8:00 AM to 5:00 PM, regardless of season. Maximum four (4) hours per test event. Maximum 100 hours per calendar year for all non-emergency testing. No testing on weekends, State of Michigan holidays, or evenings. This section supersedes any conflicting testing window in Section 6.03(e); the 8:00 AM–5:00 PM weekday-only window in this Section governs. Pre-construction sound modeling and as-built sound study required.

Section 7.03 — Vibration & Light

Vibration: ≤ ISO 2631-2 Residential Day criteria; ≤ 200 µm/s RMS per 1/3 octave band. Light: full-cutoff LED fixtures; ≤ 0.1 footcandle at any Sensitive Receptor property at any time.

Section 7.04 — Electromagnetic Field (ELF-EMF) Standards

(a) Pre-Construction ELF-EMF Baseline Study. Prior to SLUP application, the Applicant shall retain an independent licensed EMF engineer (independent of the Applicant and having no financial relationship with the facility) to establish baseline ELF-EMF milligauss levels at all Sensitive Receptor locations within 5,000 feet of the proposed facility boundary, including all proposed substation and transmission infrastructure footprints. Baseline measurements shall be conducted over a minimum 30-day period using calibrated gaussmeters in accordance with IEEE Standard 644. Results shall be submitted to the Township Environmental Officer and posted publicly within 30 days of completion.

(b) Post-Construction Continuous EMF Monitoring. The Operator shall install and maintain continuous ELF-EMF monitoring equipment at a minimum of four (4) locations at the nearest Sensitive Receptor properties to any electrical substation or transmission infrastructure associated with the facility. Monitoring data shall be transmitted to a real-time public data portal updated at minimum daily. An independent licensed EMF engineer approved by the Township shall conduct an annual review of monitoring data and submit findings to the Township Board.

(c) EMF Reporting Threshold. If continuous monitoring detects ELF-EMF levels exceeding 3 milligauss at any Sensitive Receptor location, the Operator shall notify the Township within 24 hours and submit a mitigation plan to the Township Board within 30 days.

(d) Funding. All costs of ELF-EMF baseline study, monitoring equipment, monitoring operation, annual review, and any required mitigation shall be borne entirely by the Applicant or Operator.

ARTICLE VIII — SITE DESIGN, SETBACKS, BUFFERS & LANDSCAPING

Section 8.01 — Minimum Setbacks

(a) 500 feet from any Sensitive Receptor property boundary

(b) 300 feet from any regulated wetland, inland lake, or stream (or 2× EGLE buffer, whichever is greater)

(c) 1,000 feet from any Master Plan–designated park, trail, campground, or public recreation area

(d) 200 feet from all other property lines and road rights-of-way

(e) 300 feet for DEGs and BESS from any Sensitive Receptor property line; 150 feet from all other lines

(f) 1,000 feet for any electrical substation, high-voltage transformer yard, or transmission line corridor addition from any Sensitive Receptor property boundary or Master Plan-designated park, trail, campground, or public recreation area. This setback applies to all new or upgraded substation or transmission infrastructure required by the facility, whether located on or off the facility parcel.

Section 8.02 — Landscape Buffer

Minimum buffer depth: 300 feet adjacent to Sensitive Receptors (principal footprint <100,000 sq ft); 500 feet (≥100,000 sq ft). Buffer shall include a 10-foot earthen berm (max 2:1 slope) planted with diesel-resistant native species achieving a complete visual screen ≥ 12 feet height within three (3) years.

Section 8.03 — Planting Standards

One (1) large evergreen per 25 linear feet; one (1) canopy tree per 75 linear feet; one (1) ornamental/flowering tree per 50 linear feet; five (5) shrubs per 25 linear feet (min. 50% evergreen). Native species only; no invasive species per MDNR lists; no single species >25% of total. Performance-bonded through two (2) growing seasons.

Section 8.04 — Equipment Screening & Facade

All ground-mounted and rooftop equipment shall be fully enclosed or screened on all sides. Principal facades facing roads or Sensitive Receptor properties shall incorporate fenestration or material/design change at intervals ≤ 150 horizontal linear feet; fenestration ≥ 30% of each principal facade.

ARTICLE IX — FIRE PROTECTION, BESS SAFETY & EMERGENCY MANAGEMENT

Section 9.01 — Emergency Response Plan

An ERP reviewed and accepted by the Groveland Township Fire Department prior to Planning Commission action shall include: fire suppression and evacuation procedures; site access and hydrant assessment; first-responder training program (funded by operator); and annual third-party fire safety inspections.

Section 9.02 — BESS Requirements

BESS shall comply with NFPA 855; include dedicated fire suppression; incorporate continuous thermal monitoring and automated early detection; be inspected by an independent third-party contractor approved by the Fire Chief annually; and be setback a minimum of 300 feet from any Sensitive Receptor property boundary. In addition: (i) The SLUP application shall include a worst-case hydrogen fluoride (HF) dispersion model prepared by a licensed air quality engineer, demonstrating predicted ground-level HF concentrations at all Sensitive Receptor locations under worst-case thermal runaway scenarios; (ii) Perimeter HF detection sensors shall be installed at a minimum of four (4) locations at the facility fence line, with automatic notification to the Township Environmental Officer and Groveland Township Fire Department upon any HF detection above background levels; (iii) The Emergency Response Plan required by Section 9.01 shall include a BESS-specific protocol addressing HF exposure protection for first responders, including required PPE and evacuation zones; (iv) Any confirmed HF release, regardless of quantity, constitutes an Extraordinary

Event under Section 4.03 requiring immediate 911 notification and the two-hour Township notification requirement.

Section 9.03 — Prohibition on Normal-Operations Power Generation

Fossil fuel power generation for normal operations is prohibited. DEGs are permitted solely as backup/emergency power and for limited testing authorized in Article VI.

ARTICLE X — PUBLIC NOTIFICATION, MONITORING, REPORTING & PENALTIES

Section 10.01 — Public Notification

Any confirmed threshold exceedance triggers: Township website posting within 2 hours; automated text/email alerts to registered residents within 2 hours; written exceedance report to Township Board within 48 hours.

Section 10.02 — Cumulative Health Impact Assessment

Independent CHIA required pre-construction and every 3 years, assessing PM2.5 and NO_x exposure risks within one (1) mile of the fence line, posted for 30-day public comment before any renewal of SLUP conditions.

Section 10.03 — Annual Compliance Report

Submitted by March 1 annually: all air quality data, groundwater data, water and power usage, DEG runtime hours, BESS events, extraordinary events, emission inventory, and bond currency confirmation.

Section 10.04 — Penalty Schedule

(a) Air quality threshold exceedance: $10,000/day per pollutant

(b) Groundwater standard exceedance: $10,000/day; facility operations may be suspended

(c) Delay in public notification beyond 2-hour requirement: $5,000/hour

(d) Generator runtime outside permitted hours or in excess of 100-hr cap: $5,000/hour

(e) Failure to submit required emission inventory or annual report: $25,000

(f) Missing or non-reporting fence-line air monitor: $10,000/day per monitor

(g) Surety bond lapse (either bond): $50,000/day until cured; automatic SLUP suspension

(h) Three (3) confirmed threshold exceedances in any rolling 12-month period: mandatory SLUP revocation proceeding

ARTICLE XI — FIRE PROTECTION FINANCIAL ASSURANCE & COMPLAINT RESOLUTION

Section 11.01 — Complaint Resolution

The operator shall maintain a Township-approved public complaint resolution plan providing a named contact, written response to all complaints within five (5) business days, and quarterly summary reporting of all complaints and resolutions to the TEO.

Section 11.02 — Decommissioning Plan

A Decommissioning Plan shall be submitted with the SLUP application demonstrating how the facility will be safely removed and the site restored. The Plan shall be consistent with and reference the Decommissioning and Site Restoration Bond required by Article XIII.

ARTICLE XII — ENVIRONMENTAL IMPAIRMENT AND INFRASTRUCTURE SURETY BOND

> ⚑ *MANDATORY CONDITION OF SLUP APPROVAL — NO PERMIT OF ANY KIND SHALL ISSUE UNTIL THIS BOND IS CONFIRMED IN PLACE. This bond is non-negotiable and reflects the Township's determination that the Marshall Formation aquifer, as the sole source of drinking water with no practical alternative supply, must be protected by financial assurance sufficient to replace the entire Township water supply system if the aquifer is impaired or destroyed by data center operations.*

Section 12.01 — Purpose and Rationale

The Marshall Formation aquifer is the sole source of potable water for every residential, agricultural, and commercial parcel in Groveland Township, with no municipal water alternative and no comparable alternative groundwater formation. The Township Board finds that no level of operational precaution fully eliminates the risk of aquifer failure and that such failure would be catastrophic to residents and financially devastating to the Township. This Ordinance therefore requires that any data center operator post and maintain, throughout the entire operating life of the facility and for twenty (20) years thereafter, an irrevocable surety bond sufficient to fund complete replacement of the Township's water supply system.

Section 12.02 — Bond Requirement

(a) Amount: The Environmental Impairment and Infrastructure Surety Bond shall be issued in an amount equal to one hundred twenty-five percent (125%) of the total estimated cost, as determined by the Independent Cost Estimate required by Section 12.03, to design, engineer, acquire easements for, and physically construct a public municipal water distribution system capable of connecting every residential, agricultural, and commercial parcel within Groveland Township to a verified, operational, and reliable alternative municipal water source outside the Marshall Formation aquifer service area.

(b) Form: The bond shall be issued as either: (i) an Irrevocable Letter of Credit from a federally chartered bank or savings institution with a minimum credit rating of A- (S&P) or equivalent, naming the Township as sole beneficiary; or (ii) a Surety Bond issued by a licensed Michigan surety company with a minimum AM Best rating of A- and a financial size category of Class VIII or greater, naming the Township as obligee.

(c) Issuer Independence: The bond shall NOT be issued by or held by the facility developer, operator, or any parent, affiliate, subsidiary, or investor-related entity. The bond must be callable directly by the Township without involvement or consent of the developer or operator.

(d) Duration: The bond shall remain in force throughout the entire operating life of the facility and for twenty (20) years following permanent facility closure, or until such time as the Township Board, upon the advice of an independent licensed hydrogeologist, determines by resolution that the Marshall Formation aquifer has been fully restored to pre-construction baseline conditions, whichever is later.

Section 12.03 — Independent Cost Estimate

Prior to SLUP application, and every five (5) years thereafter, the Applicant shall commission, at its sole expense, an Independent Cost Estimate prepared by a licensed Michigan Professional Civil Engineer who is independent of the Applicant and has no financial relationship with the facility. The estimate shall include, at minimum:

(a) Engineering design and permitting costs for a complete Township-wide public water distribution system;

(b) Land acquisition and easement costs to route water mains to all Township parcels;

(c) Cost of physically constructing the distribution system, including pipe, pumping stations, pressure zones, meters, and service connections to every parcel;

(d) Cost of interconnection to a verified, active alternative municipal water source (e.g., Oakland County Water Authority, Great Lakes Water Authority, or equivalent);

(e) Water treatment costs if required for the alternative source;

(f) A contingency factor of not less than twenty percent (20%) of the total estimated construction cost; and

(g) All costs expressed in current-year dollars, escalated by an appropriate construction cost index for the estimate period.

The completed estimate shall be submitted to and approved by the Township Board before the bond amount is set. The Township may retain an independent peer-review engineer at the Applicant's expense to verify the estimate.

Section 12.04 — Five-Year Refresh

Every five (5) years from the date of SLUP issuance, the operator shall commission a new Independent Cost Estimate meeting the requirements of Section 12.03 and shall increase the bond amount to 125% of the updated estimate within ninety (90) days of the new estimate's approval by the Township Board. Failure to timely refresh the bond shall constitute a violation of this Ordinance subject to the penalty provisions of Section 10.04(g) and automatic SLUP suspension.

Section 12.05 — Callability

The bond is callable, in whole or in part, by Township Board resolution upon a determination, following notice to the operator and a reasonable opportunity to cure not to exceed thirty (30) days, that:

(a) The Marshall Formation aquifer has been confirmed by an independent licensed hydrogeologist to have been impaired, contaminated, or rendered unsafe for potable use, in whole or material part, in a manner attributable to facility operations;

(b) The operator has failed to remediate confirmed adverse groundwater impacts as required by Section 5.05 within the timeframes specified; or

(c) The bond has lapsed and has not been replaced within thirty (30) days.

No court order shall be required to draw on the bond. Proceeds shall be held in a dedicated restricted fund administered by the Township and used exclusively for the design, engineering, easement acquisition, and construction of a replacement public water supply system for the Township.

Section 12.06 — Bond Release

The Environmental Impairment Bond may not be released while the facility operates. After permanent facility closure, the bond shall be retained for twenty (20) years unless, prior to the expiration of that period, an independent licensed hydrogeologist provides written certification to the Township that the Marshall Formation aquifer has been fully restored to pre-construction baseline conditions as measured at all monitoring wells within the AOI for not less than five (5) consecutive years. The Township Board shall approve any release by resolution at a duly noticed public meeting.

ARTICLE XIII — DECOMMISSIONING AND SITE RESTORATION BOND

⚑ *MANDATORY CONDITION OF BUILDING PERMIT ISSUANCE — NO GROUND DISTURBANCE MAY OCCUR UNTIL THIS BOND IS CONFIRMED HELD BY OAKLAND COUNTY. This bond is non-negotiable and is specifically designed to prevent Groveland Township from becoming a brownfield site the Township and its taxpayers cannot afford to remediate. The bond shall be held exclusively by Oakland County — not by the Township, not by the developer, and not by any entity affiliated with the facility.*

Section 13.01 — Purpose and Rationale

Michigan's history of abandoned industrial facilities demonstrates that without independently held, fully funded, regularly refreshed decommissioning bonds, operators may cease business, declare bankruptcy, or transfer ownership to shell entities incapable of remediation, leaving communities with unremediated toxic sites. Data centers contain diesel fuel, battery electrolytes, refrigerants, fire suppressants, transformer oils, and electronic waste — all requiring specialized disposal. The Township Board finds that the only effective protection against this risk is to require, before any ground is broken, a fully funded, immediately callable decommissioning bond custodied exclusively by Oakland County.

Section 13.02 — Bond Requirement

(a) Amount: The Decommissioning and Site Restoration Bond shall be issued in an amount equal to one hundred twenty-five percent (125%) of the total estimated cost, as determined by the Independent Decommissioning Cost Estimate required by Section 13.03, for the complete decommissioning, demolition, waste disposal, soil remediation, groundwater remediation, and ecological restoration of the facility site.

(b) Form: The bond shall be issued as either: (i) a Surety Bond from a licensed Michigan surety company with a minimum AM Best rating of A- and financial size category Class VIII or greater; or (ii) a cash escrow deposit. Irrevocable Letters of Credit are acceptable only with prior written approval of the Oakland County Corporation Counsel.

(c) Custodian — Oakland County: The Decommissioning Bond shall be held exclusively in escrow by Oakland County, Michigan. It shall NOT be held by the Township, by the developer or operator, by any lender, investor, or parent company affiliated with the facility, or by any third-party escrow agent not approved by Oakland County. Oakland County shall serve as escrow agent under terms established in a Tri-Party Escrow Agreement between the operator, Groveland Township, and Oakland County, executed before any building permit is issued.

(d) Tri-Party Escrow Agreement: The Tri-Party Escrow Agreement shall specify: (i) the conditions for bond drawdown; (ii) Oakland County's obligation to notify the Township within three (3) business days of any lapse, material change, or drawdown event; (iii) the Township's right to direct drawdown by Board resolution; and (iv) the use of proceeds exclusively for decommissioning and site restoration costs.

Section 13.03 — Independent Decommissioning Cost Estimate

Prior to building permit issuance, and every five (5) years thereafter, the Applicant shall commission an Independent Decommissioning Cost Estimate by a licensed Michigan Professional Engineer independent of the Applicant, including at minimum:

(a) Demolition and structural removal of all buildings, foundations, and above-ground structures;

(b) Removal of all diesel generators, transformers, BESS units, and associated fuel and chemical storage systems;

(c) Disposal of all hazardous waste, including battery electrolytes, PCB-containing equipment, diesel fuel, refrigerants, fire suppressants, and electronic waste, in accordance with RCRA, NREPA Part 111, and all applicable federal and state laws;

(d) Sub-surface soil sampling across the facility footprint and a Phase II Environmental Site Assessment conducted by a qualified environmental professional;

(e) Soil remediation to residential cleanup criteria under Michigan Part 201 (MCL 324.20101 et seq.) for all identified contaminants;

(f) Groundwater remediation to applicable cleanup criteria under Michigan Part 201 if contamination is identified;

(g) Ecological and habitat restoration of the site to a condition consistent with surrounding natural areas, including native re-vegetation;

(h) Administrative costs, engineering oversight, regulatory compliance, and permit fees for the complete decommissioning process; and

(i) A contingency factor of not less than twenty percent (20%) of the total estimated cost, expressed in current-year dollars.

The estimate shall be submitted to and approved by Oakland County and the Township Board. The Township may retain a peer-review engineer at the Applicant's expense.

Section 13.04 — Five-Year Refresh and Automatic Upward Adjustment

Every five (5) years from building permit issuance, the operator shall commission a new Independent Decommissioning Cost Estimate and increase the bond amount to 125% of the updated estimate within ninety (90) days of approval. The bond amount shall be adjusted upward automatically upon each refresh; it shall not be reduced below its prior amount without written approval of both Oakland County and the Township Board. Failure to refresh constitutes a violation subject to Section 10.04(g) penalties and automatic suspension of the Certificate of Occupancy.

Section 13.05 — Callability

The Decommissioning Bond is callable by Township Board resolution directed to Oakland County upon any of the following:

(a) Facility closure for any reason, including voluntary closure, regulatory closure, or abandonment;

(b) Operator bankruptcy, insolvency, receivership, or assignment for the benefit of creditors;

(c) SLUP revocation by the Township Board;

(d) Cessation of facility operations for twelve (12) or more consecutive months without written approval of the Township Board; or

(e) Bond lapse not cured within thirty (30) days.

Oakland County shall disburse bond proceeds to Groveland Township within ten (10) business days of receiving a Township Board resolution directing drawdown. Proceeds shall be deposited in a dedicated Township Decommissioning Fund used exclusively for facility decommissioning, site remediation, and ecological restoration costs, as approved by the Township Board.

Section 13.06 — Bond Release

The Decommissioning Bond shall not be released until all of the following conditions are satisfied and confirmed in writing:

(a) Complete removal of all structures, equipment, foundations, fuel storage, BESS units, and hazardous materials, certified by a licensed PE;

(b) Completion of Phase II Environmental Site Assessment with no identified conditions requiring further remediation, or, if remediation is required, a Michigan DEQ-certified No Further Action letter;

(c) Groundwater monitoring demonstrating attainment of applicable Part 201 cleanup criteria for not less than five (5) consecutive years after active remediation is complete;

(d) Independent ecological assessment certifying habitat restoration consistent with surrounding natural areas; and

(e) Township Board resolution at a duly noticed public meeting approving bond release upon the recommendation of the TEO and the Township's consulting environmental engineer.

Oakland County shall release the bond only upon receipt of a certified Township Board resolution meeting the above conditions.

ARTICLE XIV — GENERAL PROVISIONS

Section 14.01 — Relationship to State & Federal Law

This Ordinance supplements and does not supersede applicable federal Clean Air Act requirements, Michigan NREPA, Michigan Air Pollution Control Rules (R 336.1 et seq.), or EGLE/MDEQ permit conditions. Where this Ordinance establishes more protective standards, this Ordinance governs. Where state or federal law is more protective, that law governs.

Section 14.02 — Severability

If any provision of this Ordinance is held invalid, the remaining provisions shall continue in full force and effect. The surety bond requirements of Articles XII and XIII are expressly declared to be severable from all other provisions and independently enforceable.

Section 14.03 — Amendments

The Township Board may amend the thresholds established herein by resolution, provided that: (a) no amendment shall result in air quality standards less protective than applicable NAAQS; and (b) the bond amounts required by Articles XII and XIII may not be reduced below 100% of the applicable independent cost estimate without a supermajority vote of four (4) of the five (5) Township Board members.

ARTICLE XV — ARSENIC MOBILIZATION, COOLING SYSTEM STANDARDS & TIERED REVIEW THRESHOLDS

Section 15.01 — Arsenic Mobilization Study Required

Naturally occurring arsenic is a documented regional groundwater risk in the Marshall Sandstone and overlying glacial drift formations underlying Groveland Township. Large, continuous groundwater withdrawals can alter aquifer chemistry and groundwater flow in ways that mobilize arsenic and increase concentrations in existing private wells. Accordingly, the following requirements apply as a condition of any SLUP application:

(a) Arsenic Mobilization Study. The Applicant shall submit a site-specific arsenic mobilization study conducted by a licensed Michigan professional geologist independent of the Applicant. The study shall include baseline arsenic sampling of all existing wells within 5,000 feet of the facility boundary, geochemical modeling of arsenic release potential under proposed pumping scenarios, analysis of

aquifer redox conditions and iron-reducing bacterial activity, and an assessment of the risk of arsenic concentration increase in private wells within the cone of depression under one-in-ten-year drought conditions.

(b) Arsenic Monitoring. The Applicant shall include arsenic as a required analyte in all pre-construction and ongoing quarterly water quality sampling required by Section 5.04. If any confirmed arsenic increase attributable to facility operations is detected in any monitored well, operations shall be reduced or suspended until remediation is complete.

> (b-1) Arsenic Action Threshold. If arsenic concentration in any monitored well within the cone of depression increases by more than 2 µg/L above the pre-construction baseline established under Section 15.01(a), or if any monitored well exceeds the EPA Maximum Contaminant Level of 10 µg/L, whichever standard is lower, the Operator shall: (i) immediately reduce groundwater withdrawals to zero; (ii) notify the Township Environmental Officer and EGLE within 24 hours; (iii) submit a remediation plan to the Township Board within 15 days; and (iv) not resume operations until the Township Board, upon the advice of an independent licensed hydrogeologist, determines by resolution that the arsenic increase has been remediated to baseline levels. Failure to comply with this provision shall be subject to the penalty provisions of Section 10.04.

(c) Chemical Prohibition. No land use governed by this Ordinance shall introduce biocides, chemical scale inhibitors, corrosion inhibitors, or any other water treatment chemicals into any open-loop or evaporative cooling system in a manner that risks infiltration to the Marshall Formation aquifer or surface waters.

Section 15.02 — Cooling System Technology Standards

(a) Open-Loop and Open Evaporative Cooling Prohibited. No data center or BESS facility shall utilize open-loop cooling, open evaporative cooling towers drawing on groundwater, or any cooling technology that consumptively withdraws groundwater from the Marshall Formation aquifer. Only closed-loop cooling systems — including air-side free cooling (economizers), closed-loop chilled water systems, direct-to-chip liquid cooling, and immersion cooling — are permitted. All cooling systems shall be identified and described in detail in the SLUP application and shall be approved by the Planning Commission before installation. Enforcement: The Operator shall install and maintain continuous automated flow meters on all cooling system intake and discharge lines, with real-time data transmitted to the Township Environmental Officer. Any detected groundwater draw from the Marshall Formation Aquifer through the cooling system shall constitute an immediate SLUP revocation trigger. An annual certification of cooling system compliance shall be provided by a licensed mechanical engineer independent of the Operator.

(b) Closed-Loop System Wastewater and Blowdown Management. Any wastewater generated by a closed-loop cooling system — including chemical treatment bleed-off, filter backwash, glycol or dielectric fluid replacement, and system drain-down for maintenance or decommissioning — shall be fully contained and either treated and recycled on-site or removed by a permitted waste hauler; no such wastewater shall be discharged to the ground surface, a subsurface drain field, dry well, or any conveyance with the potential to infiltrate the Marshall Formation aquifer. Any facility generating process wastewater on a recurring basis shall install and maintain an on-site water

treatment system sized to treat that wastewater to applicable discharge standards, and shall submit as-built plans and an operations and maintenance manual for that system to the Township Environmental Officer prior to issuance of a Certificate of Occupancy.

(c) Heat Island Impact Analysis. Any facility within one (1) mile of a designated recreation area, campground, outdoor sports facility, or seasonal business dependent on ambient air temperature (including Mt. Holly Ski Resort) shall submit a thermal plume and heat island impact analysis prepared by a licensed mechanical engineer, demonstrating that facility operations will not cause a measurable increase in ambient air temperature exceeding 0.5°F at the boundary of any such resource, as averaged over any consecutive 30-day period during October through March. No SLUP shall be approved where the analysis cannot demonstrate compliance with this threshold.

Section 15.03 — Tiered Electrical Demand Review Thresholds

In addition to the SLUP requirement of Article III, the following tiered review requirements apply based on projected electrical demand at full build-out. Phasing shall not be used to avoid a higher-tier review; all studies shall evaluate the ultimate build-out condition of the project including all reasonably foreseeable expansions:

(a) Greater than 10 MW: Enhanced Site Plan Review; disclosure of maximum demand, cooling technology, backup systems, and operating characteristics; noise and traffic impact disclosure.

(b) Greater than 25 MW: Utility Infrastructure Impact Study assessing transmission capacity, substation needs, grid reliability, residential rate impacts, and all proposed upgrades; all grid upgrade costs shall be 100% developer-funded and secured by surety bond before any permit issues.

(c) Greater than 50 MW: Full SLUP; Comprehensive Environmental Impact Assessment; independent expert review funded by applicant; Township Board approval required.

(d) Greater than 100 MW: Enhanced SLUP Review; Township-selected independent expert panel funded by applicant; mandatory Township Board approval before Planning Commission action.

(e) Any diesel generator aggregate backup exceeding 10 MW: Noise study; air emissions documentation; fuel storage and spill prevention plan; emergency response plan; fuel delivery logistics plan required.

(f) Any expansion adding more than 10% of permitted electrical capacity or more than 10 MW: Updated impact studies required; expansion treated as a new application subject to full review under the standards applicable at time of expansion.

Section 15.04 — Tiered Groundwater Withdrawal Review Thresholds

The following tiered review requirements apply in addition to the withdrawal cap of Section 5.01. All tiers are evaluated at the ultimate build-out condition of the facility:

(a) 10,000–50,000 GPD: Hydrogeologic study; well interference analysis; wetland impact review; arsenic baseline sampling required.

(b) 50,000–100,000 GPD: Independent third-party hydrogeologic review funded by applicant; monitoring wells; seasonal and cumulative analysis; arsenic mobilization study per Section 15.01 required.

(c) Greater than 100,000 GPD: Presumed incompatible. Applicant must affirmatively demonstrate through independent study that no adverse impact will occur to existing wells, wetlands, aquifer recharge zones, surface waters, or future residential water availability within 5,000 feet. A scientifically defensible pump test of up to 30 days, full groundwater modeling, and Township-selected peer review funded by the applicant are required. No drawdown in excess of one (1) foot at any property boundary shall be permitted.

ARTICLE XVI — DARK SKY LIGHTING, ROAD INFRASTRUCTURE, NDA PROHIBITION & PHASED DEVELOPMENT CONTROLS

Section 16.01 — Dark Sky and Light Pollution Standards

Groveland Township contains over 8,600 acres of publicly accessible recreation land including the Holly Recreation Area, campgrounds, trails, and parks. More than 35% of the Township's land base is protected public recreation land. Dark skies are a recognized recreational, ecological, and quality-of-life resource. The following standards apply to all facilities governed by this Ordinance, consistent with the Model Lighting Ordinance (MLO) developed by DarkSky International and the Illuminating Engineering Society (IES):

(a) All exterior lighting shall use fully shielded, full-cutoff LED fixtures directing light downward only. No upward-directed or unshielded lighting is permitted at any time.

(b) Light trespass shall not exceed 0.1 footcandle at any Sensitive Receptor property boundary at any time (consistent with Section 7.03). No measurable sky glow increase shall occur at any designated park, campground, or recreation area boundary as demonstrated by a photometric study submitted with the SLUP application.

(c) Security lighting on parking areas, electrical substations, mechanical yards, and perimeter fencing shall use motion-activated or sensor-dimming controls that reduce output to 20% or less during off-peak hours (10:00 PM to 6:00 AM) when no activity is present.

(d) The SLUP application shall include a Dark Sky Lighting Plan and a full-build-out photometric analysis demonstrating compliance with this Section for the ultimate development footprint including all planned expansions, parking areas, substations, and access roads.

(e) Wildlife and habitat light-trespass impacts shall be assessed and mitigated. Fixtures shall use color temperatures of 3,000K or lower where feasible to reduce impact on bird, bat, and pollinator behavior.

Section 16.02 — Road Infrastructure Protection Bond

(a) Pre-Construction Road Condition Survey. Before any grading, site clearing, or construction activity commences, the Applicant shall fund a pre-construction road condition survey by an independent licensed civil engineer, documenting the condition of all Township and county roads on all truck haul routes within 2 miles of the facility. The survey shall be submitted to and approved by the Township Board and shall serve as the baseline for all post-construction road restoration obligations.

(b) Road Restoration Bond. Prior to issuance of any grading or building permit, the Applicant shall post a Road Infrastructure Restoration Bond equal to 125% of the independent engineer's estimated

cost to restore all haul-route roads to pre-construction condition. The bond shall be held by Oakland County under the same terms as the Decommissioning Bond (Article XIII) and shall be callable by Township Board resolution upon completion of construction if road restoration is not completed within 180 days of the date of Certificate of Occupancy.

(c) Frost Law Restrictions. No construction vehicle exceeding Michigan statutory weight limits shall operate on any Township or county road during posted frost law periods (typically March through May) without prior written approval of the Township Road Commission and execution of a road damage escrow agreement. Heavy truck routes shall be identified in the SLUP application and shall be subject to Planning Commission approval.

(d) Construction Dust Control. The Applicant shall submit and implement a Construction Dust and Emissions Control Plan, including water suppression for all unpaved areas, wheel wash stations at site exits, haul road stabilization, and cover requirements for all material transported off-site. All construction equipment shall meet EPA Tier 4 Interim or Final emission standards. No open burning of construction debris is permitted.

(e) Operations-Phase Traffic Management Plan. The Operator shall submit to the Township Environmental Officer, by March 1 of each year of operation, an annual truck traffic log documenting: all delivery routes used for fuel, equipment, and hardware; frequency of deliveries; vehicle weight classes; and road condition observations on all Township roads used for fuel and equipment delivery. The Road Infrastructure Restoration Bond required by Section 16.02(b) shall remain in force throughout the full operating life of the facility, not only through the construction phase, and shall be refreshed every five (5) years based on updated independent road condition surveys of all haul routes. The Operator shall bear the cost of all such surveys.

Section 16.03 — NDA Prohibition and Transparency Requirements

(a) NDA Prohibition. No Township official, employee, Planning Commissioner, Township Board member, or Township consultant shall enter into any non-disclosure agreement, confidentiality agreement, or any other agreement restricting communication of information about a proposed data center or BESS facility with any developer, applicant, or representative thereof, from the moment any pre-application inquiry, contact, or land acquisition inquiry is received by the Township. Any such agreement purported to bind a Township official shall be void and unenforceable. This provision is consistent with and supplements Michigan House Bill 5399.

(b) Open Meetings. All communications between Township officials and any data center developer or their representatives shall be conducted at duly noticed public meetings or in writing subject to FOIA. No informal meetings, pre-application negotiations, or site tours shall occur without public notice and documented minutes. This provision directly addresses the secret-meeting outcomes documented in Festus, Missouri (2026) and is necessary to protect the legal defensibility of any Township decision.

(c) Developer Financial Disclosure. All financial projections, job creation estimates, tax revenue projections, and infrastructure cost estimates submitted by an applicant shall be independently audited by a CPA firm retained by and reporting solely to the Township at the applicant's expense, before the Township Board or Planning Commission may rely on any such figure in a decision. No

data center tax revenue projection, employment promise, or infrastructure cost estimate shall be accepted as a condition of SLUP approval without such independent audit.

(d) Shell Company Disclosure. Any applicant that is a limited liability company, partnership, trust, or other entity shall disclose the identity of all beneficial owners holding 5% or more of any interest in the development entity, the identity of all parent companies and affiliated entities within three (3) tiers of ownership, and the identity of any end-user, operator, or data center tenant that has entered into any letter of intent, lease, or agreement relating to the facility. Failure to fully disclose shall be grounds for SLUP denial.

(e) Developer Contact Registry. The Township Supervisor shall designate a single authorized point of contact for all data center developer pre-application inquiries. Any contact received by any Township official, employee, board member, or consultant from a data center developer or their representative shall be reported to the Township Supervisor within 24 hours and logged in a public Developer Contact Registry maintained on the Township website. The Township Attorney shall review any written communication from a developer for NDA-like provisions before any Township response is made.

(f) Post-Approval Ownership Transfer. Any change in beneficial ownership of 10% or more of any interest in the facility, or any assignment, transfer, or pledge of the SLUP or associated surety bonds, shall require prior written notification to the Township Board and shall be subject to Township Board approval. The incoming owner or transferee shall independently satisfy all bond posting requirements of Articles XII and XIII before any transfer is effective. Any transfer made without complying with this provision shall constitute automatic SLUP revocation.

Section 16.04 — Phased Development and Cumulative Build-Out Controls

(a) Build-Out Evaluation Required. All environmental, hydrogeologic, electrical, noise, traffic, and impact studies required by this Ordinance shall evaluate the ultimate build-out condition of the facility including all reasonably foreseeable expansions on contiguous or adjacent parcels under common ownership or control, regardless of the size of the initial phase proposed. Phasing is not a mechanism for avoiding full-build-out review.

(b) Incremental Land Acquisition. Any acquisition of contiguous or adjacent parcels by the same developer, operator, or any entity under common or affiliated ownership occurring within 5 years of initial SLUP approval shall be presumed to be part of the same facility for purposes of all review thresholds, study requirements, bond amounts, and setback calculations under this Ordinance.

(c) Cumulative Impact Analysis. Where two or more data center facilities are proposed or operating within 2 miles of each other within Groveland Township, all impact analyses shall be conducted on a cumulative basis assessing the combined noise, air quality, water withdrawal, traffic, lighting, and emergency response demands of all facilities together. No individual facility SLUP shall be renewed or approved for expansion without a cumulative impact analysis current within 12 months.

ARTICLE XVII — FIRE AND EMERGENCY SERVICES FINANCIAL ASSURANCE, POST-MINING PARCEL STANDARDS & TAX ACCOUNTABILITY

Section 17.01 — Developer-Funded Emergency Services Contribution

A large-scale data center introduces industrial hazards, firefighting water demands of 2,000–10,000+ gallons per minute for 12–72 hours, utility-scale BESS thermal runaway risk, and high-voltage electrical infrastructure for which Groveland Township Fire Department is not currently resourced. No large-scale data center application shall advance without satisfaction of all requirements of this Article:

(a) Independent Fire Protection Engineering Study. A licensed fire protection engineer independent of the Applicant shall conduct a study determining actual emergency response requirements for the proposed facility, including water supply, apparatus, staffing, training, hazardous material response, and BESS thermal runaway scenarios. The study shall be submitted to and accepted by the Groveland Township Fire Chief and Planning Commission before any SLUP is approved. All study costs shall be borne by the Applicant.

(b) Developer Emergency Services Fund. As a condition of SLUP approval, the Applicant shall establish and pre-fund a Developer Emergency Services Fund (DESF) with an initial deposit calculated by the independent fire protection engineer to cover the capital cost of all equipment, apparatus, training, and specialized resources identified as necessary in the Fire Protection Engineering Study. The DESF shall be held in escrow by Oakland County and shall be drawn only upon Township Board resolution for the purpose of emergency services improvements directly related to data center response capability. The fund shall be replenished by the Operator to the Board-approved level within 90 days of any drawdown.

(c) Annual Training Contribution. The Operator shall fund annual specialized emergency response training for Groveland Township Fire Department personnel, including at minimum: high-voltage electrical hazard response; BESS thermal runaway and hydrogen fluoride mitigation; industrial hazardous materials response; large-building firefighting tactics; master stream and relay pumping operations; and unified command exercises. Training shall be conducted by qualified instructors approved by the Fire Chief and shall occur no less than once per year throughout the operating life of the facility. All costs shall be borne by the Operator.

(d) Dedicated On-Site Water Supply for Firefighting. The Applicant shall design, construct, and maintain at its sole expense a dedicated industrial-scale firefighting water supply system independent of the Marshall Formation aquifer and independent of any Township fire wells. The system shall be capable of providing a minimum sustained flow of 2,000 gallons per minute for 72 hours without aquifer withdrawal. The system design shall be approved by the Fire Chief and a licensed fire protection engineer before construction commences. The firefighting water supply system shall be operational before any Certificate of Occupancy is issued. Annual Re-Test Required: Upon completion of construction and annually thereafter, the firefighting water supply system shall be tested under realistic demand conditions by an independent fire protection engineer approved by the Fire Chief, with results certified in writing to the Township Environmental Officer. Any test result demonstrating less than 2,000 gpm sustained for 72 hours shall require immediate corrective action and constitutes a Certificate of Occupancy suspension event until the system is remediated and re-tested to the satisfaction of the Fire Chief.

(e) Ongoing Coverage. The Operator shall maintain a binding agreement with the Township to fund any additional staffing, apparatus, mutual aid agreements, or specialized equipment identified in

subsequent annual reviews of the Fire Protection Engineering Study, updated every three (3) years or after any major incident, whichever is sooner.

Section 17.02 — Post-Mining Parcel Standards

(a) Automatic Reversion. Upon completion of all mining and reclamation activities at any parcel currently zoned Extractive (E) within Groveland Township — including but not limited to the Mines of Groveland, Holly Sand & Gravel, Groveland Sand & Gravel, American Aggregates, and Gibraltar National parcels — such parcels shall automatically revert to Rural Estate/Farm (RE/F) zoning as the default designation, unless the Township Board of Trustees affirmatively rezones the parcel following full public notice and hearing under PA 110 of 2006 (Michigan Zoning Enabling Act).

(b) Open Marshall Formation Aquifer Parcels. Any parcel where gravel extraction has created direct surface exposure to the Marshall Formation aquifer (including the Mines of Groveland parcel) is designated a Critical Resource Protection parcel. No data center, BESS facility, fuel storage, chemical storage, or industrial use shall be permitted on any such parcel, and no SLUP shall be approved for any use within 1,000 feet of any open aquifer exposure area until the exposure is certified as fully remediated and sealed by a licensed professional geologist approved by EGLE.

(c) Conservation Priority. The Township Board shall explore Conservation Easement, Oakland County Parks acquisition, and Michigan Natural Resources Trust Fund partnership options for all post-mining Extractive parcels as a preferred alternative to industrial reuse.

Section 17.03 — Tax Accountability and Property Value Protection

(a) Binding Employment Obligations. No job creation projection submitted by an Applicant shall be relied upon by the Township unless it is incorporated as a binding contractual commitment in the Community Host Agreement (Section 3.05) with automatic tax clawback provisions enforceable under Michigan law. No retroactive redefinition of qualifying employment shall be permitted. If binding employment thresholds are not met within the timeframes specified, tax clawback shall be automatic and not subject to Board waiver without a supermajority vote of four (4) of the five (5) Township Board members.

(b) No Tax Abatements. No property tax abatement, tax increment financing, or tax incentive of any kind shall be offered or negotiated in connection with any data center SLUP without a supermajority vote of four (4) of the five (5) Township Board members following at least two (2) duly noticed public hearings at which independent fiscal analysis is presented.

(c) Dark Store Valuation Defense. As a condition of the Community Host Agreement, the Operator shall covenant not to challenge the assessed value of the facility using the "dark store" valuation methodology or any comparable theory that treats an operational data center as equivalent to a vacant industrial building for property tax purposes. The CHA shall include a minimum guaranteed annual payment in lieu of taxes (PILOT) calculated at the independently assessed value of the facility including all equipment, refreshed every three (3) years, regardless of any assessment challenge.

(d) Developer Activity Monitoring. The Township Supervisor and Township Environmental Officer are directed to monitor the MISO interconnection queue, Oakland County property records, EGLE pre-application filings, and any rezoning or pre-application inquiries for activity indicating developer

interest in Groveland Township parcels. Early identification of developer activity shall be reported to the Township Board at the first regular meeting following discovery and shall be publicly noticed.

(e) Pre-Construction Property Value Impact Assessment. As a condition of the SLUP application, the Applicant shall commission a property value impact analysis prepared by a licensed Michigan real estate appraiser independent of the Applicant, assessing the projected impact on residential and agricultural parcel values within one (1) mile of the proposed facility boundary. The analysis shall consider the impacts of noise, EMF, light pollution, traffic, and any other facility-related externalities identified in the Environmental and Community Impact Analysis required by Article IV. The analysis shall be submitted with the SLUP application and shall be available for public review during the SLUP hearing process.

(f) Post-Construction Property Value Review. An independent property value impact review by a licensed Michigan real estate appraiser shall be conducted every three (3) years during facility operations. If the review documents a statistically significant adverse impact on surrounding residential or agricultural property values attributable to the facility, as compared to the pre-construction baseline established under Section 17.03(e), the Operator shall increase the Community Host Agreement annual payment by an amount sufficient to offset the documented diminution, as determined by the Township Board. The cost of all property value analyses required by this section shall be borne by the Operator.

Section 17.04 — Effective Date

This Ordinance shall take effect thirty (30) days after publication as required by Michigan law.

ADOPTED by the Groveland Township Board of Trustees this ___ day of _____, 2025.

_____

_____

Township Supervisor Township Clerk

Sources: U.S. EPA NAAQS (40 CFR Part 50); EPA AP-42 Emission Factors; Michigan EGLE Air Quality Division Rules (R 336.1); Michigan NREPA Parts 31, 91, 111, 201, 301, 303, 365 (MCL 324 et seq.); EPA Tier 4 Final Standards (40 CFR Part 1039); EPA CASAC PM Scientific Review (2022); NFPA 855; ISO 9613-2; ISO 2631-2; Livingston County Data Center PUD Model Ordinance (2024); PennFuture Pennsylvania Data Center Model Ordinance (2024); Scio Township Draft Data Center Ordinance; Urban Land Institute Local Guidelines for Data Center Development (2024); Loudoun County, VA Zoning Ordinance Data Center Standards; Michigan Home Rule Township Act, MCL 41.801; Michigan Zoning Enabling Act, MCL 125.3701; Michigan Part 201 Cleanup Criteria (MCL 324.20101).

EXHIBIT B — SURETY BOND REQUIREMENTS DETAIL

Groveland Township Data Center and Energy Storage Protection Ordinance No. ____-2025 | Articles XII & XIII

Both bonds are MANDATORY, NON-NEGOTIABLE conditions of permit issuance. Neither bond may be waived, deferred, or reduced by the Township Board without a supermajority vote. The Decommissioning Bond is held exclusively by Oakland County — never by the Township or developer.

Bond Element	Environmental Impairment & Infrastructure Surety Bond	Decommissioning & Site Restoration Bond
Purpose	Ensure the Township can design, finance, and build a Township-wide public water system to replace the Marshall Formation aquifer in the event of failure or contamination caused by facility operations.	Ensure complete, funded facility removal, site remediation, and habitat restoration without cost to Groveland Township or its residents.
Bond Amount	125% of the independent licensed civil engineer's current cost estimate for the complete public water distribution system (see Section 12.03).	125% of the independent licensed cost estimator's current estimate for full decommissioning, demolition, waste disposal, soil remediation, groundwater remediation, and ecological restoration.
Held / Issued By	Irrevocable letter of credit from a federally chartered bank OR surety bond from a licensed Michigan surety company rated A- or better (AM Best). NOT held by the developer or any developer-affiliated entity.	Held in escrow by Oakland County, Michigan. NOT held by the Township, NOT by the developer, NOT by any lender or investor affiliated with the facility.
When Posted	Prior to SLUP issuance — no permit of any kind shall be issued until this bond is confirmed in place.	Prior to issuance of any building permit — no ground disturbance permitted until Oakland County confirms receipt.
Refresh Cycle	Reviewed and recertified by an independent licensed civil engineer every five (5) years. Bond amount updated upward to 125% of current cost estimate within 90 days of recertification. Township must approve any recertification.	Reviewed and recertified by an independent licensed cost estimator every five (5) years. Bond amount adjusted upward automatically. Oakland County and Township Board must approve any release or reduction.
Callable Upon	Confirmed aquifer failure, contamination, or material impairment attributable to facility operations, as determined by the Township Board after opportunity for hearing. Callable immediately by Board resolution. No court order required to draw.	Any of: (a) facility closure for any reason; (b) operator bankruptcy, receivership, or assignment; (c) SLUP revocation; (d) cessation of operations for 12+ months without written Township approval.

Bond Element	Environmental Impairment & Infrastructure Surety Bond	Decommissioning & Site Restoration Bond
Release Conditions	Bond may not be released while the facility operates. After permanent closure and confirmed aquifer restoration to pre-construction baseline (as verified by independent hydrogeologist), Township Board may release by resolution.	Bond may only be released after: (a) complete removal of all structures, equipment, and hazardous materials; (b) DEQ-certified soil and groundwater restoration; (c) independent ecological assessment confirming site restoration; (d) Township Board resolution approving release.
Lapse Consequences	Bond lapse = automatic SLUP suspension effective immediately; $50,000/day until a replacement bond is confirmed. Township may seek injunctive relief.	Bond lapse = automatic Certificate of Occupancy suspension; facility may not operate; $50,000/day until cured. Oakland County to notify Township within 3 business days of any lapse.
Cost Estimate Basis	Must include: engineering design, land acquisition and easements, pipe installation, pumping stations, water treatment, interconnection to verified alternative source, and 20% contingency. Estimate prepared by licensed PE independent of applicant.	Must include: demolition of all structures; removal of all generators, BESS, transformers, and fuel systems; hazardous waste disposal; sub-surface soil sampling and remediation; groundwater remediation if contaminated; habitat restoration; 20% contingency. Estimate prepared by independent licensed PE.

** 'Independently held' means the bond custodian (Oakland County for the Decommissioning Bond; the issuing bank or surety for the Environmental Impairment Bond) has no financial relationship with the facility operator, developer, or any affiliated entity. Proceeds are never co-mingled with operator funds.*

*** Cost estimates must be prepared by a licensed Michigan Professional Engineer with no financial relationship to the Applicant. The Township may retain a peer-review engineer at the Applicant's expense to verify any estimate.*

Township legal counsel should review the Tri-Party Escrow Agreement required by Section 13.02(d) with Oakland County Corporation Counsel prior to SLUP issuance.

EXHIBIT A — COMPREHENSIVE PROTECTIVE THRESHOLD REFERENCE TABLE

Ordinance No. ____-2025 | Groveland Township, Oakland County, Michigan | Includes Mandatory Surety Bond Requirements (Articles XII & XIII)

All air quality thresholds exceed EPA NAAQS and EGLE minimums. All groundwater thresholds reflect the sole-source, no-alternative-supply status of the Marshall Formation aquifer. Surety bond rows reflect the mandatory bond requirements of Articles XII and XIII. These thresholds are legally enforceable conditions of any issued SLUP.

AIR QUALITY — PM2.5 (FINE PARTICULATE MATTER)					
Pollutant / Source	**EPA/EGLE Standard**	**Township Annual Threshold**	**Township 24-hr Threshold**	**Monitoring Trigger**	**Enforcement Action**
PM2.5 – Ambient (all sources combined)	12 µg/m³ annual; 35 µg/m³ 24-hr (NAAQS)	8 µg/m³ annual avg.	25 µg/m³ 24-hr avg.	Any reading ≥ 15 µg/m³	Mandatory curtailment within 4 hrs
PM2.5 – Diesel Generator (per engine)	Tier 4 Final: ≤ 0.01 g/bhp-hr	≤ 0.01 g/bhp-hr; Tier 4 Final required	≤ 2.5 µg/m³ at property line	Any fence-line exceedance	Immediate shutdown; permit review
PM2.5 – BESS Thermal Events	No routine federal limit; NFPA 855 governs	Zero routine emissions	≤ 1.0 µg/m³ fence line during any event	Real-time continuous monitor alert	Auto suppression; 911; Township alert
PM2.5 – Cumulative Facility Total	NAAQS ambient limit applies	Net increase ≤ 0.5 µg/m³ above baseline	Net increase ≤ 2.0 µg/m³ 24-hr	Quarterly dispersion modeling required	Facility expansion moratorium
AIR QUALITY — NO_x (NITROGEN OXIDES — 200–600× HIGHER THAN NATURAL GAS)					
Pollutant / Source	**EPA/EGLE Standard**	**Township Annual Threshold**	**Township Short-Term Threshold**	**Monitoring Trigger**	**Enforcement Action**
NO_x – Per Diesel Generator	Tier 4 Final: ≤ 0.67 g/bhp-hr (>750 hp)	≤ 0.50 g/bhp-hr annual avg.	≤ 2 ppm at fence line (1-hr avg.)	Any fence-line reading ≥ 1 ppm	Generator shutdown; investigation
NO_x – All Generators (fleet total)	EGLE PTI/SIP facility cap	≤ 10 tons/yr total facility NO_x	≤ 5 ppm facility perimeter (1-hr avg.)	Monthly fleet hour-metered reporting	Permit suspension; stop-work order
NO_x – Ambient NO_2 (NAAQS proxy)	100 µg/m³ annual; 188 µg/m³ 1-hr	70 µg/m³ annual (30% below NAAQS)	130 µg/m³ 1-hour avg.	Any 1-hr reading ≥ 100 µg/m³	Curtailment; health advisory
Generator Testing & Maintenance	EPA: ≤ 100 hrs/yr non-emergency	≤ 100 hrs/yr; weekdays 9 AM–4 PM only	No weekends, holidays, or evenings	Automated runtime logging; monthly report	$5,000 per excess hour

Ozone Precursor ($VOC+NO_x$)	EPA 8-hr ozone NAAQS: 70 ppb	Combined net $VOC+NO_x \leq 25$ tons/yr	Photochemical dispersion model required	Annual 3rd-party atmospheric audit	No new capacity until compliance confirmed
WATER — MARSHALL FORMATION AQUIFER PROTECTION (SOLE-SOURCE)					
Resource	**Baseline Condition**	**Township Standard**	**Study Required**	**Monitoring**	**Consequence if Violated**
Marshall Formation Groundwater	Sole-source aquifer; no alternative supply	Zero net degradation; presumption of harm within 5 yrs; 5,000-ft radius	Hydrogeologic study + 12-mo baseline	Monthly water-level loggers; quarterly reporting	Halt operations; mandatory remediation at operator cost
Daily Withdrawal Volume	No local limit exists	≤ 25,000 gpd	Aquifer test per DEQ Doc. 394-2125-001; safe yield analysis	Continuous flow meter; daily recording	Exceeding cap = automatic SLUP revocation trigger
Pre-Construction Neighbor Well Testing	Not required by state	All wells within 5,000 ft; certified lab; applicant pays full cost	Results included in hydrogeologic report	Baseline water quality, depth, static level logged	Failure to test = application denied
Water Quality Non-Degradation	Part 31 NREPA governs	No statistically significant increase in conductivity, nitrates, VOCs, metals	Quarterly water quality sampling per DEQ methods	Independent certified lab; public within 30 days	$25,000/day; permit revocation
Neighbor Well Impact Security	Not required locally	$10,000 × number of wells within 5,000 ft held in escrow 60 months	Independent third-party hydrogeologist	Annual escrow review	Drawn by Township if operator fails to remediate
NOISE — COMMUNITY PROTECTION STANDARDS					
Receptor Type	**Time Period**	**CNEI Limit**	**Generator Testing Window**	**Maximum Testing Hours**	**Penalty for Violation**
Sensitive Receptors (residential, school, park, place of worship, daycare)	All hours	≤ 55 dBA CNEI at property boundary	May 1–Sep 30: 5–7 PM weekdays only; Oct 1–Apr 30: 11 AM–5 PM weekdays only	≤ 100 hrs/yr non-emergency; ≤ 1 hr/week in permitted windows	$10,000/day; noise study at operator expense

Non-Sensitive Adjacent Properties	Daytime (7 AM–6 PM weekday)	≤ 65 dBA LEQ at property boundary	Same testing restrictions apply	Same 100 hr/yr cap	$5,000/day first offense; $10,000/day repeat
Non-Sensitive Adjacent Properties	Nighttime (10 PM–7 AM)	≤ 50 dBA LEQ at property boundary	No testing permitted	N/A	Immediate stop-work; $15,000/night
Vibration (all receptors)	All hours	≤ ISO 2631-2 Residential Day; ≤ 200 µm/s RMS / 1/3 octave band	N/A	N/A	$10,000/day; vibration study at operator expense

SETBACKS, BUFFERS & LAND COMPATIBILITY

Feature	Adjacent Use / Resource	Min. Setback / Buffer	Buffer Content Required	Height Limit	Phase Requirement
Principal Building & BESS	Sensitive Receptor property line	500 ft	10-ft earthen berm + diesel-resistant native plantings; visual screen ≥ 12 ft within 3 yrs	45 ft (60 ft with rooftop equip.)	Full buffer before any equipment testing
Principal Building & BESS	Wetland or regulated water body	300 ft or 2× EGLE buffer (whichever greater)	Native wetland-edge plantings; no impervious surface	Same	Wetland delineation before SLUP issued
Diesel Generators / Mechanical Equip.	Sensitive Receptor property line	300 ft	Fully enclosed or screened all sides; no front-yard placement	Below principal building height	Screening complete before any generator testing
Parking	Sensitive Receptor property line	100 ft; 50 ft if natural forest screening undisturbed	10-ft berm if no natural screening	N/A	N/A
Any Facility Structure	Parks, trails, recreation areas (Master Plan)	1,000 ft from designated recreation areas	Full native landscape buffer	45 ft	Master Plan compatibility finding required pre-construction

SURETY BONDS — REQUIRED FINANCIAL ASSURANCE (NEW — ARTICLES XII & XIII)

Bond Type	Amount	Held By	Refresh / Release	Callable Upon	Consequence of Non-Posting

Environmental Impairment & Infrastructure Surety Bond	125% of independent engineer's estimated cost to design, engineer, acquire easements for, and construct a full Township-wide public water distribution system connecting all residential, agricultural & commercial parcels to a verified alternative municipal water source	Irrevocable instrument issued by a licensed Michigan surety company or federally chartered bank (letter of credit) — NOT held by developer	Reviewed and recertified every 5 years by independent licensed civil engineer; amount updated to current cost estimate	Upon confirmed Marshall Formation aquifer failure, contamination, or impairment attributable to facility operations — callable immediately by Township Board resolution	No SLUP issued; no building permit issued; facility may not operate
Decommissioning & Site Restoration Bond	125% of independent third-party cost estimate for full facility removal, equipment disposal, site grading, soil remediation, groundwater remediation, and habitat restoration — updated every 5 years	Held in escrow by Oakland County — NOT by the Township, NOT by the developer, NOT by any entity related to the facility	Reviewed and recertified every 5 years; amount adjusted upward automatically if cost estimate increases; Township Board approval required for any release	Callable immediately upon: (a) facility closure; (b) operator bankruptcy; (c) SLUP revocation; (d) 12-month cessation of operations without Township approval	No Certificate of Occupancy; no operations permitted; Township may seek injunctive relief

MONITORING, REPORTING & ENFORCEMENT SUMMARY

Requirement	Who Performs	Frequency	Submission To	Public Access	Penalty for Non-Compliance
Fence-line PM2.5 + NO_2 Monitoring	Operator (independent certified lab); min. 4 EPA FRM/FEM monitors	Continuous real-time	Township Environmental Officer (TEO)	Live public data portal within 24 hrs	$10,000/day per missing or non-reporting monitor

Emission Inventory	Licensed Michigan air quality PE	Semi-annual: Jan 31 & Jul 31	Township Clerk + TEO	Posted on Township website within 15 days	$25,000 fine; permit revocation possible
Groundwater Monitoring (wells)	Independent licensed hydrogeologist	Monthly (water levels); Quarterly (water quality)	TEO + Oakland County Water Resources	Public within 30 days of each report	$10,000/day; halt of operations if degradation confirmed
Cumulative Health Impact Assessment	Independent 3rd-party (Township-approved list)	Pre-construction + every 3 years	Township Board	Posted 30 days for public comment	No Certificate of Occupancy until baseline HIA approved
Emergency Event Notification	Operator	Within 2 hrs of any exceedance, fire, BESS event, or spill	TEO + 911 (if applicable)	Township website + automated resident alert	$5,000/hr delay; permit revocation after 3 events in 12 months
Annual Bond Certification	Independent licensed engineer or surety agent	Every 5 years (bonds); annual confirmation of bond currency	Township Clerk + Oakland County (Decommissioning Bond)	Township public records	Bond lapse = automatic suspension of SLUP; $50,000/day until cured

Sources: U.S. EPA NAAQS (40 CFR Part 50); EPA AP-42; EGLE Air Quality Division Rules (R 336.1); EPA Tier 4 Final (40 CFR Part 1039); EPA CASAC PM Review (2022); NFPA 855; Michigan NREPA Parts 31, 111, 201, 301, 303; ISO 9613-2; ISO 2631-2; Michigan Home Rule Township Act, MCL 41.801; Michigan Part 201 Cleanup Criteria (MCL 324.20101). Township thresholds established under MCL 41.801.

GROVELAND TOWNSHIP

Cultural Heritage. Rural Values.

MASTER PLAN AMENDMENT RECOMMENDATIONS

Addressing Data Center & Large-Scale Energy Facility Development

Prepared by the Groveland Township Residents Advisory Committee (GTRAC)
For submission to the Planning Commission and Board of Trustees | July 2026

⚠ The Township's data center moratorium expires February 2027. Both Master Plan amendments and the Zoning Ordinance should be adopted before any application is accepted. Michigan law gives controlling weight to an adopted Master Plan in Special Land Use proceedings. An ordinance adopted during the moratorium applies to land already acquired; one adopted after may not.

Introduction

The Groveland Township 2021 Master Plan establishes a clear community vision: to preserve the Township's rural character, protect its natural resources, and guide development in alignment with residents' values. The Master Plan process found — with consistency across two community engagement sessions — that residents prize the Township's country feel, its dark skies, its recreation land, and its 'up north' atmosphere above nearly every other characteristic.

Since the 2021 Master Plan was adopted, Groveland Township has come under active pressure from large-scale data center and energy facility developers seeking sites near the ITC transmission corridor. In 2026, the Township enacted a one-year moratorium to provide time for careful study. The Groveland Township Residents Advisory Committee (GTRAC) conducted a full impact assessment covering water, environment, noise, economic impact, emergency services, and case studies from comparable communities. That assessment found that hyperscale data centers are not compatible with the Township's established rural character — and that the 2021 Master Plan does not contain explicit policy language to that effect.

These proposed amendments add that language. They are written in the same spirit as the 2021 Plan: broad policy direction, not regulatory detail. The Zoning Ordinance implements the specific standards, performance requirements, and bonding provisions that give these policies legal force.

References: Groveland Township 2021 Master Plan; GTRAC Data Center Impact Assessment (July 2026); Groveland Township Data Center and Energy Storage Protection Ordinance (2026); Michigan Planning Enabling Act, PA 33 of 2008.

How These Amendments Fit the Existing Master Plan

The 2021 Master Plan already contains the foundation for these amendments. It designates more than 35% of the Township as protected public recreation land. It identifies the primary land use as Rural Estate/Farm. It calls out the Township's dependence on the Marshall Formation Aquifer. It designates post-mining parcels for residential and commercial reuse — not heavy industrial. And it establishes a community vision of recreation destination, country feel, and development that 'better[s] those who currently live here.'

These amendments do not change the Township's direction. They make explicit what the 2021 Plan implies: that uses incompatible with rural character, natural resource protection, and the Township's infrastructure capacity should not be approved, and that the Zoning Ordinance is the tool for implementing those protections.

Recommended Amendments

Amendment 1 — Heavy Industrial Energy Facility Policy

The 2021 Master Plan did not anticipate the arrival of hyperscale data center proposals in Groveland Township. This amendment adds an explicit policy statement establishing that such uses are incompatible with the Township's land use vision, and directing that the Zoning Ordinance govern any proposal that is made.

Recommended location: Add to the Plan Implementation chapter, immediately following the Future Land Use Map descriptions.

✎ Proposed Language — Amendment 1 — New Policy Section

HEAVY INDUSTRIAL ENERGY FACILITY POLICY. Large-scale data centers and battery energy storage facilities are heavy industrial energy utility uses. Their scale, resource demands, and environmental impacts are more comparable to power plants or automotive manufacturing facilities than to the light industrial and commercial uses that Groveland Township's land base can support. Groveland Township does not, nor has it ever had, a Heavy Industrial zoning designation, and more than one-third of the Township is already dedicated to protected public recreation land. The Township's community engagement process established that residents prioritize country feel, recreational character, and development that serves those who already live here. Heavy industrial facilities, including large-scale data centers and energy storage facilities, are not consistent with those priorities. Proposals for large-scale data centers or battery energy storage facilities should be evaluated carefully against the Township's adopted land use goals, its water resource limitations, its infrastructure capacity and the standards established in the Zoning Ordinance. The Zoning Ordinance sets the specific performance requirements, application standards, and protective provisions that apply to any such proposal.

Why This Amendment Is Needed: Without explicit Master Plan language establishing incompatibility, a Planning Commission has a weaker basis to deny a data center application on character grounds. The 2021 Plan's Future Land Use Map shows no Heavy Industrial category; this amendment explains what that means for data center proposals. The Zoning Ordinance provides the specific standards and bonds that implement this policy.

Amendment 2 — Water Resource Conservation & Aquifer Protection

The 2021 Master Plan noted that the Township 'sits on an aquifer with ample water supply' and that water is managed on a site-by-site basis through septic systems. It did not address the risk of large-scale industrial groundwater withdrawal. This amendment adds that protection.

Recommended location: Add to the Resource Inventory & Analysis chapter, following the Wetlands & Floodplains section.

✎ Proposed Language — Amendment 2 — New Policy Section

WATER RESOURCE CONSERVATION & AQUIFER PROTECTION. Groveland Township has no municipal water system. All residents depend upon private wells drawing from the Marshall Formation Aquifer — a regionally significant bedrock aquifer that stretches across 52 Michigan counties. There is no backup water supply in the township. Any contamination or significant depletion of this resource would have immediate and long-lasting consequences for every household in the Township. The Township should protect this resource as a community asset of the first order. Future land use decisions should reflect the following: (1) No new development should extract groundwater at volumes that exceed the demonstrated safe yield of the local aquifer, as established by independent hydrogeological study; (2) Proposals that could introduce chemicals, contaminants, or large-scale pumping that might mobilize naturally occurring arsenic or alter groundwater quality should require rigorous environmental review before any approval is granted; and (3) The Zoning Ordinance should establish the specific requirements for hydrogeological study, groundwater monitoring, and financial assurance that apply to any use

proposing significant groundwater withdrawal or that could affect aquifer quality. The Township should commission an independent hydrogeological baseline study of the Marshall Aquifer as a community resource, so that future development decisions are grounded in documented fact.

Why This Amendment Is Needed: A single hyperscale data center can use more water per day than all 6,000 Groveland residents combined. The Marshall Aquifer is the Township's only drinking water source. This amendment provides the policy foundation that makes the Zoning Ordinance's groundwater protections legally defensible as part of Master Plan implementation.

Amendment 3 — Infrastructure Protection Policy

The 2021 Master Plan focused its infrastructure discussion on broadband, roads, and the feasibility of sewer service on Dixie Highway. It did not address the risk that large-scale industrial development could impose infrastructure upgrade costs on existing residents. This amendment fills that gap.

Recommended location: Add to the Plan Implementation chapter, Infrastructure section.

✎ Proposed Language — Amendment 3 — New Policy Section

INFRASTRUCTURE PROTECTION POLICY. Groveland Township's roads, electrical service, and emergency response capacity were built to serve a rural residential, agricultural, and recreational community. That is what residents chose when they moved here, and it is what the Township's land use vision calls for. New development should not transfer the cost of its infrastructure needs onto existing residents, ratepayers, or the Township itself. GTRAC recommends that: (1) New large-scale industrial uses bear the full cost of any electrical grid upgrades, substation construction, or transmission improvements their operations require. These costs should be secured before any permit is issued. (2) Road infrastructure damaged during construction or operations should be restored to pre-construction condition at the developer's expense, with financial assurance in place before construction begins. (3) Any new large-scale facility that exceeds the Township Fire Department's existing capabilities should provide the funding, equipment, and training necessary to close that gap, through a binding agreement with the Township. The Zoning Ordinance establishes the specific bonding requirements, road restoration standards, and community benefit agreement provisions that implement this policy.

Why This Amendment Is Needed: Michigan data shows that data center developers routinely promise community benefits that don't materialize. Construction alone generates 500–2,000 heavy truck movements per day for 18–30 months on Township roads. Emergency response gaps for high-voltage equipment and battery fires are significant. This amendment ensures those costs are Developer-funded, not resident-funded.

Amendment 4 — Post-Mining Parcel Land Use Designation

The 2021 Master Plan identified Groveland Township's former gravel pit and mining parcels as Potential Brownfield Sites (Map 10) and noted that they were intended for repurposing — suggesting residential and/or commercial development. The Plan's Future Land Use Map designated most of these parcels for Rural Estate/Farm or light commercial use upon reclamation.

This amendment makes these designations explicit and resolves any ambiguity about these parcels' intended future use — which matters, because several are now being targeted by data center developers.

Recommended location: Add to the Plan Implementation chapter, following the Extractive Sites discussion under Opportunity Nodes & Sites.

✎ Proposed Language — Amendment 4 — Post-Mining Parcel Designation

POST-MINING PARCEL LAND USE DESIGNATION. Groveland Township contains a number of parcels currently operating as active gravel extraction and mining sites. When mining operations on these parcels conclude and EGLE-required reclamation is complete, these parcels should be redeveloped in keeping with the Township's rural and recreational character. GTRACE recommends that all parcels currently designated Extractive (E) transition to Rural Estate/Farm (RE/F) or Recreation (REC) uses upon completion of mining and reclamation. This reflects the community's expressed preference — both in the 2018 Community Boards exercise and in the 2021 Master Plan process — for passive recreation, active recreation, and residential uses as the preferred outcomes for reclaimed mining sites. Any parcel where active mining has created direct exposure to the Marshall Formation Aquifer should be identified and protected as a critical resource. The Zoning Ordinance establishes the specific requirements for aquifer protection and restoration that apply to such parcels. Proposals to rezone former mining parcels to any industrial classification should be evaluated against this policy and the Township's broader land use vision before any rezoning is approved.

Why This Amendment Is Needed: Several of the parcels most targeted by data center developers are former or active gravel pits — the same parcels the 2021 Plan identified for recreation and residential reuse. Without explicit Master Plan language, a developer could argue these parcels have no established future use designation. This amendment closes that gap by affirming the 2021 Plan's intent.

Amendment 5 — Recreation Economy Protection

Groveland Township's economy and community identity are anchored in outdoor recreation. The 2021 Master Plan documented this extensively — more than 35% of the Township is protected public recreation land, residents spend above national averages in every recreation category, and the community's stated vision is to be a 'recreational destination for adults and children.'

This amendment adds explicit policy language protecting the recreation economy from incompatible uses that could impair it.

Recommended location: Add to the Resource Inventory & Analysis chapter, following the Recreation section.

✎ Proposed Language — Amendment 5 — Recreation Economy Protection Policy

RECREATION ECONOMY PROTECTION. Outdoor recreation is Groveland Township's most distinctive economic asset and a defining element of its community character. The Township has over 5,500 acres of public parkland, hundreds of thousands of recreation visits annually, and a resident population that spends well above national averages on recreation activities. This is not incidental to Groveland's identity — it is central to it. Future development should strengthen, not undermine, the Township's recreation economy. GTRAC recommends that: (1) Proposals for new industrial or large-scale energy uses within or adjacent to the Township's recreation corridors and parkland should demonstrate that they will not create noise, light, heat, or other impacts that would materially impair the visitor experience or the viability of existing recreation businesses. (2) Independent review of potential noise, lighting, and thermal impacts should be required for any large-scale proposal near established recreation areas, as provided in the Zoning Ordinance. (3) Recreation-compatible commercial uses — including food and beverage, outdoor gear, agritourism, seasonal lodging, and event venues — should be actively supported as the preferred economic development direction for parcels near recreation assets and along the Dixie Highway corridor. (4) Dark skies should be explicitly preserved as a valued community resource. The 2021 Community Engagement process specifically identified 'night sky, stars, no pollution' as a point of Township pride. New development should not measurably increase light trespass at recreation area boundaries or residential property lines. The Zoning Ordinance establishes the specific lighting standards that apply.

Why This Amendment Is Needed: The 2021 Plan documented that residents spend 21–40% above national averages in every outdoor recreation category. Michigan's outdoor recreation economy is worth billions annually. Data center noise (65–85 dBA, 24/7/365) and 24-hour security lighting are the two most documented causes of property value decline and recreation impact near industrial facilities. This amendment gives the Planning Commission a Master Plan basis to weigh those impacts.

Amendment 6 — Acoustic Environment & Dark Sky Protection

The 2021 Master Plan identified the Township's night sky and quiet rural setting as community assets — residents specifically cited 'night sky, stars, no pollution' as a source of Township pride. The Plan did not, however, include specific policy language protecting those assets from industrial noise and light sources.

Recommended location: Add to the Resource Inventory & Analysis chapter, Natural Features section.

✎ Proposed Language — Amendment 6 — Acoustic Environment & Dark Sky Protection

ACOUSTIC ENVIRONMENT & DARK SKY PROTECTION. Groveland Township's rural acoustic environment and naturally dark night skies are community resources, not incidental characteristics. Residents have consistently identified them as sources of Township pride and as part of what makes this community worth protecting. Groveland Township's existing ambient noise level is 40–55 dBA — typical of a quiet rural setting. New industrial uses that would introduce continuous mechanical noise well above that baseline, 24 hours a day and 365 days a year, are not consistent with the Township's character or its residents' expectations. GTRAC recommends that: (1) Proposals for new industrial uses should demonstrate, through independent acoustic study, that their operations will not materially change the noise environment at residential property lines or at the boundaries of public recreation areas. (2) All new industrial and commercial development should use full-cutoff, downward-directed lighting that does not increase sky glow beyond established recreation and residential property lines. The Township should update its lighting standards through the Zoning Ordinance to reflect best practices for rural dark sky protection. (3) The Zoning Ordinance should establish the specific noise limits, measurement standards, and lighting requirements that apply to new development.

Why This Amendment Is Needed: Standard noise ordinances were designed for nuisance events, not continuous industrial hum. Data center cooling systems run at 65–85 dBA at the property line every hour of every day. That is 20–40 dBA above Groveland's rural ambient — a difference residents near comparable facilities have called life-altering. The Zoning Ordinance provides the specific standards; this amendment provides the Master Plan policy basis for them.

Amendment 7 — Economic Transparency & Fiscal Responsibility

The 2021 Master Plan included goals for economic development along Dixie Highway and the I-75 corridor, but did not address the specific fiscal risks that large-scale data center development can introduce. This amendment adds a policy framework to ensure any large-scale economic development serves the Township's long-term interests.

Recommended location: Add to the Plan Implementation chapter, following the Action Plan.

✎ Proposed Language — Amendment 7 — Economic Transparency & Fiscal Responsibility

ECONOMIC TRANSPARENCY & LONG-TERM FISCAL RESPONSIBILITY. Groveland Township welcomes economic development that fits its character, strengthens its tax base, and genuinely benefits the people who live here. The 2021 community engagement process was clear: development should better those who currently live here, not just those who want to come here. Large-scale industrial development carries specific fiscal risks that require careful evaluation. Job creation projections are frequently overstated, property tax revenues can be eroded through legal challenges, and decommissioning costs can become community liabilities if they are not addressed in advance. GTRAC recommends that: (1) Any major development proposal should include independently verified economic projections covering permanent job creation, property tax contribution, and infrastructure costs imposed on the Township and its residents. (2) The Township should not approve tax abatements or incentive agreements that reduce assessed property tax revenues for large-scale industrial uses. (3) The full cost of decommissioning and site restoration should be secured before any permit is issued, so that the Township is never left responsible for remediating a facility it did not build. The Zoning Ordinance establishes the

specific economic disclosure requirements, bonding provisions, and reporting standards that implement this policy.

Why This Amendment Is Needed: Case studies from Michigan and nationally show that data center job promises frequently go unfulfilled — one major facility promised 1,000 jobs and created 26 permanent positions. Equipment depreciation and 'dark store' valuation challenges can reduce assessed property values by 40–70%. Decommissioning a large facility can cost $50–200 million. The Zoning Ordinance contains the specific protections; this amendment establishes the policy direction that justifies them.

Future Land Use Map — Recommended Updates

GTRAC recommends the following updates to the 2021 Future Land Use Map (Map 8) to bring the map into alignment with these policy amendments. These changes reflect the intent already expressed in the 2021 Plan and make it explicit.

Area/Parcel Type	Current Map 8 Designation	Recommended Designation
Active gravel pit / mining parcels	Extractive (E)	Retain Extractive (E) while active. Upon reclamation: Rural Estate/Farm (RE/F) or Recreation (REC), consistent with community vision. Any industrial rezoning requires Master Plan amendment.
Former mining parcels with aquifer exposure	Extractive (E) or Light Industrial	Critical Resource Protection designation. Aquifer-exposed parcels require EGLE certification before any development use is permitted.
Township-owned parcels near I-75 corridor	Flexible Corridor / Extractive Overlay	Rural Estate/Farm (RE/F) upon reclamation. Township ownership; any industrial use requires Board of Trustees action consistent with this Plan.
Parcels adjacent to Holly State Recreation Area, Groveland Oaks County Park, and other public recreation land	Various	Add Recreation Buffer notation. New industrial uses within or adjacent to these areas require independent impact review per the Zoning Ordinance.

Action Plan

GTRAC recommends the following actions to implement these amendments. The Action Plan format follows the 2021 Master Plan structure.

Priority: A = Most Important (< 1 year) · B = Very Important (1–5 years) · C = Important (5+ years)

Action	Priority	Responsible Party	Timeframe
Adopt Master Plan amendments (this document) through required public hearing process	A	PC / BT	Before Feb 2027
Adopt Zoning Ordinance implementing data center and energy storage standards	A	PC / BT	Before Feb 2027
Commission independent hydrogeological baseline study of the Marshall Aquifer	A	BT / TS	< 1 year

Action	Priority	Responsible Party	Timeframe
Update Future Land Use Map to reflect post-mining parcel designations	A	PC	< 1 year
Update lighting standards in the Zoning Ordinance to reflect dark sky policy	B	PC	1–2 years
Develop a Source Water Protection Plan in coordination with EGLE and MDNR	B	BT / TS	1–3 years
Evaluate gravel pit parcels for EGLE aquifer exposure certification	B	BT / TS / EGLE	1–3 years
Explore recreation economy development partnerships along Dixie Highway corridor	B	BT / PC / OC	1–5 years
Review and update Master Plan consistent with MPEA five-year review requirement	C	PC	By 2026 review

Party Key: PC = Planning Commission · BT = Board of Trustees · TS = Township Staff · OC = Oakland County · EGLE = Michigan Dept. of Environment, Great Lakes & Energy · MDNR = Michigan Dept. of Natural Resources

Adoption Process

The Michigan Planning Enabling Act (PA 33 of 2008) requires the following steps to amend a Master Plan. The Planning Commission has the authority to adopt Master Plan amendments; the Board of Trustees has reserved the right of final approval.

- Planning Commission review and preparation of amendment text
- Notice to affected property owners, adjacent municipalities, county, and state agencies — minimum 20 days before public hearing
- Planning Commission public hearing — written and oral comments accepted
- Planning Commission adoption of recommendation
- Board of Trustees review and final adoption
- Filing with Oakland County and the State of Michigan

These amendments should be adopted as soon as practicable and no later than the moratorium expiration in February 2027. The Township Attorney should review all proposed amendment language before adoption. The Township may also wish to retain a licensed Michigan land use planner to assist with the formal amendment process.

Sources

- Groveland Township 2021 Master Plan (Beckett & Raeder, adopted September 2021)
- GTRAC Data Center Impact Assessment, Final Draft (July 2026)
- Groveland Township Data Center and Energy Storage Protection Ordinance (2026)
- Michigan Planning Enabling Act, PA 33 of 2008 (MCL 125.3101 et seq.)
- Michigan EGLE Water Withdrawal Assessment Tool (WWAT)
- MSU Extension — Marshall Aquifer documentation
- USGS — Marshall Sandstone Aquifer geological profile
- GTRAC Community Workshop findings (February 2026)

» Case study research: 18 Michigan and national communities (GTRAC Assessment, Phase 2)

This document was prepared by the Groveland Township Residents Advisory Committee (GTRAC) for submission to the Planning Commission and Board of Trustees as part of the Master Plan amendment process under the Michigan Planning Enabling Act.

GROVELAND TOWNSHIP RESIDENTS ADVISORY COMMITTEE (GTRAC)

Data Center Case Studies

Michigan & National Precedents — Supplemental Research

Updated July 20, 2026

This document compiles documented case studies from Michigan and comparable jurisdictions to inform GTRAC's evidence-based recommendations. Each entry includes verified project facts, community outcomes, and direct lessons applicable to Groveland Township's zoning and Master Plan process.

SECTION 1 — MICHIGAN: APPROVED OR PROCEEDING

Case Study 1: SALINE TOWNSHIP, WASHTENAW COUNTY — The Exclusionary Zoning Trap

The $16 billion Stargate Michigan Campus — backed by OpenAI, Oracle, and Blackstone — was pushed through over near-unanimous local opposition after the township lost a lawsuit it could not afford to fight.

Key Facts

Developer	Related Digital (in collaboration with OpenAI and Oracle)
Project Name	Stargate Michigan Campus
Capacity	1 GW (comparable to electricity use of ~750,000 U.S. homes)
Investment	$500 billion (announced); $16 billion campus under construction
Site Size	575 acres rezoned; 250-acre initial footprint
Cooling	Closed-loop
Power	DTE — using existing excess transmission capacity; all upgrades funded by project
Permanent Jobs	~250 (comparable 1 GW facilities typically employ 100–300 permanently)
Construction Jobs	~2,500 (temporary, 18–24 months)
Tax Exemption	Yes — Michigan Public Acts 181 & 207 of 2024 (through at least 2050)
Tax Abatement	Requested 12-year, 50% abatement
Community Benefits	~$14 million negotiated, including fire department funding, farmland preservation, and groundwater monitoring wells
Status	Under construction as of 2026

Findings & Relevance to Groveland Township

- Township voted 4–1 to deny rezoning in September 2025. Related Digital sued two days later, alleging exclusionary zoning under Michigan's Zoning Enabling Act.
- The township's flaw: it had a General Industrial (I-1) classification that technically permitted data centers but had zero acres actually zoned I-1. Courts call this 'window dressing.'
- The developer had already paid a nonrefundable $40 million DTE deposit and ordered $2 billion in equipment before the lawsuit was filed. Estimated damages were ~$28.75 million. The township's total legal insurance: $500,000. Settlement was inevitable.
- Township settled within weeks — no rezoning vote, no public hearings — just a court agreement approving construction with negotiated concessions.
- As a result, at least 19 Michigan municipalities enacted moratoriums on new data center development following this outcome (Bridge Michigan, 2026).
- 'I think the plan was to move as fast as possible — so by the time anyone challenged it, they could say it was too far along to stop,' said one resident to Forbes.

Key Lesson for Groveland Township

Never designate a Special Land Use zone with no applicable land. Never adopt ordinance standards without a documented factual basis. Never face a well-funded developer lawsuit without specialized legal counsel and a completed factual record. The Saline outcome is the direct reason Groveland must complete independent studies before the February 2027 moratorium expires.

Case Study 2: VAN BUREN TOWNSHIP, WAYNE COUNTY — Project Cannoli — Google's Approved Campus

Google's 1 GW data center campus was approved with minimal community resistance because the site was already zoned M-1 Light Industrial — requiring no rezoning — and the developer proactively addressed water, power, and noise concerns.

Key Facts

Developer	Google
Project Name	Project Cannoli
Capacity	1 GW (planned buildout)
Site Size	130 acres of a 282-acre plot; ~800,000+ sq ft total footprint
Water Usage	2–3.6 million gallons per day (sourced from Great Lakes Water Authority — no direct groundwater extraction)
Power	2.7 GW of new solar, energy storage, and demand flexibility resources planned
Cooling	No use of groundwater; water supplied entirely by GLWA; no discharge into Belleville Lake or ground
Permanent Jobs	Low permanent staffing (typical of hyperscale facilities)
Construction Jobs	~1,500 (temporary)
Tax Exemption	Not specified
Community Benefits	$10 million Energy Impact Fund to reduce monthly utility bills for Michigan communities
Zoning Status	Already zoned M-1 Light Industrial — no rezoning required
Status	Approved; Planning Commission voted 5–1 to approve site plans (Feb. 2026)

Findings & Relevance to Groveland Township

- The project proceeded smoothly because the site was already zoned for the use — eliminating the exclusionary zoning legal risk that destroyed Saline Township's position.
- Google's use of GLWA municipal water (rather than direct groundwater extraction) allowed the project to bypass the Michigan Water Withdrawal Assessment Tool screening that would have flagged direct well drilling as a Zone D adverse impact.
- This highlights a legal loophole Groveland must close: connecting to a municipal water utility allows data centers to blend their usage into aggregate municipal supply, effectively bypassing local aquifer protection rules. Groveland's draft ordinance explicitly prohibits this workaround.
- Backup generators are designed to meet Tier 4 emissions standards, with purpose-built berms, mature trees, and landscaping to reduce visual and noise impacts.
- Van Buren Township has a municipal water connection and existing industrial zoning — conditions that do not exist in Groveland Township, making a comparable outcome structurally impossible without significant infrastructure investment by the developer.

Key Lesson for Groveland Township

Van Buren's smooth approval was only possible because of pre-existing municipal water infrastructure and industrial zoning. Groveland has neither. Any developer who attempts to replicate this pathway in Groveland must be required to fund full infrastructure at their sole expense — including municipal water hookup engineering — before any permit is considered.

Case Study 3: GAINES TOWNSHIP, KENT COUNTY — Switch's Steelcase Pyramid Campus — The Job Promise Myth

In 2015, Nevada-based Switch promised 1,000 jobs and $5 billion in investment. By the 2022 deadline, 26 permanent jobs had been created. Michigan's response: redefine the jobs rather than claw back the incentives.

Key Facts

Developer	Switch Inc.
Project Name	Switch Steelcase Pyramid Campus
Capacity	320 MW (1.8 million sq ft planned buildout)
Investment	$5 billion (announced 2015)
Power	100% green energy
Permanent Jobs (promised)	400 new jobs by 2022; 1,000 by 2026
Permanent Jobs (actual)	26 as of 2022 deadline
Construction Jobs	~700 during construction and development phases
Tax Exemption	Yes — 20-year exemption
Tax Abatement	Yes — contingent on hitting employment goals (goals subsequently redefined)
Status	Operational and expanding (Phase 3 upcoming)

Findings & Relevance to Groveland Township

- Switch created 26 permanent jobs by a 2022 deadline against a promise of 400. Michigan's response was to retool the deal — redefining what counts as a 'job' — allowing Switch to continue saving an estimated $1 million per year in tax breaks.

- This is the single clearest documented example of the job-creation myth in Michigan data center development. The national average cost per subsidized data center job: $2 million in state and local incentives (michiganpublic.org, 2025).
- The 20-year tax exemption means the community bore full infrastructure and service costs while receiving a fraction of the promised employment benefit.
- Groveland Township should require binding employment guarantees with clawback provisions — not goals that can be retroactively redefined — as a condition of any Community Benefit Agreement.

Key Lesson for Groveland Township

Job projections from data center developers are aspirational, not contractual. Groveland must require binding employment thresholds with automatic tax clawback provisions if targets are not met. Michigan's decision to redefine 'jobs' for Switch rather than enforce the original deal is a cautionary precedent the township cannot afford to repeat.

Case Study 4: DOWAGIAC, CASS COUNTY — Hyperscale Data Inc. — Noise, Property Values, and Inadequate Ordinances

An operational and expanding data center campus illustrates what happens when a community approves a facility without adequate noise performance standards in place.

Key Facts

Developer	Hyperscale Data Inc.
Capacity	30 MW operational; 340 MW full buildout by Q3 2029
Investment	$125 million
Site Size	83 acres (34 acres originally purchased; 48 additional acres acquired)
Power	Local utility + 40 MW natural gas facility agreement
Permanent Jobs	500 over 3 years
Status	Operational (30 MW) and expanding

Findings & Relevance to Groveland Township

- 'The noise has made him unable to open his windows in the summer and is worried about what it will do to his property value. If we want to resell the house, who's going to want to buy the house with that noise? No one's going to want to buy.' — Longtime resident, as reported to local media.
- 'People get out of their cars and they say, do you have to listen to that? All the time? And it's 24 hours a day. It doesn't stop.' — Longtime resident Jerry Dodd.
- The city implemented its first industrial noise standards in March — only after residents filed complaints. A proactive ordinance before approval would have prevented this outcome.
- The city can now tighten zoning with performance standards for water, setbacks, and site-plan reviews — but these tools are far more powerful before approval than after.
- Illustrates that data center cooling equipment noise is not theoretical: it is documented, continuous, and directly impacts residential quality of life and property values within range of the facility.

Key Lesson for Groveland Township

Noise performance standards must be adopted before any application is filed — not after residents begin complaining. The Dowagiac experience confirms that 24/7 industrial cooling noise is a real and documented harm, and that reactive ordinances provide far weaker protection than proactive ones.

Case Study 5: SOUTHFIELD, OAKLAND COUNTY — Metrobloks — Small Urban Footprint, Managed Conditions

A 100–150 MW urban data center approved in December 2025 with binding developer conditions demonstrates how municipalities can structure approvals with enforceable safeguards — and where gaps remain.

Key Facts

Developer	Metrobloks
Capacity	100–150 MW
Investment	$1.5 billion (two phases); $500 million listed in slide deck — figures unreconciled
Site Size	12.19 acres of vacant land
Cooling	Closed-loop; 10–20 gallons of water per day (extremely low water consumption)
Power	DTE Energy; developer absorbs all infrastructure upgrade costs
Permanent Jobs	35
Tax Revenue	~$400,000/year in annual property tax (subject to change based on state policy)
Status	Approved December 2025

Findings & Relevance to Groveland Township

- Developer is bound to conditions including full compliance with city ordinances, minimal tree and soil removal, and ongoing review and inspection rights by city officials.
- The closed-loop cooling system using only 10–20 gallons per day represents best-in-class water conservation — a standard Groveland should require by ordinance, not accept as voluntary.
- DTE Energy required the developer to absorb all infrastructure upgrade costs — a precedent Groveland's ordinance should codify explicitly so it is not subject to negotiation.
- The $400,000/year property tax projection may be subject to Dark Store valuation challenges and equipment depreciation disputes — the same risks present in every Michigan data center tax projection.
- The unexplained discrepancy between the $1.5 billion investment figure stated verbally and the $500 million figure in official documents illustrates the need for Groveland to require independently audited financial projections as part of any application.

Key Lesson for Groveland Township

Binding conditions at the time of approval — not voluntary commitments — are what protect a community. Metrobloks' closed-loop water approach should be the mandatory floor, not an optional feature. Every cost figure submitted by a developer should be independently verified before the township relies on it for fiscal planning.

Case Study 6: LANSING, INGHAM COUNTY — Deep Green Data Center — Cancelled April 6, 2026

A small-scale, heat-reuse data center partnership with the Board of Water and Light was cancelled — demonstrating that even well-designed, community-integrated projects are not guaranteed to proceed.

Key Facts

Developer	Deep Green / Lansing Board of Water and Light
Capacity	24 MW
Investment	$120 million
Site Size	Less than 1 acre
Cooling	Heat generated donated to BWL district heating customers
Permanent Jobs	Not specified
Construction Jobs	~35
Status	Project Cancelled — April 6, 2026

Findings & Relevance to Groveland Township

- The project was designed to donate waste heat to BWL heating customers — potentially saving the utility ~$1.1 million annually and offsetting ~25% of its heating fuel consumption.
- The small footprint (under 1 acre), urban integration, and genuine sustainability focus distinguished this project from hyperscale proposals.
- Despite these advantages, the project was cancelled — underscoring that fiscal, political, or technical barriers can derail even well-structured data center proposals.
- The project was estimated to generate nearly $2 million in annual revenue for the city — a relatively strong fiscal outcome for a facility of this scale.
- Even advocates acknowledged the fundamental tension: 'A data center will never be sustainable. It will always require more energy to run than it could ever produce.' The heat-reuse model reduced, but did not eliminate, the net energy burden.

Key Lesson for Groveland Township

Even small, thoughtfully designed data center projects face significant hurdles. For Groveland, where no municipal water system, heat distribution network, or existing industrial zoning exists, the Deep Green model is not replicable. The township's focus should remain on ensuring any large-scale proposal meets rigorous independent standards — not on whether a project's design is creative.

SECTION 2 — MICHIGAN: REJECTED OR COMMUNITY RESISTANCE

Case Study 7: AUGUSTA TOWNSHIP, WASHTENAW COUNTY — Thor Equities — Denied by Planning Commission; Sent to Ballot

A 100 MW, 800-acre campus proposed by Thor Equities Group was denied by the planning commission 5–1, and the rezoning question was subsequently sent to voters for a 2026 ballot decision.

Key Facts

Developer	Thor Equities Group (via Form8tion unit; JDS Equities II LLC)
Capacity	100 MW
Investment	$1 billion
Site Size	522 acres rezoned request (north of Milan-Oakville Rd, east of Hitchingham Rd); ~300 acres already zoned GI
Water	1 million gallons per day
Status	Planning commission recommended denial 5–1; rezoning question sent to 2026 ballot

Findings & Relevance to Groveland Township

- Residents cited concerns about industrial impacts on a largely rural area, including noise, truck traffic, water use, and property value erosion.
- Township staff had recommended approval; the planning commission rejected that recommendation — demonstrating that community documentation of specific infrastructure concerns, not just sentiment, can overcome staff recommendations.
- Ann Arbor Spark (economic development organization) urged the board to keep the door open, arguing the site plan review phase is where 'full proposal details, including potential community benefits, can really be assessed.' This is precisely the argument developers use to delay rigorous scrutiny until after rezoning is locked in.
- The ballot referral gives residents direct democratic input — a strategy Groveland Township should be aware of as a potential mechanism if the Board proceeds against community opposition.

Key Lesson for Groveland Township

Expert-backed, specific objections — not general community sentiment — are what cause planning commissions to override staff recommendations. The ballot referral strategy is also a live option for Groveland residents if the Board moves against the community's documented opposition.

Case Study 8: MICHIGAN (LOCATION TBD) — DAMAC Properties — Announced, Under Review

UAE-based DAMAC Properties announced a $500 million Michigan data center project, with construction planned for Q1 2026 and full buildout by Q4 2028. No specific location has been publicly disclosed.

Key Facts

Developer	DAMAC Properties
Capacity	Not announced
Investment	$500 million
Cooling	Cooling systems, chiller plants, air handlers (type unspecified)
Timeline	Construction Q1 2026; full buildout Q4 2028
Location	Michigan — exact location not yet specified
Status	Announced; under development

Findings & Relevance to Groveland Township

- The lack of a disclosed location is a warning signal — developers often identify target sites before public announcement, and shell company land purchases may already be underway in potential host communities.
- Groveland Township should monitor Oakland County property records, MISO interconnection requests, and EGLE pre-application filings for any activity linked to DAMAC or affiliated entities.
- The announced cooling systems (chiller plants, air handlers) suggest potential for significant water use and microclimate heat impact — exact technology should be required as a disclosure in any application.

Key Lesson for Groveland Township

Undisclosed location announcements require active monitoring. Watch for shell company land acquisitions, MISO queue additions, and EGLE pre-application activity. Early identification gives the township maximum time to complete independent studies before any formal application is filed.

SECTION 3 — NATIONAL CASE STUDIES

Case Study 9: FAYETTEVILLE, GEORGIA (FAYETTE COUNTY) — Project Excalibur — Unauthorized Water Extraction; Regulatory Failure

A Blackstone-owned data center campus quietly drew 29 million gallons of water through two undisclosed connections over 15 months before residents discovered it through complaints about low water pressure. County officials refused to fine the developer.

Key Facts

Developer	Quality Technology Services (QTS), owned by Blackstone
Project Name	Project Excalibur
Capacity	250 MW
Investment	$1 billion
Site Size	615 acres; 6.6 million sq ft across 16 buildings
Cooling	Described as 'closed-loop' — yet drew 29 million gallons through undisclosed connections
Permanent Jobs	~100 (projected)
Timeline	Construction began 2023; full buildout by 2032
Status	Operational and expanding

Findings & Relevance to Groveland Township

- Fayette County was asking residents to stop watering their lawns when investigators discovered the data center had been drawing roughly 29 million gallons through two water connections the county did not know existed (Politico, May 2026).
- One connection was installed without county knowledge; another was not linked to the developer's account and was not being billed.
- County officials refused to fine the developer — citing the data center as 'our largest customer, and we have to be partners.'
- This is a documented real-world example of what happens when a single data center becomes the dominant fiscal stakeholder in a community: enforcement breaks down, and residents bear the consequences.
- The facility had promised to use a 'closed-loop' cooling system that does not require water for cooling — yet secretly extracted 29 million gallons. This illustrates why self-reported compliance is insufficient and why independent, continuous monitoring is essential.

CRITICAL WARNING for Groveland Township

Developer representations about water use, cooling technology, and environmental compliance cannot be taken at face value. Groveland Township must require: (1) independent third-party monitoring of all water connections and groundwater levels, publicly reported; (2) automatic clawback bonds callable without requiring a Township Board vote; and (3) explicit prohibition on any water connection not disclosed and approved at time of permitting. The Fayetteville outcome — where the county refused to fine its largest taxpayer — is why Oakland County escrow and independent monitoring is non-negotiable.

Case Study 10: FESTUS, MISSOURI — Community Votes Out Every Council Member Who Approved a Data Center

Residents of Festus, Missouri — a small town — ousted all four incumbent council members who approved a $6 billion data center after learning that secret meetings and inadequate public notice had suppressed opposition.

Key Facts

Developer	Undisclosed (CRG development agreement)
Investment	$6 billion
Site Size	360 wooded acres
Status	Approved by council; challenged by lawsuit and voter referendum (April 2026)

Findings & Relevance to Groveland Township

- The city council approved the development agreement in circumstances that residents alleged involved secret meetings and a deliberate lack of timely public information to stifle opposition.
- Missouri Governor Mike Kehoe personally lobbied Planning and Zoning Commission members ahead of a rezoning vote. 'He's willing to call the one or two folks that need to be nudged,' according to internal communications.
- A political action committee funded by labor unions supporting data center jobs spent $40,000 on ads and yard signs supporting the four council members. All four were voted out.
- A lawsuit challenging the rezoning and development agreement remains active, alleging that secret communications violated open meetings laws.
- This is the clearest national example of a community using electoral accountability to respond to a data center approval made without adequate public process.

Key Lesson for Groveland Township

Transparency and documented public process are both a legal and political requirement. HB 5399 — prohibiting NDAs between township officials and data center developers — directly addresses the Festus scenario. Groveland's ordinance should include explicit open-meetings requirements and a prohibition on any non-public developer communications with township officials from the moment a pre-application inquiry is received.

Case Study 11: RED OAK, TEXAS (ELLIS COUNTY) — Compass & Google — Incremental Land Acquisition and Phased Expansion Risk

Two separate data center operators in the same small Texas city illustrate the cumulative impact risk when developers acquire land incrementally and expand in phases — each phase individually manageable, the combined footprint transformative.

Key Facts

Developers	Compass Data Centers; Google
Compass Capacity	350 MW across multiple buildings
Compass Land	Began with 165 acres (2019); expanded to 225 acres (2020); acquired additional 375 acres (April 2023)
Compass Investment	~$500 million across phases

Google Capacity	Not announced
Google Land	375 acres + additional 165-acre tract
Google Investment	$330 million initial; $600 million+ projected
Google Jobs	~30 permanent; ~1,200 construction
Community Benefits	Google: $150,000 grant to Red Oak School District; STEM partnership with UT and Texas State
Status	Multiple buildings operational; additional phases under construction

Findings & Relevance to Groveland Township

- Compass expanded its Red Oak campus three times over five years — each acquisition individually below thresholds that would trigger maximum scrutiny, but cumulatively creating a dominant industrial presence.
- This is the phased development risk Groveland's proposed ordinance directly addresses: 'All studies, testing, modeling, and impact analyses shall evaluate the ultimate build-out condition of the project, including all reasonably foreseeable expansions, regardless of the size of the initial phase.'
- Google's 30 permanent jobs on a $330–600 million investment illustrates that data center investment scale does not translate to employment scale — the ratio of capital to permanent jobs is among the lowest of any major industrial category.
- Two major operators in one small city create compounding infrastructure, noise, water, and electrical grid demands that neither operator's individual EIA would capture in isolation — a cumulative impact analysis gap Groveland must require by ordinance.

Key Lesson for Groveland Township

Phased and incremental development is a documented strategy to avoid triggering maximum review thresholds. Groveland's ordinance must evaluate ultimate build-out capacity, not just the initial phase — and any expansion exceeding 10% of permitted capacity must be treated as a new application subject to full review standards.

Case Study 12: SOUTH ANNVILLE TOWNSHIP, PENNSYLVANIA — Developer Withdraws After Community Opposition Mobilized

A $1.7 billion data center complex proposed for nearly 100 acres was withdrawn by the developer hours before a supervisors' vote, after sustained resident opposition and a planning commission recommendation against rezoning.

Key Facts

Investment	$1.7 billion
Site Size	Nearly 100 acres
Power	Phased plan with on-site electrical infrastructure and potential substation
Permanent Jobs	~100
Tax Impact (projected)	~$13 million/year for Annville-Cleona School District; ~$3 million for Lebanon County; ~$750,000 for township
Status	WITHDRAWN — developer withdrew rezoning request on May 13, 2026, hours before the supervisors' vote

Findings & Relevance to Groveland Township

- Residents organized sustained attendance at planning meetings and roadside demonstrations, raising documented concerns about round-the-clock noise, heavy truck traffic, permanent farmland loss, property value erosion, and strain on emergency and utility services.
- Residents and local experts flagged low-frequency noise from cooling systems and generators, heavy water use, and local geological risks (sinkhole potential from groundwater changes).
- The planning commission recommended against the rezoning — providing the supervisors a documented, expert-reviewed basis for denial.
- The developer withdrew rather than face a likely denial, potential legal costs, and the organized community opposition on record.
- This outcome closely mirrors the Howell Township (Michigan) model: expert-backed, specific, documented opposition causes developers to walk away before a denial creates an adversarial legal posture.

Key Lesson for Groveland Township

Developers walk away when the legal and political cost of proceeding exceeds the value of the site. South Annville's outcome — withdrawal on the day of the vote — demonstrates that sustained, expert-backed, documented community opposition is the most effective deterrent. GTRAC's research work is building exactly this record.

Case Study 13: MANSFIELD, MASSACHUSETTS — Proactive Zoning — Slamming the Door Before Any Application Arrives

Mansfield voters preemptively adopted a zoning bylaw capping permitted data center electrical load at 2 MW — with no active proposals on the table — because officials wanted guardrails in place before developers arrived.

Key Facts

Action	Town Meeting vote — Article 23, adopted May 5, 2026
Framework	Three-tier system based on projected electrical demand, not building size
Tier I (Permitted)	≤2 MW — allowed by Special Permit in Planned Business District and I-1/I-2 industrial zones only
Tier II (Prohibited)	2–10 MW — prohibited in all zones
Tier III (Prohibited)	>10 MW — prohibited in all zones
Key Mechanism	Planning Board can cap permitted megawatts; require written confirmation from electric and water departments on grid and system capacity; attach conditions on noise, emissions, and water use
Status	Adopted — effective immediately

Findings & Relevance to Groveland Township

- Mansfield acted proactively — no developer had filed an application when the vote occurred. Officials described it as a 'preemptive strike' to prevent developers from treating hyperscale facilities as standard warehouses under existing industrial zoning.
- The bylaw uses electrical load, not building size, as the defining threshold — consistent with Groveland's proposed definition and a legally stronger approach than square footage alone.
- The Planning Board retains authority to require written confirmation from the municipal electric and water departments that the proposed load will not undermine system reliability — a direct analog to Groveland's proposed independent utility capacity study requirement.

- Concerns driving the vote: grid stress, heavy water demand from certain cooling technologies, and the continuous hum of backup generators — identical to Groveland Township's documented concerns.
- Mansfield's model shows that a community can adopt a legally defensible, near-complete restriction on large data centers by using scaled electrical load thresholds rather than an outright ban.

Key Lesson for Groveland Township

Mansfield's approach — adopted before any application arrived — is the gold standard for proactive zoning. Groveland should finalize its ordinance before the February 2027 moratorium expires, using energy demand thresholds (not building size alone) as the primary trigger. A community with documented infrastructure constraints and adopted performance standards is legally and practically far stronger than one responding to an active application.

Case Study 14: CHINA (GLOBAL) — The Data Center Overbuilding Warning — Demand Collapse After Hype-Driven Construction

China built more than 500 AI data center projects in 2023–2024 driven by government mandates and speculative investment. By early 2025, up to 80% of newly built computing capacity stood unused. The collapse illustrates what happens when infrastructure construction is driven by policy pressure and hype rather than verified demand — a warning directly applicable to any community evaluating developer projections.

Key Facts

Location	China (Inner Mongolia, Guangdong, Henan, and other provinces)
Scale of Construction	500+ new data center projects announced in 2023–2024; at least 150 completed and operational by end of 2024 (KZ Consulting; China Communications Industry Association)
Utilization Rate	Up to 80% of newly built computing capacity unused as of early 2025 (Jiazi Guangnian; 36Kr)
Primary Drivers	Central government AI mandates; local officials seeking political advancement through high-profile infrastructure projects; private investors chasing subsidies; limited developer expertise in AI infrastructure at scale
GPU Rental Price Collapse	8-GPU Nvidia H100 server rental fell from ~180,000 yuan/month to ~75,000 yuan/month; some facilities prefer to sit empty rather than operate at a loss
Source	MIT Technology Review, March 28, 2025; Jiazi Guangnian; 36Kr; KZ Consulting; China Communications Industry Association; RAND Corporation

Findings & Relevance to Groveland Township

- Construction was driven top-down by government mandate and investor speculation — not by verified client demand. Developers with little AI expertise rushed to build, often falling short of industry standards. Project leaders relied on middlemen and brokers who overstated demand forecasts and exploited government subsidies.
- The rise of efficient AI models (DeepSeek R1) fundamentally changed what hardware data centers need — almost overnight. Facilities built for large-scale AI training became mismatched to the inference-focused workloads the market now demands. Technology assumptions embedded in a developer's demand forecast can be invalidated before a facility is even completed, leaving communities with stranded infrastructure and no recourse.
- Some operators exploited the build-out to obtain subsidized green electricity permits, reselling power back to the grid rather than using it for AI workloads. Others acquired land to qualify for state-backed loans while leaving facilities empty.
- Despite the collapse in utilization, major Chinese tech companies (Alibaba: $50B committed; ByteDance: $20B committed) continued large-scale investment — confirming that national AI competition sustains construction pressure regardless of local market fundamentals. The same dynamic operates in the United

States through the Stargate initiative ($500B committed). Construction pressure from macro investment trends does not validate individual project demand projections.

Key Lesson for Groveland Township

China's data center collapse is the most documented large-scale example of what happens when AI infrastructure is built ahead of verified demand: stranded assets, wasted energy, financial losses, and no community benefit. Groveland Township must require independently verified demand projections, demonstrated operator track record, and binding financial performance obligations — not developer forecasts based on national AI investment trends. Global macro investment pressure does not guarantee that any specific facility will generate sustainable revenue, local employment, or stable tax income. A facility that goes dark leaves Groveland with the infrastructure burden and none of the promised benefit.

ADDITIONAL CASE STUDY INFORMATION

Case Study 15: Howell Township, Livingston County — How to Win
A developer proposed a $1 billion, 1,000-acre hyperscale campus reportedly backed by Meta. The township enacted a moratorium and residents formed the Livingston County Residents for Responsible Development (LCRRD), producing expert-backed documented infrastructure and environmental findings. The developer voluntarily withdrew — not blocked by a court, but abandoned because organized opposition made the project not worth the fight.

Key Lesson: Organized, expert-backed, financially credible community opposition — established before any application is filed — is what causes developers to walk away. This is the Groveland model.

Case Study 16: Springfield Township, Oakland County — Groveland's Direct Neighbor
Immediately adjacent to Groveland Township. Enacted a 180-day moratorium citing the lack of municipal water and sewer services. Supervisor Ric Davis publicly stated the township 'would halt any project posing risk to natural resources or residents.'

Key Lesson: Springfield Township's public statements are a template for Groveland's moratorium legislative findings. Both townships share the same aquifer, grid constraints, and rural character. Coordinate on ordinance language and share study costs — consistent regional standards make the entire area less attractive to developers.

Case Study 17: Mason, MI — The Successful Moratorium-to-Ordinance Model Mason enacted a moratorium in January 2026 and lifted it in February 2026 — just one month later — after adopting a new M-3 zoning district for data centers with rigorous, study-backed performance standards.

Key Lesson: Speed and preparation matter more than moratorium duration. Groveland should target October 2026 ordinance adoption — four months before the February 2027 moratorium expiration. An ordinance in place before the moratorium lifts means any developer who acquired land during the moratorium takes that acquisition subject to the new standards.

Case Study 18: Loudoun County, Virginia — What Long-Term 'Success' Actually Costs
Loudoun County hosts over 300 data centers and derives more than half its total property taxes from them. It is held up by developers as the model of data center prosperity.

- Dedicated fire stations staffed specifically for data center hazmat response — costs borne by county taxpayers
- Electricity costs have increased as much as 267% per month versus five years ago in areas near data center activity (Bloomberg, 2025)
- Carnegie Mellon projects a 25%+ electricity rate increase for Northern Virginia by 2030

- When a single industry represents over half of tax revenue, the entire county's fiscal position depends on Big Tech's investment decisions

Key Lesson: Loudoun County's short-term revenue success has produced long-term energy cost, infrastructure, and fiscal concentration risks that would be existential for a small Michigan township like Groveland.

SECTION 4 — COMPARATIVE SUMMARY

Community	State	Outcome	Key Factor
Saline Township	MI	Developer forced through via lawsuit	No usable industrial land; no completed factual record; inadequate legal insurance
Van Buren Twp (Google)	MI	Approved without resistance	Already zoned M-1; municipal water available; proactive developer concessions
Gaines Twp (Switch)	MI	Approved; 26 of 1,000 promised jobs created	Tax exemptions + no binding employment clawback = broken promises, no consequences
Dowagiac	MI	Operational; ongoing noise complaints	No noise standards in place at approval; reactive ordinance weaker than proactive
Southfield (Metrobloks)	MI	Approved with binding conditions	Small urban footprint; closed-loop water; developer absorbed all utility costs
Lansing (Deep Green)	MI	CANCELLED — April 2026	Even well-designed small projects face cancellation risk
Augusta Twp (Thor)	MI	Denied by planning commission; ballot 2026	Specific expert objections overcame staff recommendation; voters to decide
Howell Township	MI	Developer withdrew voluntarily	Expert-backed organized opposition before application filed
Fayetteville, GA	GA	Unauthorized water extraction; no fine	Largest taxpayer status suppressed enforcement; monitoring was inadequate
Festus, MO	MO	Approved; 4 council members voted out	Secret meetings + suppressed public process = electoral accountability
Red Oak, TX	TX	Operational + expanding	Incremental acquisitions avoid maximum review; cumulative impact underassessed
South Annville Twp	PA	Developer withdrew day of vote	Documented expert opposition + planning commission denial = developer walkaway
Mansfield, MA	MA	Proactive ordinance adopted; door closed	Electrical load thresholds adopted before any application filed

What this all means for Groveland Township

1. Proactive Preparation Beats Reactive Defense

Communities that completed independent studies and adopted enforceable ordinances before any application arrived (Howell, South Annville, Mansfield) achieved better outcomes with less legal risk than communities that responded after a developer filed. Groveland's current moratorium is the window. Using it to build a factual record is the strategy. Data Center developers are targeting any land with Power + fiber + acreage + zoning flexibility.

2. Studies Create Denial Grounds; Opinions Do Not

Every successful denial or withdrawal in this case study set was supported by specific, documented infrastructure findings — not community sentiment alone. Saline Township's denial failed because it lacked a factual record. Howell Township's resistance succeeded because it had one.

3. Developer Representations Require Independent Verification

Project Excalibur (Fayetteville) promised closed-loop water use and secretly drew 29 million gallons. Switch promised 1,000 jobs and created 26. DAMAC announced a Michigan project without disclosing a location. Independent, third-party monitoring with automatic enforcement mechanisms — not developer self-reporting — is the only reliable protection.

4. Tax Revenue Projections Are Systematically Overstated

Every community in this set that relied on developer tax projections encountered erosion through Dark Store valuation, equipment depreciation challenges, or retroactively redefined incentive terms. Groveland should require independently audited financial projections and binding minimum tax payment agreements — not developer estimates. Developers re

5. Phased Development Is a Strategy, Not a Constraint

Compass (Red Oak) expanded its campus three times over five years, each phase below individual thresholds. Groveland's ordinance must evaluate projects at their ultimate build-out capacity and treat any expansion as a new application subject to full review.

6. Groveland's Infrastructure Conditions Are Uniquely Restrictive

No municipal water system. No existing heavy industrial zoning. Direct groundwater dependence for all residents. Proximity of Michigan State Parks, Oakland County Parks and Mt. Holly Ski Resort to potential development sites. These conditions make Groveland structurally different from Van Buren Township, Gaines Township, and Southfield — communities where approvals were possible because baseline infrastructure existed. The absence of that infrastructure is not a gap to be filled by developers at their option; it is a documented basis for the highest protective standards.

Top 10 Key Messages — Data Center Impact Assessment

Groveland Township Residents Advisory Committee (GTRAC) **July 2026**

01 · Urgency

Groveland is a target — the window is narrow

▸ **Moratorium expires February 2027**

800+ acres near the ITC grid are actively being eyed by developers. **Hyperscale data centers are heavy industrial facilities fundamentally incompatible with a rural, recreation community character.** To avoid exclusionary zoning, the township must establish specific zoning ordinances **now**, not after an application arrives.

02 · Strategy

Preparation wins — reaction loses

Every community that built an **expert-backed record before** an application arrived — won. Every community that responded after — lost ground, lost money, or lost in court.

03 · Ordinance

Create a dedicated Data Center Ordinance

▸ **Township action needed**

Define data centers, related BESS, generators, substations, and cooling systems as a **single use**. Requirements:

- **Master Plan** consistency findings
- **Special Land Use** approval
- Cumulative **impact analysis**
- **Anti-expansion** provisions

Reserve the right to create a **Data Center (DC-1) Zoning District Overlay.**

04 · Water Science

Hire an independent hydrogeologist

Commission a full investigation including:

- **Marshall Formation Aquifer** paper studies
- **Groundwater withdrawal** and **recharge capacity** analysis
- Geochemical modeling for **arsenic and other** impacts on local wells and drinking water.

This is necessary to identify suitable areas for development or create denial grounds. Would trigger the creation of a **Data Center (DC-1) Overlay district** to apply to vulnerable sites.

05 · Well Water

Our wells are at risk

▸ **No municipal backup system exists**

A single hyperscale data center uses **more water per day** than all 6,000 Groveland residents combined — drawing from the **same aquifer**. **Arsenic mobilization** from large groundwater withdrawals is a documented risk. Hydrogeology and impact studies are essential. **Require an Environmental Impairment and Infrastructure Surety Bond.**

06 · Local Economy

Mt. Holly Ski Resort could be threatened

▸ **70-year anchor business at risk**

Data center cooling can raise local air temperatures **up to 4°F within ⅓ mile** and impact humidity levels.
Per Mt. Holly's General Manager: even **one degree of change** would devastate snowmaking operations.

07 · Energy Costs

Your electric bill goes up either way

Michigan rates already **rose 9% in May 2026**, with another **10% increase filed for 2027**.
Data center grid demand is the documented national driver of residential utility rate increases. The consumption of energy will continue to rise.

08 · Job and Revenue Considerations

The job promises and tax revenue projections are overstated

Switch promised 1,000 Michigan jobs — delivered 26.
Developer tax revenue projections have been documented to fall far short of expectations due to Dark Store valuation and depreciation. Projects located in brownfields qualify for MI tax incentives through 2065. The economic benefits do not match the community costs imposed.

09 · Liability

When the operator leaves, the cleanup bill stays

▸ **$200M+ decommission exposure**

Require pre-funded bonds in **Oakland County escrow at 125%** of actual estimated future decommission cost at time of application. Bonds must be audited and refreshed every 5 years.

10 · Deadline

The ordinance must be in place before February 2027

▸ **Time-critical — legal window is closing**

An ordinance adopted **during the moratorium** applies to land already acquired.
One adopted **after** may not. Act before the moratorium expires.

GROVELAND TOWNSHIP RESIDENTS ADVISORY COMMITTEE (GTRAC)

Data Center Impact Assessment — Project Work Plan

Final Draft Updated: July 20, 2026

1. PURPOSE & GOAL

GTRAC will develop evidence-based recommendations to the Township Board and Planning Commission on:

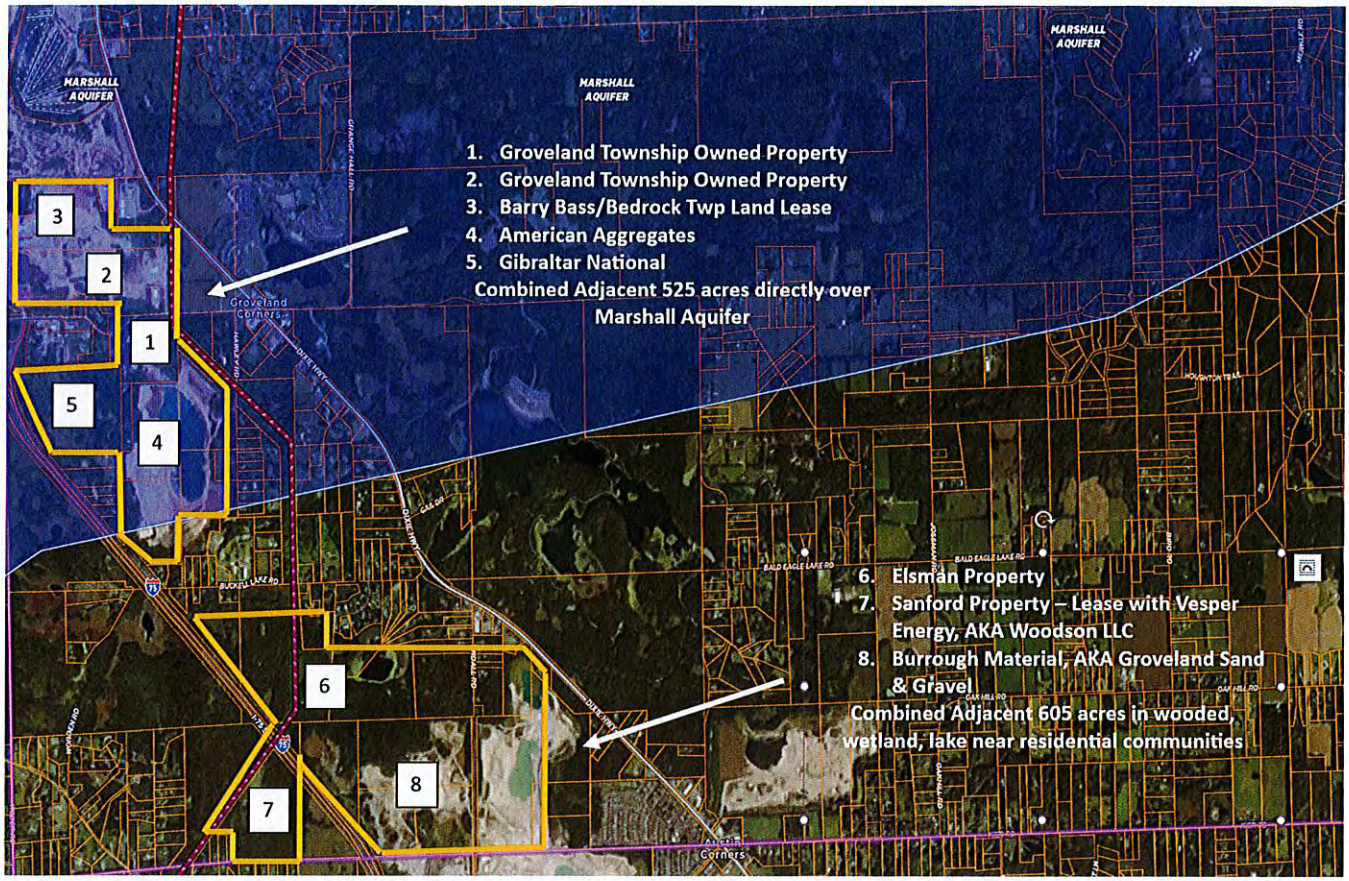
- Data center impacts — economic, environmental, and community
- A recommended zoning framework, including ordinances and safeguards

Guiding Principles

- Evidence-based and fact-driven analysis
- Balanced evaluation of benefits and risks
- Transparency and active public engagement
- Protection of community character and natural resources
- Legal defensibility of all recommendations

Final Deliverables (by August 2026)

- Written Data Center Impact Report (20–25 pages)
- Recommended Zoning Ordinance amendments
- Recommended Master Plan amendments
- Joint public presentation to Township Board and Planning Commission



2. TARGETED PARCELS

The following parcels in Groveland Township are identified as likely developer targets based on size, zoning status, and known acquisition strategies. Many are directly located under the ITC Power Grid.

Target Parcel	Estimated Acres	Zoning Description	Interest Level
Township Owned Property **Mines of Groveland (township-owned)** *Parcels 1,2,3 on map*	188	Flexible Corridor-IT; Extractive Overlay; township ownership; Under ITC Grid. Mines of Groveland I 75, North of Grange Hall (Bedrock, Barry Bass leasing some land) I 75, South side of Grange Hall Road. ***Evolve Energy has approached township regarding development.***	**HIGH**
American Aggregates; AKA Levy *Parcel 4 on map*	150	Extractive Overlay; Revert to some LI and some Rural Estate/Farm upon reclamation completion. I 75 & Grange Hall/Hawley. Under ITC Grid. **Gravel pit open to Marshall Formation aquifer**	**HIGH**
J. Elsman Parcel *Parcel 6 on map*	220	Rural Estate Farm; Wooded acreage at Buckell Lake & Dixie Hwy; highway-adjacent; lakes, wetlands Access would be from I75 to Holly Rd to Tindall (through to Dixie). Under ITC Grid. ***Cielo Digital has***	**HIGH**

Target Parcel	Estimated Acres	Zoning Description	Interest Level
		approached township regarding development. ***WOULD REQUIRE REZONING and hydrogeologic studies**	
W. Sanford Parcel *Parcel 7 on map*	64	Wooded acreage, wetlands, at Holly & Tucker Rd; Under ITC Grid; *private lease with Vesper/Woodson Energy LLC*	**HIGH**
Groveland Sand & Gravel; AKA Burrough Material Corp; AKA Levy *Parcel 8 on map*	250	Extractive Overlay; Revert to Rural Estate/Farm upon reclamation completion West of Dixie/Tindall East of Dixie/West of Jossman	**HIGH**
Holly Sand & Gravel; AKA Levy	300	Extractive Overlay; Revert to Rural Estate/Farm upon reclamation completion on South Side of property. Tindall/West of Dixie Hwy. Will continue to operate on North Side.	**POSSIBLE**
Gibraltar National *Parcel 5 on map*	96	Extractive Overlay; Revert to Rural Estate/Farm upon reclamation completion. I75 & South side of Grange Hall/Worden. ***Legacy environmental issues from previous apple orchard.***	**POSSIBLE**

Sources: Groveland Township Zoning Map, Township Clerk data, the Citizen

3. COMMITTEE STRUCTURE (7 Members)

Role	Responsibilities
Chair / Project Lead	Coordinates timeline, manages board communication, and maintains project momentum
Public Engagement Lead	Manages community input, public meetings, and resident outreach
Environmental Lead	Water, land, and risk analysis; aquifer and ecosystem impact assessment
Economic & Fiscal Lead	Tax revenue analysis, cost-benefit evaluation, fiscal risk modeling
Zoning & Legal Lead	Ordinance drafting, case law research, laymen legal defensibility review
Research Analyst	Benchmarking comparable communities; case study documentation
Communications & Documentation Lead	Final report writing, presentation preparation, public-facing materials

4. PROJECT TIMELINE & PHASES

Phase 1 — Kickoff, Scope & Task Assignments (Week 1: May 7, 2026)

Scope Definition

- Data center fundamentals and impacts on Groveland Township
- Recommended zoning framework
- Recommended Master Plan amendments

Key Stakeholders

- Residents / GTRAC members
- Township Board
- Planning Commission

Phase 1 Deliverables

- GTRAC Project Charter (completed)
- Meeting schedule established
- Shared Google Drive, knowledge library, and topic folders created for final presentation

PHASE 2 — Research & Preliminary Findings (Weeks 2–6: May–June 2026)

The purpose of this research phase is to evaluate whether large-scale heavy industrial data center development is compatible with Groveland Township's rural character, environmental resources, infrastructure capacity, public safety capabilities, and long-term economic interests — and to recommend a zoning framework that protects public health, safety, and the environment.

ℹ NOTICE — Active Moratorium

Active Moratorium: A one-year moratorium on data center applications is currently in effect, expiring February 2027. All ordinance and Master Plan amendments should be adopted before that date.

2.1 Building Scale & Land Requirements

Data centers are not comparable to traditional commercial development. They are continuous-operation heavy industrial facilities with resource demands that far exceed most other land uses. **They should be viewed as a heavy industrial energy utility** from a zoning framework, such as automotive manufacturing or large power plants.

Type	Typical Size	Acres Required	Power Draw	Water/Day	Permanent Jobs
Edge / Small	10,000–50,000 sq ft	1–5 acres	1–10 MW	10,000–50,000 gal	5–20
Mid-Size Enterprise	100,000–500,000 sq ft	10–30 acres	10–100 MW	100K–500K gal	20–50
Large Regional	500K–1M sq ft	30–100 acres	100–300 MW	500K–1.5M gal	30–100

Type	Typical Size	Acres Required	Power Draw	Water/Day	Permanent Jobs
Hyperscale Campus	1M–5M+ sq ft	100–500+ acres	300–1,400 MW	1M–5M+ gal	100

Sources: Northeast Regional Center for Rural Development (NERCRD), April 2026; JLL North America Data Center Report, 2025

Common Building Comparisons:

Type	Typical Size	Acres Required	Power Draw	Water/Day	Permanent Jobs
Large Grocery Store	50,000 sq ft	1–2 acres est.	0.5–1 MW est.	500–2,000 gal/day est.	100–300
High School	200,000 sq ft	20–40 acres est.	1–3 MW est.	5,000–15,000 gal/day est.	100–200
Typical Mfg. Facility	150,000 sq ft	5–15 acres est.	2–10 MW est.	10,000–50,000 gal/day est.	200–500
Automotive Manufacturing Plant	1M – 5M sq ft	300+ acres	15 – 50 MW	200K-500K gal	2000-7000

Sources: NERCRD April 2026; JLL North America Data Center Report 2025. Comparison values are rough planning-level estimates compiled from general commercial building, school planning, utility use and employment benchmarks

Groveland Township Comparison:

Groveland Township Baseline	Data Center (Large Regional)
Single-family home: 2.5 acres	Campus: 100–500+ acres
Farm (average): 12–150 acres	Requires new electrical substation + grid upgrades
All township residents (~6,000): 300,000 gal/day	Single facility: 500,000–5 million gallons/day
Residential power: 20–30 kWh/day per home	Data center: 480,000 kWh–1.4 GW/day (equivalent to 50,000+ homes)
Seasonal farm/gravel traffic: ~40–100 trucks/day	Construction: 500–2,000 heavy truck movements/day for 18–30 months
Ambient rural noise: 40–55 dBA	Cooling towers: 65–85 dBA continuous, 24/7/365
Residential emergency response	50+ diesel generators; BESS thermal runaway risk; Requires specialized Heavy Industrial Utility fire hazard response

Sources: Sources: USGS, EGLE, Michigan Public, MSU Extension

⚑ COMMITTEE CONCERN — "Data Centers are a new category we have to treat differently"– *Sam Altman, OpenAI, June 1, 2026, from Saline, MI, on CNBC*

Data centers are not comparable to traditional commercial development. Their physical footprint, utility and water demand, security requirements, climate and environmental impacts are substantially different from uses currently contemplated within township zoning districts and more comparable to a heavy industrial manufacturing or power utility facilities. **Groveland Township does not have land designated for Heavy Industrial energy utility use, only Light Industrial.** More than one-third of Groveland Township is already protected public recreation land, **making the rural and recreational character not just an aspiration but a documented, legally protected land use reality** – and why heavy industrial data center uses are fundamentally incompatible with the community's established land base.

2.2 Energy Requirements

New data center facilities are designed for AI workloads and typically require 100 MW or more of electrical service — roughly 10 to 100 times Groveland Township's average electrical demand.

Facility	Continuous Power (MW)	Multiple of Township Avg. Demand
Average Groveland Township (est.)	3–5 MW	1×
Small data center	20 MW	4–7×
Medium hyperscale	50 MW	10–17×
Large hyperscale	100 MW	20–33×
AI-focused campus	250 MW	50–80×
Emerging AI mega-campus	500 MW	100–160×

Sources: USP&E, Congress.gov, Built In, NextBigFuture, Globaldatacenterhub, US Energy Information Administration

2.3 Backup Power Systems

Data centers install backup generation capacity equal to 100% of facility load plus redundancy (N+1, N+2). Industrial generators typically range from 2–3 MW each. Data centers typically use a combination of UPS batteries (universally used in every data center), large utility scale Battery Energy Storage Systems (BESS), Diesel Generators. When utility grid power fails, the UPS batteries provide instant power, next BESS and/or Diesel generators will synchronize within about 30 seconds and carry facility load until utility service returns.

Data Center Size	Approx. Diesel Generators	Diesel Fuel Storage
20 MW	8–12 generators	20,000–50,000 gallons
100 MW	40–60 generators	100,000–300,000 gallons
250 MW	80–150 generators	300,000–750,000 gallons
500 MW	150–300 generators	750,000–1,500,000+ gallons

Sources: Generac, TechTarget, engineering estimates.

Backup System Risk Comparison

Impact Category	Diesel Generators	Battery Energy Storage (BESS)
Noise	High during operation	Low
Air emissions	Yes — NOx, PM2.5, CO, VOCs, CO_2	None during operation
Fuel/chemical storage	Large diesel tanks on-site	None
Spill/contamination risk	Significant — aquifer contamination can persist for decades	Minimal
Fire risk	Fuel fires	Thermal runaway — potentially catastrophic near Marshall Aquifer
Heat production	High	Moderate
Truck traffic	Continuous fuel deliveries during outages	Minimal

Sources : TechTarget, Ohio Data Centers, Electrical Trader, Chicago State University, Center for Environmental Research and Technology, Earthsafe, Mansfield Energy

2.4 Cooling Systems

Michigan's Zone 5 ASHRAE climate makes it attractive to data center developers seeking to reduce cooling costs. Regardless of technology selected, thresholds must be carefully reviewed for environmental risk, hazardous material disclosures and microclimate impact.

Cooling Technology	How It Works	Typical Application	Relative Water Use	Environmental Considerations	Planning Considerations
Air-Based Cooling (CRAC/CRAH)	Uses chilled air circulated through server rooms.	Traditional enterprise and lower-density data centers.	Low	May use refrigerants; higher electricity demand than liquid cooling systems.	Minimal direct water use but rejects heat to the surrounding environment.
Air-Side Free Cooling (Economizer)	Uses cool outside air when weather conditions permit.	Cooler climates and energy-efficient facilities.	Very Low	Reduces energy consumption and water demand.	Effectiveness depends on climate and seasonal conditions.
Chilled Water Systems	Central chillers produce chilled water circulated through cooling equipment.	Large enterprise and hyperscale facilities.	Moderate	Water use depends on whether cooling towers are employed.	Common technology; requires evaluation of water demand and heat rejection.

Cooling Technology	How It Works	Typical Application	Relative Water Use	Environmental Considerations	Planning Considerations
Evaporative (Adiabatic) Cooling	Uses evaporation to remove heat from incoming air or cooling systems.	Many hyperscale data centers.	Moderate to High	Can substantially increase water consumption.	Most significant concern for groundwater-dependent communities.
Direct-to-Chip Liquid Cooling	Coolant circulates through cold plates attached directly to CPUs and GPUs.	AI, machine learning, and high-density computing.	Low to Moderate	Closed-loop systems typically reduce water consumption and improve efficiency.	Increasingly common for AI facilities; still requires external heat rejection systems.
Immersion Cooling	Servers are submerged in non-conductive cooling fluid.	High-performance computing and advanced AI applications.	Very Low	Highly efficient; specialized fluids require proper handling and disposal.	Emerging technology with limited large-scale deployment today.
Hybrid Cooling Systems	Combines air, liquid, chilled water, and/or evaporative cooling.	Most modern hyperscale campuses.	Variable	Water and energy use depend on system design.	Requires project-specific analysis to determine actual impacts.

Sources: Tech Target, Uptime Institute, Energy Star, Hyperscale Hero

⚑ COMMITTEE CONCERN — Heat Island Effect on Mt. Holly Ski Resort

Mt. Holly has operated as an anchor business in Groveland Township for over 70 years. General Manager Mark Tibbets has stated that **'even a 1-degree change in temperature or humidity would have devastating effects on their ability to make snow.'** Thermal modeling suggests a large data center can elevate surrounding ambient air temperatures by up to 4°F within 1/3 mile, creating a Heat Island Effect — directly threatening the resort's snow production window.

Source: Department of Science-University of Cambridge, College of Computing and Data Science-Nanyang Technological University, Glitch Analytics Ltd-UK

2.5 Electrical Grid — Rate Increase Risk

Data center development is driving up electricity costs for residents through severe grid strain and infrastructure expansion costs passed to ratepayers.

Finding	Detail
Michigan rate increases	MPSC approved $276M Consumers Energy 9% rate hike effective May 2026. An additional 10 % rate hike is filed for May 2027 (additional $456M).

Finding	Detail
Carnegie Mellon / NC State (July 2025)	Data center growth projected to increase electricity bills 8% nationally and up to 25% in concentrated markets by 2030
National residential prices	Already rose 7.1% in 2025 — more than double the inflation rate
Ohio warning	Residential bills projected to rise $70/month if data center growth continues unchecked
Lake Tahoe	50,000 residents directed to seek emergency alternative power by May 2027 after major utilities redirected capacity to Nevada data center hub
Michigan energy burden	Nearly half of Michigan census tracts already exceed the federal 'energy-burdened' threshold of 6% of income on energy (University of Michigan)

Sources: MPSC, University of Michigan, Carnegie Mellon, Planet Detroit, Consumers Energy

2.6 Water, Environmental & Aquifer Impact

Groveland Township has no municipal water system. All residents depend on private wells drawing from the **Marshall Sandstone Aquifer** and overlying glacial drift — a single, hydrologically connected system. It is the **primary and sole source of water for Groveland Township** and an important source of freshwater that stretches across **52** Michigan counties.

Source: Southern Michigan's hidden treasure, Monica Day, MSU Extension, Natural Resources

Daily Water Use	Volume
100 homes	20,000–30,000 gal/day
Large dairy farm	20,000–50,000 gal/day
Golf course irrigation (summer)	100,000–500,000 gal/day (seasonal)
Mt. Holly active snowmaking	500,000–1,000,000 gal/day (seasonal)
Small data center	50,000–250,000 gal/day
Hyperscale data center	500,000–5,000,000+ gal/day

Sources: EGLE, USGS, US EPA, MSU Extension, Mt Holly Ski Resort, Sustainableplay

The Michigan EGLE Water Withdrawal Assessment Tool (WWAT) evaluates cumulative watershed impacts. In Groveland Township, the Flint River headwaters (Thread Creek, Kearsley Creek, Shiawassee River Basin) are directly interconnected with the Marshall Formation aquifer — they function as one system. **Any large-capacity withdrawal will trigger an EGLE Zone D (Adverse Resource Impact) designation.**

2.6.1 Marshall Aquifer Profile

Characteristic	Detail
Aquifer type	Marshall Sandstone (bedrock) + overlying glacial drift — hydrologically connected
Thickness	75–175 feet; exceeds 200 ft in some areas
Productivity	Wells capable of producing 1,000+ gallons per minute (gpm) under favorable conditions
Townships served	Groveland, Holly, Brandon, Rose
Recharge rate (regional estimate)	4–15 inches/year depending on soil, wetlands, land cover — no Groveland-specific published figure
Key vulnerability	Slow recharge; contamination can persist for decades; no backup municipal supply

Sources: USGS, GeoScienceWorld, MSU Extension

⚑ COMMITTEE CONCERN — Arsenic Mobilization

The concern is that **large, continuous groundwater withdrawals could alter groundwater flow and aquifer chemistry in ways that increase arsenic concentrations in private wells that already face naturally occurring arsenic risks.** Because arsenic is already a known regional groundwater issue, any proposal involving significant groundwater extraction should be required to demonstrate — through site-specific **hydrogeologic studies, groundwater modeling, and long-term monitoring** — that it will not mobilize arsenic or worsen existing drinking water quality conditions.

⚠ IMPORTANT — Environmental Impairment and Infrastructure Surety Bond

Due to the sensitivity of the Marshall Formation aquifer as our primary and sole source of water, the township should require an **Irrevocable Environmental Impairment and Infrastructure Surety Bond** equal to **125% of the total estimated cost** to design, engineer, acquire easements for, and physically construct a public municipal water distribution system capable of connecting every residential, agricultural, and commercial parcel within Groveland Township to an alternative, verified municipal water source in the event of local aquifer failure or contamination.

2.6.2 Air Pollution Considerations

While data centers themselves typically produce few direct air emissions, associated diesel generators and battery storage systems create the greatest air quality concerns. Particulate matter contains toxins related to respiratory, cardiovascular, and cancer risks. Particularly on children, elderly, and outdoor recreation users. Independent air quality modeling, continuous monitoring, and third-party reviews of all emissions and emergency scenarios are essential.

Potential Air Quality Concern	Why It Matters	Recommended Ordinance Protection
Diesel Backup Generators	Can emit fine particulate matter (PM2.5), nitrogen oxides (NOx), carbon monoxide (CO), and other pollutants linked to respiratory and cardiovascular health impacts.	Require EPA Tier 4 Final generators, limit testing to daytime hours, require air-quality modeling, and establish independent monitoring.
Battery Energy Storage Systems (BESS)	Thermal runaway events can release hydrogen fluoride, heavy metals, and ultrafine particulates that pose risks to residents and emergency responders.	Require third-party hazard analysis, worst-case dispersion modeling, emergency response planning, and annual inspections.
Fine Particulate Matter (PM2.5)	PM2.5 is the pollutant most closely associated with long-term health impacts and can travel significant distances.	Require applicants to demonstrate no measurable adverse impact at residential property lines and install continuous monitoring systems.
Construction Activity	Heavy equipment and earthmoving can generate dust and diesel emissions.	Require dust-control plans, equipment emission controls, and compliance monitoring.
Cumulative Impacts	Multiple generators, substations, cooling systems, and BESS facilities can create combined impacts greater than any one source alone.	Require cumulative air-quality, noise, water-use, and public health impact analyses reviewed by independent experts.

Sources: US EPA Nonroad Diesel Engine Regulations, NIH, Kohler White paper on EPA Tier 4 Certification, US EPA Main Considerations for Safe BESS, Southern Environmental Law Center.

⚑ COMMITTEE CONCERN — Dangers to Air Quality and Public Health

The applicant shall demonstrate through independent third-party analysis that the proposed facility, including all generators, cooling systems, substations, and battery energy storage systems, will not create a measurable adverse impact on public health, air quality, recreation uses, schools, parks, residences, or environmentally sensitive resources.

2.6.3 Data Center Light Pollution Considerations

Groveland Township contains some of the largest publicly accessible recreation lands in Oakland County, including State-owned Holly Recreation Area, 8,600 acres of woodlands, lakes, campgrounds, trails and recreation facilities. Groveland area parks attract hundreds of thousands of recreation visits annually through camping, hiking, fishing, mountain biking, boating, hunting, snow sports, ORV recreation and other outdoor activities. Over 35% of Groveland's land is protected public recreation land, and 40% is zoned for Rural Estate/Farms.

Light Pollution Impact

Potential Impact	Why It Matters in Groveland Township	Recommended Ordinance Protection
Sky Glow	Artificial light reflected into the night sky can reduce visibility of stars and alter the rural character valued by residents and park visitors.	Require a Dark Sky Lighting Plan and demonstrate no measurable increase in sky glow at property lines or public recreation areas.
Park and Recreation Impacts	Visitors expect natural nighttime conditions for camping, hiking, wildlife observation, and outdoor recreation.	Require lighting impact analysis on nearby parks and recreation lands.
Residential Light Trespass	Security lighting can shine into neighboring homes and properties.	Establish maximum light trespass limits at all property lines and residential receptors.
Wildlife and Livestock Disruption	Excessive nighttime lighting can alter behavior of birds, bats, pollinators, and other wildlife.	Require fully shielded fixtures and motion-activated lighting where feasible.
Substation and Infrastructure Lighting	Electrical substations often remain illuminated throughout the night.	Require shielding, downward-directed fixtures, and lighting only when operationally necessary.
Future Expansion	Additional buildings, substations, and parking lots can increase lighting over time.	Require full-buildout lighting analysis as part of cumulative impact review.

Sources: Dark Sky International, Oxford Academic, Nature, Oregon State University, National League of Cities, Windham Law

⚑ COMMITTEE CONCERN — Dark Skies as a Protected Community Resource

Protecting dark skies is not just an aesthetic issue — it protects recreation, tourism, livestock and wildlife habitat, resident quality of life, and the natural character that Groveland Township's Master Plan seeks to preserve. **Tighten up current Groveland zoning ordinance Section 13.1/K** mirroring the Model Lighting Ordinance (MLO) developed by DarkSky International and the Illuminating Engineering Society (IES).

Sources: NWF — AI Data Centers, DarkSky International, Illuminating Engineering Society, USGBC LEED Data Center standards

2.6.4 Data Center Noise Considerations

Groveland Township's existing ambient rural noise level is 40–55 dBA. A hyperscale data center produces continuous cooling system noise of 60–85 dBA at the property line, 24 hours a day, 7 days a week, 365 days a year. In addition, back up Diesel Generators contribute to the dBA level. Low frequency noise, Electromagnetic Fields (EMF) is a problematic aspect of data center noise, a low frequency tonal hum and infrasound. Reports from residents near data centers include physical sensations of pressure, dizziness, nausea, and vertigo.

Noise & Electromagnetic Impact (EMF) Comparison

Source	Typical dBA Level	Human Perception	Frequency Character	EMF / Electromagnetic Impact
Data Center — Cooling Towers (hyperscale; 24/7/365)	65–85 dBA at property line; 70–85 dBA at 50 ft	As loud as a busy street — 24 hrs/7 days a week/365 days a year	Low-frequency tonal hum (100–500 Hz); penetrates walls; poorly captured by standard dBA meters	Moderate — internal power systems generate ELF-EMF. Primary EMF concern is the required new high-voltage substation and transmission infrastructure (see note below)
Diesel Back Up Generators	90–105 dBA at 25 ft; Audible ~1 mile in still night conditions	Chainsaw or motorcycle level. Monthly mandatory tests at any hour. 50–150 generators running simultaneously.	Broadband low-frequency exhaust rumble; carries long distances overnight	
Gravel Pit Operation	80–100 dBA at equipment; 60–75 dBA at property line during operations	Loud during permitted weekday hours. No evenings, overnight, weekends.	Intermittent, no continuous hum; absent outside permit hours	Negligible — equipment engines and on-site wiring produce minimal EMF
Farm — Tractor	95 dBA at operator	Very loud at the machine. Stops when fieldwork ends	Engine noise; intermittent; seasonal	Negligible —no EMF
Busy Street / Highway Traffic	70–80 dBA at roadside; 55–65 dBA at setback	Clearly audible; intrusive in quiet settings. Diminishes significantly at night	Fluctuates with volume	Low
Vacuum Cleaner	70–80 dBA at 3 feet	Clearly audible; intrusive, intermittent when in use only	Mechanical; household	Negligible
Groveland Township — Rural Ambient Nighttime (existing baseline)	40–45 dBA	Very quiet: crickets, frogs birds, light breeze.	Natural sounds	Very Low
Groveland Township — Rural Ambient Daytime (existing baseline)	45–55 dBA	Quiet: occasional traffic, farm activity, birdsong. At or near the EPA's 55 dBA residential outdoor goal.	Natural and light rural sounds; intermittent	Very Low

Sources: Ohio Data Centers (stopohiodatacenters.org, May 2026); LSARS — Data Center Noise (lsars.com); NIDCD / NIOSH farm noise data; MDPI — Grain Dryer Noise Emissions (2023); TechTarget — Data Center Noise Pollution (Dec. 2024); U.S. EPA Level Document (550/9-74-004, 1974); GTRAC Data Center Assessment (June 2026). EMF sources: Environmental Health Sciences — Is it Safe to Live Near a Data Center? (Mar. 2026); Environmental Health Sciences — AI Data Centers and Grid Harmonics (June 2026); CIGRE ELECTRA — EMF Consideration for Data Centers Near Transmission Lines (Aug. 2025); Ohio Register — Data Center Reference Sheet (Apr. 2026); WHO IARC Monograph Vol. 80 — ELF-EMF (Class 2B carcinogen); Kaiser Permanente ELF-EMF studies (De-Kun Li, MD); NIH/PubMed — ELF-EMF and sleep quality near substations (PMC3561068)

Recommended Noise Ordinance Provisions for Groveland Township

Provision	Recommended Standard	Basis
Maximum Continuous Noise — Nighttime (10 PM – 7 AM) at residential/recreation property line	≤ 45 dBA LEQ	WHO Night Noise Guideline (40 dBA) + 5 dBA margin; Prince William County VA 24-hr limit (Feb. 2026)
Maximum Continuous Noise — Daytime (7 AM – 10 PM) at residential/recreation property line	≤ 55 dBA LEQ	U.S. EPA residential outdoor goal (55 dBA); WHO Lden guideline; Michigan residential ordinance best practice

Provision	Recommended Standard	Basis
Diesel Generator Load Testing — Hours	Weekdays only, 8 AM – 5 PM; Max 4 hrs per test; Max 100 hrs per year	GTRAC Draft Ordinance (June 2026); prevents nighttime/weekend disruption from 90–105 dBA events audible ~1 mile
Low-Frequency Noise Measurement	All readings must include C-weighted (dBC) and G-weighted infrasound in addition to standard dBA; dBC – dBA differential ≤ 15 dB	Larson Davis noise engineering standard; addresses regulatory gap — standard dBA meters miss low-frequency hum driving most resident complaints
Pre-Construction Baseline Study	Independent licensed acoustical engineer (at developer's expense) establishes baseline dBA, dBC, and G-weighted levels at all sensitive receptors within 5,000 feet	Enables enforcement; prevents 'no baseline' defense; developer-funded per GTRAC draft ordinance
Pre-Construction EMF Baseline Study	Independent licensed EMF engineer (at developer's expense) establishes baseline ELF-EMF milligauss readings at all sensitive receptors within 5,000 feet of proposed substation and transmission infrastructure before construction	WHO IARC Class 2B carcinogen designation for ELF-EMF above 3–4 mG; no U.S. federal standard exists; baseline required for legal defensibility; consistent with GTRAC Pre-Application Questionnaire Q.55
Post-Construction Continuous Monitoring	Min. 4 fence-line noise monitoring stations; real-time public data portal; automatic Township notification if any limit exceeded for 15+ consecutive minutes	Prince William County VA model; ensures ongoing compliance and evidentiary record for enforcement
Post-Construction EMF Monitoring	Continuous EMF monitoring at residential receptor points closest to substation and transmission infrastructure; public data portal; independent annual review	Consistent with UK Engineering Recommendation G92 (2018) and international best practice; no U.S. federal program; required given absence of federal oversight
Minimum Setback — Cooling Towers, HVAC, and Substations	No cooling tower, HVAC stack, or electrical substation within 1,000 feet of any residential property line, park boundary, or recreation-area boundary	Noise: at 1,000 ft, cooling tower attenuates to ~45–55 dBA. EMF: substation magnetic fields decrease with distance; 1,000 ft setback reduces but does not eliminate ELF-EMF exposure at residences
Acoustic & EMF Remediation Bond	Developer posts independent bond covering full cost of additional acoustic and/or EMF mitigation if post-construction monitoring shows any limit exceeded during first 5 years	Protects Township from remediation costs; consistent with GTRAC draft ordinance Articles XII–XIII bonding framework

Sources: WHO Environmental Noise Guidelines for the European Region (2018); U.S. EPA Level Document (EPA/550/9-74-004, 1974); Prince William County VA data center noise ordinance (Feb. 2026); Ohio Data Centers (May 2026); Larson Davis — Data Center Noise Monitoring; LegalClarity — Michigan Noise Ordinance Laws (Apr. 2026); UK Engineering Recommendation G92 Issue 2 (2018); Environmental Health Sciences — EMF & Data Centers (2026); GTRAC Draft Data Center and Energy Storage Protection Ordinance, Groveland Township (June 2026)

⚑ COMMITTEE CONCERN — Regulatory Gap

Most Michigan noise ordinances were designed to address nuisance noise (loud parties, barking dogs) and use subjective 'plainly audible' or 'unreasonable' standards — not the continuous low-frequency hum of a hyperscale industrial facility. Existing ordinances will not adequately protect Groveland Township residents without specific, quantitative dBA limits applicable to data center operations, enforced at multiple receptor distances and including low-frequency measurement standards. Prince William County, Virginia adopted a 55 dBA limit applicable 24 hours a day in February 2026 specifically in response to this problem.

⚠ IMPORTANT — Payment and Performance Bond

As a condition of site plant approval and prior to building permit. The Applicant must deposit and Irrevocable Letter of Credit or Surety Payment and Performance Bond in amount equal to 125% of the total estimated cost of all environmental mitigation structures (including sound walls, specialized buffer landscaping, and baffling)

2.7 Data Center Emergency Response

Groveland Township operates two fire stations with a limited full time staff supplemented by paid-on-call personnel, callback staffing and mutual aid. The township has no municipal water system. Fire suppression depends upon fire wells, tanker operations, portable water tanks, and mutual aid water supply resources. Fire Department (GTFD) is well-matched to the Township's current residential, agricultural, and recreational risk profile. **A large-scale data center introduces industrial hazards, mega-building fire demands, extended incident durations, and water requirements that are fundamentally different from any existing Township land use**. The table below identifies each major capability gap, the overall risk rating, and what would be required of any applicant before construction may proceed.

Gap Rating	
IMPORTANT	Current local capability is insufficient for safe, effective, or sustained operations without substantial engineered protection, outside resources, or major capability investment.
SIGNFICANT	GTFD can provide an initial response, but specialized equipment, training, staffing, or outside assistance would be required to manage the hazard safely.
MODERATE	An existing local capability is present but would require enhancement, planning, or additional capacity.

1. Electrical, Battery, and Fuel Hazards

Risk Area	Overall Gap	Current GTFD Capability	What a Data Center Would Require
High-Voltage Electrical & Substation Incidents	IMPORTANT	Standard structural firefighting; dependent on utility personnel for isolation of energized equipment	Specialized high-voltage training; utility coordination protocols; electrical one-line diagrams; site-specific shutdown procedures and qualified technical representatives on call 24/7
Battery Energy Storage System (BESS) — Thermal Runaway	IMPORTANT	No dedicated BESS response team; standard SCBA, thermal imaging, and basic gas monitoring only	BESS-specific training; hazard-specific gas detection (HF, hydrogen, CO); long-duration cooling and monitoring capability; decontamination and replacement equipment
Large Transformer Fire	IMPORTANT	Standard firefighting; limited spill containment; no industrial foam trailer	Transformer fire training; oil-spill containment resources; sustained high-volume water supply; industrial technical support and environmental response
Hazardous Gas Release (HF, CO, VOCs, Refrigerants)	IMPORTANT	Standard multi-gas monitoring and SCBA; basic evacuation and isolation	Hazard-specific gas detection; plume monitoring; technical decontamination; specialized HazMat agreements; dedicated regional HazMat team access

Generator Fuel Fire / Spill (50–300+ diesel generators)	SIGNFICANT	Standard flammable-liquid firefighting; limited spill-control equipment	Fuel-system shutdown information; additional containment equipment; industrial fuel-fire training; foam capability
2. Large-Building Firefighting & Water Supply			
Risk Area	**Overall Gap**	**Current GTFD Capability**	**What a Data Center Would Require**
Structural Fire — Large Footprint Building	IMPORTANT	Limited local staffing and apparatus; can initiate attack and request mutual aid, but cannot sustain multi-company operations independently	Engineered automatic suppression systems; expanded alarm assignments; additional staffing depth; reserve apparatus; preincident plans
Fire-Water Supply — No Municipal System	IMPORTANT	Fire wells, tanker shuttle, and portable tanks — designed for residential and agricultural structures, not industrial demand	Developer-funded independent on-site water storage; redundant listed fire pumps with emergency power; looped private mains; accessible hydrants; verified backup supply strategy. Fire flow for a large data center: 2,000–10,000+ gpm for 12–72 hours
Master Streams, Aerial Operations & Pump Capacity	IMPORTANT	Limited aerial apparatus; limited portable monitors; insufficient pump capacity for simultaneous multi-stream operations	Aerial apparatus access and automatic response; additional ground monitors and high-flow nozzles; increased pumper capacity; large-diameter hose (LDH); relay-pumping capability
Breaching, Search, Ventilation & Elevated Access	SIGNFICANT	Standard forcible entry, ground ladders, portable ventilation — suited for residential and light commercial structures	Heavy forcible-entry tools; multiple roof-access points; large-volume ventilation; additional thermal imagers; expanded search staffing and rapid-intervention teams
3. PPE, Equipment & Decontamination			
Risk Area	**Overall Gap**	**Current GTFD Capability**	**What a Data Center Would Require**
Turnout Gear, SCBA & Equipment Contamination	IMPORTANT	Basic gross decontamination only; limited replacement inventory; cannot absorb simultaneous loss of multiple PPE sets without reducing normal Township coverage	Technical decontamination corridor and procedures; developer-funded replacement PPE cache; specialized cleaning contracts; full-cost reimbursement binding agreement for contaminated or damaged gear and apparatus
Contaminated Firefighting Runoff	IMPORTANT	Limited absorbents and barriers only; no containment infrastructure	Drain isolation; portable containment; booms and retention areas; environmental sampling; pre-arranged disposal contractors — critical given proximity to Marshall Aquifer
4. Long-Duration Incidents & Community Coverage			
Risk Area	**Overall Gap**	**Current GTFD Capability**	**What a Data Center Would Require**

Extended Operations (24–72 Hours)	IMPORTANT	Callback staffing and mutual aid; standard ICS; limited local logistics for multi-period operations	Regional Incident Management Team; written crew-relief plan; expanded food, fuel, sanitation, and logistics; developer reimbursement provisions for extraordinary costs
Continued Township Emergency Coverage During Incident	IMPORTANT	Remaining apparatus and callback personnel — substantially depleted during a major data center incident	Dedicated backfill plan; reserve apparatus; automatic mutual-aid move-up assignments; funding for extraordinary coverage — Township residents must not lose fire and EMS protection
Mass Evacuation / Shelter-in-Place	MODERATE	Township and county notification systems; law enforcement resources	Site-specific protective-action plan; plume-based decision support; traffic management plan; coordination with neighboring properties and schools
5. Rescue, Medical & Special Operations			
Risk Area	**Overall Gap**	**Current GTFD Capability**	**What a Data Center Would Require**
Responder Rehabilitation & Medical Monitoring	IMPORTANT	Basic incident rehabilitation and ALS capability only	Dedicated rehab resources; responder medical monitoring; warming/cooling; surge staffing during extended SCBA operations
Confined-Space, Technical Rescue & Heavy Equipment	SIGNFICANT	Initial command and EMS; limited technical-rescue depth; no dedicated heavy equipment	Confined-space agreements; technician-level rescue resources; prearranged contractor agreements for excavators, cranes, and forklifts with 24-hour access
6. Inspection, Training & Ongoing Administrative Burden			
Risk Area	**Overall Gap**	**Current GTFD Capability**	**What a Data Center Would Require**
Complex Plan Review & Recurring Inspections	SIGNFICANT	Limited fire-inspection and administrative staffing — not resourced for industrial-scale technical review	Developer-funded third-party fire protection engineering review; acceptance and integrated systems testing; annual recurring inspections; updated preincident plans after any system change
Specialized Training — Annual & Sustained	SIGNFICANT	Existing training program; no data-center-specific curriculum	Developer-funded annual training: high-voltage, BESS/thermal runaway, HazMat, transformer fires, large-building tactics, master streams, relay pumping, decontamination, and unified command — initial plus annual refresher
Equipment Lifecycle, Calibration & Replacement	SIGNFICANT	Standard department equipment budget; not scaled for specialized industrial equipment	Developer-funded service contracts, calibration, consumables, and replacement schedules for gas meters, SCBA, monitors, and other specialized equipment

Sources: Groveland Township Fire Chief, US EPA, engineeringfireprotection.com, nfors.org,usfiredept.com

⚑ COMMITTEE CONCERN — Public Safety Capability Gap

Groveland Township Fire Department is well suited to the residential, agricultural and recreational uses that currently defines the township. **A large scale data center represents a fundamentally different emergency response environment.** 50 or more diesel generators, utility-scale Battery Energy Storage Systems (BESS) with thermal runaway and hydrogen fluoride gas release risk, high-voltage electrical infrastructure (34.5 kV–138 kV substations), and firefighting water demands of **2,000–10,000+ gallons per minute for 12–72 hours** — with no municipal water system available anywhere in Groveland Township.

The committee recommends that no large-scale data center application advance without:

- An independent Fire Protection Engineering Study determining actual response requirements
- A developer-funded Emergency Response Plan established before construction begins
- A dedicated industrial-scale firefighting water supply independent of township wells and aquifer
- Developer-funded annual specialized training: electrical, BESS/thermal runaway, hazmat, and industrial fire
- A binding Developer Contribution to Emergency Services to offset long-term operational burden on taxpayers

2.8 Economic Analysis

2.8.1 Job Creation — Promises vs. Documented Reality

Developer Promise	Documented Reality	Source
Switch (Nevada): 1,000 jobs promised to Michigan	**26 permanent jobs created; state loosened job definition rather than claw back incentives**	**Michigan Public Radio, 2025**
Saline Township (OpenAI/Oracle): '4,000 jobs'	**Comparable facilities employ 100–300 people permanently**	**GovTech, Dec. 2025**
Michigan incentive law: 30-job minimum	**Most data centers employ 10–100 permanently**	**michiganpublic.org, 2025**
Construction jobs touted as economic benefit	**Temporary (18–24 months); largely union labor imported from outside the community**	**NERCRD, 2026**
National avg. cost per subsidized data center job	**$2 million per job in state/local incentives**	**michiganpublic.org, 2025**

Sources: Bridge Michigan, The Economic Populist, Michigan Public Radio, WILX

2.8.2 Property Tax Revenue — Documented Risks

- Michigan Public Acts 181 and 207 of 2024 grant sales and use tax exemptions through at least 2050. A $500M facility pays zero Michigan sales tax on construction and equipment. Local property tax is the only revenue stream — and that stream can be legally eroded.
- Dark Store valuation: Operators challenge assessed value as vacant industrial land, reducing assessed value by 40–70%.

- Equipment depreciation: Server infrastructure depreciates rapidly — a 5-year-old server room may retain only 10–20% of original assessed value. Operators aggressively challenge assessments.
- Concentration risk: When a single taxpayer exceeds 10% of township tax revenue, fiscal risk becomes unacceptable. A hyperscale data center could vastly exceed this threshold for Groveland Township.
- Bipartisan Michigan lawmakers introduced bills in December 2025 to repeal the data center sales tax exemptions, citing broken job promises.

2.8.3 Decommissioning Liability

Every data center will eventually be decommissioned. The question is not whether — it is who pays.

- Data Center Buildings: 20–25 year lifespan
- Servers & IT Hardware: 3–5 years
- UPS Batteries: 3–5 years (VRLA) to 10 years (lithium-ion)
- Diesel Generators: 15–20 years with weekly testing and maintenance
- Battery Energy Storage Systems (BESS): 10–15 years; cells require augmentation every 5–7 years

Total decommissioning and remediation cost for a large facility: $50M – $200M+. Without a fully-funded escrow bond required upfront, the township bears this risk if the operator walks away.

Sources: DC Decom, State of Michigan, C7 Data Centers, Hexatronic

⚠ IMPORTANT — Decommissioning Bond — Non-Negotiable Requirement

A decommissioning bond equal to **125% of an independent cost estimate**, held in escrow by **Oakland County (NOT by the developer)**, refreshed **every 5 years**, and callable immediately upon facility closure — is a non-negotiable requirement. This protects Groveland Township from becoming the next brownfield the township cannot afford to remediate.

2.8.4 Property Value Impact

- Properties within sight lines of industrial cooling towers, 24/7 security lighting, and access roads have documented negative value impacts in comparable rural settings.
- The continuous 65–75 dBA noise profile from cooling equipment (24/7/365) is the single largest documented driver of property value decline adjacent to data centers.
- Construction phase impacts (18–30 months of heavy traffic, dust, noise, air pollution, potential well disturbances) on adjacent agricultural properties are not compensable under current Michigan law without litigation.

Sources: Brookings Institute, Newsweek, Law360

Phase 3 — Recommended Zoning Framework (Weeks 2–8: May–July 2026)

Note: All standards listed below must be verified and source-supported by research findings from Phase 2 before final adoption.

See GTRAC Recommended **Data Center Zoning Ordinance.docx**

Step 1: Define Large-Scale Data Centers

✎ PROPOSED LANGUAGE — Zoning Definition — Large-Scale Data Center

'Large-Scale Data Center' means any facility, or combination of facilities including BESS and diesel generators, on contiguous parcels under common ownership or control, designed or used to house computer servers, data storage systems, networking equipment, or related infrastructure, that meets ANY of the following thresholds:

(a) Gross floor area of 10,000 sq ft or more; OR

(b) Electrical load of 1 MW or more at any time; OR

(c) Water consumption of 10,000 gallons per day or more.

Small-scale server rooms incidental to an otherwise permitted use that do not exceed these thresholds are exempt.

NOTE: Data Centers must comply with the Federal Data Center Enhancement Act as defined by National Defense Authorization Act, 2024

Step 2: Classification — Special Land Use Only

Large-Scale Data Centers shall be a **Special Land Use (SLU)** in the General Industrial (I-2) zone only, as no Heavy Industrial zoning exists in Groveland Township — and not a use-by-right in any zone. Recommend reserving the right to apply a **Data Center (DC-1) Zoning District Overlay**. This satisfies the anti-exclusionary-zoning requirement (per MCL 125.3502 and *Smokler v. Whitfield*) while preserving maximum township control over every application to ensure public health and safety.

Step 3: Performance Standards

Standard	Requirement	Study Required Before Adoption
Setback — residential zones	**1,500 ft minimum**	**Township noise study: ambient residential dBA vs. data center output at distance**
Setback — water bodies/wetlands	**1,000 ft minimum**	**Hydrogeological study of groundwater recharge zones and arsenic migration paths**
Groundwater extraction for cooling	**PROHIBITED**	**Arsenic mobilization study — cornerstone standard**
Water consumption cap	**Based on aquifer safe-yield study — expected near zero**	**Independent hydrogeological study**
Cooling system type	**Closed-loop only; no open evaporative cooling**	**Water consumption study**
Electrical load	**Must demonstrate DTE approval; no negative residential rate impact**	**DTE interconnection capacity study**
Grid upgrade costs	**100% developer-funded; fully bonded before permit issuance**	**MPSC filing + independent engineering estimate**

Standard	Requirement	Study Required Before Adoption
Noise — residential property line	**50 dBA day / 45 dBA night**	**Township ambient noise baseline survey**
Low-frequency noise	**Separate assessment of cooling tower emissions required**	**Acoustical engineering study**
Backup generators	**EPA Tier 4 minimum; enclosed structures required**	**EGLE air quality consultation**
Vegetative buffer	**300-ft staggered evergreen buffer on all road frontages and residential boundaries**	**Landscape architect plan**
BESS requirements	**Hazmat + fire suppression plan approved by Oakland County Fire Marshal**	**Fire Marshal review + BESS specialist assessment**
Decommissioning bond	**125% of independent cost estimate; held by Oakland County; refreshed every 5 years**	**Independent engineering decommissioning cost estimate**
Property tax guarantee	**Full assessed value from day one; no abatements; guaranteed 20-year minimum payment**	**Financial consultant; binding agreement with Oakland County Assessor**
Community Benefit Agreement	**Fire dept. equipment; road repair bond; school/library contributions — all binding and pre-funded**	**Legal counsel; binding CBA**
Annual public reporting	**Water use, energy use, employment, tax payments, environmental compliance**	**Ordinance enforcement provision**
NDA prohibition	**No non-disclosure agreements between township officials and developers**	**Mirrors HB 5399; legal counsel drafting**

Sources: Environmental and Energy Studies Institute, Ohio Data Centers, Caterpillar, Loudoun County VA, WPXI, Fillmore County Journal, Planet Detroit, Columbia Law School, Digital Democracy, PennFuture Model Data Center Ordinance

Step 4: SLU Denial Grounds

Under MCL §125.3502, a Special Use Permit may be denied when the Planning Commission makes specific findings. Each denial ground must be supported by an independent study completed before the ordinance is adopted.

- Inconsistent with the Township Master Plan — the amended Master Plan creates this ground
- Would exceed infrastructure capacity (water, power, roads, emergency services) — the capacity studies create this ground
- Would be incompatible with adjacent land uses — noise, light, traffic, and environmental studies create this ground
- Would create unreasonable environmental impacts — the arsenic mobilization study and EGLE consultation create this ground
- Would impose costs on existing residents or ratepayers — the grid capacity study and DTE response create this ground

⚠ CRITICAL — Studies = Legally Defensible Denial Grounds

These grounds are only legally defensible if the underlying studies were **conducted independently**, **completed before any application arrives**, and are **expressly cited in the ordinance's legislative findings**. Without them, denial is opinion. With them, denial is documented fact. Hydrogeologic and Environmental Impact studies should be performed to establish a baseline by independent experts at the applicant's expense.

Electrical Review Thresholds

Electrical Demand Threshold	Required Review
>10 MW	**Enhanced Site Plan Review; disclosure of maximum demand, cooling technology, backup systems, and operating characteristics**
>25 MW	**Utility Infrastructure Impact Study (transmission capacity, substation needs, grid reliability, proposed upgrades)**
>50 MW	**Special Land Use Permit (SLUP); Environmental Impact Assessment; noise, traffic, emergency response, lighting, and backup power analysis**
>100 MW	**Enhanced SLUP Review; Comprehensive EIA; independent expert review selected by Township and funded by applicant; Township Board approval**
Any diesel generator >10 MW aggregate backup	**Noise study; air emissions documentation; fuel storage and spill prevention plan; emergency response plan; fuel delivery logistics**
Any BESS >20 MWh	**Fire protection analysis; thermal runaway mitigation plan; hazmat plan; fire department coordination; decommissioning and financial assurance plan**
Any phased development	**Review based on ultimate build-out capacity — phasing cannot be used to avoid study requirements**
Any expansion adding >10% or >10 MW	**Updated impact studies and review under standards applicable to a new facility**

Sources: Groveland Township Zoning Ordinance, Economic Development Responsibility Alliance (EDRA), Clearfield Co.PA, Citizens Utility Board of Michigan

Groundwater Withdrawal Framework — Tiered Standards

Tier	Withdrawal Volume	Required Review
Tier 1 — Small Users	**<10,000 GPD avg.**	**No special groundwater review required**

Tier	Withdrawal Volume	Required Review
Tier 2 — Moderate Users	**10,000–50,000 GPD**	**Hydrogeologic study; well interference analysis; wetland impact review**
Tier 3 — Large Users	**50,000–100,000 GPD**	**Independent third-party hydrogeologic review (applicant-funded); monitoring wells; seasonal and cumulative analysis**
Tier 4 — Major Users	**>100,000 GPD**	**Presumed incompatible unless applicant demonstrates no adverse impact on wells, wetlands, aquifer recharge, surface waters, or future residential water availability**

Sources: Michigan EGLE, USGS, Michigan Citizens Against Data Centers, MCL-Section 324.32706a (Excerpt: Natural Resources and Environmental Protection Act)

Water Review Thresholds

Groundwater Withdrawal Threshold	Required Review
>50,000 GPD	**Water Resource Impact Statement: daily, peak, monthly, annual, and build-out demand; source identification; wells, wetlands, lakes, and streams within 3-mile radius**
>100,000 GPD	**Comprehensive Hydrogeologic Impact Assessment by qualified hydrogeologist: aquifer characterization, flow directions, recharge areas, seasonal fluctuations, and impacts to all groundwater-dependent resources**
>250,000 GPD	**Scientifically defensible pump test (up to 30 days); groundwater modeling including drawdown, well interference, drought conditions, cumulative impacts, and neighboring jurisdiction impacts**
>500,000 GPD	**Township-selected Independent Peer Review funded entirely by the applicant; all deficiencies must be resolved before approval**
>500,000 GPD or >50 MW electrical	**Groundwater Monitoring Program: 12-month baseline prior to operation + ongoing monitoring throughout facility life; annual public reports**

Sources: Michigan EGLE, USGS, Michigan Citizens Against Data Centers, MCL-Section 324.32706a (Excerpt: Natural Resources and Environmental Protection Act)

✎ PROPOSED LANGUAGE — Recommended Aquifer Protection Standards

Aquifer Drawdown: No development shall cause more than 1 foot of drawdown at any property boundary.

Residential Wells: No development shall reduce the available yield of any existing residential well by more than 5%.

✎ PROPOSED LANGUAGE — Recommended Aquifer Protection Standards

Wetland Protection: No development shall cause measurable hydrologic alteration of wetlands, streams, lakes, or groundwater-dependent ecosystems.

Impact Studies and Monitoring: Hydrogeologic assessment and modeling, Environmental Impact studies, monitoring wells, continuous groundwater monitoring, and annual public reporting are required.

Gravel Pit / Post-Mining Parcel Resolution

✎ PROPOSED LANGUAGE — Proposed Board Resolution — Post-Mining Parcel Zoning

RESOLVED: Upon completion of all mining and reclamation activities at any parcel currently zoned Extractive (E) — including the Mines of Groveland, Holly Sand & Gravel, Groveland Sand & Gravel, and American Aggregates parcels — such parcels shall automatically revert to Rural Estate/Farm (RE/F) zoning as the default designation, unless the Board of Trustees affirmatively rezones the parcel following full public notice and hearing under PA 110 of 2006.

FURTHER RESOLVED: The Planning Commission is recommended to initiate Master Plan amendment proceedings to formally designate all post-mining Extractive parcels for recreational use, conservation use, or Rural Estate/Farm development on the Future Land Use Map.

FURTHER RESOLVED: The Township Supervisor is recommended to explore Conservation Easement, Oakland County Parks acquisition, and Michigan Natural Resources Trust Fund partnership options for all Extractive parcels.

FURTHER RESOLVED: Township staff are directed to contact all current Extractive zone operators to resolve outstanding SESC permit deficiencies and discuss long-term parcel disposition.

Phase 4 — Community Engagement (Weeks 2–10: May–August 2026)

- Attend neighboring township meetings facing the same data center challenges
- Attend regional grassroots coalition meetings (EDRA, Michigan Citizens Against Data Centers, Clean Water Campaign for MI, etc.)
- Urge community to attend monthly Township Board and Planning Commission meetings (typically 2nd and 3rd Mondays at 7 PM — confirm on the township website)
- Submit public comments to legislators, MPSC, and EGLE to create a documented public record in agency case files

Legislative Priorities — Contact State Representatives

- Senate Bills 761, 762, and 763 — water use limits and transparency for data centers
- House Bills 5594–5596 — statewide moratorium
- HB 5399 — prohibition on NDAs between public officials and data center developers
- HB 5396 — repeal of Michigan's data center tax exemptions

Developer Activity Monitoring

Monitor the MISO interconnection queue. Watch for pre-application inquiries, land purchases by shell companies, rezoning inquiries, or utility interconnection requests — these often precede formal applications by months. Early warning gives the township time to act.

Phase 4 Deliverable: Ongoing community engagement throughout the project timeline.

Phase 5 — Master Plan Amendments (Weeks 6–10: July–August 2026)

A Master Plan Community Workshop was held in February 2026. Results are in draft status with final amendment completion targeted by year-end. Michigan law gives significant weight to a municipality's adopted Master Plan when evaluating zoning decisions. The amendments below are recommended based on research findings and community feedback.

See GTRAC **Master Plan Amendment Recommendations.docx**

Amendment 1 — Data Center Policy Statement

✎ PROPOSED LANGUAGE — Proposed Master Plan Language — Data Center Policy

Large-scale data center facilities, as defined in the Groveland Township Ordinance No. ____-2025, are **incompatible** with the Township's adopted vision of rural character, low-density residential life, and natural resource conservation except where sited in designated industrial zones and meeting all performance standards established in this Plan and the Zoning Ordinance. Given documented groundwater quality limitations, the absence of municipal water infrastructure, constrained grid capacity, and the Township's land use character, suitable locations for large-scale data center development within Groveland Township are extremely limited, and no location shall be approved that cannot demonstrate compliance with all infrastructure capacity standards established through independent study. The Township shall require all large-scale data center proposals to undergo independent environmental, hydrogeological, electrical grid capacity, noise, and traffic review prior to any Planning Commission consideration. All study costs shall be borne by the applicant.

Amendment 2 — Water Resource Conservation & Source Water Protection

- Formally adopt a Source Water Protection Plan designating the township's groundwater aquifer as a protected resource
- Policy: 'No new land use shall extract groundwater at volumes exceeding the documented safe yield of the local aquifer as established by independent hydrogeological study'
- Policy: 'No new land use shall introduce chemicals, biocides, or contaminants that could mobilize naturally occurring arsenic or other contaminants in the Marshall Sandstone/glacial sediment aquifer formation underlying Groveland Township'

Amendment 3 — Infrastructure Protection Policy

- New industrial uses shall not impose infrastructure upgrade costs on existing residents, commercial, agricultural operators, or DTE/Consumers Energy ratepayers in the Groveland Township or surrounding service territory.
- All grid upgrade costs required for any new large-scale industrial use shall be borne entirely by the applicant and secured by surety bond prior to any permit issuance
- Road infrastructure damaged during construction shall be restored to pre-construction condition at the developer's sole expense, secured by a pre-construction bond calculated by an independent engineer retained by the township. Heavy trucks are restricted during "frost laws".

Amendment 4 — Post-Mining Parcel Designation

- All parcels currently zoned Extractive (E) are designated for Recreation (REC) or Rural Estate/Farm (RE/F) use on the Future Land Use Map upon completion of all mining and reclamation activities
- This affirmative designation forecloses the legal argument that post-mining parcels exist in an industrial zoning limbo

Phase 5 Deliverable: Recommended amendments submitted to the final Master Plan document by end of July 2026.

5. SUMMARY DELIVERABLES & SCHEDULE

Phase	Period	Key Deliverable
Phase 1 — Kickoff	**May 7, 2026 (Week 1)**	**Project Charter; meeting schedule; shared knowledge library**
Phase 2 — Research	**May–June 2026 (Weeks 2–6)**	**Preliminary findings report on impacts (energy, water, economic, environmental). Drafts provided to Board and Planning Commission**
Phase 3 — Zoning Framework	**May–July 2026 (Weeks 2–8)**	**Completed recommended zoning framework and ordinance language.**
Phase 4 — Community Engagement	**May–August 2026 (Weeks 2–10)**	**Ongoing engagement; legislative contacts; public comments filed.**
Phase 5 — Master Plan Amendments	**July–August 2026 (Weeks 6–10)**	**Recommended amendments submitted to Planning Commission.**
Final Deliverables	**August 2026**	**Written report; zoning ordinance; Master Plan amendments; joint public presentation.**

6. LOOKING FORWARD INTO THE NEAR FUTURE

Powering the massive energy demands of the next generation Quantum computing along with AI data centers requires a radical shift from traditional grid reliance to dedicated, high capacity, and zero-carbon energy solutions. Here is how the industry is gearing up to meet this unprecedented power challenge:

Nuclear Microreactors & SMRs: Tech giants are partnering with nuclear firms to develop Small Modular Reactors (SMRs) and microreactors. These provide a constant, uninterrupted baseload of clean energy directly to data centers without relying on standard, sprawling grid infrastructure.

Behind-the-Meter Colocation: Data centers are increasingly being built directly adjacent to dedicated power plants (like natural gas or nuclear facilities). By bypassing the broader electrical grid, operators secure direct, uninterrupted power while avoiding transmission loss.

Next-Generation Geothermal: Companies are exploring enhanced geothermal systems that can tap into the Earth's heat anywhere in the world, providing continuous, 24/7 carbon-free energy tailored to specific data center sites.

Long-Duration Energy Storage (LDES): To supplement intermittent renewables (wind and solar), data centers are investing in LDES technologies, such as advanced flow batteries and compressed air systems, ensuring grid resiliency during weather disruptions.

On-Site Fuel Cells: Utilizing solid oxide fuel cells running on natural gas, biogas, or eventually green hydrogen, data centers can generate ultra-clean, localized power right at the server rack level.

As these energy solutions evolve, the data center footprint is undergoing a major transformation.