CITY OF MADISON HEIGHTS
COUNCIL CHAMBERS - CITY HALL, 300 W. 13 MILE RD.
PLANNING COMMISSION MEETING AGENDA
NOVEMBER 16, 2026 AT 5:30 PM

CALL TO ORDER

ROLL CALL

APPROVAL OF AGENDA

1. Additions/Deletions

APPROVAL OF MINUTES

2. September 22nd, 2026 Meeting Minutes

PUBLIC HEARING

MEETING OPEN TO THE PUBLIC: Items not listed on agenda

UNFINISHED BUSINESS

NEW BUSINESS

3. Introduction - Zoning Text Amendment for Religious Institutions in the B-1 Zoning District
4. Introduction - Zoning Text Amendments for Data Centers
5. Introduction - Zoning Text Amendments for Drone Facilities
6. 2027 Meeting Calendar

MEMBER UPDATES

PLANNER UPDATES

ADJOURNMENT

NOTICE: Persons with disabilities needing accommodations for effective participation through electronic means in this meeting should contact the City Clerk at (248) 583-0826 or by email: clerks@madison-heights.org at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.

Planning Commission Meeting
Madison Heights, Michigan
September 22, 2026 (DRAFT)

A Planning Commission Meeting was held on Tuesday, September 22, 2026 at 5:30 PM at Council Chambers - City Hall, 300 W. 13 Mile Rd.

CALL TO ORDER

Chair Champagne called the meeting of the Madison Heights Planning Commission to order at 5:30 pm.

ROLL CALL

PRESENT
Chair Josh Champagne
Mayor Corey Haines
Commissioner Sean Fleming
Commissioner Eric Graettinger
Commissioner Melissa Marsh
Commissioner Christopher Molencupp

ABSENT
Commissioner Ryan Fox
Commissioner Matthew Christopher Olson

OTHERS PRESENT:
City Planner Matt Lonnerstater
City Clerk Mary Daley
City Attorney Tim Burns

PC 26-30. Excuse Absent Members

Motion to excuse Commissioner Fox.

Motion made by Mayor Haines, Seconded by Commissioner Graettinger.
Voting Yea: Chair Champagne, Mayor Haines, Commissioner Fleming, Commissioner Graettinger, Commissioner Marsh, Commissioner Molencupp

Motion carried unanimously.

APPROVAL OF MINUTES

PC 26-31. Approval of August 25, 2026 Planning Commission meeting minutes.

Motion to approve the minutes of the regular Planning Commission meeting of August 25, 2026.

Motion made by Commissioner Marsh, seconded by Mayor Haines
Voting Yea: Chair Champagne, Mayor Haines, Commissioner Fleming, Commissioner Graettinger, Commissioner Marsh, Commissioner Molencupp
Motion carried unanimously.

PUBLIC HEARING:

a. City initiated rezoning – PRZN 26-02 – 27431 Hales – R-3 to N-P

Planner Lonnerstater introduced PRZN 26-02 and explained that The City of Madison Heights is initiating a rezoning of one (1) parcel of land at 27431 Hales Streetfrom R-3, One-Family

Residential, to N-P, Natural Preservation and Recreation. The property is 1.74 acres in size and is surrounded by Rosie's Park, which is owned by the City. The subject property is owned by the Federal Aviation Administration (FAA) of the U.S. government who operated and maintained a small structure/facility on the parcel; this structure has since been demolished. The city is in discussions with the FAA to purchase the property and formally combine it with the adjacent Rosie's Park property. To avoid split-zoning, the City is initiating a rezoning to the N-P, Natural Preservation and Recreation district which is consistent with the remainder of the city-owned Rosie's Park property.

Chair Champagne opened the floor for public comment for PRZN 26-02 at 5:34 pm. Seeing none, public comment was closed at 5:34 pm.

PC 26-32. City initiated rezoning – PRZN 26-02 – 27431 Hales – R-3 to N-P

Motion to recommend that City Council approve the rezoning of 27431 Hales Street, from R-3, One-Family Residential, to N-P, Natural Preservation and Recreation, after the required public hearing, based upon the following findings:

Rezoning to N-P satisfies the map amendment review standards contained in Section 15.07 of the Zoning Ordinance. In particular, the Planning Commission finds that a rezoning to N-P satisfies the following standards:

a. The site is compatible with the physical, geological, hydrological and other environmental features with the uses permitted in the proposed zoning district.
b. The uses allowed in the proposed N-P district are compatible with surrounding uses and zoning in terms of land suitability, impacts on the environment, density, nature of use, traffic impacts, aesthetics, infrastructure and potential influence on property values.
c. The proposed zoning district is compatible with the goals, policies, and objectives of the Master Plan (including the Future Land Use Plan) and the "Recreation" future land use category.
d. The boundaries of the N-P district will be reasonable in relationship to surrounding zoning districts, and construction on the site will be able to meet the dimensional regulations for the requested zoning district.
e. The proposed district is considered to be more appropriate from the city's perspective than the existing R-3 district.
f. Rezoning the land is considered to be more appropriate than amending the list of permitted or special land uses in the current zoning district to allow the use.

Motion made by Mayor Haines, seconded by Commissioner Graettinger
Voting Yea: Chair Champagne, Mayor Haines, Commissioner Fleming, Commissioner Graettinger, Commissioner Marsh, Commissioner Molencupp
Motion carried unanimously.

MEETING OPEN TO THE PUBLIC FOR ITEMS NOT LISTED ON THE AGENDA:

Chair Champagne opened the floor for public comment for items not listed on the agenda at 5:37 pm. Seeing none, public comment was closed at 5:37 pm.

MEMBER UPDATES:

The Planning Commission welcomed Commissioner Christopher Molencupp aboard. He introduced himself and shared that he has over 30 years of volunteerism within the City with scouting and the Men's Club to name a few.

PLANNER UPDATES:
No updates at this time.

ADJOURNMENT:
Chair Champagne adjourned the meeting at 5:38 p.m.

DRAFT

MEMORANDUM

Date: November 11th, 2026

To: City of Madison Heights Planning Commission [November 16th, 2026 Meeting]

From: Matt Lonnerstater, AICP – City Planner

Subject: Introduction - Religious Institutions in the B-1 Zoning District.

Introduction

The potential buyer of an existing church in Madison Heights has approached the Community and Economic Development Department to discuss opportunities for building expansion. The property in question is currently zoned B-1, Neighborhood Business district, which permits as a Special Land Use religious institutions (and private clubs and lodges) with an occupancy of less than 75 people. However, religious institutions with an occupancy of greater than 75 people are not permitted. To enable the building expansion, the applicant has requested that the City explore a zoning text amendment to permit religious institutions with an occupancy of 75 people or greater within the B-1 district.

Background and Discussion

Per the Madison Heights Zoning Ordinance, the B-1, Neighborhood Business, zoning district is, *"designed to meet the day-to-day convenience shopping and service needs of persons residing in adjacent residential areas. The B-1 District shall encourage uses and design that are compatible with, and accessible to, nearby residential uses, thus reducing the number of vehicle tripes required in these areas."*

Based on the Permitted Use Table, Section 3.06, the following use is permitted as a Special Land Use within the B-1 district:

- Religious Institutions, Private Clubs, and Lodges (less than 75 persons).

The following use is not permitted at all within the B-1 district:

- Religious Institutions, Private Clubs, and Lodges (greater than 75 persons).

Under the current B-1 zoning designation, an existing church/religious institution has no means to expand above the 75-person threshold. In order to facilitate an expansion, a property owner would need to seek a rezoning to a district which permits larger religious institutions or seek a rezoning to a Planned Unit Development (PUD). Refer to the use table below for the full list of zoning districts which permit religious institutions, private clubs, and lodges.

Section 3.06 – Permitted Use Table

Land Use	R-1	R-2	R-3	R-MN	R-MF	O-1	B-1	B-2	B-3	CC*	MUI-1	MUI-2	M-1	M-2	H-M	N-P	Use Standards (Section No.)
Religious Institutions, Private Clubs, and Lodges (less than 75 persons)	S	S	S	S	S	S	S	P	P	P*	P	P	P	P			7.03(39)
Religious Institutions, Private Clubs, and Lodges (greater than 75 persons)	S	S	S	S	S			P	P	S*	S	P					7.03(39)

As an alternative to a rezoning, which would open up all of the land uses permitted under the new zoning district, the City could explore a zoning text amendment to permit religious institutions, private clubs, and lodges with an occupancy greater than 75 people within the B-1 zoning district, either by right or as a Special Land Use. For the church/property in question, a text amendment would eliminate the need for a rezoning and would reduce the potential for an undesirable development on the property.

If the Planning Commission decides to move forward, staff recommends a text amendment to permit religious institutions, private clubs, and lodges with an occupancy of greater than 75 persons as a **Special Land Use**. The Special Land Use process would require a public hearing in front of the Planning Commission and final action by City Council, ensuring that larger religious institutions can be reviewed on a case-by-case basis within the B-1 zoning district. For example, a large church proposed on a B-1-zoned property along Dequindre may not be as controversial as one proposed on a B-1-zoned property along Lincoln. The Special Land Use process would allow for public input, Planning Commission discussion, and City Council action prior to approval.

A Note on RLUIPA

The Religious Land Use and Institutionalized Persons Act (RLUIPA), adopted by Congress in 2000, provides that religious assemblies and institutions must be treated at least as well as nonreligious assemblies and institutions; this is known as the “equal terms” provision. The Madison Heights Zoning Ordinance groups religious institutions, private clubs, and lodges as one use in order to comply with RLUIPA.

Clerical Amendment

The use table currently divides religious institutions, private clubs, and lodges into thresholds of “less than 75 persons” and “greater than 75 persons.” The zoning language inadvertently misses those that may have an occupancy of exactly 75 persons. To remedy this, as part of a text amendment, staff recommends modifying the thresholds to read “75 persons or less” and “greater than 75 persons.”

Planning Commission Discussion and Next Steps

If the Planning Commission elects to move forward with text amendments to permit religious institutions, private clubs, and lodges with occupancy greater than 75 persons as a Special Land Use in the B-1 zoning district, staff could set a public hearing for an upcoming Planning Commission meeting and begin the public notice process. If desired, staff could present more defined language to the Planning Commission prior to setting a public meeting date.

Attachments

B-1 Zoning Map
Section 3.14 – Neighborhood Business District

ZONING MAP



ZONING

B-1

N

W E

S

CITY OF MADISON HEIGHTS
COMMUNITY DEVELOPMENT DEPARTMENT
WWW.MADISONHEIGHTS.ORG
Scale: N/A

Effective Date:10/31/2025

Author: Madhu Rakshit
Feb 2025

Document Path: Z:\Planning_maps\Zoning Map_2024.mxd

Section 3.14 B-1 Neighborhood Business District.

PREAMBLE		
The B-1 Business District is designed to meet the day-to-day convenience shopping and service needs of persons residing in adjacent residential areas. The B-1 District shall encourage uses and design that are compatible with, and accessible to, nearby residential uses, thus reducing the number of vehicle trips required in these areas.		
PERMITTED USES	**SPECIAL LAND USES**	**ACCESSORY USES**
• Artist Studio • Child/Adult Day Care Center and Preschools ***7.03(6)*** • Contractor's Office ***7.03(9)*** • Essential Public Utility Services • Financial Institutions • General Retail, Small to Mid-Format (up to 30,000 sq. ft.) • Government Office Building/Courthouse/Public Police and Fire Services • Home Improvement Centers and Garden Centers, Small to Mid-Format (up to 30,000 sq. ft.) ***7.03(17)*** • Incubator Kitchen or Catering Facility • Indoor Recreational Business ***7.03(21)*** • Live/Work ***7.03(23)*** • Medical Office • Personal Service Establishments • Pharmacy • Post Office • Professional Office • Public Library, Museum, Art Center, Community Center • Public Parks • Residential/Commercial Mixed-Use ***7.02(2)*** • Restaurant • Temporary Buildings and Uses ***7.03(43)*** • Tutoring and Instructional Services	• Banquet/Assembly/Meeting Halls (less than 75 persons) ***7.03(5)*** • Bars and Taprooms • Business or Trade Schools • Drive-Through Facilities ***7.03(11)*** • Indoor Recreational Business ***7.03(21)*** • Institutions of Higher Learning • K-12 Schools, Public or Private • Microbreweries, Wineries and Distilleries • Outdoor Sales and Display ***7.03(33)*** • Parking as a Principal Use ***7.03(34)*** • Religious Institutions, Private Clubs, and Lodges (less than 75 persons) ***7.03(39)*** • Theater • Veterinary Clinic or Animal Grooming ***7.03(46)***	• Accessory Buildings, Structures and Uses ***Section 8.03*** • Drive-Through Facilities ***7.03(11)*** • Outdoor Dining and Seating ***7.03(31)*** • Outdoor Sales and Display ***7.03(33)***

The above list is a summary of Principal Permitted Uses, Special Land Uses, and Accessory Uses in the district. Uses provided with a section reference indicates uses that have specific use standards. Refer to ***Article 2*** for definitions of uses.

DIMENSION REGULATIONS			
Lot Standards		**Minimum Setbacks**	
Min. Lot Area (sq. ft.)	--	Front Yard (ft.)	5 ft.
Min. Lot Width (ft.)	--	Side Yard (one) (ft.)	5 ft. ***(A)***
Max. Lot Coverage	--	Side Yard (total of 2) (ft.)	10 ft. ***(A)***
Min. Floor Area/Unit		Street Sides (ft.)	5 ft.
Max. Building Height (ft.)	30 ft.	Rear Yard (ft.)	15 ft. ***(B)***
Max. Building Height (stories)			
Footnotes: Refer to ***Section 4.02*** wherever a footnote is referenced in parentheses after one of the design regulations.			

MEMORANDUM

Date: November 11th, 2026

To: City of Madison Heights Planning Commission [November 16th, 2026 Meeting]

From: Matt Lonnerstater, AICP – City Planner

Subject: Introduction – Zoning Text Amendments for Data Centers

Introduction

On August 24th, 2026, Madison Heights City Council adopted a 12-month moratorium on data centers which temporarily suspends the City from accepting, processing, approving, or issuing zoning approvals and permits for data center developments. The adopted moratorium provides the City with time to develop new zoning and development standards related to data centers, in which the current Zoning Ordinance is silent. The 12-month moratorium ends on August 24th, 2027, with the potential for a 120-day extension.

This memo provides a brief introduction to data centers, explains their potential impacts on communities, and overviews example data center zoning regulations from nearby communities.

Background

Data centers are facilities that support critical digital infrastructure and data storage for services such as cloud computing, Artificial Intelligence (AI), streaming platforms, and digital financial transactions. Typically running 24/7, data centers can house thousands of computer servers in facilities that range in size from small server rooms within existing buildings to “hyperscale data centers” requiring hundreds of thousands of square feet. In addition to computer servers and data storage systems, large or hyperscale data centers typically contain intricate cooling systems, power banks, transformers, and backup generators, the combination of which cause substantial impacts on adjacent properties and a community as a whole.

The demand for larger, specialized data centers is expected to increase due to recent surges in the use of AI, cloud computing, and streaming platforms. These large data centers, sometimes requiring multiple large buildings, may have the appearance of large warehouses, but their operational characteristics can be quite distinct. For example, data centers may have fewer employees and trip generation than warehouses, but require significantly more electricity, water usage, backup generation, utility coordination, security infrastructure, and site monitoring, often 24 hours per day.

Hyperscale Data Center in Hillsboro, Oregon



From a regulatory standpoint, zoning topics typically related to large or "hyperscale" data centers include but are not limited to: use definitions; site selection and review processes; water use; electricity use; noise considerations; security, safety and lighting; building design and screening; site decommissioning; and public input. These are briefly explained below to help establish the foundations of a potential zoning ordinance amendment:

Definitions

Due to the unique characteristics of data centers, new definitions should be established to differentiate data centers from general warehouses and other industrial-type uses, allowing them to be regulated as a distinct use. Definitions may include different tiers of data centers based on building square footage, ranging from small data centers all the way up to hyperscale data centers. Additional consideration should be given to either differentiate or exclude small server rooms within existing buildings from the definition of a data center, allowing them to be treated as an accessory use rather than a principal use subject to the full swath of data center regulations.

Site Selection and Review Processes

Due to their general warehouse-style appearances, many communities choose to limit large or hyperscale data centers to industrial zoning districts. Further, because of noise and vibration emanating from server rooms, air conditioning units, and generators, communities often enact minimum separations standards from residential uses or districts. A municipality may choose to regulate data centers "by right", with limited options for discretionary review or public input, or as a special land use requiring a public hearing and, potentially, public outreach prior to approval.

Water Use

Servers and data storage equipment produce a tremendous amount of heat. Large and hyperscale data centers (which can house tens of thousands of computers severs) therefore require intricate cooling systems. Many large data centers utilize liquid cooling methods, requiring significant amounts of water. A hyperscale data center can use somewhere between one and five million gallons of water per day – the equivalent of what 12,000 Americans use in an entire year.

More than 97% of the water used by major data center operators is purchased from municipal drinking water systems. Municipalities should consider requiring detailed water consumption studies, setting maximum daily use standards, requiring periodic monitoring reports, and adopting minimum efficiency commitments as part of any proposed data center development. Further, a municipality may consider requiring a "closed-loop" system which requires water recirculation as opposed to daily water draws from the municipal water system.

Electricity Use and Demand

Data centers consume large amounts of energy to power computer servers and data storage systems. In 2020 alone, data centers accounted for approximately one percent of global electricity consumption; this percentage has most likely increased since then. Further, air-cooled facilities rely on air conditioners and large fans which need to run 24/7, consuming large amounts of electricity on their own. If left unchecked, electricity used to power processing and storage hardware, air conditioning units, and other supporting equipment can cause a huge strain on energy infrastructure.

As part of data center review and approval, municipalities should encourage or require energy impact statements identifying anticipated peak demand, annual electrical consumption, letters of preliminary

approval from electrical providers, and information on backup generators, fuel storage, and batteries. Periodic monitoring and reporting should also be considered.

Noise

Server rooms are inherently noisy. Air conditioner units, generators, and transformers can generate additional noise and vibration that travels across property lines. While minimum residential setback requirements can help offset some of the impacts of noisy data centers on neighborhoods, additional standards on maximum decibel levels, equipment setbacks, vegetation and buffering, as well as time-based restrictions on generator testing should be considered to further mitigate noise and vibration impacts. Data Center approval should be conditioned upon the submittal of noise studies and plans for routine monitoring.

Security, Safety and Lighting

Data centers handle sensitive data, and many incorporate intensive security features into building and site design. Gated access points, high fencing, and bright lighting may be utilized to ensure site protection. Maximum lighting levels, security plans, and assurances regarding emergency access should all be accounted for in the review of a data center development proposal.

On the topic of safety, fire protection should also be taken into consideration. Lithium battery fires associated with data storage systems require specialized training and equipment. Fire suppression, emergency access points, fire lanes, and emergency coordination should all be accounted for during the review and approval process.

Building Design and Screening

Hyperscale data centers with footprints measuring in the range of hundreds of thousands of square feet can, understandably, result in large warehouse-style buildings with an imposing façade; this isn't good for community character. To combat this, regulations can include design standards to ensure that large data centers have some semblance of architectural compatibility with the community. Standards relating to façade design, window/transparency requirements, building materials, landscaping, and screening can have a huge impact on the appearance of the site and building, allowing them to blend in better with surrounding areas.

Consideration should be taken into account for the screening of exterior equipment, such as generators, transformers, and HVAC systems (both on the ground and rooftop) to ensure that they are screened from property lines.

Site Decommissioning and Restoration

Data centers don't last forever. IT infrastructure may need to be retired, relocated, or removed, and an abandoned 100,000 square foot hyperscale data center may not be able to be reutilized in an efficient manner. Municipalities may wish to require a decommissioning and site reuse/restoration plan to outline plans for when a data center gets abandoned, including plans for equipment removal, equipment disposal, hazardous material handling, building demolition or reuse, site stabilization and restoration, and assurance bonds/escrows.

Public Input

Large data centers are, understandably, a hot topic. Zoning regulations may set minimum public outreach requirements, such as requiring developers to put together a community information plan or hold community open houses prior to a formal public hearing

Examples of Data Center Regulations from Michigan Municipalities

Staff researched existing and proposed data center zoning regulations from various communities in Michigan to gauge how they address the aforementioned topics. Summaries from three of these communities (Wixom, Ferndale, and Summit Township (near Jackson)) are provided below. Wixom and Summit Township have both formally approved and adopted their ordinances, while Ferndale's ordinance is still under review.

DEFINITIONS

WIXOM

Data Center: A facility or group of buildings whose primary function is the housing, operation, and maintenance of computer servers, data storage systems, telecommunications equipment, and associated infrastructure used for the processing, storage, or transmission of digital information. Such facilities may include backup power generation, cooling systems, fuel storage, and security infrastructure. This term does not include server rooms or data-processing facilities that are accessory and incidental to a primary permitted use.

FERNDALE

Data Center: A building, portion of a building, group of buildings, or site used primarily for the processing, storage, hosting, management or transmission of digital data through computer servers, cloud-computing systems, telecommunications equipment, or related electronic information systems. The term includes colocation facilities, cloud-computing facilities, hyperscale computing facilities, server farms, and similar digital infrastructure operations, together with associated accessory generators, substations, transformers, switchgear, cooling systems, Battery Energy Storage Systems, fuel storage, telecommunications infrastructure, and support facilities.

A Data Center is a distinct principal land use and shall not be classified as an office, warehouse, research and development facility, manufacturing use, utility, or similar use.

The term does not include an accessory server room, information technology closet, or similar equipment area that exclusively serves another lawful principal use on the same site and does not provide data processing, hosting, storage, cloud computing, or related services to off-site parties.

SUMMIT TOWNSHIP

Data Center: Space and areas including rooms, buildings or multi-building facilities used to house IT infrastructure, especially computer systems to store, manage or process data and the ancillary equipment to provide stable power, cooling, and environmental support. The footprint of the data center, for determining its size classification and setbacks, shall include indoor space housing IT infrastructure and computers as well as any outdoor areas having equipment used to provide power (excluding substations), cooling and environmental support.

- Small data centers (< or equal to 10,000 sq. ft.)
- Medium data centers (10,001 to 50,000 sq. ft.)
- Large data centers (50,001 to 100,000 sq. ft.)
- Hyperscale data centers: Greater than 100,000 sq. ft.

ZONING DISTRICTS, APPROVAL TYPE, AND RESIDENTIAL SETBACK

WIXOM

- Permitted in M-1 and M-2 Industrial Districts as a Special Land Use.
- Data centers shall not be located adjacent to residentially-used or zoned properties. Principal structures and exterior mechanical equipment (including generators) shall be located at least 1,500 feet from residentially-zoned or used property line.

FERNDALE

- Permitted as a Special Land Use in the I-2 Industrial District.
- Data Centers shall be located at least 500 feet from any residential zoning district or residential use, public or private school, licensed childcare facility, hospital, medical clinic, nursing facility, other healthcare institution, public park, or religious assembly. Measured in a straight line from property line to property line.
- Structures shall be set back 100 feet from all property lines.

SUMMIT TOWNSHIP

- *Small Data Centers:* Conditional Land Use in the Agricultural district, C-1, C-2, C-3 commercial districts, and I-1 and I-2 industrial districts. Setbacks to meet zoning district minimums.
- *Medium Data Centers:* Conditional Land Use in Agricultural district, C-2, C-3 commercial districts, and I-1 and I-2 industrial districts. Setbacks to meet zoning district minimums.
- *Large Data Centers:* Conditional Land Use in the Agricultural district, C-3 commercial district, and I-1 and I-2 industrial districts. Building footprint shall be set back 100 ft. from the boundary of a residential district.
- *Hyperscale Data Centers:* Conditional Land Use in the Agricultural district and I-1 and I-2 industrial district. Building footprint shall be set back 300 ft. from the boundary of a residential district or any residential use.

WATER USE

WIXOM

Requires air-cooled facilities, hybrid, or closed-loop water systems. City shall set maximum daily or annual water usage limits as part of Special Land Use approval. The city may require non-potable or reclaimed water as a condition of approval. Requires applicant to submit a "Cooling and Water Use" plan. Requires documentation from the city/appropriate authority verifying water supply and wastewater capacity.

FERNDALE

Mandates a closed-loop system for cooling. Requires written confirmation from the water provider confirming the available capacity to serve the proposed facility. In addition, the city requires the submittal of a utility impact analysis, Water Conservation and Management Plan, and an Energy Efficiency and Sustainability Plan. The city can establish maximum peak water demand and sanitary discharge through Special Land Use review/approval.

SUMMIT TOWNSHIP

For server cooling, the data center must used closed-loop cooling systems or source water from the municipal system. The applicant must submit documentation that the public water authority has capacity to supply the water. Must submit documentation/assurance from public wastewater system. A "water feasibility plan" may be required.

ELECTRICITY USE AND DEMAND

WIXOM

Requires written documentation from the electric utility confirming system availability and any required upgrades, as well as the submittal of an "electrical demand statement" of estimated average/peak demand. Requires the submittal of a "Backup Power and Fuel Storage Plan". On-site renewable energy generation/usage is "encouraged." e.g. rooftop solar. Periodic third-party audits of utility usage.

FERNDALE

Requires written confirmation from each electric and telecommunications provider confirming capacity to serve the proposed facility. Further, requires the submittal of an Energy Efficiency and Sustainability Plan. The city will establish maximum approved peak electrical demand/consumption through the Special Land Use process. Requires annual reporting on electricity consumption and peak demand.

SUMMIT TOWNSHIP

Requires buildings to be US Green Building Council LEED BD+C Data Center rating system certified. Requires the submittal of an Energy Usage Plan containing annual electricity demand and consumption, energy supply sources, energy storage capacity, and back-up power. The applicant shall provide written assurances from the energy supplier that electric needs can be fulfilled.

NOISE

WIXOM

- Sets maximum daytime/nighttime noise limits:
  - Daytime at nearest residential property line: 55 dbA (ambient room noise)
  - Daytime at nearest institutional/public parks property line: 60 dba (background music)
  - Nighttime at residential property line: 45 dba.
  - Nighttime at institutional/public parks property line: 60 dbA
- Requires the submittal of a Noise Study, with strict substantive requirements.
- Requires both pre-construction and post-construction sound studies.
- Limits days/time of generator testing.
- Requires periodic third-party audits of noise.

FERNDALE

- Requires Acoustical Study with details on equipment operation, generator testing, tonal noise, low-frequency sounds. Both pre-construction and post-construction studies are required.
- Sets maximum noise limits:
  - Maximum 50 dbA at any property line; between 10 pm and 7 am, maximum 40 dbA.
- Contains standards for emergency generators, including limits on testing hours, silencers, acoustical enclosures, and emission control.

SUMMIT TOWNSHIP

- Sets maximum noise limits: Maximum 55 dbA at nearest outer wall of the nearest dwelling located on an adjacent property.
- Large and Hyperscale facilities require a pre-construction and post-construction noise study.
- Contains back-up power standards with limitations on use and maintenance times/hours.

SECURITY, SAFETY AND LIGHTING

WIXOM

Requires a Security and Access Plan with a description of proposed fencing, controlled access points, lighting, and coordination with emergency services. No additional standards on lighting.

FERNDALE

Requires a Security and Emergency Response Plan identifying perimeter security, access control, surveillance, emergency contacts, utility shutoffs, hazardous materials, fire suppression systems, emergency access routes, evacuation procedures, etc. Requires an Emergency Coordination Meeting prior to Occupancy. Lighting Must comply with Lighting standards contained elsewhere in Zoning Ordinance

SUMMIT TOWNSHIP

Requires "dark sky-friendly exterior" lighting solutions. No regulations pertaining to emergency access or response.

BUILDING DESIGN AND SCREENING

WIXOM

Requires exterior mechanical equipment to be fully screened by masonry walls, architectural panels, or evergreen landscaping. Additional rooftop equipment screening requirements. No building design requirements.

FERNDALE

Ordinance contains architectural and design standards. *"Buildings shall be designed to reduce their apparent scale and visual prominence from the right of way and adjacent property.*" Requires changes in wall planes, rooflines, materials, texture, color, etc., and prohibits blank walls. Requires perimeter screening and landscaping, and screening and enclosures for exterior and rooftop equipment.

SUMMIT TOWNSHIP

Large and hyperscale facilities must be designed so as to not contain repetitive or monotonous patterns. Requires architectural variation, change in building height, projections and step backs, and variety of colors and textures. The Planning Commission may require additional buffering/ screening.

SITE DECOMMISSIONING AND RESTORATION

WIXOM

Requires a Decommissioning Plan describing procedures for facility shutdown, removal of equipment, and restoration or reuse of the site.

FERNDALE

Requires a Decommmissioning and Site Restoration Plan addressing cessation of operations, removal of structures and equipment, disconnection and removal of utility infrastructure, disposal of hazardous materials, demolition, soil stabilization, restoration of site. Developer shall provide financial assurance for the cost of site decommissioning and restoration, updated every 5 years.

SUMMIT TOWNSHIP

Requires a Decommissioning Plan developed in consultation with an expert retained by the Township under the terms of the Project Technical Assistance Fund (described below).

OTHER CONSIDERATIONS

WIXOM

- Reporting/Operational Compliance: Requires Periodic third-party audits of noise and utility usage paid for and supplied by the applicant/developer.
- Required Parking: 1 space per employee at peak shift, plus up to 20 for visitors, corporate vehicles, and contractors.
- Infrastructure Mitigation: Where a Data Center requires on-or-off-site infrastructure or utility improvements, the Planning Commission shall require a development agreement, financial guarantees or applicant-funded improvements.
- Requires a Traffic and Delivery Analysis

FERNDALE

- Annual reporting: Requires annual reporting on electricity consumption and peak demand; annual and peak-day water use; sanitary discharge; cooling methods; generator testing; and sound monitoring, etc.
- Construction and Traffic: Requires the submittal of a Construction Logistics and Traffic Management Plan. The Planning Commission may require a separate Traffic Impact Study.

SUMMIT TOWNSHIP

- The ordinance requires the developer to set up a "Technical Assistance Fund" to pay for expertise needed by the Township to evaluate the project (e.g. sound and noise studies, architectural design, project decommissioning, environmental studies). For large/hyperscale projects, the minimum deposit is 1/10th of a percent of the estimated project cost or $150,000, whichever is greater.
- Community Outreach: Requires developers of large and hyperscale data centers to develop and implement a community information plan including the requirement that they develop a fact sheet, host a community open house, and propose community enhancements.

Planning Commission Discussion and Next Steps

Staff hopes that this memo will provide the Planning Commission with enough background information to guide a productive discussion at the November 16th meeting.

The adopted 12-month moratorium requires City Council to appoint a special "Data Center Commission" whose purpose is to undertake a comprehensive review of the city's ordinances as they relate to data centers. This commission consists of the Mayor, City manager, City Attorney, City Planner, CED Director, Planning Commission Chairperson, IT Advisory Committee Chairperson, and two at-large residents. While the Data Center Commission has not yet formally met, coordination between this committee and the Planning Commission will be required to ensure that the proposed ordinance, when drafted, fully aligns with the goals and expectations of each body. Staff will serve as the liaison between the Planning Commission and Data Center Commission.

After meeting with both the Planning Commission and Data Center Commission, staff will begin drafting ordinance language for review and comment by both bodies.

Attachments

Madison Heights Data Center Moratorium
Data Center Fact Sheet – National League of Cities

Zoning Practice – Data Center (2022)
Wixom Data Center Ordinance
Ferndale Data Center Ordinance (draft)
Summit Township Data Center Ordinance
Letter from Commissioner Olson

MADISON HEIGHTS CITY COUNCIL RESOLUTION
FOR TEMPORARY DATA CENTER DEVELOPMENT MORATORIUM

WHEREAS, the City is a Michigan municipal corporation, duly and legally organized under and existing by virtue of the laws of the State of Michigan, pursuant to the provisions of 1909 Public Act 279, being specifically Michigan Compiled Laws (MCL) 117.1 et seq., with its principal offices located at 300 Thirteen Mile Road, Madison Heights, Michigan 48071; and,

WHEREAS, the State of Michigan and other states have recently experienced an increased interest in the development of Data Centers; and,

WHEREAS, Data Centers present unique possible concerns of high electricity use, water consumption, noise, temporary (but limited) local employment opportunities, land use issues and environmental impacts (among other issues) while at the same time providing important digital infrastructure and economic benefits, such as increased and improved power cloud computing, artificial intelligence, online banking, streaming services, healthcare, local better broadband services, and property tax revenues (among other benefits); and,

WHEREAS, the City's current Zoning Ordinance, Building Ordinance, and regulations and development standards related thereto (collectively referred to as "Zoning and Building Ordinances") do not specifically define, classify, or comprehensively regulate Data Centers or establish standards governing their location, design, scale, operational characteristics, infrastructure requirements, or compatibility with surrounding land uses; and,

WHEREAS, the Madison Heights City Council finds that it is in the public interest to undertake a comprehensive review of the City's Zoning and Building Ordinances as they relate to Data centers to ensure that any future development of such facilities occur in appropriate locations and under standards that protect the public health, safety, and welfare, while supporting responsible economic development; and,

WHEREAS, during the moratorium period necessary to conduct this review, acceptance or approval of applications for Data Centers could result in development that is inconsistent with future regulations and planning objectives, thereby frustrating the City's ability to implement a comprehensive regulatory framework; and,

WHEREAS, the Madison Heights City Council finds that a temporary moratorium is necessary and reasonable to preserve the status quo while the City evaluates and adopts appropriate Zoning and Building Ordinances governing Data Centers; and,

WHEREAS, it is the express intent of this Resolution that the moratorium will be temporary in nature and not intended to prohibit Data Centers permanently; but rather is solely intended to provide the City with adequate time to study, evaluate, and establish appropriate Zoning and Building Ordinances identifying where and under what standards a Data Center or Centers may be appropriate within the boundaries of the City; and,

WHEREAS, for purposes of this Resolution, a Data Center shall mean the following:

"Data Center means a building or portion of a building primarily used to house computer system servers, network equipment, data storage equipment, cloud computing infrastructure, or similar information technology infrastructure, together with associated mechanical equipment, cooling systems, backup power generation, electrical substations, battery energy storage systems, and related support facilities designed principally for the processing, storage, transmission, or management of digital data."

WHEREAS, for purposes of this Resolution, a Data Center shall **NOT** mean the following:

1. Server rooms or equipment accessory to a principal use on the same property;

2. Telecommunications facilities regulated separately under City ordinances;

3. Government-owned emergency communications facilities, including but not limited to Police, Fire, 911 and Emergency facilities and,

4. Small-scale information technology facilities serving only the principal use on the site.

NOW, THEREFORE, BE IT RESOLVED that the Madison Heights City Council finds that a temporary moratorium on Data Centers, as defined above, is reasonable and necessary to preserve the status quo while the City evaluates and adopts appropriate Zoning Ordinances and Building Ordinances governing Data Centers, for a period of twelve (12) months from the date of the approval of this Resolution by City Council (the "Temporary Moratorium Period"), unless extended by a maximum of two (2) subsequent Resolution(s), approved by City Council, each Resolution not to exceed sixty (60) days, with a maximum extension not to exceed one-hundred and twenty (120) days; and,

BE IT FURTHER RESOLVED that during the Temporary Moratorium Period, the City shall not accept, process, review, schedule for public hearing, approve, issue permits for, or issue zoning approvals or building permits for any application for the establishment, construction, expansion, or development of a Data Cetner, including any related special land use approvals, rezoning, site plan approval, building permit, grading permit, land division, or other discretionary development approval necessary to authorize such use; and,

BE IT FURTHER RESOLVED that this Temporary Moratorium applies to all new principal Data Center developments, conversion of existing buildings into principal Data Centers, expansion of an existing Data Center (if any) that would materially increase computing capacity, building area, utility demand, or operational intensity; and,

BE IT FURTHER RESOLVED that the Madison Heights City Council shall appoint a Special Commission titled, "The Data Center Commission," whose purpose shall be to undertake a comprehensive review of the City's Zoning Ordinances, Building Ordinances, and regulation and development standards as they relate to Data centers to ensure that any future development of such

facilities occur in appropriate locations and under standards that protect the public health, safety, and welfare, while supporting responsible economic development; and,

BE IT FURTHER RESOLVED that the membership of "The Date Center Commission" shall consist of nine regular voting members as follows: Mayor, City Manager, City Attorney, City Planner, Community and Economic Development Director, Planning Commission Chairperson, Informational Technology Advisory Committee Chairperson, and two at-large residents, who shall meet twice monthly and who shall provide recommendations to the City Council regarding the subject matter of this Resolution; and,

BE IT FURTHER RESOLVED that copies of this Resolution shall be forwarded to U.S. Senators Elissa Slotkin and Gary Peters, U.S. Representative Haley Stevens, Michigan Governor, Gretchen Whitmer, Attorney General, Dana Nessel, Secretary of State, Jocelyn Benson, State Senator, Stephanie Chang, State Representative Mike McFall, State Representative, Tom Kuhn, Oakland County Chief Executive, David Coulter, and Oakland County Commissioner Ann Erickson Gault

APPROVED BY THE MADISON HEIGHTS CITY COUNCIL ON THIS _____DAY OF _____, 2026.

MADISON HEIGHTS CITY COUNCIL

_____

Corey K. Haines, Mayor

_____ _____

William J. Mier, Mayor Pro Tem Toya D. Aaron, Councilwoman

_____ _____

Sean D. Fleming, Councilman Emily J. Rohrbach, Councilor

_____ _____

Quinn Wright, Councilor Laurie B. Geralds, Councilor

CITY OF WIXOM
ORDINANCE NO. _____

AN ORDINANCE TO AMEND THE WIXOM CODE OF ORDINANCES, TITLE 18, ZONING, AMEND SECTION 18.09 – INDUSTRIAL DISTRICTS, SECTION 18.09.020 – SCHEDULE OF USES TO ADDRESS THE PERMISSIBILITY OF DATA CENTERS IN THE M-1 AND M-2 ZONING DISTRICTS; AMEND SECTION 18.09.040 – STANDARDS APPLICABLE TO SPECIFIC USES TO PROVIDE SPECIFIC STANDARDS FOR DATA CENTER USES IN THE M-1 AND M-2 ZONING DISTRICTS; AND AMENDMENT SECTION 18.24.030 TO PROVIDE DEFINITIONS FOR DATA CENTERS

THE CITY OF WIXOM ORDAINS:

Section 1. Amendment of Chapter 18.09.020

Title 18, Zoning, Chapter 18.09, Industrial Districts, Section 18.09.020 – Schedule of Uses of the City of Wixom City Code shall be amended to include the following language. All other provisions of this section of ordinance remains unchanged:

Section 18.09.020 – Schedule of Uses

Use and development of land and buildings shall only be for the following specified uses, unless otherwise provided for in this title. Land and/or buildings in the districts indicated at the top of Table 9.02 may be used for the purposes denoted by the following abbreviations:

P: Permitted Use: Land and buildings in this district may be used for the purposes listed by right.

SLU: Special Land Use: Land and/or buildings in this district may be used for this purpose by obtaining Special Land Use approval when all applicable standards cited in Chapter 18.18, Special Land Use Review Requirements and Procedures and specific standards of Section 18.09.040 are met.

NP: Not Permitted: The use is not permitted in the district.

"Requirement" provides reference to additional requirements or conditions applicable to that specific use.

Table 9.02

Schedule of Uses

Use	M-1	M-2	Requirement
Data Centers	SLU	SLU	Section 18.09.040 N

Section 2. Amendment of Chapter 18.09.040

Title 18, Zoning, Chapter 18.09, Industrial Districts, Section 18.09.040 – Standards Applicable to Specific Uses, of the City of Wixom City Code shall be amended to add a new subsection, N, to read as follows:

N. Data Centers shall be permitted as a Special Land Use in the M-1 and M-2 Districts, subject to the standards of this section and all other applicable provisions of this Ordinance.

1. Required Application Submittals. In addition to the materials required for Special Land Use and Site Plan Review, applications for a Data Center shall include the following:

   a. Utility Capacity Verification. Written documentation from the electric utility provider confirming available capacity and identifying any required system upgrades. Documentation from the City or appropriate authority verifying water supply and wastewater capacity.

   b. Electrical Demand Statement. An estimate of average and peak electrical demand expressed in kilowatts (kW) and megavolt-amperes (MVA), including a description of redundancy and resiliency systems.

   c. Cooling and Water Use Plan. A description of cooling technologies to be utilized, estimated average and peak daily water usage, and identification of potable versus non-potable water sources.

   d. Noise Studies. In addition to the standards set forth in Section 18.12.130.E, data centers shall not exceed the equivalent (hourly L_{eq}) sound level limits in Table 1 at any locations at or beyond the nearest receiving property line for the relevant land use. The measurements or predictions shall be conducted at 5 feet above grade, or at the elevation of maximum predicted impact.

Table 1: Data Center Sound Level Limits (Hourly L_{eq})

Time of Day	Receiving Property Land Zone or Use	
	Residential	Institutional and Public Parks
Daytime (6:00 AM – 10:00 PM)	55 dBA and 70 dBC	60 dBA
Nighttime (10:00 PM – 6:00 AM)	45 dBA and 60 dBC	60 dBA
If noise is TONAL (e.g., drone, hum, screech) – Subtract 10 dB from each value above		

If data center equipment produces tonal sound, a 10-dB penalty applies. Tonal sound is:

(a) Any sound that can be heard as a single pitch or combination of pitches, or;

(b) any sound in which the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the levels in the two contiguous one-third octave bands by 5 dB in bands 500 Hz and above, by 8 dB for bands between 160 and 400 Hz, and by 15 dB for bands below 160 Hz.

Data Center and associated equipment shall not produce perceptible ground-borne vibration (as defined by ANSI) at the nearest residential zoned or used properties.

Compliance shall be verified through noise impact studies submitted with the Special Land Use application and review, construction permitting review prior to issuance of a building permit, and post-construction review prior to issuance of a certificate of occupancy. Pre- and post-construction sound studies shall be conducted by an NCAC member firm or INCE Board Certified acoustic consultant and independently reviewed and verified at the expense of the applicant. The noise studies shall be site-specific and evaluate noise generated by all site operations and scenarios (normal operations, maintenance, power outage, etc.), including all noise-generating mechanical and electrical equipment (such as chillers, generators, transformers, cooling towers, air handling units, etc.).

A. The initial noise study shall be submitted with the SLU application and include the following:

    i. Baseline ambient (L_{eq}) sound level measurements of the existing pre-construction environment, taken at the quietest accessible locations near the nearest residential property to the project site in each of the four cardinal directions. These measurements shall be at least 24-hour duration to capture daytime and nighttime hourly L_{eq} levels.

    ii. Predictive 3D modeling to demonstrate compliance with applicable noise standards outlined in this Section and Section 18.12.130.E. The predictive modeling shall be conducted on an octave-band basis and provide contour maps showing overall noise transmissions in dBA and dBC.

    iii. For the initial study, noise source data for the equipment can be based on generic data. The purpose of the initial study is to demonstrate the feasibility of meeting the noise ordinance through site layout, equipment type selections, and practical noise mitigation methods.

B. The final noise study shall be submitted with the permit application and include the following:

    i. Refined predictive 3D modeling to demonstrate compliance with applicable noise standards outlined in this Section and Section 18.12.130.E. The predictive modeling shall be conducted on an octave-band basis and provide contour maps showing overall noise transmissions in dBA and dBC.

ii. Manufacturer-provided octave-band noise source data for the specific models of equipment planned for the project.

iii. Data center developers must include a mitigation plan in their noise study to ensure that operational noise does not exceed the local noise limits detailed in this Section and Section 18.12.130.E, including the penalty for tonal equipment.

iv. Include enough detail in the noise impact report for the independent acoustic consultant to peer review the analysis and results.

C. The pre-construction sound level measurements shall be repeated post-construction, with all equipment operating. The post construction sound study confirming noise standard compliance during daytime and nighttime operation scenarios at all relevant locations will be required prior to issuance of a certificate of occupancy.

D. All acoustic terminology and measurement practices in this section shall be in conformance with applicable publications of the American National Standards Institute (ANSI) or its successor body.

e. Backup Power and Fuel Storage Plan. The number, size, and location of generators; type and volume of fuel storage; containment methods; and fire suppression measures. If one or more generator units are proposed as a part of a data center application, Air Quality permits shall be required via the Michigan Department of Environment, Great Lakes, and Energy (EGLE) or its successor agency unless such requirement is waived by that agency.

Routine generator testing shall only occur between 9:00 a.m. and 5:00 p.m. during weekdays but excluding holidays. All noise from generator usage is subject to the ordinance limits except for temporary use during a utility power outage emergency.

f. Traffic and Delivery Analysis. Identification of anticipated truck traffic associated with construction, equipment delivery, and ongoing operations, if applicable.

g. Security and Access Plan. Description of proposed fencing, controlled access points, lighting, and coordination with emergency services.

h. Decommissioning Plan. A plan describing procedures for facility shutdown, removal of equipment, and restoration or reuse of the site.

2. Site Standards.

a. General: Data Centers in the M-1 or M-2 district shall adhere to the standards outlined in Chapter 18.09. A Data Center shall not be located adjacent to residentially used or zoned property. Additionally, no Data Center principal structure or mechanical equipment, including generators, shall be located within 1,500 feet of a residentially zoned or used property line.

Per the requirements of this Section, no Data Center principal structure or mechanical equipment, including generators, shall be located within a distance of residentially zoned or used property where the noise or vibration standards indicated in this chapter cannot be met.

b. Screening and Landscaping. Mechanical equipment (including HVAC, generators, fuel storage, transformers, and cooling towers) shall be fully screened from public view and adjacent properties by masonry walls, architectural panels, or evergreen landscaping in accordance with this Ordinance. Buffer zones shall meet the standards of Section 18.14.020.

Rooftop mounted sound barriers shall not exceed 15 feet in height above the surrounding roof surface. Sound barriers shall not be included in the maximum height measurement of a structure.

Ground mounted sound barriers shall not exceed 25 feet in height above grade.

All sound barriers shall be architecturally compatible in appearance with the principal building. Construction materials must be durable, weather-resistant, and rustproof. Standard concrete block walls and poured or precast concrete walls are not permitted unless approved by the Planning Commission who may require aesthetic or other design alterations.

c. Performance Standards. Data Centers shall conform to the standards outlined in Section 18.12.130 of this Ordinance.

d. Water Usage. Air cooled, hybrid, or closed-loop water systems shall be required unless the applicant can provide sufficient data indicating alternative cooling systems are needed. If alternate systems are proposed, they shall be designed to minimize potable water use. If access to the City's water utility is required, the Planning Commission shall establish maximum daily or annual water usage limits based on the capacity of the City's water utility. The Planning Commission may require the use of non-potable or reclaimed water where feasible, unless such requirement is not deemed to be in the City's best interest by the Planning Commission or is otherwise not permitted by applicable law, ordinance, or other regulation.

e. Electrical Generation: The use of on-site renewable energy generation including, but not limited to, rooftop solar is highly encouraged.

f. Fuel Storage. Fuel storage shall comply with all applicable local, state, and federal regulations and may be subject to additional setbacks, screening, or secondary containment requirements as determined by the Fire Department.

3. Infrastructure Mitigation. Where a Data Center requires on- or off-site public or private infrastructure or utility improvements, the Planning Commission shall require a development agreement, financial guarantees, and/or applicant-funded improvements. Said improvements shall be at the sole cost of the applicant.

4. Operational Compliance. The City shall require periodic third-party audits of noise and utility usage to ensure compliance with the site plan and required application materials. Continuous monitoring may be required at certain locations at the City's discretion and the applicant's expense to ensure noise-standard compliance.

Audits shall be created by a third party and at the cost of the applicant. Failure to supply said reports within a reasonable time established by the City, and/or non-compliance to standards shall result in any citations, fees, permit revocations, or any other penalties available under the City's zoning ordinance, general ordinances, as well as State or Federal Law.

5. Required Parking. 1 space per employee at peak shift; plus up to 20 spaces for visitors, corporate vehicles, and contractors.
6. Conditions of Approval. The Planning Commission shall, as needed, impose reasonable conditions on approval of a Data Center Special Land Use to ensure compliance with this Ordinance and to mitigate impacts on surrounding properties and public services in accordance with Chapter 18.18.

Section 3. Amendment of Chapter 18.24.030

Title 18, Zoning, Chapter 18.24, Definitions, Section 18.24.030 of the City of Wixom City Code shall be amended to include the following new definitions:

Section 18.24.030 – Definitions C-D

"Data Center" means a facility or group of buildings whose primary function is the housing, operation, and maintenance of computer servers, data storage systems, telecommunications equipment, and associated infrastructure used for the processing, storage, or transmission of digital information. Such facilities may include backup power generation, cooling systems, fuel storage, and security infrastructure. This term does not include server rooms or data-processing facilities that are accessory and incidental to a primary permitted use."

Section 4. Savings Clause.

Nothing in this Ordinance hereby adopted shall be construed to affect any just or legal right or remedy of any character, nor shall any just or legal right or remedy of any character be lost, impaired or affected by this Ordinance.

Section 5. Severability.

The various parts, sections and clauses of this Ordinance are declared to be severable. If any part, sentence, paragraph, section or clause is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the Ordinance shall not be affected.

Section 6. Adoption.

This Ordinance is hereby declared to have been adopted by the City of Wixom City Council at a meeting thereof duly called and held on the _____ day of _____, 2026, and ordered to be given effect upon publication as mandated by Charter and statute.

_____ Patrick Beagle, Mayor

_____ Crystal Opalko, City Clerk

Notice of adoption published in the _____ on _____, 2026.

CERTIFICATION OF CLERK

I hereby certify that the foregoing is a true and complete copy of an Ordinance adopted by the City Council of the City of Wixom, County of Oakland, State of Michigan, at a regular meeting of the City Council duly called and held on _____ day of _____, 2026.

_____
Crystal Opalko, City Clerk

Article 2. Zoning Districts and Map

Section 2.05 Schedule of Permitted Uses

Industrial Uses	R-1	R-2	MXD-1	MXD-2	CBD	I-1	I-2
Contractor's Yard / Office	–	–	–	–	–	P	P
Data Center (2.1, 2.2, 2.3)	–	–	–	–	–	–	S*
Distribution Center	–	–	–	–	–	P	P
Manufacturing – Light Intensity	–	–	–	–	–	P	P
Manufacturing – Heavy Intensity	–	–	–	–	–	S	P
Freight Connection	–	–	–	–	–	S	P
Outdoor Storage (Only as an accessory use)	–	–	–	–	–	P*	P*
Research and Development	–	–	–	–	–	P	P
Self-Storage Facility (Indoor)	–	–	–	–	–	S*	S*
Solvent Recovery Centers (and Facilities Handling, Manufacturing, Blending, Refining, Using or Storing Chemicals Deemed Hazardous by State/Federal Regulations)	–	–	–	–	–	–	S
Warehouse or Wholesale Facility	–	–	–	–	–	P	P

P Permitted Land Use S Special Land Use * Additional Use Standards – Not Permitted

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Article 5. Specific Uses Standards

Section 5.03 Data Center

A. The purpose of this Section is to establish supplemental standards for Data Centers to protect the public health, safety, and welfare; preserve the capacity and reliability of public infrastructure and utility systems; and prevent or mitigate adverse impacts associated with continuous operations, high electrical demand, water use, cooling systems, emergency generators, fuel storage, mechanical equipment, noise, vibration, heat, emissions, security infrastructure, and large-scale buildings. (4.1, 5.1)

B. Applicability: A Data Center shall be permitted only as a Special Land Use within the I-2 Industrial District and shall comply with the standards of this Section in addition to all other applicable provisions of this Ordinance. Where a conflict exists, the more restrictive standard shall apply. (2.2, 2.3, 5.1)

C. Use Classification: A use primarily engaged in digital data processing, server operations, cloud computing, data storage, hosting, or transmission of digital information shall be classified as a Data Center regardless of the amount of accessory office, administrative, research, warehouse, or utility space provided. Accessory office areas shall not cause the use to be classified as an office use. (5.2, 5.5)

An accessory server room, information technology closet, or similar equipment area that exclusively serves another lawful principal use on the same site and does not provide data processing, hosting, storage, cloud computing, or related services to off-site parties shall not be classified as a Data Center. (5.2, 20.1)

D. Separation and Site Design:

a A Data Center building, outdoor generator yard, cooling plant, substation, switchyard, fuel storage area, or other principal mechanical or utility compound shall be located at least five hundred (500) feet from any residential zoning district or residential use, public or private school, licensed childcare facility, hospital, medical clinic, nursing facility, other healthcare institution, public park, or place of religious assembly.

b All Data Center buildings and exterior operational equipment shall be located at least one hundred (100) feet from any other property line unless a greater setback is required elsewhere in this Ordinance.

c Separation distances shall be measured in a straight line from the nearest property line of the Data Center site to the nearest property line of the protected district or use.

d The Planning Commission may require greater separation, increased setbacks, enhanced buffering, relocation of equipment, or other mitigation where site conditions, equipment placement, cumulative impacts, acoustical analysis, or adjacent land uses warrant additional protection. No reduction from the minimum five hundred (500) foot separation shall be permitted. (TA 5.12; PC Separation Comment)

E. Building and Site Design

a Building and Site Design shall comply with Architectural and Design Standards in Article 4. Additionally, buildings shall be designed to reduce their apparent scale and visual

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prominence as viewed from public rights-of-way and adjoining properties. Building facades greater than one hundred (100) feet in length shall incorporate changes in wall plane, materials, texture, architectural bays, recesses, projections, pilasters, or similar architectural features at intervals not exceeding fifty (50) feet.

b Each facade visible from a public right-of-way or adjoining property shall incorporate changes in wall plane, roofline, materials, texture, color, structural bays, pilasters, recesses, projections, or equivalent architectural elements at intervals sufficient to create a coherent and articulated facade.

c Blank walls shall be screened with a combination of architectural treatment and landscaping. Applied graphics, paint changes alone, or landscaping alone shall not satisfy this requirement.

d Multiple buildings within a Data Center campus shall use coordinated forms, materials, colors, and architectural elements.

e Primary employee and visitor entrances shall be clearly identifiable through canopies, recesses, changes in materials, glazing, landscaping, or similar design features.

f Rooftop equipment shall be fully screened by parapets or architecturally integrated enclosures. Ground-mounted equipment shall be located behind the principal building where practicable and enclosed by architecturally compatible solid walls. (4.1, 5.8)

F. Accessory Infrastructure and Equipment:

a Emergency generators, substations, transformers, switchgear, cooling systems, mechanical equipment, fuel storage, telecommunications infrastructure, and Battery Energy Storage Systems may be approved only as accessory components of an approved Data Center and shall be shown as part of the Special Land Use and Site Plan application. Approval of the Data Center shall not constitute approval of any accessory infrastructure omitted from the approved plans. (5.3)

b Battery Energy Storage Systems shall comply with all applicable requirements of Section 5.18. An accessory Battery Energy Storage System shall require separate Special Land Use approval under Section 5.18 in addition to approval of the Data Center Special Land Use. Where the standards of this Section are more restrictive, this Section shall govern.

c Exterior mechanical and electrical equipment shall be fully enclosed within a building unless the applicant demonstrates, through written documentation prepared by the equipment manufacturer or a qualified professional engineer, that full enclosure is mechanically infeasible or would prevent the equipment from complying with applicable safety or operational requirements. Equipment not enclosed within a building shall be surrounded by solid, noncombustible, architecturally compatible screening that fully obscures the equipment from adjoining properties and public rights-of-way. The screening design shall provide any ventilation, clearance, access, and fire separation required by the equipment manufacturer and applicable codes.

d Substations, switchyards, transformers, fuel storage, and generator compounds shall not be located within a required front yard and shall be placed to maximize separation from residentially zoned or used property.

e All fuel tanks and oil-containing equipment shall include secondary containment meeting applicable fire, environmental, and engineering requirements. (5.3, 5.4, 5.8)

G. Emergency Generators and Fuel Storage:

a Routine generator testing and maintenance shall occur only between 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding legal holidays. Testing outside these hours is

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prohibited except during an actual utility outage or emergency, for a legally required test witnessed or directed by the applicable utility provider or governmental agency, or for testing required by the facility's insurer.

b Routine testing shall be limited to the minimum frequency and duration required by the manufacturer, insurer, utility provider, or applicable governmental regulation. The Special Land Use and Site Plan application shall include the anticipated testing schedule and the maximum monthly testing hours for all emergency generators.

c Generators shall be equipped with critical-grade exhaust silencers, acoustical enclosures, vibration isolation, and other measures necessary to comply with the noise and vibration requirements of this Section.

d New stationary generators shall use the best available emissions-control technology applicable to the generator type and capacity, as demonstrated through manufacturer specifications and applicable federal or state air permits. All generators shall comply with current United States Environmental Protection Agency and Michigan Department of Environment, Great Lakes, and Energy requirements.

e Fuel storage shall be limited to the minimum quantity reasonably necessary for emergency operations and shall be shown on the approved Site Plan. Aboveground tanks shall be located within a secured and screened compound and shall include spill containment and leak detection.

f Generator operation shall be limited to actual emergencies, utility outages, testing and maintenance authorized under this subsection, or other operation expressly required by an applicable governmental agency. Generators shall not be used for routine peak shaving, economic dispatch, participation in voluntary demand-response programs, or the regular supply of electrical power to the Data Center. (TA 5.6, 5.7, 5.12)

H. Noise, Vibration, Heat, Glare, and Other Performance Standards:

a Prior to Special Land Use approval, the applicant shall submit a predictive acoustical study prepared by a qualified acoustical engineer. The study shall evaluate normal operations, maximum cooling demand, routine generator testing, simultaneous equipment operation, tonal noise, low-frequency sound, and potential cumulative impacts.

b The facility and all associated mechanical, electrical, cooling, generator, and utility equipment shall comply with Section 3.13 and all other applicable performance standards at every property line. Compliance shall be evaluated using the measurement procedures required by Section 3.13 and generally accepted acoustical practices. Where applicable, measured or predicted sound levels shall be adjusted to account for prominent discrete tones, impulsive sound, and low-frequency characteristics using recognized ANSI/ASA methods.

c Normal operations shall not exceed fifty (50) dBA Leq at any property line. Between 10:00 p.m. and 7:00 a.m., sound measured at a property line adjoining or across a street from residentially zoned or residentially used property shall not exceed forty (40) dBA Leq. Where Section 3.13 establishes a lower applicable sound limit, the lower limit shall govern.

d Prior to issuance of a Certificate of Occupancy, the applicant shall submit a post-construction acoustical verification study demonstrating compliance under representative operating conditions. The City may require additional testing following a substantiated complaint or material equipment change.

e Operations shall not create perceptible vibration, glare, electromagnetic interference, or concentrated heat at or beyond the property line. Thermal exhaust shall not create fogging, icing, unsafe pavement conditions, or a sustained temperature increase that adversely affects adjoining property or the public right-of-way. (5.7)

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I. Utility Capacity, Energy, Water, and Cooling

a ~~a.~~ The applicant shall submit written documentation from each affected electric, water, sanitary sewer, stormwater, and telecommunications provider confirming whether the provider can serve the proposed facility at full build-out, identifying required system improvements and service phasing, and identifying the party responsible for all associated costs.

b The applicant shall submit a utility impact analysis demonstrating that the proposed facility, including all reasonably foreseeable buildings, phases, mechanical systems, and accessory infrastructure, will not unreasonably reduce service reliability, displace existing or planned users, require unplanned public investment, or create stranded or oversized public infrastructure if the facility closes.

c The Special Land Use approval shall establish maximum approved peak electrical demand, annual electrical consumption, peak-day and annual water demand, and peak-day and annual sanitary discharge for the facility at full build-out. The approved limits shall include all phases, buildings, mechanical systems, generators, cooling systems, and accessory infrastructure under common ownership or control on the site or contiguous property. Exceeding an approved maximum shall constitute a material modification requiring Planning Commission approval.

d Cooling shall use a closed-loop or closed-cycle system. Once-through cooling is prohibited. Routine discharge of noncontact cooling water to the sanitary sewer, stormwater system, groundwater, or surface waters is prohibited, except for limited blowdown, maintenance, or emergency discharge expressly authorized by the applicable utility provider and governmental regulatory agencies.

e The applicant shall submit a Water Conservation and Management Plan identifying projected annual and peak-day consumption, cooling technology, water source, anticipated discharge, leak-detection systems, reuse and recycling opportunities, drought-response measures, and emergency operating conditions.

f The applicant shall submit an Energy Efficiency and Sustainability Plan identifying projected peak and annual energy demand, design Power Usage Effectiveness, demand-management strategies, renewable or low-carbon energy procurement, and a feasibility analysis for beneficial reuse of waste heat or district-energy interconnection.

g All major utility easements, utility corridors, substations, transmission connections, and related utility infrastructure serving the facility shall be identified on the approved Site Plan.

h Approval of a Data Center shall not be construed as a commitment by the City or any public or private utility provider to construct, finance, reserve, or guarantee utility capacity for the facility. (TA 5.10; PC Closed-Loop, Water, Electricity, and Heat-Reuse Comments)

J. Security, Fire Protection, and Emergency Response:

a A Security and Emergency Response Plan shall be submitted with the Special Land Use application and reviewed by the Police Department, Fire Department, Building Official, and other agencies determined necessary by the City.

b The plan shall identify perimeter security, access controls, surveillance, emergency contacts, utility shutoffs, hazardous materials, batteries, fuel storage, fire suppression systems, emergency access routes, evacuation procedures, incident notification, and continuity of operations.

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c At least two independent emergency access points shall be provided unless the Fire Chief determines that an alternative design provides equivalent access and safety. Fire lanes and access routes shall remain unobstructed at all times.

d All fire detection and suppression systems shall comply with applicable codes and standards and shall be approved by the Fire Department. The City may require specialized fire suppression, gas detection, thermal monitoring, spill response equipment, or emergency training based on the equipment and materials proposed.

e Prior to occupancy, the operator shall conduct an emergency coordination meeting and site orientation with City emergency responders. Updated plans and contact information shall be provided annually and following any material change. (5.9, 5.12)

K. Landscaping, Screening, and Lighting:

a Landscaping and screening shall comply with Article 6. In addition, the perimeter of all outdoor mechanical, generator, cooling, substation, switchyard, fuel storage, and loading areas shall include a continuous opaque screen consisting of a masonry wall, architecturally compatible enclosure, evergreen landscaping, berming, or a combination approved by the Planning Commission.

b Screening shall be designed to remain effective throughout the year and shall fully obscure equipment from public rights-of-way and adjacent properties at the time of installation or within a period approved by the Planning Commission.

c Security fencing shall be located behind required landscaping where visible from a public right-of-way or residentially zoned or used property. Razor wire, concertina wire, and similar materials are prohibited.

d Lighting shall comply with the applicable lighting standards of this Ordinance and shall use full-cutoff fixtures. Site and security lighting shall be the minimum necessary for safe operation and shall not illuminate adjoining property, public rights-of-way, or the night sky. (5.8, 5.9; Article 6 Cross-Reference)

L. Traffic and Construction Management:

a The applicant shall submit a Construction Logistics and Traffic Management Plan identifying construction phases, truck routes, delivery windows, staging areas, employee parking, roadway protection, dust control, mud tracking, noise control, and procedures for repairing damage to public streets.

b The Planning Commission may require a Traffic Impact Study where the scale, phasing, construction activity, employment, or equipment deliveries may affect roadway operations or public safety.

c Loading, deliveries, fuel service, and equipment replacement shall be designed and scheduled to avoid conflicts with adjoining properties, public streets, pedestrians, and emergency access.

d Construction hours shall comply with applicable City ordinances and may be further limited as a condition of approval when necessary to protect nearby uses.

M. Monitoring, Reporting, and Continuing Compliance:

a Prior to issuance of a Certificate of Occupancy, the operator shall submit commissioning documentation for mechanical, electrical, cooling, emergency power, fire protection, and acoustical systems.

b On or before March 31 of each year, the operator shall submit an annual compliance report identifying actual annual electricity consumption and peak demand; annual and peak-day

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water use; sanitary discharge; cooling method; generator testing and operating hours; the status of applicable air and environmental permits; sound monitoring, verified complaints, and corrective actions; emergency-response updates; and material changes to equipment or operations. The annual compliance report shall be certified as accurate and complete by an authorized representative of the facility owner or operator.

c The City may retain qualified independent consultants to review required studies, inspect the facility, or verify compliance. The applicant or operator shall reimburse the City for reasonable review and inspection costs in accordance with the City's adopted fee and escrow requirements.

d Failure to submit a required report, maintain required permits, correct a violation, or comply with an approved plan or condition shall constitute a violation of this Ordinance and may result in enforcement, suspension, or revocation as authorized by law.

e Information identified by the operator as proprietary or security-sensitive shall be handled in accordance with applicable law. The operator's designation of information as proprietary, confidential, or security-sensitive shall not control whether the information is subject to disclosure under applicable law. (5.7, 5.10, 5.12)

N. Expansion and Material Modification:

The following shall constitute a material modification requiring Planning Commission review and approval in the same manner as the original Special Land Use:

a An increase in maximum electrical demand, water demand, sanitary discharge, cooling capacity, generator capacity, fuel storage, or Battery Energy Storage System capacity.

b An increase in maximum electrical demand, water demand, sanitary discharge, cooling capacity, generator capacity, fuel storage, or Battery Energy Storage System capacity.

c The addition or relocation of a substation, switchyard, generator yard, cooling plant, fuel storage area, or other major exterior equipment.

d A change in cooling technology, hours or character of operation, or other operational characteristic that may increase off-site impacts.

e Any modification determined by the Community and Economic Development Director to have a material effect on noise, utilities, traffic, emissions, emergency response, visual impacts, or surrounding property.

O. Decommissioning and Site Restoration:

a As a condition of Special Land Use approval, the applicant shall submit a Decommissioning and Site Restoration Plan addressing cessation of operations, removal of structures and equipment, disconnection and removal of utility infrastructure, recycling and disposal of hazardous materials, demolition, grading, soil stabilization, and restoration or redevelopment of the site.

b A Data Center shall be considered abandoned when the principal data processing operation has ceased for twelve (12) consecutive months, unless the operator demonstrates to the Community and Economic Development Director that the interruption is temporary and provides a binding schedule for resumption of operations.

c Decommissioning shall begin within six (6) months after abandonment and shall be completed within twelve (12) months unless the City approves a written extension for demonstrated good cause.

d Prior to issuance of a building permit, the applicant shall provide financial assurance in a form acceptable to the City and in an amount equal to one hundred twenty-five percent

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(125%) of the estimated cost of decommissioning and site restoration, as certified by an independent qualified professional. The estimate shall account for removal of structures, mechanical and electrical equipment, generators, fuel tanks, batteries, substations, utility infrastructure, impervious surfaces, hazardous materials, demolition, disposal, grading, stabilization, and site restoration. The estimate shall be updated at least once every five (5) years, and the financial assurance shall be adjusted accordingly. The decommissioning cost estimate shall be reviewed and recertified by an independent qualified professional at least once every five (5) years, and the financial assurance shall be adjusted as necessary to maintain compliance with this subsection.

e If the owner or operator fails to complete decommissioning, the City may use the financial assurance to complete the work, and any costs exceeding the assurance shall remain the responsibility of the property owner.

f Financial assurance shall be maintained for the life of the facility and shall be in the form of cash escrow, an irrevocable letter of credit, a surety bond, or another form approved by the City Attorney. The financial assurance shall be issued by an institution authorized to conduct business in the State of Michigan and shall be structured so that it may not be revoked, terminated, or materially modified without prior written notice to and approval by the City.

g As a condition of approval, the property owner shall execute an agreement, in a form approved by the City Attorney, granting the City the right to enter the property and complete decommissioning if the owner or operator fails to perform the required work after notice and a reasonable opportunity to cure. The agreement shall authorize the City to use the financial assurance for the purposes of decommissioning, site stabilization, environmental remediation, and restoration.

h Decommissioning and site-restoration obligations shall run with the land and shall be binding upon all subsequent property owners, facility owners, operators, successors, and assigns. The City may require the agreement to be recorded with the Oakland County Register of Deeds. (TA 5.11)

Section 5.04~~3~~ Drive-Thru Facilities

Drive-Thru Facilities must provide adequate off-street stacking spaces and drive-thru service lanes that do not conflict with pedestrian and/or bike lanes and best practices in access management. These requirements can be waived by the Approving Body, provided the applicant provides a study indicating that fewer stacking spaces are not necessary for the use and will not adversely impact the operations of the establishment or negatively impact neighboring properties and the traffic flow in the area, or that an alternative site / dimensional configuration can still provide a safe environment for all users and promote pedestrian and vehicular safety. Any waiver granted for a specific Special Land Use approval will expire once the business it was approved for ceases operations.

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Article 20. Glossary

Definitions C-D

Density. The number of dwelling units on or to be developed per gross acre of land.

Dental Clinic. A facility where dentists and dental staff provide oral health treatments and dental procedures.

Data Center. A building, portion of a building, group of buildings, or site used primarily for the processing, storage, hosting, management, or transmission of digital data through computer servers, cloud-computing systems, telecommunications equipment, or related electronic information systems. The term includes colocation facilities, cloud-computing facilities, hyperscale computing facilities, server farms, and similar digital infrastructure operations, together with associated accessory generators, substations, transformers, switchgear, cooling systems, Battery Energy Storage Systems, fuel storage, telecommunications infrastructure, and support facilities.

A Data Center is a distinct principal land use and shall not be classified as an office, warehouse, research and development facility, manufacturing use, utility, or similar use.

Data Center Campus is two or more Data Center buildings, structures, phases, or facilities located on the same parcel, contiguous parcels, parcels under common ownership or control that function as a coordinated data processing operation

The term does not include an accessory server room, information technology closet, or similar equipment area that exclusively serves another lawful principal use on the same site and does not provide data processing, hosting, storage, cloud computing, or related services to off-site parties. (5.2, 5.3, 5.5, 20.1)

Development. The construction of a new building or structure (or portion thereof), the relocation of an existing building, or a new use of land.

Development Proposal. Application to the CED Department, including but not limited to: site plans, special land uses, Planned Unit Developments (PUD), map amendments (rezonings), and Class A nonconformities.

Distributed Energy Resource (DER). Technologies and equipment for generating, managing, and storing energy or electrical capacity at the place of consumption.

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Summit Township Proposed Zoning Ordinance Amendments for Data Centers

PREFACE

The following draft zoning ordinance amendment is designed to address the increasing attention to data centers. Data centers have become a flashpoint largely due to massive hyperscale centers being proposed like the Oracle data center in Washtenaw County's Saline Township. Also, data centers are associated with Artificial Intelligence (A-I) which, on its own, has become controversial.

A-I aside, data centers are becoming increasingly necessary to manage a broad range of computer driven technical applications our society and economy depend upon including search engines, real time access to electronic health records, banks transactions, logistics systems, manufacturing applications such as smart assembly lines, and emergency services. Additionally, the explosion of personal mobile devices and their applications over the past two decades has significantly increased the demand for data management. When one takes and stores a photo, uses GPS, streams a show, or when a student accesses an online portal for homework, a data center is involved. Data management and the speed of processing required have and will continue to be an important component of our economy and society.

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The Township recognizes that our current ordinance provisions do not address the reality of today's data centers. The ordinance now defines a data center simply as *"a location housing one or many large computer systems and related equipment concerned with building, maintaining, or processing data and providing other data processing services"*. In terms of where they are allowed, the ordinance provides for data centers as Permitted Uses (uses-by-right) in all commercial districts and as a Conditional Use in the office and industrial districts.

There has been public opposition to data centers in some communities including, in some situations, citizens calling for data centers to be prohibited all together. However, excluding legitimate uses of property is contrary to Michigan's Zoning Enabling Act. While a Township may regulate the location of land uses, it cannot prohibit them where there is a demonstrated need for the use and the use is lawful.

Summit Township is approaching its proposed regulation of data centers in the zoning ordinance by assuring that the three principal concerns of data centers will be addressed, being: (1) the impact on water resources, (2) the demand for electricity and (3) the noise attributed to cooling systems, transformers, HVAC equipment, and backup generators**.**

1. Water: The ordinance will require cooling be accomplished with a closed-loop system or municipal water. An exception is provided for advances in technology and best practices, as they emerge, if municipal water or treatment capacity does not exist and water/energy efficiency exceeds other options, but then only using ground water, not surface water, with oversight by EGLE.

2. Electric Demand/Consumption: Summit Township will defer electric demand and consumption issues to the Michigan Public Service Commission (MPSC) and require a data center developer to provide assurances from the energy supplier that the electric needs can be fulfilled for the project. Michigan utility rates are based on a "cost-of-service" model whereby costs associated with service would be fully borne by the data center developer. The principal Michigan distribution utilities (Consumer Energy and DTE Energy) have additionally established contract standards that assure data centers will be responsible for all costs associated with their service.

3. Noise: Noise will be addressed with yard setbacks, buffer areas and screening. Additionally, data centers will specifically be required to meet the same 55 db(A) average hourly decibels level required by the State of Michigan for solar farms, wind farms and battery energy storage projects under PA 233. Larger data center projects will be required to provide a pre-construction noise study to determine anticipated noise and potential attenuation measures. (Note: Increasingly data centers are incorporating noise control measures in their design by housing equipment indoors or within acoustically treated enclosures and by utilizing advanced low-noise cooling technologies.)

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As with other complex land uses, the Township intends to address what is appropriate for local control while referring the application of other standards, monitoring and oversight to the federal, state and local agencies tasked with the responsibility for their respective regulatory matters. In this regard:

- Setbacks for small and medium sized data centers will be as currently specified in the zoning ordinance for the respective zoning district where they will reside. Setbacks for large centers will recognize current ordinance setbacks but additionally require the setback be 100 ft from residential districts and any residence in an AG-1 (agricultural) District. Setbacks for hyperscale centers will recognize current setbacks for the applicable district but additionally require a setback of 300 ft from residential districts and any residence in an AG-1 (agricultural) District. This 300 ft setback is the same as provided for in Michigan's PA 233 of 2023 for solar farms and battery energy storage systems.
- Noise is also deferred to standards established in PA 233.
- Electricity pricing and regulations are deferred to the Michigan Public Service Commission (MPSC).
- Water/wastewater capacity issues will be addressed by the Township Department of Public Works, and quality issues will be deferred to the Michigan Dept of Environment, Great Lakes and Energy (EGLE) or successor agency and, where appropriate, to the Jackson County Health Department.
- Screening and buffer requirements are provided for in the zoning ordinance.

DATA CENTER ORDINANCE PROVISIONS

§ 150.006 DEFINITIONS.

DATA CENTER. Space and areas including rooms, buildings or multi-building facilities used to house IT infrastructure, especially computer systems to store, manage or process data and the ancillary equipment to provide stable power, cooling, and environmental support. The footprint of the data center, for determining its size classification and setbacks, shall include indoor space housing IT infrastructure and computers as well as any outdoor areas having equipment used to provide power (excluding substations), cooling and environmental support.

The definition uses the "footprint" of the complex to determine the data center size.

(1) ***SMALL,* data centers ≤10,000 sqft**. *Typical fast-food restaurant 5,000 sqft, typical "dollar store" 10,000 sqft, Examples: Burger King (McDevitt) 4,000 sqft, Family Dollar (Weatherwax) 9,000 sqft.*

(2) ***MEDIUM*, data centers >10,000 sqft and ≤50,000 sqft**. *Examples: Weatherwax Pharmacy 12,500 sqft, Polly's Ferguson Corners 30,000 sqft, former Summit Lanes 45,000 sqft*

(3) ***LARGE*, data centers >50,000 and ≤100,000 sqft**. *Examples: former US 127 tennis club (now indoor storage) 64,000 sqft, typical football field 80,000 sqft,, Optimist Ice Arena 90,000 sqft*

(4) ***HYPERSCALE*, data centers >100,000 sqft**. *Examples: Home Depot 105,000 sqft, Sams Club 140,000 sqft, E Michigan Meijer 225,000 sqft, Westwood Mall 600,000 sqft*

Text in blue intended for comparison and examples purposes -- not to be included in the zoning ordinance amendments.

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§ 150.145 PERMITTED AND CONDITIONAL USES.

The following uses are permitted (P) or conditional (C) within the zoning districts. Conditional uses require approval by the Township Board according to the procedures in §§ 150.250 *et seq.*

	Permitted and Conditional Uses	*AG-1*	*RNF-1*	*RS-1*	*RS-2*	*RU-1*	*RU-2*	*RM-1*	*RM-2*	*MH-1*	*O-1*	*C-1*	*C-2*	*C-3*	*I-1*	*I-2*	
50	Data centers	Current Zoning Ordinance Provisions →									C	P	P	P	C	C	50
↓ Proposed Amendments Specify Conditional Use Status ↓																	
50a	Data centers - Small	C	-	-	-	-	-	-	-	-	-	C	C	C	C	C	
50b	Data centers - Medium	C	-	-	-	-	-	-	-	-	-	-	C	C	C	C	
50c	Data centers - Large	C	-	-	-	-	-	-	-	-	-	-	-	C	C	C	
50d	Data centers - Hyperscale	C	-	-	-	-	-	-	-	-	-	-	-	-	C	C	

Current ordinance specifies where data centers are Permitted and Conditional Uses. These will be deleted from amended ordinance.

Proposed amendments specify data centers as Conditional Uses only in the respective districts.

§ 150.257 ADDITIONAL DEVELOPMENT REQUIREMENTS FOR CERTAIN USES.

(N) *Data Centers*

(1) Setbacks

(a) The footprint of **small and medium-size data centers** must meet the lot setback provisions and the transition strip requirements for the respective zoning district where they will be located.

(b) The footprint of **large-sized data centers** must meet the lot setback provisions for the respective zoning district where they will be located, except where abutting a residential district, the setbacks from the footprint must be 100 ft to the boundary of such residential zoning district. Additionally, the transition strip requirements for the respective district where the data center will be located must be met.

(c) The footprint of **hyperscale data centers** must meet the lot setback provisions for the respective zoning district where they will be located, except the setback from the footprint must be 300 ft from the boundary of a residential zoning district and 300 ft from a residence in the AG-1 agricultural district. Additionally, the applicable transition strip requirements for the respective zoning district where the data center will be located must be met.

300 ft setback for hyperscale centers is based on those set by State of Michigan or battery energy storage systems (BESS).

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(2) Water and Wastewater

(a) Generally, for server cooling, data centers must use closed-loop cooling systems or source all water from a municipal water system.

Provision for cooling used in HB 6138, but recognizing that ground water could be viable in a hybrid system given the abundant aquifers of the region.

(b) If the proposed source of water is from a public system, the applicant shall submit documentation that the public authority has the capacity to supply the water.

(c) If wastewater is to be conveyed and/or treated by a public system, the applicant shall submit documentation certified by the public authority that it has the capability to support the conveyance and treatment needed.

(d) Recognizing that technology is evolving and new best practice are always emerging, where sufficient municipal water or treatment capacity does not exist, a hybrid or alternative means of cooling data centers with **ground water** resources will be considered where it can be demonstrated to the satisfaction of state and federal environmental agencies and the Township that:

Due to the "headwaters" hydrology of Summit Twp, only ground water will be an alternative in such a hybrid alternative.

1. Less water and/or energy is used than would be expected from a conventional closed-loop system.

2. The hybrid or alternative system shall have an independently verified Water Usage Efficiency (WUE) or a successor equivalent standard of less than or equal to **1.0L/kWh** (an established standard being the ratio of a data center's total site water usage in liters to the IT equipment energy consumed in kWh over the same time period).

WUE is an industry standard with 1.0L/kWh recognized as very good for evaporative cooling systems.

3. The water consumed and the wastewater discharged meet all environmental standards established at the time of the application (currently equivalent to an EGLE issued NPDES permit under the National Pollutant Discharge Elimination System, or any successor requirements).

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4. If the data center sources ground water outside a municipal system and/or discharges wastewater to other than a municipal system, the applicant shall provide a water feasibility study prepared by a qualified professional. The purpose of the water feasibility study is to determine if an adequate supply of water is present to support the proposed data center's water use and to evaluate its effects on the quantity and quality of water in aquifers, wells or nearby surface waters. The study shall include, but not be limited to the following:

a. Calculations of the projected water consumption and wastewater discharge, including seasonal fluctuations.

b. A geologic map of the area with a radius of at least one mile from the site property boundary.

c. The location of all existing and proposed wells within 1,000 feet of the site property boundary with a notation of the capacity of all high-yield wells.

d. The location of all surface waters within 1,000 feet of the site property boundary and all known point sources of pollution.

e. A determination of the long-term safe yield from the ground water source.

f. The identification of chemical and thermal characteristics of wastewater discharge.

g. Identification of the system and processes by which water will be recycled or released into surrounding water bodies or the groundwater table.

h. A determination that the proposed water supply and wastewater discharge systems pose no adverse impacts on the quantity and quality of water in wells, streams, and the groundwater table.

i Other information and determinations deemed necessary to professional consultants retained by the Township as provided for under the Project Technical Assistance Fund [150.257(N)(7)(a-b)].

(3) Primary Power

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(a) Projects shall be designed and constructed to be certified under the current USGBC LEED BD+C: Data Center rating system, or equivalent successor design standard at time of application.

This is a LEED standard specific for data centers

(b) The applicant for a data center shall provide an Energy Usage Plan with the Conditional Use application. The Energy Usage Plan shall include, but not be limited to the following:

1. Annual electricity demand and anticipated consumption

2. Energy supply sources that will be utilized

3. Energy storage capacity (if applicable)

4. Proposed sources of back-up power

5. Other information deemed necessary by a consultant retained by the Township as provided for under the Project Technical Assistance Fund [150.257(N)(7)(a-b)].

(c) The applicant must provide assurances from the energy supplier that the electric needs can be fulfilled for the project as specified in the Conditional Use Permit

(4) Back-up Power

(a) Diesel generators shall meet Tier 4 emission standards of the U.S. Environmental Protection Agency or established successor standards at the time of an application.

(b) Electric generator emissions shall be monitored by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (or successor agency) with oversight and delegated authority from the U.S. Environmental Protection Agency (EPA) for air quality standards that include the following or their successor standards:

Reliance on EGLE (or its successor) and US EPA for air quality

1. New Source Performance Standards (NSPS) -- standards for new stationary sources of air pollution pertinent to emission limits, monitoring requirements, and control technologies for new or modified sources,

2. National Emission Standards for Hazardous Air Pollutants (NESHAP) -- standards to reduce emissions for hazardous air pollutants (HAPs) such as benzene, mercury, and vinyl chloride to the lowest achievable levels.

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(c) Emergency energy generation that uses diesel, gasoline, or another fossil fuel shall be used only at the following times:

1. When the primary source of energy is not available due to an emergency outage.

2. During routine maintenance, or readiness testing for a short duration of time and capped at 100 hours per year.

3. Routine maintenance testing of back-up fossil fuel-powered generators is restricted to the hours of 9 am through 3 pm Monday through Friday.

(e) Use of back-up power for peak shaving or supplying power to the grid is prohibited.

(5) Noise

(a) A data center shall not generate a maximum sound in excess of 55 average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent property. Decibel modeling shall use the A-weighted scale as designed by the American National Standards Institute.

This 55 dB(A) threshold and phrasing is the same as used for solar and wind farms and battery energy storage systems (BESS) in Michigan's PA 233.

(b) Large and hyperscale projects shall prepare a pre-construction noise study prepared by an acoustical engineer establishing baseline noise and vibration levels and addressing noise mitigation strategies to be employed as necessary for the project.

(c) Back-up generation testing and operations during outages will be exempt from these levels.

(6) Community Outreach

(a) Prior to the conditional use permit hearing before the Planning Commission, developers of **large scale and hyperscale data centers projects** shall develop and implement a community information plan including, but not limited to:

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1. A fact sheet of pertinent information about the project, including a summary of the information to be included as part of the community open house and/or meeting described below.

2. Informational community open house(s) and/or meeting presentation(s) to inform citizens of the scope of their project and the means to address potential concerns which include, but are not limited to:

a. The means intended to maintain the temperatures of servers and equipment within acceptable ranges including specifying open and closed loop cooling if applicable,

b. Energy consumption and the source, certainty and security of electric supply,

c. Noise and noise attenuation,

d. Employment and economic value to the community

e. Community Enhancement Initiatives proposed – Increasingly data center developers are advancing initiatives including grants, training, infrastructure upgrades, and sustainability projects to enhance

economic development and public benefit to communities, ensuring that their project will also act as a catalyst for local innovation, education, and social well-being.

(7) Project Technical Assistance Fund

(a) A data center applicant must deposit or otherwise provide satisfactory guarantees for an initial "technical assistance fund" to support expertise needed by the Township to evaluate the project. The fund shall be used for expertise not resident with salaried Township staff including, but not limited to, legal, energy, planning, zoning, accounting, sound and noise attenuation, architectural and aesthetic design, project decommissioning, environmental, and engineering specialties. Should disbursements from the fund cause it to be depleted to less than 25% the applicant must return the fund to at least 25% of the original required deposit or guarantee. The amounts of the deposit or guarantees shall be:

Text in blue intended for examples purposes - not to be included in the zoning ordinance amendments.

1. For small and medium-scale projects, one-tenth of a percent of the estimated project cost or $15,000, whichever is greater. (Example: $2,500,000 = $25,000)

2. For large and hyperscale scale projects, one-tenth of a percent of the estimated project cost or $150,000, whichever is greater. (Example: $25,000,000 = $250,000)

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(b) The technical assistance fund and its accounting for credits/payments to the Township or to individuals and/or firms directly shall be managed by an independent accountant. The fees for these fund management services shall be an expense payable by the "technical assistance fund".

(8) Additional Buffer and Screening Requirements: The Planning Commission, at its discretion and based on the nature of land uses surrounding a proposed data center, may require additional buffer distances and screening to visually and/or acoustically segregate the data center from neighboring properties.

(9) Lighting: Data centers must implement dark sky-friendly exterior lighting solutions.

(10) Facility Design: Large and hyperscale data centers must submit plans indicating the facility will be designed to avoid repetitive or "monotonous" patterns caused by minimal architectural variation. Design features may include but not be limited to changes in building height, step-backs, recesses, offsets, textures and colors to break up repetitive patterns.

(11) Environmental and Community Impact Analysis: The Planning Commission, at its discretion and/or based on advice of retained environmental consultants, may require an environmental and/or community impact analysis to be prepared.

(12) Decommissioning Plan: Large and hyperscale data center developers shall prepare a decommissioning plan in consultation with an expert retained by the Township under the terms of the Project Technical Assistance Fund.

(a) The plan shall include, but not be limited to addressing removal of equipment, environmental remediation, and site restoration to pre-development condition or a designated use.

(b) The Township reserves the right to require escrow, a bond or other guarantee to assure funds are available for decommissioning.

MEMORANDUM

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

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

Purpose

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

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

Noise Monitoring

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

Items for consideration include:

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

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

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

Water Use and Wastewater

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

Applicants could be asked to provide:

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

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

Electrical Demand and Infrastructure

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

Items for consideration include:

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

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

Administration and Legal Review

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

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

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

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

Proposed Next Steps

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

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

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

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A PRIMER FOR LOCAL GOVERNMENTS:

UNDERSTANDING DATA CENTERS

What is a Data Center?

Data centers are facilities that provide critical infrastructure to power modern digital services. There are different types of data centers, often shaped by the primary function(s) of the facility. Most data centers house servers (connected computers) and data storage systems capable of vast numbers of calculations and computing applications. Often referred to as "the cloud," data centers provide the necessary hardware for internet connectivity, large scale software systems, and the computational demands of traditional and generative artificial intelligence (AI).

Why Talk about Data Centers?

Significant increases in the use of AI, and to a lesser extent, cloud computing and other digital services, is driving greater demand for the physical infrastructure that supports these services and technologies. Data centers are the unseen backbone of our digital economy, yet their presence and impacts, both positive and negative, are often overlooked in local governance discussions. In fact, data center facilities can provide significant benefits for communities, including tax revenue, enhanced digital connectivity and new jobs, but also present challenges such as increased energy demand, water usage and land use considerations.

Local leaders can take a proactive approach to planning data center development by addressing sustainability, zoning and infrastructure concerns to shape these facilities so that they are designed and operated to best serve community interests. This fact sheet outlines basic elements of data centers to help policymakers begin these discussions.

Types of Data Centers

Enterprise & Internal Data Centers
Privately owned and operated, these facilities manage proprietary information technology (IT). The average on-site data center typically houses between 2,000 and 5,000 servers on a site ranging from 20,000 to 100,000 square feet. They draw around 100 megawatts (MW) of power.[1]

Colocation Centers
These third-party facilities lease out space, power and cooling infrastructure to multiple organizations. Businesses use these centers to reduce infrastructure costs.[2]

Hyperscale Data Centers
Built by major technology companies such as Amazon, Google and Microsoft, these large-scale centers handle enormous computing demands, including AI and cloud services. A hyperscale data center is defined as containing at least 5,000 servers, occupying at least 10,000 square feet of physical space and having an energy draw of over 100 MW of power.[3]

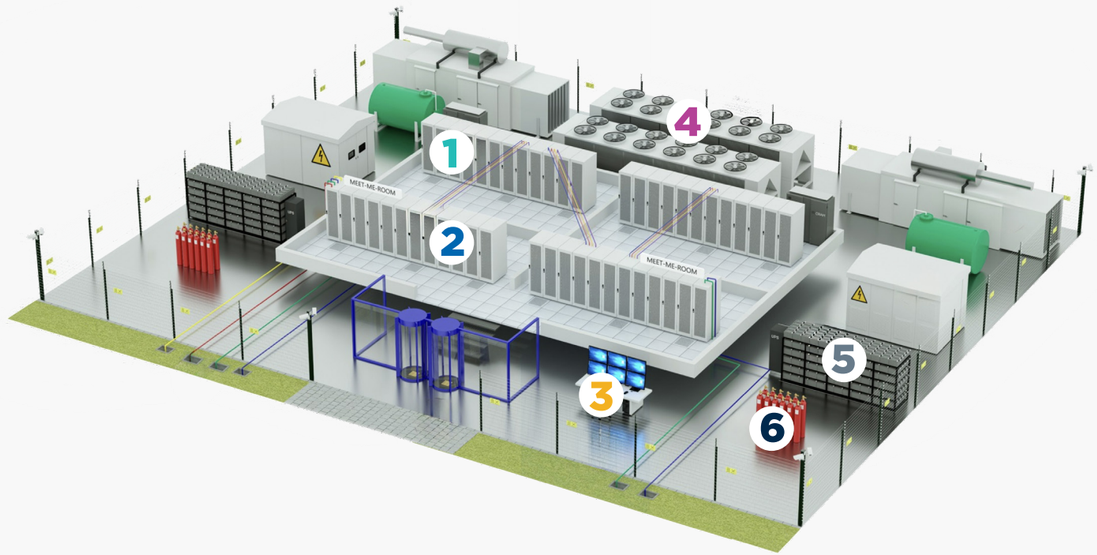
Design Features of Data Centers

Data centers are typically located near necessary infrastructure like high-voltage power lines and high-speed fiber optic networks. They can also require substantial land use. This means you can often find data centers in suburban or rural areas, or industrial zones, where these needs can be met. In addition to proximity to power sources, proximity to end-users helps reduce delays in data transfer and can improve the speed of cloud and AI-powered service delivery. Climate can be another influential factor for the location of data centers. Because servers require cooling, differences in environment can increase the strain on air-conditioning or water-based cooling systems.

In terms of their appearance, data centers tend to resemble warehouses[4] — large and windowless — to support a highly controlled environment optimized for equipment performance, energy efficiency, and physical security. Flat roofs are common and necessary for housing mechanical equipment like HVAC units, but also offer opportunities for sustainability features such as solar panels or reflective coatings. While functional needs inform design choices, local leaders can consider the impact these facilities have on the character of their community.

Components of Data Centers

Data centers consist of several critical components that ensure efficient operation and reliability.



Source: https://datacenteruniversity.be/whats-inside-a-data-center. To view this interactive graphic visit the Data Center University website.

1 Servers
The backbone of data processing and storage, servers are computers connected together to run applications and computing tasks.

2 Storage Systems
Data centers house vast amounts of digital information, stored on solid-state drives or hard disk drives.

3 Networking Equipment
Includes routers, switches and firewalls that manage data traffic and security.

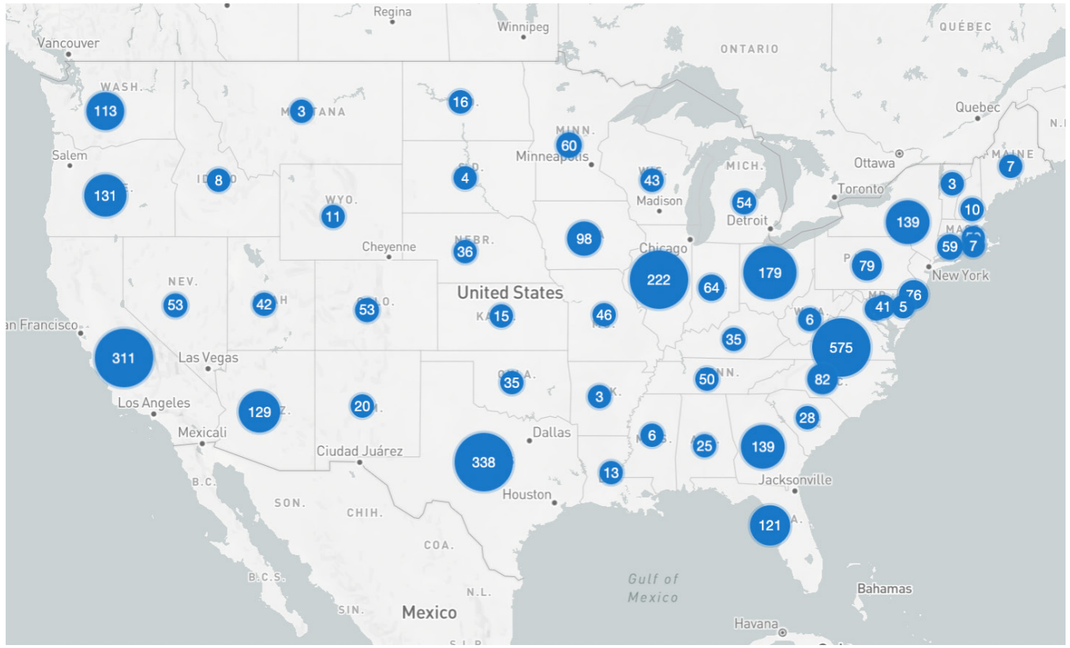
4 Cooling Systems
Prevent overheating by using air or liquid cooling methods to maintain optimal operating temperatures for computers.

5 Power Infrastructure
Includes backup generators and uninterruptible power supplies to ensure continuous operation.

6 Security Systems
Physical and cyber security measures such as biometric access controls, surveillance cameras and fire suppression systems.

Growth and Impact of Data Centers

USA Data Centers



Source: https://www.datacentermap.com/usa. To view the interactive map, visit the USA Data Center website.

Global demand for data center capacity is expected to surge, driven largely by the rapid growth of AI workloads. Demand for AI-capable data centers — which need more computing power and energy — is expected to rise sharply. Demand could grow by 22 percent annually, potentially reaching an energy demand of 219 gigawatts (GW) in 2030 compared to 60 GW in 2024. By 2030, 70 percent of all data center needs could be tied to supporting advanced AI applications and use cases.[5] Innovation in cooling technologies, energy efficiency, AI algorithms and semiconductor design could alter current projects.

The global data center industry is projected to grow from $269 billion in 2025 to more than $580 billion by 2032, with an annual growth rate of 11.7 percent.[6] There are more than 3,000 data centers in the U.S. It is estimated that of the roughly 1,100 hyperscale data centers globally, over half are located in the U.S. as of late 2024.[7]

There is a growing strain on infrastructure as AI-driven demand accelerates. Within the U.S., states like Virginia and Texas are seeing the fastest growth in data center construction. These same states are also experiencing some of the sharpest increases in commercial energy consumption.[8]

Preparing for the Future

As digital infrastructure continues to expand to accommodate demand, city leaders are increasingly likely to encounter proposals for new data center development. Local leaders may need to coordinate with state regulators, utilities and tech companies when considering data center development. Additional considerations for city leaders include looking at the environmental impacts of data centers, as well as zoning, permitting and integration into community development plans.

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6

Zoning for Data Centers and Cryptocurrency Mining

By David Morley, AICP

Data centers are the physical facilities where the internet lives. Fundamentally, they consist of networked computer systems used for data storage and processing, along with supporting equipment, such as batteries, back-up power generators, and cooling devices. Modern data centers are the direct descendants of the, so-called, *telecom hotels* that began springing up in downtowns in the late 1990s to accommodate the rapid expansion of the commercial internet and, before that, of automated telephone exchange facilities that made it possible to place landline telephone calls across a city, the nation, or the world (Evans-Cowley 2002).

An emerging segment of the data center market consists of facilities dedicated in whole or part to "mining" cryptocurrency. A cryptocurrency is a decentralized digital currency that uses encrypted data strings to denote individual units, or coins, and a peer-to-peer database known as a blockchain to maintain a secure ledger of transactions. Several of the most popular cryptocurrencies, most notably Bitcoin, require extremely complex computations to verify each transaction and add a record, or block, for that transaction to the blockchain. Whoever verifies a transaction first receives a new cryptocurrency coin as a reward. While, theoretically, anyone with a computer server can "mine" new coins by helping to verify these transactions, large-scale cryptocurrency mining requires a massive amount of computing power.

This article explores the reasons why cities, towns, and counties may wish to define and regulate data centers and cryptocurrency mining as distinct uses in their zoning codes and provides a summary of contemporary approaches. It begins with a brief overview of the factors that drive demand for data centers or cryptocurrency mines in particular locations before examining the key planning issues that may merit special attention through zoning and posing a series of questions to guide code drafting.



Chad Davis / Flickr (CC BY 2.0)

A hyperscale Google data center in Council Bluffs, Iowa.

The article concludes with short profiles of local zoning approaches that may serve as models for others.

DEMAND DRIVERS

Industry analysts predict sustained growth in data center construction in the coming years (Dunbar and Bonar 2021). This includes demand for larger and larger "hyperscale" data centers as well as more widely distributed "edge" data centers (Sowry et al. 2018). Data center developers (or operators) are attracted to sites with low latency to end users and dependable and affordable electricity.

While data centers have historically been clustered around major internet access points, information technology companies, and government employment centers, the proliferation of cloud computing and the internet of things is pushing demand out to network edges. This means more data centers in smaller metropolitan and nonmetropolitan areas.

Big technology companies are likely to continue looking for sites that can accommodate new, large single-story structures. But operators that specialize in leasing space in the same facility to multiple companies (i.e., collocated data centers) may be more open to infill sites and existing structures, especially if those sites have access to fiber optic infrastructure.

Data centers use a lot of electricity (see below) to power processing and storage hardware and to keep that hardware cool. The amount of electricity (and often water) needed for cooling is higher in warm, humid climates than in cool, dry areas. Consequently, holding other factors equal, developers favor locations with low electricity rates and cooler climates. Furthermore, because these facilities operate continuously, developers are also looking for sites that are less vulnerable to natural hazards.

Cryptocurrency miners are also looking for locations with cheap electricity and low hazard risk; however, dedicated mining facilities are not concerned about proximity to customers and are less likely to invest in backup power. While there seems to be a widespread consensus that data centers are essential to global communications and the global economy, cryptocurrency miners

have a more limited "social license" to operate. Widespread concerns about the energy use of mines and the limited utility of the coins they produce has led some countries, including China, to ban Bitcoin mining. Consequently, many cryptocurrency miners are relocating to the U.S. (Obando 2022).

PLANNING ISSUES

From the exterior, data centers and cryptocurrency mining facilities may be physically indistinguishable from many commercial or light industrial uses. However, the operational characteristics of these facilities are typically quite distinct from those of surrounding land uses. From a planning perspective, the most noteworthy characteristics relate to their electricity and water use, noise production, enhanced safety and security needs, and low employment densities.

They Use a Lot of Electricity (and Water)

In 2020, data centers used between 200 and 250 terawatt hours (TWh) of electricity, accounting for approximately one percent of global consumption (IEA 2021). While the total consumption has grown steadily along with global power demand, this ratio has held relatively constant over the past 20 years as efficiency improvements have proportionally offset increased demand from data centers. However, this pattern is unlikely to hold as growth in streaming video, online gaming, cloud computing, machine learning, virtual reality, and the internet of things begins to outstrip efficiency improvements.

The figures above exclude cryptocurrency mining. Bitcoin miners alone used an estimated additional 60 to 70 TWh in 2020. According to Cambridge University, if Bitcoin was country, it's annual electricity consumption would be slightly higher than that of Poland or Malaysia (2022).

Data center and cryptocurrency mining equipment also generates a tremendous amount of waste heat, which must be dissipated by fans or absorbed by a cooling medium to avoid hardware damage and ensure efficient operations. Many data centers and cryptocurrency mines use water as a cooling medium. Water is also necessary for most forms of electricity production. In aggregate, a medium-sized data center typically uses more water each year than two 18-hole golf courses (Mytton 2021).

They Can Be Noisy

Inside a data center or cryptocurrency mine server room, the noise can make it difficult to carry on a conversation at a normal volume. While most data centers and large cryptocurrency mines incorporate construction and soundproofing techniques that ensure this server noise isn't audible outside of the building, air conditioner compressors mounted on the roof or on ground near these facilities can generate noise that carries across property lines.

In some contexts, vegetation or other structures may rapidly attenuate this sound. In others, the sound may travel over long distances. Obviously, the degree to which these sounds constitute nuisance "noise" depends on surrounding land uses and ambient noise levels. The problem is typically most acute when data centers or mines are near residences.

They Have Enhanced Safety and Security Needs

Data centers typically aim to run continuously, and any outage or downtime can threaten business operations. Furthermore, data centers house expensive, highly specialized hardware, and many handle sensitive data. Consequently, most data centers incorporate enhanced safety and security features, such as gated access points, fencing, or bright lighting, to prevent unauthorized access and to minimize the likelihood of disruption.

Cryptocurrency mines have similar safety and security needs, with two key distinctions. First, miners want to maintain network access, but the stakes are lower than for data centers because an outage wouldn't negatively affect any other services or users. Second, cryptocurrency mines generally aren't receiving any clients and have little incentive to draw attention to themselves with fencing or lighting.

They Have a Low Employment Density

Data centers typically have far fewer workers per square foot than professional offices or light industrial facilities (Tarczynska 2016). And cryptocurrency mines generally have even lower employment densities than data centers. For some communities, data centers (and potentially cryptocurrency mines) are highly desirable from an economic development perspective because they often generate a large property tax surplus that can subsidize more service-intensive land uses, such as single-family homes. Others, however, are reluctant to devote too much commercial or light industrial space to uses that generate few jobs.

ZONING CONSIDERATIONS

Any community interested in regulating data centers and cryptocurrency mining through zoning should consider three key questions:

1. Do these uses need new use definitions?
2. Where should these uses be permitted?
3. Do these uses need special development or performance standards?

Do They Need New Use Definitions?

New land uses don't necessarily require new use definitions in the local zoning code. It depends, in part, on whether the use fits



ebayink / Flickr (CC BY-NC-ND 2.0)

The roof of eBay's Topaz data center in South Jordan, Utah.

neatly under a broader use category or is substantially like another defined use. And it depends on whether treating the new use the same as this use category or other similar use would be likely to generate negative effects on nearby properties or the community as a whole.

Many communities have defined data centers (or some closely analogous term) as a distinct use in their zoning codes. These definitions typically reference the general function of the facility and the degree to which it is occupied by computer systems and related equipment. For example, Anne Arundel County, Maryland, defines *data storage center* as "a facility used primarily for the storage, management, processing, and transmission of digital data, which houses computer or network equipment, systems, servers, appliances, and other associated components related to digital data storage and operations" (§18-1-101.(44)).

Comparatively fewer communities have defined cryptocurrency mining as a distinct use. Many of these definitions focus on the specialized purpose of the facility, often with references to other newly defined terms, such as *high density load* or *server farm*, that clarify its distinct characteristics. For example, Moses Lake, Washington, specifies that *cryptocurrency mining* often uses more than 250 kilowatt-hours per square foot each year (§18.03.040).

Where Should They Be Permitted?

Communities that choose to regulate data centers or cryptocurrency mines as distinct uses may permit these uses either by right or with a discretionary use permit (i.e., conditional, special, or special exception use permits) in one or more existing base or overlay zoning districts. Alternatively, they may elect to establish a new special-purpose base or overlay zoning district for either use.

Many communities permit data centers and cryptocurrency mines either by right or with a discretionary use permit in commercial and industrial districts. While data centers and mines can fit in a wide range of existing commercial or industrial buildings, purpose-built facilities are often single-story structures with large floorplates.

Given that they generally have few employees and visitors, these uses may not be appropriate in ground-floor street-frontage spaces in pedestrian-oriented commercial areas. Wenatchee, Washington, addresses this issue by permitting data centers and cryptocurrency mines by right in multiple pedestrian-oriented commercial districts, with a simple stipulation that they cannot occupy "grade level commercial street frontage" (§10.10.020).

A new special-purpose zoning district can help steer data centers or cryptocurrency mines toward corridors or other subareas that have suitable utility infrastructure. When adopted as floating zones, special districts can also provide an extra layer of review for large projects that may cover dozens or hundreds of acres.

Prince William County, Virginia, added a Data Center Opportunity Zone Overlay District to its zoning code in 2016 (§32-509). The county has mapped this overlay to more than 70 percent of its industrially zoned land. The overlay permits data centers and includes design standards for these facilities; however, it does not otherwise modify the existing use permissions for underlying districts.

Do They Need Special Development or Performance Standards?

Communities that decide to regulate data centers or cryptocurrency mines as distinct uses may choose to adopt use-specific standards that modify or supplement other relevant universal or district-specific development or performance standards. This approach can help communities target standards to the distinct features of these uses to address specific community concerns.

Use-specific standards can help minimize reliance on discretionary approvals and improve the consistency of local decisions. Without these standards, local officials may be more likely to require all data centers and cryptocurrency mines to obtain a discretionary use permit, and they may be more likely to adopt wildly varying conditions of approval for substantially similar proposals.

Communities that have adopted use-specific standards for data centers and cryptocurrency mines often establish building design and buffering or screening requirements to minimize the visibility or improve the appearance of these facilities from public streets or nearby properties. Other common standards address environmental performance, including noise and light pollution, and evidence of electric utility approval.

EXAMPLES OF DEFINED USES

Jurisdiction	Defined Uses
Alpharetta, GA	Data center (§1.4.2)
Anne Arundel County, MD	Data storage center (§18-1-101.(44))
Fairfax County, VA	Data center (§9103)
Frederick County, MD	Critical digital infrastructure facility (§1-19-11.100)
Moses Lake, WA	Cryptocurrency mining; Data center/server farm/cluster (§18.03.040)
Pitt County, NC	Data processing facility (large scale) (§15)
Plattsburgh, NY	Commercial cryptocurrency mining; Server farm; High density load service (LL 6-2018)
Prince George's County, MD	Qualified data center (§27-2500)
Prince William County, VA	Data center (§32-100)
Somerville, MA	Data center (§9.8.b)
Vernal, UT	Data center (§16.04.173)
Wenatchee, WA	Cryptocurrency mining; Data center (§10.08)

POTENTIAL MODEL APPROACHES

It would be difficult to find a community with more experience with data centers than Loudon County, Virginia. And the county's approach to zoning for data centers serves as a potential model for other communities with suitable sites and sufficient infrastructure to accommodate data center development. In contrast, Missoula County, Montana, was one of the first local jurisdictions to craft zoning regulations for cryptocurrency mining operations. And its emphasis on mitigating the potential climate impacts represents a different type of potential model.

Loudon County, Virginia

Northern Virginia's Data Center Alley, primarily clustered around Routes 7 and 267 in Loudon and Fairfax Counties is the largest data center market in the world (Fray and Koutsaris 2022). Its combined power consumption capacity is more than 1.6 gigawatts (GW), nearly twice as much as the next largest market. And within Data Center Alley, Loudon County has the highest concentration of data centers. As of October 2021, data centers occupied more than 25 million square feet, with another 4 million square feet in development (LCDED 2022).

Several important factors have driven demand for data center development in Loudon County. It is home to the Equinix internet exchange, one of the largest internet access points in the world and a successor to Metropolitan Area Exchange, East, the first U.S. exchange. The county has abundant (and redundant) fiber optic infrastructure, relatively cheap power, and sufficient water. Additionally, it has a high concentration of skilled technology workers and businesses that support the data center industry.

By the year 2000, there was already an emerging data center cluster in Loudon County. However, the county did not define and regulate data centers as a distinct use in its zoning code until 2014 (ZOAM 2013-0003). According to Acting Planning & Zoning Director James David, prior to this, the county defined data centers as commercial offices.

The latest version of the county's zoning ordinance permits data centers by right in Planned Office Park, Research and Development Park, Industrial Park, and General Industrial districts and as a special exception use in Commercial Light Industry districts. New data centers (without vested rights) must comply with a set of use-specific standards governing façade design, screening of mechanical equipment, exterior lighting, pedestrian and bicycle facilities, and landscaping, buffering, and screening (§5-664).

According to David, these standards are intended to improve the aesthetics of data centers, minimize visibility from nearby residential areas, and ensure continuous sidewalk and trail networks. Overall, they represent a light-touch approach that has, so far, worked well for a county with enormous demand for data centers and relatively modest competition for space from other commercial and industrial uses.

However, in February 2022, county officials directed staff to research regulatory options to prevent new data centers in the

EXAMPLES OF USE-SPECIFIC STANDARDS FOR DATA CENTERS AND CRYPTOCURRENCY MINING

Jurisdiction	Use-Specific Standards
Alpharetta, GA	Requires evidence of compliance with noise standards; specifies exterior lighting fixture design; establishes minimum building height; requires building façade design elements; establishes other fencing, screening, and landscaping requirements to minimize visibility from adjacent roads and properties (§2.7.2.1)
Anne Arundel County, MD	Establishes minimum lot size and setbacks; prohibits residences on the same lot; establishes limit on outdoor storage (§18-10-119)
Fairfax County, VA	Requires all equipment to be enclosed within a building; establishes maximum floor area by zoning district (§4102.6.A)
Frederick County, MD	Establishes criteria for reducing setbacks; specifies building design standards; specifies landscaping, screening, and buffering requirements; clarifies parking, loading, signage, and lighting standards; establishes criteria for private roads; establishes noise and vibration standards (§1-19-8.402)
Moses Lake, WA	Clarifies review process for business license; prohibits container storage; requires evidence of electrical utility approval; requires evidence of electrical permit and inspection; establishes environmental performance standards, addressing noise, heat, and electric and magnetic fields; limits amount of exposed equipment on facades (§18.74)
Pitt County, NC	Limits height; requires separation from sensitive uses; requires noise study and compliance with noise standards; requires underground wiring; requires security fencing and vegetative screening; requires evidence of electrical utility approval; clarifies signage standards; requires notification of abandonment (§8(UUUU))
Plattsburgh, NY	Requires fire suppression and mitigation techniques; limits internal ambient temperature and the direct release of heat on colder days; establishes permissible noise levels (LL 6-2018)
Prince George's County, VA	Requires building façade design elements; specifies exterior lighting fixture design; requires screening for security fencing and limits fence height; requires compliance with landscape manual; clarifies applicable off-street parking standard; clarifies signage standards; requires an acoustical study; specifies additional site, locational, and noticing requirements for facilities in rural residential districts (§27-5102(e)(4)(B))
Somerville, MA	Establishes special review criteria related to aesthetic impacts and employment opportunities (§9.8.b)
Vernal, UT	Requires fencing and structural screening for electrical generators; requires noise mitigation plan for facilities near residential zones or existing hotels or motels (§16.20.250)
Wenatchee, WA	Clarifies review process for business license; prohibits container storage; requires evidence of electrical utility approval; requires evidence of electrical permit and inspection; clarifies blank wall limitation standards; requires an affidavit verifying operating sound levels (§18.48.310)

Route 7 corridor. While data center demand remains high in this area, the county's comprehensive plan designates most of this corridor as Suburban Mixed Use, which envisions a compact, pedestrian-friendly mix of commercial, residential, cultural, and recreational uses. Furthermore, the existing electricity network infrastructure is insufficient to accommodate the existing demand for new data centers (LCDED 2022).

The county is working on its first complete overhaul of its zoning code since 1993. And it intends to incorporate any new regulations for data centers into the new code, which officials hope to adopt by the end of 2022.



Google Earth

The heart of Northern Virginia's Data Center Alley in Ashburn, Virginia.



Google Earth

The former Bonner sawmill in Missoula County, Montana, was once home to the HyperBlock cryptocurrency mine.

Missoula County, Montana

In April 2019, Missoula County, Montana, adopted an interim zoning resolution that established a cryptocurrency mining overlay (Resolution No. 2019-026). The county had one large cryptocurrency mine already, and its low electricity rates and cool climate made it an attractive area for prospective miners. While a few other jurisdictions had already defined cryptocurrency mining in their zoning codes, Missoula County appears to be the first to explicitly position its zoning approach as a response to climate change.

According to county planner Jennie Dixon, AICP, local officials originally took an interest in regulating cryptocurrency mining as a distinct use after multiple complaints of noise from cooling fans at an existing Bitcoin mine operating out of a former sawmill in unincorporated Bonner. Soon, though, the county expanded its focus to include energy consumption and electronic waste.

Montana law only authorizes interim zoning in the case of an emergency involving "public health, safety, morals, or general welfare" (§76-2-206). Dixon says the Intergovernmental Panel on Climate Change's 2018 Special Report on *Global Warming of 1.5° C* helped justify climate change as a local emergency that warranted interim zoning to mitigate greenhouse gas emissions (and other potential environmental impacts) from cryptocurrency mining.

The interim zoning regulations defined cryptocurrency mining as a distinct use and created a Cryptocurrency Mining Overlay Zone, mapped to the entire unincorporated geographic extent of the county (which includes some un-zoned areas). The overlay restricted cryptocurrency mining operations to industrial districts and required operators to obtain a discretionary use permit if the mine was adjacent to a residential district or within 500 feet of a residential property boundary. These regulations also required all mining operations to verify that all electronic waste be handled by a licensed recycling firm and that all electricity use be offset by new renewable energy production.

Caroline Lauer, the county's Sustainability Program Manager, stresses the importance of this last requirement. If cryptocurrency miners purchased existing supplies of renewable energy, it could actually displace existing utility customers to dirtier sources. While most of the county's electricity comes from hydropower, coal accounts for much of the remainder.

Missoula County's 2016 *Growth Policy* plan includes an objective to "reduce the county's contribution to climate change" (4.1) and lists policies that promote alternative energy development (4.1.3) and reduce energy use and waste generation as implementation actions (4.1.6). A day before it adopted the interim cryptocurrency mining regulations, the county further strengthened its policy rationale by adopting a joint commitment with the City of Missoula to achieve 100 percent clean electricity use by 2030.

County officials extended the interim zoning for another year in 2020 before adopting the same regulations as a permanent zoning amendment in March 2021 (§1.04

& §5.05). According to Dixon, the Bonner mine ceased operations during the interim zoning period, but not because of the county's zoning. It declared bankruptcy two days after the "Black Thursday" Bitcoin crash in March 2020, leaving the tribal-owned independent power producer that provided its electricity with a $3.7 million unpaid bill (Rozen 2020).

CONCLUSIONS

The rapid rise in data center development has coincided with dramatic decreases in the costs of producing solar and wind power. This, in combination with a growing trend toward clean power commitments among technology companies, has blunted some of the climate impacts of an increased demand for data storage and processing.

The increased digitalization of life virtually guarantees that data centers will continue proliferating in strategic locations across the country (Gomez and DeAngelis 2022). Soon, communities may start seeing a sharp increase in interest in very small edge data centers that could fit in underutilized commercial spaces or even be collocated with other telecommunications infrastructure, such as small cell facilities, in public rights-of-way (Sowry et al. 2018).

The future of cryptocurrency mining facilities is less certain. Bitcoin and other energy-intensive cryptocurrencies are facing social pressure to transition to more energy-efficient transaction verification methods, and several existing cryptocurrencies already use these methods. However, we are still at the very beginning of the cryptocurrency story. While this form of currency currently exists primarily as a speculative investment vehicle, this could change rapidly if valuations stabilize and large numbers of goods and service providers accept cryptocurrencies for payment.

Not every community will see the value in defining data centers or cryptocurrency mines as distinct uses in their zoning codes. Nevertheless, doing so can give local jurisdictions a leg up when it comes to signaling preferences to developers and operators and minimizing or mitigating potential adverse impacts.

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ZONING PRACTICE
AMERICAN PLANNING ASSOCIATION

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HOW DOES YOUR ZONING TREAT DATA CENTERS AND CRYPTOCURRENCY MINES?

6

MEMORANDUM

Date: November 11th, 2026

To: City of Madison Heights Planning Commission [November 16th, 2026 Meeting]

From: Matt Lonnerstater, AICP – City Planner

Subject: Introduction – Zoning Text Amendments for Drone Facilities

Introduction

Businesses such as Amazon and Wal Mart are rapidly increasing their drone delivery programs throughout the country. Other businesses, such as Kroger and Lowes, are currently exploring options to utilize drones for same-day delivery. Michigan municipalities are prohibited from passing local ordinances to ban drone flights, create local "no-fly zones", or regulate aircraft noise while a drone is in the air. However, municipalities still retain the ability to adopt land-use based regulations (e.g. zoning standards) that restrict or regulate where drone operators may service, launch or land drones within a community.

Background

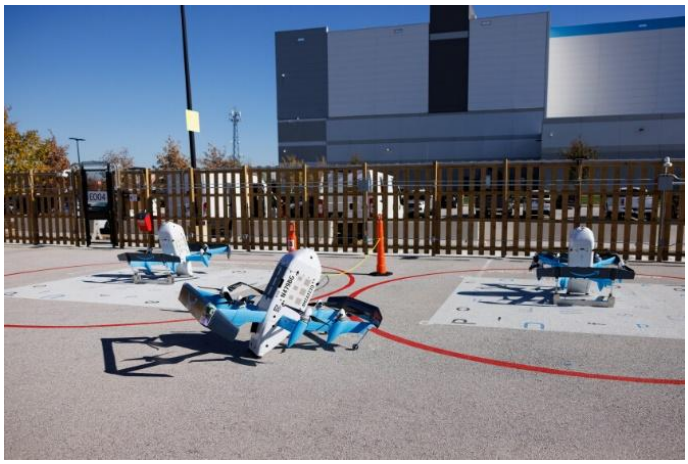
While Michigan law does not allow municipalities to regulate drones once they are off the ground (primarily under FAA guidance), municipalities do have the ability to regulate drone operations "on the ground" through land use and zoning standards. Madison Heights does not currently have any regulations pertaining to "on the ground" drone operations such as storage, charging, take-offs and landings. The term "drone" and other related terms such as "unmanned aircraft systems (UAS)" are entirely absent from the Madison Heights Code of Ordinances, including the Zoning Ordinance. This silence creates uncertainty as to where "on the ground" facilities may be permitted within the City and how they can be regulated, leaving it all up to administrative interpretations.

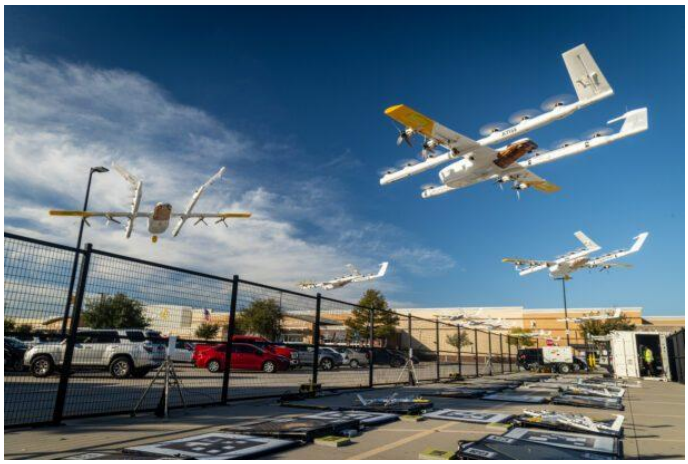
Madison Heights residents may have recently noticed an increase in commercial drone activity in the skies above the community. Amazon has launched its Prime Air drone delivery service from its Hazel Park regional fulfillment center, and Madison Heights is located within the service's 7.5-mile delivery radius. As a result, residents may see drones traveling overhead or making deliveries within the community.

The Hazel Park fulfillment center is a large warehouse facility on a 150-acre parcel located within an industrial zoning district. Hazel Park's Amazon drone launch/landing pads, therefore, are somewhat confined to an industrial area. However, businesses such as Wal Mart, Lowes, and Kroger, who have actual brick and mortar stores, typically place their drone facilities within a portion of the commercial parking lot, creating potential safety hazards to customers. These retail stores also tend to be located closer to sensitive residential areas, creating additional nuisance concerns.

Given the rapidly increasing use of drones for commercial delivery, the City of Madison Heights may wish to explore and establish regulatory standards for "on the ground" commercial drone facilities.

Amazon done launch facility (left); Walmart drone launch facility adjacent to parking lot (right)





Examples from Other Municipalities

Based on preliminary research, only a handful of Michigan municipalities currently regulate facilities used for drone operations, summarized below:

Plainfield Township and the City of Albion

Plainfield Township and the City of Albion both list "Drone (Unmanned Aerial) Centers" as a permitted or special land use in industrial districts, but do not define the use and do not have any additional use-specific regulations.

City of Southfield

A recently-adopted zoning text amendment added the following definitions:

- ***Drone:*** *A vehicle without a human operator onboard, controlled remotely or operating autonomously, designed to carry a payload of sensors or for delivery (also known as an Unmanned Vehicle).*
- ***Drone Port****: A designated area within a site intended for the takeoff, landing, staging, testing, training, storage, servicing or other operations of drones accessory to an approved permitted or special use operating on the same site.*

The Ordinance further defines "small drone ports" as facilities that occupy less than 15% of a site and "large drone ports" as facilities that occupy greater than 15% of a site. Small drone ports are permitted administratively, while large drone ports require site plan review by the Planning Commission. Both require fencing and screening.

Southfield permits drone ports as an accessory use to any permitted use in commercial and industrial districts and allows "centralized" delivery ports as an accessory use to residential communities.

Examples from Out of State

Due to the limited amount of drone-based land use regulations within Michigan, staff looked out of state for guidance. Even then, research produced few examples.

The City of College Park, Georgia contains the following definitions in their Zoning Ordinance:

> ***Unmanned Aircraft System:*** *Also known as a "drone," means an aircraft without a human pilot on board, controlled by an operator on the ground via remote control or other programming.*
>
> ***Unmanned Aircraft System Dispatch and Delivery Center:*** *A property and/or building thereon that serves as a base for drones to initiate delivery of commercial products or services to retail or wholesale customers which may, but does not have to, contain storage capacity for said commercial products or service tools and/or the control center for dispatch and flight regulation of said drones, and which has been approved for drone usage by FAA registration and waiver.*

College Park allows Unmanned Aircraft System Dispatch and Delivery Centers as a by-right use within their industrial zoning district. However, like Plainfield Township and Albion, there are no additional use-specific standards pertaining to the siting, screening, lighting, or setbacks of such facilities.

Several communities in Colorado have enacted moratoriums to temporarily prevent the establishment and operation of commercial drone delivery hubs to allow themselves time to draft and adopt ordinances. For example, the Town of Castle Rock adopted a 6-month moratorium in anticipation of Wal Mart submitting for an 18-drone port at its store within the town.

Castle Rock defines a "commercial drone delivery hub" as, *"an area used for the storage, charging, take-off and landing of private unmanned aircraft systems (UAS) for the purpose of picking up and discharging cargo."*

Planning Commission Discussion and Next Steps

In a recent newsletter, Walmart announced that they have plans to add 300 new drone launch/delivery sites throughout the country. Other retailers are sure to follow. Given the established nuisances related to drone launch/landing facilities such as light, noise, hours of operation, and proximity to residential areas, it may be beneficial for Madison Heights to proactively adopt reasonable standards for "on the ground" drone facilities and create new definitions within the Zoning Ordinance.

The City can explore both procedural review standards (e.g. requiring Special Land Use approval through a public hearing) and siting/land use standards (restricting to certain zoning districts; adopting use-specific standards relating to setbacks from residential uses, facility size, lighting, noise, house of operation, etc.).

If the Planning Commission elects to move forward with text amendments related to these on-the-ground drone facilities, staff can present a draft to the Planning Commission at an upcoming meeting prior to setting a public meeting date.

Attachments

Albion Zoning Regulations – Drones/Unmanned Aerial Centers
Southfield Zoning Regulations – Drone Ports (2026)
Castle Rock, CO Drone Moratorium (2026)
Walmart Press Release (2026)
Zoning Practice – Zoning for Drones (2023)

Table of Permitted Uses & Special Land Uses

P *= Permitted* ***S*** *= Permitted with a Special Use Permit* **supplemental development regulations*	R-1	R-2	MU	CBD	C	M-1	M-2	CDD
Public Facilities								
Community Centers & Auditoriums (public)	P	P	P	P	P	P	P	P
Government Facilities	P	P	P	P	P	P	P	P
Libraries	P	P	P	P				
Residential Uses								
Accessory Dwelling Units/Guest Houses §7.11	S*	S*	S*					
Home Occupations §7.10	P*	P*	P*					
Cottage Industries §7.10			P*					
Dwelling Units in Conjunction with Commercial §7.16			P*	P*				
Manufactured Housing Community (with accessory uses such as laundry facilities, office building, and community building) §7.20		S*						
Multiple-Family Dwelling Units		S	P					
Single-Family Detached Dwelling	P	P	P					
Single-Family Attached Dwelling (Townhouses; Condominiums)	S	P	P					
Two-Family Dwelling (duplex); Conversion of Single-Family Dwelling into Two-Family Dwelling	S	P	P					
Two-Family Dwelling groups comprised of buildings containing not more than 2 families in any one building		P	P					
Transportation, Storage & Wholesale								
Airports, Aviation Support Services, Heliports & Landing Fields (aircraft/rotocraft)						P	P	
Bus Garages						P	P	
Couriers/Parcel Packing/Shipping/Delivery Establishments/Mail Order Establishments						P	P	
Crating and Packing Services				S	S	P	P	
Drone (Unmanned Aerial) Centers						P	P	
Freight Terminals/Trucking Facilities						P	P	
Mini-Warehouses or Storage Facilities (including self-storage)			S	S	S	P	P	
Rail yards						P	P	
Parking and Storage Yards			S			P	P	
Scenic & Sightseeing Transportation/Ground Passenger Transportation				S	P	P	P	
Towing Businesses			S		P	P	P	
Truck Washes					S	P	P	
Wholesale Businesses			S	S	P			

PTZA26-0001
Drone Related Land Use Regulations
Zoning Amendment

City of Southfield
Planning Department
DRAFT - 12.17.25

Purpose: To provide clarity with regard to the review process for the permitted location and required configuration of drone port facilities.

Background: The use of drones in a variety of non-military governmental and civilian commercial applications continues to grow and evolve. The City Zoning Ordinance currently does not address drone related land uses as either accessory or principal uses of property and does not specify how they are to be reviewed or provide specific development regulations. As a result, all inquiries on this are handled by interpretation of provisions in the zoning ordinance for "similar" uses or facilities. Given that drones are becoming a common fixture in modern life it is desirable that clearer regulatory standards be established as to where commercial drone (non-hobby) facilities can be located and how they are to be configured.

Sustainable Southfield 2.0 Master Plan Goals & Objectives: Goals and objective related to the proposed amendment.

- Retain, expand, and attract businesses
- Remain business-friendly
- Encourage innovation and the growth of emerging sectors
- Cultivate external business relationships that connect to the regional economy
- Recruit growing businesses that are suited to the region and are seeking a highly skilled workforce or are willing to train an entry-level workforce
- Continually upgrade technology infrastructure to meet future needs
- Regularly evaluate economic and market trends that will establish the land use policies and alternatives to be considered, including demographic, socioeconomic, housing, and transportation trends
- Identify economic sectors that have the potential to contribute to the type of economic development being sought by the City
- Create a diversified and balanced mixture of land uses that will support the economic vitality, tax base, and livability of the City
- Coordinate local developments and improvements with regional transportation investments to ensure the most efficient use of resources
- Create context-responsive design options for multimodal transportation improvements that will help tailor them to their location

Recommendation: That the Zoning Ordinance be amended to regulate the location and configuration of drone-related facilities.

ARTICLE 2 DEFINITIONS

5.4 Definitions (C-D)

(28) DRONE: a vehicle without a human operator onboard, controlled remotely or operating autonomously, designed to carry a payload of sensors or for delivery (also known as an Unmanned Vehicle).

(29) DRONE PORT: a designated area within a site intended for the takeoff, landing, staging, testing, training, storage, servicing or other operations of drones accessory to an approved permitted or special use operating on the same site.

(31) ~~(28)~~ DWELLING, MULTIPLE FAMILY: is a building or portion thereof designed exclusively for occupancy by three (3) or more families living independently of each other.

(32) ~~(29)~~ DWELLING, MULTIPLE FAMILY HIGH RISE: a multiple family dwelling of three (3) or more stories in height.

(33) ~~(30)~~ DWELLING, MULTIPLE FAMILY LOWRISE: a multiple family dwelling not more than two (2) stories in height.

(34) ~~(31)~~ DWELLING, ONE FAMILY: is a building designed exclusively for, and occupied exclusively by, one (1) family.

(35) ~~(32)~~ DWELLING, TWOFAMILY: is a building designed exclusively for occupancy by two (2) families living independently of each other.

ARTICLE 4 GENERAL PROVISIONS

5.61 Drone Ports

A. *Intent: As drone ports may be a complementary component facility to a variety of allowed land uses within the city it is the purpose of this section to establish regulations related to the location, configuration and operation of such facilities. These standards apply to sites that regularly host drone activities, but not to occasional operations by hobbyists or drone service providers that do not require permanent alteration to the site.*

B. *Permitted Zoning Districts:*
   1. *Single Family Districts (R-A, R-1, R-2, R-3, R-4, R-E): permitted accessory to approved non-residential special uses*
   2. *Mobile Home Park District (RMH): permitted to provide centralized delivery services to a mobile home park residential community*
   3. *Attached Single Family District (RT): permitted to provide centralized delivery services to an attached single family residential community*
   4. *Multiple Family Residential (RM, RMM, RMU): permitted to provide centralized delivery services to a multiple family residential community*
   5. *Commercial Districts (OS, ERO-M, ERO, TV-R, NS, RS, B-1, B-2, B-3): permitted as a component of an approved permitted or special use*
   6. *Industrial Districts (I-L, I-1): permitted as a component of an approved permitted or special use*

C. *Review Process:*
   1. *Small drone ports: drone port facilities that occupy less than fifteen (15) percent of the site are subject to administrative site plan review per Section 5.22*
   2. *Large drone ports: drone port facilities that occupy greater than fifteen (15) percent of the site are subject to site plan review by the Planning Commission per Section 5.22*

D. *Specific Site Development Standards:*
   1. *Screening and Fencing:*
      a) *Rooftop Drone Ports: Screening shall be provided per Section 5.33*
      b) *Ground Drone Ports: Port area shall be fenced, the fencing (including living fence option) shall comply with Section 5.37-1*
   2. *Other Requirements;*
      a) *Shall comply with all applicable site development standards from Article 4 – General Provisions, the Article for the applicable zoning district and Article 22 – Schedule of Regulations*
      b) *Shall comply within any required building or structure setbacks of the applicable zoning district*
      c) *Shall comply with the requirements of Section 9.357 Unmanned Aircraft Systems*

ORDINANCE NO. 2026-023

AN ORDINANCE IMPOSING A MORATORIUM FOR SIX MONTHS ON THE SUBMISSION, ACCEPTANCE, PROCESSING AND APPROVAL OF APPLICATIONS FOR THE ESTABLISHMENT OF COMMERCIAL DRONE DELIVERY HUBS AND PROVIDING FOR ITS EMERGENCY ADOPTION ON FIRST AND FINAL READING

WHEREAS, commercial drone delivery hubs are not currently defined in the Castle Rock Municipal Code, creating ambiguity about where they are permitted and what standards apply;

WHEREAS, local governments across the nation are working to address the establishment of commercial drone delivery hubs, which often raise concerns over locating such hubs near residential and other sensitive areas, light, noise, size, site design considerations, hours of operation, and screening requirements;

WHEREAS, the Town of Castle Rock (the "Town") requires additional time to prepare and propose for adoption regulations within its authority for the establishment of commercial drone delivery hubs within the Town;

WHEREAS, the moratorium proposed by this Ordinance is intended to prevent the establishment and operation of commercial drone delivery hubs in the Town on a temporary basis in order to allow the Town to draft and adopt ordinances, and to allow public comment prior to adoption of any such ordinances, and in order to protect the health, safety, and welfare of the residents of the Town;

WHEREAS, the Town Council wishes to institute a six (6) month moratorium on the submission, acceptance, processing and approval of applications for the establishment of a commercial drone delivery hub after the date of adoption of this Ordinance; and

WHEREAS, the Town Council determines it is necessary to adopt this Ordinance on an emergency basis on first and final reading and for this Ordinance to take effect upon its adoption.

NOW, THEREFORE, IT IS ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF CASTLE ROCK, COLORADO:

Section 1. **Findings and Intent.** The above and foregoing recitals are incorporated herein by reference and adopted as findings and determinations of the Town Council of the Town of Castle Rock.

Section 2. **Moratorium**. Effective upon adoption of this Ordinance, a temporary moratorium on the submission, acceptance, processing and approval of any application for a commercial drone delivery hub is hereby imposed.

Section 3. **Duration**. This moratorium shall remain in effect for six (6) months from the date of adoption of this Ordinance unless terminated at an earlier date or extended by further ordinance.

Section 4. **Definition**. For purposes of this moratorium, "commercial drone delivery hub" is defined as "an area used for the storage, charging, take-off and landing of private unmanned aircraft systems (UAS) for the purpose of picking up and discharging cargo."

Section 5. **Severability**. If any clause, sentence, paragraph, or part of this Ordinance or the application thereof to any person or circumstances shall for any reason be adjudged by a court of competent jurisdiction invalid, such judgment shall not affect the remaining provisions of this Ordinance.

Section 6. **Emergency Clause**. In accordance with Section 2.02.100.E of the Castle Rock Municipal Code and for the reasons stated in the recitals to this Ordinance, it is declared that an emergency exists and it is necessary for the immediate preservation of the public peace, health and safety for this Ordinance to take effect upon its adoption on first and final reading.

Section 7. **Safety Clause**. The Town Council finds and declares that this Ordinance is promulgated and adopted for the public health, safety and welfare and bears a rational relation to the legislative object sought to be obtained.

PASSED, APPROVED AND ADOPTED ON FIRST AND FINAL READING this 21st day of July, 2026, by the Town Council of the Town of Castle Rock, Colorado, by a vote of ___ for and ___against, constituting the extraordinary majority required by Section 2.02.100.E of the Castle Rock Municipal Code, after publication in compliance with Section 2.02.100.C of the Castle Rock Municipal Code.

ATTEST:

_____
Lisa Anderson, Town Clerk

TOWN OF CASTLE ROCK

_____
Jason Gray, Mayor

Approved as to form:

_____
Michael J. Hyman, Town Attorney

Approved as to content:

_____
Tara Vargish, Director of Development Services

Walmart Expands Nation's Largest Retail Drone Delivery Operation with 300 New Zipline Sites

Nov. 5, 2026 3 min read Business



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Multi-year agreement expands Walmart's fastest delivery option nationwide, with potential for further growth

Key Insights

- Expanding Nationwide: Walmart is adding 300 new Zipline drone delivery sites through a multi-year agreement, bringing faster delivery to more communities across the country.
- Building on Momentum: With more than 2 million drone deliveries completed, Walmart is expanding a service designed to deliver everyday essentials in as fast as 30 minutes.

- Convenience at Customers' Fingertips: Eligible customers can shop tens of thousands of items through the Walmart app or Walmart.com and have orders delivered directly to their homes.

BENTONVILLE, Ark., Nov. 5, 2026 — Walmart, which operates the nation's largest retail drone delivery program, is bringing the delivery option to even more doorsteps. Today, the retailer announced a new multi-year agreement with Zipline to add 300 drone delivery sites nationwide, with the potential to expand. The rollout builds on Walmart's drone delivery program, which has completed more than 2 million deliveries to date. Walmart has worked with Zipline to make drone deliveries since 2021.

Whether it's the missing frosting for a birthday cake, running out of coffee and creamer on a Monday morning or a new pack of tennis balls before heading to the court, drone delivery gives customers a fast way to get what they need in just minutes. And as more customers discover the service, they find new ways to make it part of their everyday routines.

"We see customers try drone delivery for the novelty and then continue to come back to it for the convenience when they need something in minutes," said Greg Cathey, senior vice president, eCommerce Fulfillment Transformation, Walmart. "Walmart's stores put us close to the communities we serve. With Zipline, we can build on that proximity and bring this fast delivery option to even more customers across the country."

Now, Walmart is building on its success to bring drone delivery to even more communities nationwide, with tens of thousands of eligible items available for delivery in as fast as 30 minutes where available. With 90% of America living within 10 miles of a Walmart store, Walmart has a unique advantage to build on its existing store network to expand drone delivery.



"Five years ago, Walmart and Zipline made our first deliveries together. Back then, the idea of autonomous delivery seemed impossible to most people. Today, customers order from us multiple times a day. When you can get what you need in 10-30 minutes it takes a huge amount of anxiety out of life. People can plan their lives around their loved ones, not errands," said Keller Cliffton, CEO and co-founder of Zipline. "Now, with Walmart, we're going to expand this tech to homes throughout the country."

Zipline is the world's largest drone delivery service by miles flown, with 150 million commercial autonomous miles without a major safety incident. Zipline's home delivery drone uses a two-part architecture designed for quiet and safe operations by keeping the drone roughly 330ft above the ground during delivery while a pod containing the order descends on a tether.

uld not live without drone delivery. It saves me so much time," said Melanie Millsap, a mom of four and Walmart customer in Royse City, TX. "It n I'm cooking dinner and I forget an ingredient, and I can order it, and it's here before dinner's even done, or dinner's even halfway done. Zipli a part of my everyday life."

Customers will see drone delivery as an option when they open the Walmart app or visit Walmart.com if the address associated with their account is within the delivery range. Customers can then add items to their cart just like any other delivery order, place their order, and then track their items as they fly to their home. Orders are delivered to the customer's home in the front yard, backyard or driveway. Eligible addresses can also place Walmart orders through the Zipline app.

Drone delivery fits into Walmart's broader same-day delivery options designed to fit different shopping occasions and schedules:

- **Drone Delivery:** measured in minutes, for when customers need a handful of items
- **30-Minute-or-Less:** Delivery for immediate and fill-in shopping needs in select markets.
- **Express:** Delivery in one hour or less.
- **On-Demand:** Delivery in as soon as three hours.
- **Scheduled:** Customers can choose a delivery window that works best for their schedule.

The next chapter of drone delivery isn't just about reaching more households. It's about giving customers another reason to turn to Walmart for the moments when convenience matters most.

Media Contact
Walmart.com/Reporter

About Walmart

Walmart Inc. (Nasdaq: WMT) is a people-led, tech-powered omnichannel retailer helping people save money and live better - anytime and anywhere - in stores, online, and through their mobile devices. Each week, approximately 280 million customers and members visit more than 10,900 stores and numerous eCommerce websites in 19 countries. With fiscal year 2026 revenue of $713 billion, Walmart employs approximately 2.1 million associates worldwide. Walmart continues to be a leader in sustainability, corporate philanthropy, and employment opportunity. Additional information about Walmart can be found by visiting corporate.walmart.com, on Facebook at facebook.com/walmart, on X (formerly known as Twitter) at twitter.com/walmart, and on LinkedIn at linkedin.com/company/walmart.

74

Item 5.

ut Zipline

ne is the world's largest drone delivery service. Zipline operates on multiple continents, makes a delivery somewhere in the world every 15 se and serves hundreds of locally-owned businesses and national retailers as well as more than 5,000 hospitals and health facilities. With 150 million commercial autonomous miles flown to date, Zipline is transforming access to emergency products, healthcare, consumer products, and food. Our customers rely on Zipline to save lives, save them time, increase economic opportunity, and provide logistics at scale. For more information, visit Zipline.com

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Related Stories



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Today, Walmart is celebrating a major milestone: more than 1 million drone deliveries completed to hundreds of thousands of customers.

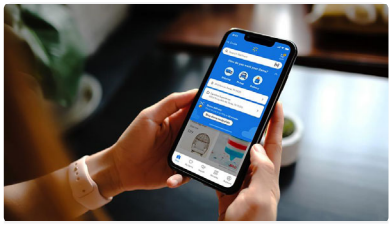
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APRIL 2023 | VOL. 40 NO. 4

APA

ZONING PRACTICE

Unique Insights | Innovative Approaches | Practical Solutions

Drone Zoning: Urban Planning's Next Frontier?



In this Issue: The Merging of Air Traffic Control and Land-Use Laws | Federal and State Obstacles to Municipal Drone-Use Planning | The Case for Local Drone-Use Laws | Three Potential Categories of Local Drone-Use Planning | Unique Potential Features of Drone Zoning Ordinances | Drone Zoning and Social Justice | Spurring a Drone Zoning Revolution

Drone Zoning: Urban Planning's Next Frontier?

By Troy Rule

Businesses are increasingly seeking to use drones to deliver goods, inspect infrastructure, take aerial photos, and serve other valuable functions. Local land-use planners, who have governed uses of low airspace for nearly a century through setback requirements, height restrictions, and other means, could serve important new regulatory roles in that space in the drone era—if federal regulators would let them.

This issue of *Zoning Practice* explores how planners can apply zoning concepts to local regulations governing drone use. It begins with background on the emerging need for more expansive local drone-use controls and briefly summarizes existing barriers to regulating drone use locally before summarizing three potential approaches to drone zoning.



An unmanned aircraft system delivering an automated external defibrillator in Reno, Nevada (Credit: Mollyrose89, Wikimedia)

The Merging of Air Traffic Control and Land-Use Laws

Some of the nation's largest retailers hope to soon start delivering many online orders not with trucks but with small, unmanned aircraft systems or "drones." Automated drone delivery systems would free retailers from the constraints of surface roads and enable them to rapidly transport goods directly from distribution hubs to the doorsteps of American homes and businesses. Unfortunately, such widespread commercial drone use would also send millions of daily drone flights into the nation's low airspace—some of which would disrupt land uses below. Drones produce buzzing noises that can interfere with activities on the ground, and drone overflights can also threaten landowners' safety and privacy. Because these potential impacts on underlying land uses vary greatly from place to place, drone activities are particularly well suited for localized, location-based regulation.

With adequate federal and state government support, drone-use zoning—the use of municipal ordinances and overlay zoning maps to regulate drone activities—could emerge as the next great frontier for zoning law. Drones are increasingly capable tools for delivering goods, photographing real estate listings, surveying pipelines, and serving other valuable commercial functions. However, drones can also be like pigs in the parlor instead of the barnyard: In certain settings, their noise and threats to privacy can unjustifiably interfere with activities on the ground. A drone flight over a spa resort or a retirement home can be far more disruptive than an identical flight over a rail yard or a warehouse district. Drones can likewise create security or safety threats—especially over critical infrastructure facilities,

schools, prisons, and other sensitive places. Accordingly, localized spatial planning may be the only way to optimally balance drone-related uses of low airspace with land-based uses of that space.

Involving municipal governments in the spatial planning and regulation of low airspace uses in the drone era would yield tremendous benefits in communities across the United States. Municipal drone-use zoning ordinances could create specific classes of drone-use zones and attach varying degrees of drone-use restrictions to each type of zone. Corresponding overlay zoning maps could then assign drone-use zoning classifications to every parcel throughout a city with the express goal of optimally balancing drone-based and land-based uses of the city's low airspace. Using geographic information systems (GIS) and geofence technologies, commercial drone operators could even program their drones to automatically comply with local drone-use zoning ordinances. Drone users could likewise consult a city's ordinance provisions and map when selecting sites for drone delivery hubs and other drone-related land development projects. By leveraging municipal planning officials' localized knowledge, such urban drone-use planning could promote much more efficient use of precious low-airspace resources—just as conventional zoning laws do on land.

With adequate federal and state government support, drone-use zoning—the use of municipal ordinances and overlay zoning maps to regulate drone activities—could emerge as the next great frontier for zoning law.

Federal and State Obstacles to Municipal Drone-Use Planning

Sadly, until federal regulators signal more support for them, drone-use zoning ordinances face some obstacles in the U.S. Unlike the land-use laws of the 1920s, today's drone-use laws are evolving in the shadow of a federal agency, the Federal Aviation Administration (FAA). The FAA has claimed on multiple occasions that it alone should regulate where and when drones may fly (FAA 2015). Some of the nation's most powerful companies, such as Amazon and Walmart, also have reasons to favor such a top-down federal structure because it would ease their operations by largely precluding cities and landowners from participating in drone regulation. Incredibly, some federal officials have taken the questionable position that even the airspace resting a few inches above the ground is navigable by a small drone and thus constitutes "navigable airspace" subject to exclusive federal control (U.S. GAO 2020). Advocates of this controversial view often argue that allowing cities, towns, and counties to adopt local drone-use restrictions would create an unworkable patchwork of laws across the country that would stifle drone industry growth.

While the debate over implied federal preemption of municipal drone-use laws rages on, drone industry advocates have also taken their fight to state legislatures in recent years, lobbying for statutory language that expressly preempts local drone-use restrictions. These efforts have yielded some unfortunate results: At least 11 states have enacted statutes over the past decade that provide for some degree of preemption of local drone-use rules (Table 1). It will be difficult for local governments in these states to engage in significant drone-use planning and zoning until these preemption statutes are repealed. In most other states, however, significant opportunities for municipal drone-use regulation remain intact.

The Case for Local Drone-Use Laws

Ironically, while the FAA continues to argue that it alone should regulate most civilian drone activities, it is increasingly evident that the agency lacks the resources and on-the-ground information needed to effectively handle the job. If major retailers achieve their vision of making billions of drone-assisted deliveries per year, tailoring drone-use laws to fit the unique features of tens of thousands of communities

Table 1. States That Preempt Local Drone-Use Rules

State	Limit on Local Drone-Use Rules
Arizona	Prohibits all local ordinances, policies, or rules that relate to the private ownership or operation of drones, other than restrictions on takeoffs and landings from public parks or preserves (§13-3729)
Connecticut	Expressly preempts all municipal restrictions on commercial drone "ownership, possession, purchase, sale, use, transportation, or operation" (§7-149b)
Delaware	Preempts local regulation of drone testing and operations (§11-1334(e))
Florida	Prohibits municipalities and counties from regulating "the design, manufacture, testing, maintenance, licensing, registration, certification, or operation of an unmanned aircraft system, including airspace, altitude, flight paths, equipment or technology requirements; the purpose of operations; and pilot, operator, or observer qualifications, training, and certification" (though drone operations are still subject to other local regulations specifying illegal acts) (§330.41(3)(b)&(c))
Georgia	Expressly preempts any local regulation of drone testing and operations adopted after April 1, 2017, other than restrictions on noncommercial takeoffs and landings from public property (§6-1-4)
Louisiana	Preempts all local drone regulations (§2:2)
Maryland	Preempts local regulation of drone testing and operations (Economic Development §14-301(b))
Michigan	Prohibits local regulation of drone ownership or operation, with a very limited exception for jurisdictions that prohibit nonemergency motor vehicles (§259.305)
Pennsylvania	Preempts local regulation of drone ownership or operations (§53-305(a))
Rhode Island	Preempts all local drone regulations (§1-8-1)
Utah	Preempts local drone regulations, except for restrictions on operations at locally controlled airports (§72-14-103)

across America will be a gargantuan task. Empowering cities, towns, and counties to engage in drone-use planning within their jurisdictions would distribute this growing regulatory load by enlisting countless local planning officials to help.

American land-use laws provide a valuable blueprint for considering the possibilities of localized drone-use planning. Consider how different cities and towns throughout the nation would look today if a century ago Congress had opted to give one federal agency exclusive authority over all land-use planning in the United States. Specifically, suppose, hypothetically, that real estate industry lobbyists had persuaded Congress in the 1920s to create a Washington-based "Federal Land Use Administration" with exclusive power to make land-use zoning designations everywhere in the country, preempting all state and local land-use laws. The powerful industry stakeholders championing such an action might well have benefited from such legislation by using it to secure sweeping federal land development authorizations applicable throughout much of the country. However, because the centralized federal agency operating under that system would have lacked the community-level information and resources needed to tailor land-use plans to fit each U.S. city and town, land-use laws in most communities under that structure would have been poorly suited for most locales. Such imprecise land-use laws would have led to more neighbor conflicts and ultimately lower land productivity than the country has achieved by involving municipal and county governments in the land-use planning process.

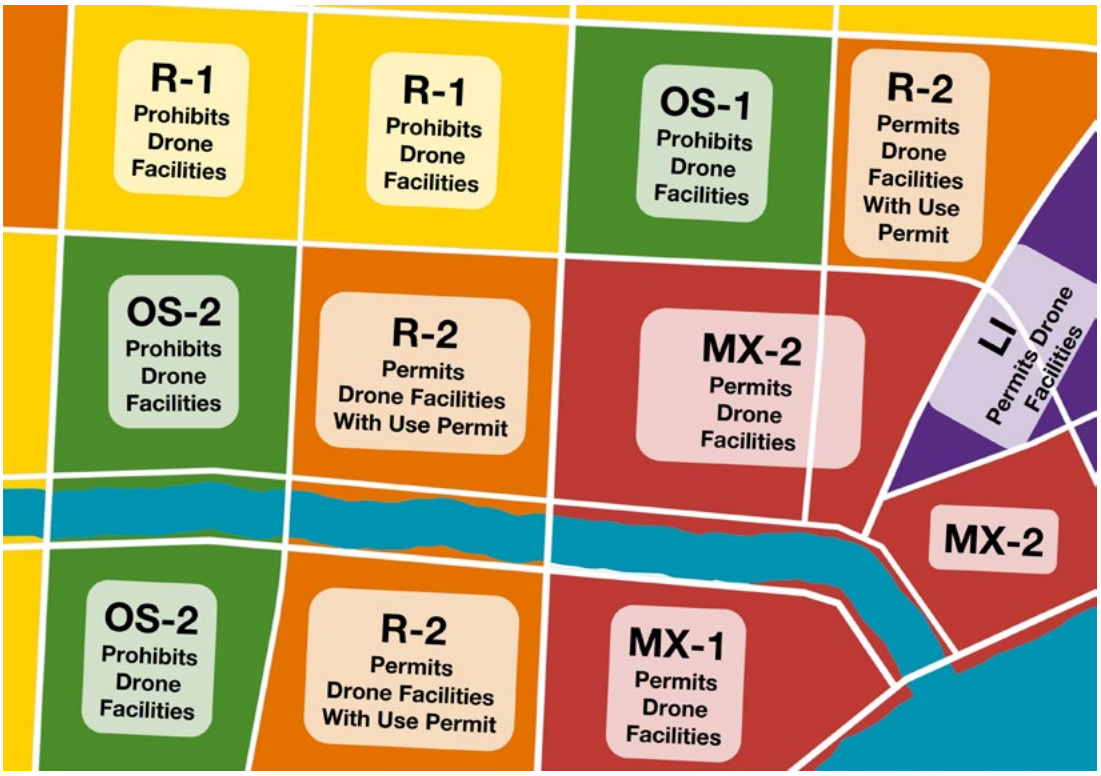
In similar ways, empowering the FAA to be the nation's sole drone-use regulator might benefit large drone delivery companies, but it would do so by excluding highly valuable local input from the drone-use planning process. By contrast,

the patchwork quilt of drone-use laws that drone industry stakeholders portray as devastating would actually be a good thing (Bateman 2020). Such a patchwork would reflect local officials' purposeful tailoring of rules to match the distinctive characteristics and preferences of the country's diverse array of neighborhoods and communities—just as local land-use laws and traffic laws presently do on the ground. Amazon truck drivers today have no difficulties using public road systems that require them to observe speed limit signs and other traffic rules that vary as they travel from place to place. Why couldn't Amazon delivery drones handle similar location-based variability in the laws governing low airspace?

As a legal matter, local drone-use planning is also probably more permissible than the FAA or some drone industry groups would want local planners to believe. The scope of the FAA's preemptive authority over drone-use activities remains unclear in most states but is likely too narrow to preclude all state and local drone-use regulation. A 2017 case, ***Singer v. City of Newton*, 284 F.Supp.3d 125 (D. Mass. 2017)**, seemed to at least partially embrace the FAA's preemption arguments against local drone laws. However, just three years later a different federal court, in ***National Press Photographers Association v. McCraw*, 504 F.Supp.3d 568 (W.D. Tex. 2020)**, showed far less willingness to recognize the FAA as the country's exclusive drone-use regulator, holding that "federal law has not completely preempted the field" of drone-use regulation and that a particular state drone law was not preempted. In short, there does appear to be room under current laws for municipalities to engage in some drone-use regulation—especially when that regulation is focused on preventing conflicts between drone uses and specific subjacent land uses.

Three Potential Categories of Local Drone-Use Planning

As local officials and planners increasingly embrace the idea of local drone-use planning, they are likely to wonder where to begin in this pioneering effort. As a starting point, it's useful to recognize the three general types of drone-use regulatory approaches potentially available to local governments: (1) land-based restrictions, (2) radius-based restrictions, and (3) zoning restrictions.



A hypothetical zoning map with land-based restrictions on commercial drone facilities (Credit: American Planning Association)

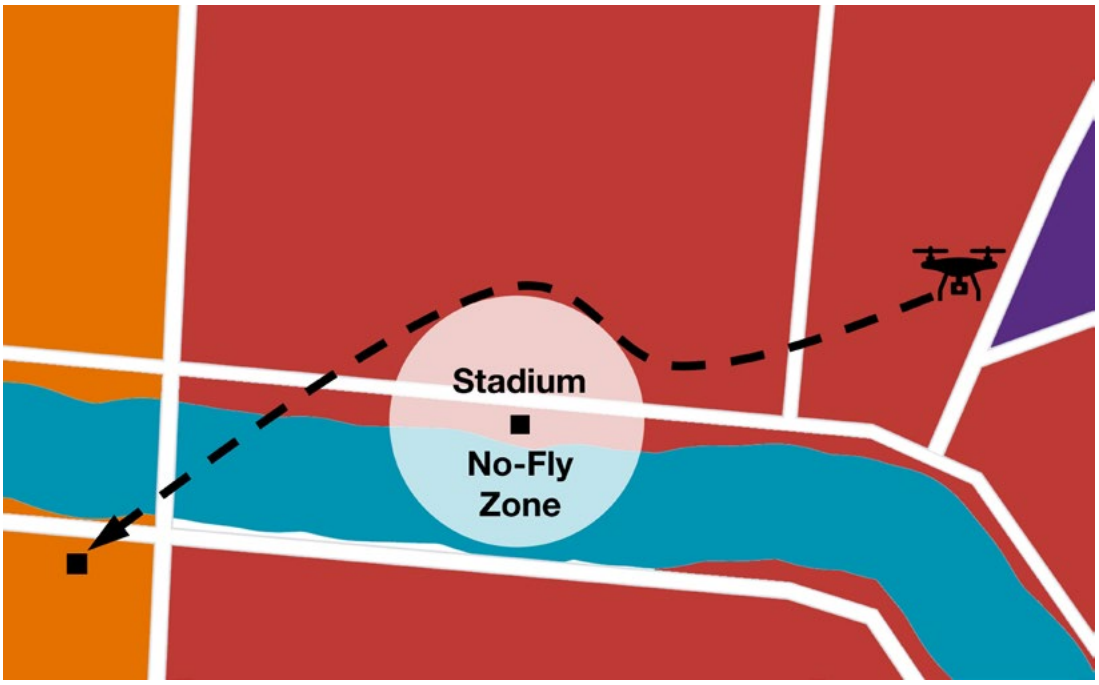
Land-Based Drone-Use Restrictions

Land-based drone-use restrictions, which fall squarely within most municipalities' well-established regulatory authority, merely restrict where drone operators may launch or land drones within a community. For instance, an ordinance prohibiting the siting of certain types of commercial drone docking stations within 500 feet of the boundary of any existing residential zone would be a land-based drone-use restriction. High volumes of drone activity can occur at some kinds of commercial docking stations, so siting such stations sufficiently far away from residential areas could help to prevent conflicts with residential land uses. Such laws would be similar to existing land-use zoning restrictions designed to prevent low airport flight paths from flying over residential areas. Because land-based drone-use restrictions focus on places where drones take off and land, they obviously do relatively little to prevent conflicts between land uses and drones in mid-flight. Still, they can provide some additional protection against drone-related land-use conflicts and are less likely raise preemption questions than most other types of local drone laws.

A handful of local governments have recently added drone or "unmanned aerial" centers or docking stations to their lists of permitted or special uses within certain zoning districts (e.g., Albion, Michigan, §100-4.12) Others, such as College Park, Georgia, have also codified a definitions of such centers to help guide developers and aid future enforcement of such rules (Appendix A §1.4, defining "unmanned aircraft system dispatch and delivery center"). College Station, Texas, even amended a planned development district ordinance to make "consumer, small-scale aerial distribution" a permissible use to accommodate proposed Amazon drone delivery facilities (2022).

Radius-Based Drone-Use Restrictions

A second category of local drone laws—radius-based drone-use restrictions—can protect landowners against a broader range of potential drone-related conflicts than is reachable using land-based restrictions alone. Radius-based laws are already on the books in multiple major U.S. cities and prohibit drone activities within a specified radius of certain types of land uses. For instance, an ordinance adopted in Miami, Florida, prohibits drones from flying within a half mile of major public sports venues during events (§37-12(c)). A similar ordinance in Calabasas, California,



A no-fly buffer zone around a large place of public assembly (Credit: American Planning Association)

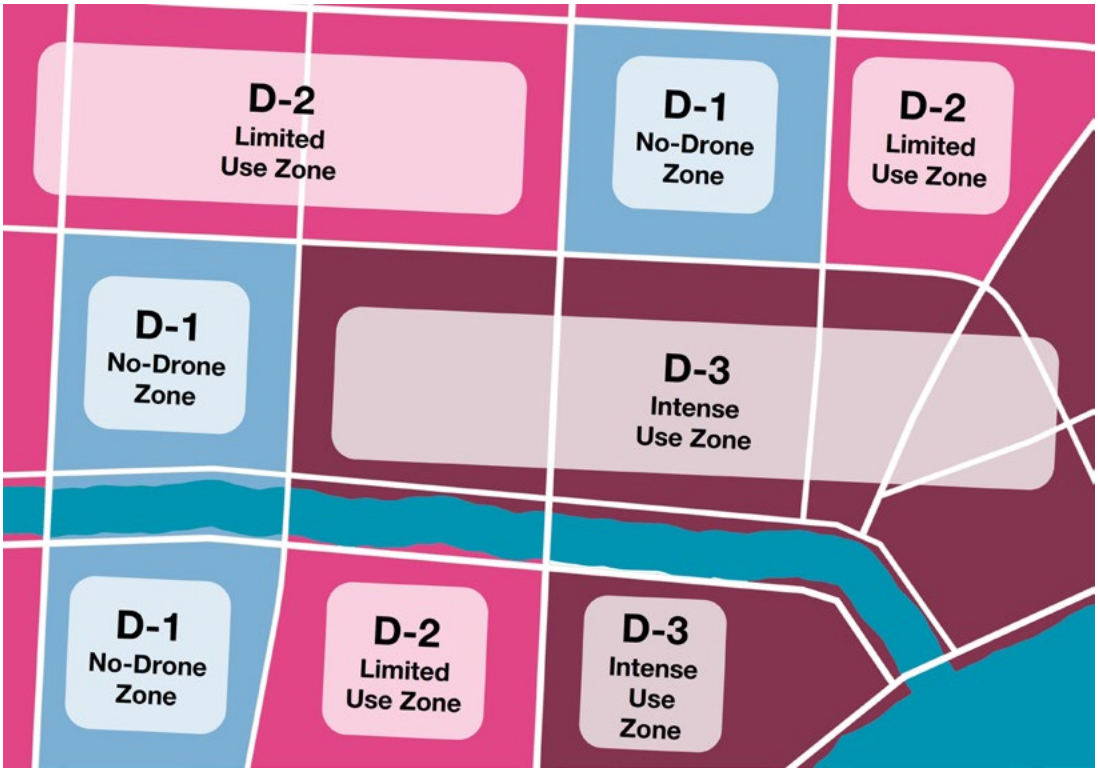
precludes drone operations within 200 feet of a school without school officials' permission and prohibits drone uses within 100 feet of many other public facilities (§9-10-030). Comparable state laws restricting drone activities near specified land uses have also been enacted in Arizona, Kentucky, New Mexico, Oklahoma, Oregon, Texas, and a few other states.

Radius-based drone use restrictions resemble certain early 20th-century laws that ultimately served as precursors to modern land-use zoning. For example, before land-use zoning became widespread, several cities had adopted restrictions on the siting of slaughterhouses or taverns within specified distances of certain incompatible land uses such as residential neighborhoods or schools. Eventually, these radius-based land-use ordinances—aimed at keeping certain disruptive land-use activities away from certain other protected ones—gave way to full-fledged land-use zoning laws in much of the country. It's quite plausible that laws similarly prohibiting drone-use activities near specified types of incompatible land uses could eventually pave the way for drone-use zoning as well.

Drone-Use Zoning

The third category of potential local drone use laws involves drone-use zoning—an approach that is more restrictive and thus more controversial than existing approaches (much like land use zoning was a century ago). Drone-use zoning ordinances would feature textual provisions describing specific types of drone-use zones and outlining the various drone-use restrictions applicable within each type of zone. Such ordinances would likewise feature a separate overlay zoning map that assigns drone-use zoning designations to every parcel within the local jurisdiction's boundaries.

One great benefit of drone-use zoning would be its ability to more effectively coordinate drone uses with land uses across a community. For instance, local planners might opt to designate certain neighborhoods near a community's beachfront, public school buildings, power plants, prison facilities, or other sensitive land uses as "D-1" or "no drone zones," subject to relatively strict drone-use rules. The planners might then designate other specific neighborhoods of the city—such as those having a mix of commercial and residential land



A hypothetical drone-use zoning map (Credit: American Planning Association)

uses—as "D-2" limited-drone-use zones, where somewhat less stringent drone-use rules apply. Still other neighborhoods with predominantly industrial and less-sensitive commercial land uses might then receive a "D-3" drone-use zoning designation and be subject to comparatively permissive drone restrictions.

To avoid violating citizens' reasonable investment-backed expectations, drone-use ordinances could have lengthy grace periods before taking effect. Upon some future date specified in the ordinance, companies licensed to use drones within the city would then become legally responsible to ensure that their drones obeyed the ordinance's restrictions. Some commercial drone users, such as aerial real estate photographers seeking to capture drone-assisted photos of a home for sale, would likely comply with such ordinances by simply locating specific properties on the city's drone-use zoning map and reviewing applicable restrictions prior to launching their drones. Other companies, such as national retailers making deliveries with automated drones, would more likely use GIS software and geofence technologies to ensure compliance. These innovations could enable drone operators to embed data reflecting a city's drone use zoning map into delivery drones such that the drones automatically follow the ordinance's provisions.

It is easy to imagine how cities could adapt various other common features of traditional land-use zoning into local drone-use zoning structures as well. For example, drone-use ordinance provisions might authorize drone users to apply for conditional use permits to conduct certain types of drone activities that are ordinarily not permitted within a specific zone. Other provisions might outline processes through which drone users could seek variances to drone-use zoning restrictions based on showings of undue hardship and minimal resulting harms to others. Today's well-established legal understandings of how such provisions operate in the land-use context would help to ease their adaptation into drone-use regulatory settings.



A drone-free zone in Helsinki, Finland (Credit: Eric Fischer, Wikimedia)

Unique Potential Features of Drone Zoning Ordinances

Although drone-use restrictions that vary across spatial zones would share many similarities with conventional land-use zoning laws, effective drone-use ordinances would also differ from land-use ordinances in some notable ways. Among other things, the temporary nature of drone activities allows planners to build greater flexibility into drone zoning laws than is possible for land-use zoning. For instance, some cities such as Chicago (§10-36-400) and Calabasas, California, (§9-10-030) integrate the dimension of time into their drone-use restrictions by limiting most drone activities to daylight hours. Other municipalities, such as Point Pleasant Beach, New Jersey, take a similar approach and prohibit drone flights over schools only during regular school hours (§3-50.3). Future drone zoning ordinances could similarly integrate the dimension of time into their restrictions as well. For example, local officials concerned about drone noise disruptions in residential areas might opt to craft ordinance provisions to permit drone operations in a city's D-2 zones only on weekdays between 9:00 a.m. and 6:00 p.m. Likewise, officials hoping to allow real estate photographers and hobbyists sufficient opportunities to use drones even in highly restricted drone-use zones could adopt provisions allowing for a few "open drone use" periods each week or month, such as on Saturday mornings from 10:00 a.m. to noon or on the first Tuesday of each month from 4:00 to 6:00 p.m. Such restrictions and exceptions based on time are obviously not possible in the context of land-use laws, given the generally permanent nature of land development but create interesting new possibilities in the drone-use zoning context.

Another major difference between land-use zoning and drone zoning is that it's technologically possible to inexpensively enforce drone-use zoning laws using GPS-based geofence technologies. DJI and multiple other major drone manufacturers already embed remotely updatable geofence software into their drones to prevent the drones from flying near thousands of specific airports and other protected areas around the world. For instance, a 2015 update to DJI's geofence database after a drone landed in the White House lawn now prevents DJI drones from flying within a 15.5-mile radius of Washington, D.C. (Bi 2015). When drones with geofence software approach geofenced areas, they automatically begin to lose power or are otherwise programmed to be unable to proceed forward into that protected space. Embedding local drone zoning ordinance restrictions into all registered commercial drones and enforcing those restrictions using geofences could greatly simplify enforcement and make the patchwork of drone-use restrictions across communities even less burdensome for commercial drone users.

Like ordinary land-use zoning ordinances, drone-use zoning ordinances could have some unintended consequences unless carefully crafted to avoid them.

Drone Zoning and Social Justice

Like ordinary land-use zoning ordinances, drone-use zoning ordinances could have some unintended consequences unless carefully crafted to avoid them. On the one hand, many common criticisms of modern land-use zoning—such as the potentially adverse impacts of single-family zoning on suburban sprawl, housing affordability, or racial and socioeconomic integration efforts—are less applicable in the drone zoning context because drone zoning has far less influence on where citizens reside. On the other hand, if cities draw their drone zoning maps such that historically underserved or underinvested neighborhoods end up having far more drone overflights, such laws could exacerbate existing disparities and disproportionately harm marginalized residents in those communities.

Fortunately, there are ways to prevent drone-use zoning from contributing to the social injustice challenges facing American cities. Most notably, I've recently advocated for the use of digital platforms and distributed ledger technologies to



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help landowners temporarily license their low airspace to drone users in exchange for compensation (Rule 2022). Such an approach would empower landowners to determine how often drones fly over their land and would ensure that landowners are compensated for every drone overflight. Federal and state statutes affirming and clarifying the scope of landowners' low airspace rights could help to spur private investment in this promising approach to drone routing, which would greatly reduce the potential social injustices associated with large corporations' growing use of low airspace.

Spurring a Drone Zoning Revolution

For land-use planners intrigued by the possibilities of drone zoning, the time to start acting is now—before major retailers begin traversing our airspace with drone-delivered packages. Although some uncertainty remains regarding the scope of municipalities' power to regulate civilian drone activities, that has not stopped municipal governments throughout the United States from adopting local drone-use ordinances. From Telluride, Colorado (§10-11), to Orange Beach, Alabama (§54-41 et seq.), various municipal drone laws are already helping to reduce conflicts between drone operators and subjacent landowners. Citing what they describe as "gaps" in the country's regulatory apparatus, the National Conference of Mayors adopted a resolution in June of 2022 specifically requesting broader formal authority from the federal government to take local actions to keep drones away from critical infrastructure and certain other land uses. Meanwhile, dozens of municipalities across the country are opting not to wait for official federal permission and are actively developing and adopting local drone-use ordinances of various kinds. Especially in states with no express statutory preemption of such ordinances, local officials should start today to consider possible ways of structuring drone-use regulations for their jurisdictions so that they're better prepared when commercial drone operators inevitably come to town.

Urban planners who personally know the communities where they live and serve have greatly enhanced land-use development across the U.S. over the past century and could do the same for drone uses in the drone era. Applying their training and localized knowledge, these trained and passionate public servants enable cities to grow in more orderly and efficient ways and prevent countless neighbor conflicts by carefully segregating incompatible land uses from each other. As drone technologies are now introducing a new class of potential spatial conflicts, local planners are again well suited to provide the community-level spatial planning needed to govern them. By embracing the important role of local planners in this massive undertaking, commercial drone users and the FAA could help them to hasten the day when hot pizzas and hamburgers hover to American doorsteps without disturbing any other landowners along the way.

Cover; helivideo/ iStock/Getty Images Plus

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MADISON HEIGHTS PLANNING COMMISSION
2027 MEETING SCHEDULE

Third Monday of each month at 5:30 p.m. (unless otherwise noted or canceled)

Council Chambers – 300 W. 13 Mile Road (unless otherwise noted)
Madison Heights, MI 48071

MEETING DATE	APPLICATION DEADLINE (By close of business)	NOTICES PUBLISHED
January 19th*	TBD	TBD
January 16th**	TBD	TBD
March 15th	TBD	TBD
April 19th	TBD	TBD
May 17th	TBD	TBD
June 21st	TBD	TBD
July 19th	TBD	TBD
August 16th	TBD	TBD
September 20th	TBD	TBD
October 18th	TBD	TBD
November 15th	TBD	TBD
DECEMBER – NO MEETING	TBD	TBD

*Tuesday, January 19th due to MLK Day.

**Tuesday, February 16th due to President's Day

Adopted: