ACME TOWNSHIP PLANNING COMMISSION
ACME TOWNSHIP HALL
6100 US 31 N Williamsburg, MI 49690
September 21, 2026 6:00 p.m.

CALL TO ORDER WITH PLEDGE OF ALLEGIANCE

ROLL CALL: Doug Hoxsie, Doug Grove, Karly Wentzloff, Radu Danca, Theresa Galante, Steve Feringa, Marcie Timmins

Staff Present: Lindsey Wolf, John Iacoangeli, Marcie Timmins

A. LIMITED PUBLIC COMMENT: Members of the public may address the Commission regarding any subject of community interest during public comment periods by filling out a Public Comment Card and submitting it to the Secretary. Public comments are limited to three minutes per individual. Comments during other portions of the agenda may or may not be entertained at the moderator's discretion.
Opened at 6:03pm

Brian Kelley- Talked about the ordnance changes for drive-throughs. Listed some discrepancies between the matrix traffic studies use to decide if an area can feasibly handle the traffic that comes along with a business. Suggested that the PC look at where another drive-through could actually work in the township and not allow any more on US31 due to topography and traffic congestion.
Asked about where the high water mark is for the tributary of Acme creek that runs behind the proposed Northern Tech building.

Doug Mansfield- Talked about the planning commission's plan to talk about updating some ordinances. He gave a handout with 13 suggested amendments to the commercial corridor district. He is representing the owners of the property that is on the corner of Bunker Hill and US 31(where the holiday shopper/Ace hardware plaza are located) they have asked Doug Mansfield to design a new set of buildings for that parcel.

Jason Sievers- Talked about the homeless population moving into Acme, referencing the red vehicle that has been parked at the MDOT park and a white van down at the other park. Worries about the repercussions of not being firm enough on the homeless, worries they will bring drugs and other problems. Also doesn't feel that the township is listening to the desires of the public and the comments from the survey.

Public comment closed at 6:10pm

B. APPROVAL OF AGENDA: Motion by Timmins, support by Hoxie approval of the agenda with the addition of G.4 and G.5.
Motion carries

C. INQUIRY AS TO CONFLICTS OF INTEREST:

D. SPECIAL PRESENTATIONS:

E. RECEIVE AND FILE:

1. RECEIVE AND FILE

a. Draft unapproved Township Board Regular Meeting Minutes 9.1.2026
Motion by Timmins, support by Hoxsie to receive and file the draft unapproved township Board meeting minutes from 09/01/2026.
Motion carries

F. APPROVAL OF MINUTES:

a. Approve Draft Planning Commission Meeting Minutes 8.10.2026

Motion by Feringa, support by Hoxsie to approve the draft planning commission meeting Minutes from 08/10/2026 with the changes to pg. 2 changing the tense of Jeff Jocks Comment and remove the highlighted areas.

Motion carries

G. CORRESPONDENCE:

1. Beckett & Raeder

2. Kelley

3. Lalas

4. Kelley 2- Summarized by Wentzloff- Discussed Medical marijuana, noted that most townships don't allow them in the AG district.

5. Kelley 3- Summarized by Wenztloff- related to data center questions and concerns regarding which parcels would be appropriate. Secrecy regarding data center projects, the risks the developer could propose as a way to override the zoning, creek setbacks, generator exercise and testing, energy consumed by a data center is converted into heat and the temperatures that it can change. Has research he would like to hand out to the planning commissioners. Encourages public engagement for the data center discussions.

Wentzloff- addressed the correspondence about the gate between Apple Valley and the condos, the gate is a requirement and the fire department holds the key for emergency access management.

H. PUBLIC HEARINGS:

1. None

I. OLD BUSINESS:

1. Data Centers – SAMPLE Language-

Wolf- the planning commission has been provided sample language for the Data Center ordinance by Beckett & Raeder, as well as Wolf's finding from another township on Enforcement. She has also been involved with getting the regular updates from MTA. The latest is a draft ordinance provided by MTA legal counsel that communities can shape to fit their needs. Wolf recommends extending the moratorium past December, to give the planning commission enough time to thoroughly go through all the materials as well as time to get through all the language and adoption process. She doesn't feel it can all happen before December. Need to decide where data centers will be appropriate, her opinion is Light Industrial Zones are a good place for them to be placed. As well as the difference between large scale vs. small scale data centers. Thinks the planning commission should start with deciding the zones for them to go in before we start talking about more detailed language.

Timmins- would still like small scale solar projects to be considered a special use.

Hoxsie - asked about discussing the solar project site and zoning that parcel back to recreation conservation.

Wolf- said that would need a zoning map amendment.

Hoxsie- would like to see that happen.

Wentzloff-thinks we need to discuss it with counsel.

John I. - agrees with Wentzloff about the rezoning.

Feringa- think the PC should look at the zoning ordinance and restrictions for both the

large-scale and small-scale data centers first before starting to identify properties, there's a lot of things to go through on both. Listed some of the issues to address in order to protect the community from data centers. ; power issues, sound issues and environmental issues. The issues go with both small and large scale data centers.

Wentzloff- asked if Feringa thought that both small and large data centers should fall under a special use permit and not just a use by right?

Feringa- Yes, because we just don't know and need to research more before saying its a use by right. Need to find out what the ramifications are before labeling it a use by right. Agrees with the community correspondence that the planning commission needs to take our time in looking at all of it.

Motion by Timmins, support by Danca to recommend to the township board a six month extension from the original moratorium.
Motion carries unanimously

Wolf- shared all the draft ordinances for the data centers with Jeff Jocks and will be sharing his counsel in the future.

Groves- has concerns about safety around the data centers. There are companies that are now using drones to provide security around data centers. Feels they may be prone to attacks in the future if not now. Worries about community safety.

Hoxsie asked clarifying questions about the boundaries of the light industrial zone.

John I.-suggests that the planning commission starts with the MTA ordinance, read through it, and then read through the other ordinance samples that Wolf provided, and see if the other ordinances have other information that should be inserted into the MTA model. Then build it from there so the time frame can be met.

Danca- asked if it would be staff or the planning commission members putting together the ordinance.

John I.- suggests that the planning commission get a copy of the MTA document and go through each section comparing it to other ordinances and editing where the planning commission thinks is appropriate. Review the standards to make sure that they're compatible with the community, and then build from there. Then as Feringa suggested, see if there are any areas in the community that would meet those standards, and then do your text and your map amendments accordingly.

Galante- has a concern with violation enforcement, dark sky lighting and landscaping/ green belts.

Feringa- wants to make sure the small vs. large scale data center is well defined. Demands on all the different types of infrastructure involved and how those demands would impact the community and surrounding areas. Concerned about raising energy costs, has noticed that other communities are requiring large data centers to produce and use their own energy.

Danca- Asked if something can be put into the ordinance to make the data centers prove that they can comply with the ordinance. Also wants to make sure that appropriate testing is done for water and other environmental factors.

Discussed the older mechanical data centers and how some of those locations are changing into cold data centers.

Wentzloff- questioned what zoning those older mechanical data centers and the cold data centers would fall under and if the township ordinance needed to cover those with any special language.

John I.-the current code needs to be checked. There's a definition for what's called essential, critical, and supporting utilities. They are permitted by right in any district. That would be electric lines, gas lines, water lines, sewer lines, for example.
Some of the data centers are saying the data center is a critical utility. The planning commission needs to go in and check that definition and make sure that it says things like renewable energy facilities and data centers and cold-location facilities are prohibited and not considered essential supporting facilities. If the township wants to regulate it, you have got to make sure that the definition for essential, critical, supporting prohibits it.

Wentzloff- Thinks that we should keep the parking and plumbing standards, substation zoning and fire department considerations and building height as part of the conversation with this topic. One of the sample ordinances has a section on required engagement steps, has some questions for Jeff Jocks on that section. As well as questions about language say creating buffers around residential property. Asked about the section discussing water discharge and usage and if the township would hire a hydrologist or if the applicant would? Liked the limiting hours of construction as well as putting in language about generator testing requirements.

John I. - The township would want their own specialist.

2. Election of Officers

Timmins nominated Karly Wentzloff for Chair
Timmins-yes, Galante-yes, Feringa-yes, Hoxsie-yes, Grove-yes, Danca-yes, Wentzloff-abstains

Wentzloff nominated Steve Feringa for Vice Chair
Timmins-yes,Galante-yes, Feringa-abstains, Hoxsie-yes, Grove-yes ,Danca-yes, Wentzloff-yes

Galante nominated Marcie Timmins for Secretary
Timmins-abstains,Galante-yes, Feringa-yes, Hoxsie-yes, Grove-yes ,Danca-yes, Wentzloff-yes

J.

1. Zoning Ordinance Text Review – PC Discussion
Wolf –Clarified that Derek Johnson's zoning amendment request is not the reason for the Planning commission reviewing the zoning ordinance text, although they happened to Align at the same time.

Wentzloff- Talked about Doug Mansfield also providing the planning commission with a Document with some feedback to keep in mind going through the process that might help Guide it. Reminded the planning commission not to consider either Mr. Johnson's or

Mr. Mansfield's projects specifically, talking about it in general as the US 31, M72 mixed use overlay district.

John I.- Gave the history of the US31/M72 overlay district and how it came about out of the Acme Township placemaking plan from fourteen years ago. There was a lot of community engagement with two community sessions with a turn out of 125-150 people at each one. Those engagements kind of created a vision of what they thought the U.S. 31/M72 corridor should look like in the future. Based on the placemaking plan, which the public reviewed, came the requirements for things like, buildings were close to the property line, three stories, larger windows in the front in order to make it look like a commercial district, pedestrian improvements, the width of the sidewalks, the building material types, those all came out of the placemaking plan. Suggesting that 14 years later there may not need to be some of these because things have changed relative to codes and construction materials.
Suggests Wolf get copies of the placemaking plan to share with the planning commission. Willing to review Mr. Mansfield's synopsis and give feedback at the next meeting, but believes that the committee needs to start at the foundation and work their way through it Without looking at it through the lens of any specific project in front of the planning commission at this time. The goal for the US31/M72 district was to create a uniformed business and commercial district, mixed-use district for the township that wasn't focused on any one particular piece of property.

Wentzloff- Was on the original subcommittee that worked on the form base code. Questions what may need to change to allow redevelopment to happen, doesn't feel form based code worked the way the township had hoped over the last ten years.

John I.- The township should be developing a code to get what Acme townships community wants, not what the real estate community wants.

Feringa- talked about the changes in building codes and energy requirements and making sure that any requirements the township makes doesn't make the applicant non-compliant with the inspections and building permits they need.

Wolf- Asked about why the first floor of buildings in the form based code have fourteen foot ceilings?

John I.- The fourteen foot ceilings are for retail and commercial, not if they build all residential.

This topic will go on October's agenda under old business.

2. Zoning Text Amendment Request Wentzloff and Mr. Johnson discussed if submitting a formal request or just waiting for the township's zoning amendment process would work best in his case. It was decided that he will meet with Wolf later to decide how to proceed.

Wentzloff addressed the public about a comment concerning drive-throughs going in on The property around Meijer. Reminded the public that property is now in Tribal Trust And not regulated by township zoning.

Wolf- talked about doing some revisions on drive-throughs as well as some revisions on

Medical marijuanna text. Would like to speak to John I. about it more but feels a few Things could be changed a bit. Would like to discuss this more with the planning Commission moving forward.

K. PUBLIC COMMENT & OTHER PC BUSINESS

Opened at 7:30

Brian Kelley- Talked about data centers; Generator noise and what it does to the surrounding environment, people and animals. Talks about how much previous surface is allowed in the light industrial zone. Township maps are gone from the walls, he hopes they come back out for display. Talked about the problems at the Marijuanna grower on Bates rd.; propane cylinder people park against, missing bollards, unscreened dumpster. The new golf course has some of the same issues.

Public comment closed at 7:34

1. Planning & Zoning Administrator Report – Lindsey Wolf- will be going over the list the planning commission gave her for the next meeting. On Friday (9/25/26) there will be a free library dedication from 9-2, with free ice cream sponsored by the township from noon-1.

2. Township Board Report – Dave Hoxsie- discussed the bids for garage and maintenance building at Yuba, accepted a bid from a local gentleman. Discussed the land division act of '58, went with option 2. Thought that was best for the community. Proposals for new electrical installation at the cemetery.

Commented about the homeless people-Gilroy park is owned by the state. The township has no jurisdiction over what happens there. They don't have any restrictions on overnight parking, the police have been there everyday. There is nothing Acme Township can do about it.

3. Parks & Trails Committee Report – Radu Danca- nothing to report.

ADJOURN: Motion by Timmins, support by Hoxsie to adjourn.
Motion carries

ACME TOWNSHIP PLANNING COMMISSION
ACME TOWNSHIP HALL
6100 US 31 N Williamsburg, MI 49690
September 21, 2026 6:00 p.m.

CALL TO ORDER WITH PLEDGE OF ALLEGIANCE

ROLL CALL:

A. LIMITED PUBLIC COMMENT: Members of the public may address the Commission regarding any subject of community interest during public comment periods by filling out a Public Comment Card and submitting it to the Secretary. Public comments are limited to three minutes per individual. Comments during other portions of the agenda may or may not be entertained at the moderator's discretion

B. APPROVAL OF AGENDA:

C. INQUIRY AS TO CONFLICTS OF INTEREST:

D. SPECIAL PRESENTATIONS:

E. RECEIVE AND FILE:
- **1. RECEIVE AND FILE**
  - **a.** Draft unapproved Township Board Regular Meeting Minutes 9.1.2026

F. APPROVAL OF MINUTES:
- **a.** Approve Draft Planning Commission Meeting Minutes 8.10.2026

G. CORRESPONDENCE:
- **1.** Beckett & Raeder
- **2.** Kelley
- **3.** Lalas

H. PUBLIC HEARINGS:
- **1.** None

I. OLD BUSINESS:
- **1.** Data Centers – SAMPLE Language
- **2.** Election of Officers

J. NEW BUSINESS:
- **1.** Zoning Ordinance Text Review – PC Discussion
- **2.** Zoning Text Amendment Request

K. PUBLIC COMMENT & OTHER PC BUSINESS
- **1.** Planning & Zoning Administrator Report – Lindsey Wolf
- **2.** Township Board Report – Dave Hoxsie
- **3.** Parks & Trails Committee Report – Radu Danca

ADJOURN:

DRAFT UNAPPROVED

ACME TOWNSHIP REGULAR BOARD MEETING
ACME TOWNSHIP HALL
6100 US 31 N, Williamsburg MI 49690
Tuesday, September 1, 2026, 6:00 p.m.

CALL TO ORDER WITH PLEDGE OF ALLEGIANCE at 6:01 p.m.
ROLL CALL: Members present: D. Hoxsie, P. Scott, D. Stevens, L. Swanson, D. White, A. Wylie
Members excused: A. Jenema
Staff present: L. Wolf, Planning & Zoning Administrator, J. Jocks, Legal Counsel, C. Danca, Recording Secretary

A. LIMITED PUBLIC COMMENT: None

B. APPROVAL OF AGENDA:
Supervisor White requested a change in the order of agenda items - Old Business #2 to #1 and #1 to #2, and the addition of *Sewer Line* as *Old Business #3*.

Motion by Swanson, supported by Hoxsie, to approve the agenda with the changes. No discussion. Voice vote. Motion carried unanimously.

C. APPROVAL OF BOARD MINUTES: 8/11/2026

Motion by Hoxsie, supported by Swanson, to approve those from 8/11/2026 as written. No discussion. Voice vote. Motion carried unanimously.

D. INQUIRY AS TO CONFLICTS OF INTEREST: None

E. REPORTS:
a. Clerk – The August Primary election had about 40% voter turnout with higher turnout expected in the November General. There was a lot of positive feedback about the town hall.
b. Parks – To be included under Planning & Zoning.
c. Legal Counsel – Reported ongoing work with zoning department and Supervisor White.
d. Sheriff – None
e. County – None
f. Supervisor – Regarding the sewer project, weekly updates continue and the project remains on schedule and on budget.
g. Planning & Zoning – Per Wolf, the Planning Commission will be working on potential zoning ordinance text amendments and data center language – moving forward recommendations would ultimately come before the Board for approval.
Regarding 'Parks' Members of the public are welcome to join German exchange students and their teachers for a dedication ceremony showcasing their latest project: "Bayside Park Little Free Library" Friday, September 25th at Bayside Park from 9:00 a.m. to 2:00 p.m. R. LaMott worked with the Traverse Area District Library (TADL) on 3D printed signage that includes German translation and TADL also donated books. TADL's traveling library is expected at the event as well. The "Sayler Park Little Free Library" will be installed at Sayler Park soon.

F. SPECIAL PRESENTATIONS: None

G. CONSENT CALENDAR:

1. **RECEIVE AND FILE:**
   a. Treasurer's Report
   b. Clerk's Revenue/Expenditure Report

2. **APPROVAL:**
   1. Accounts Payable Prepaid of $49,481.58 and NO current to be paid
      (Recommend approval: Clerk, L. Swanson)

Motion by Swanson, supported by Hoxsie, to approve the Consent Calendar as presented. No discussion. Roll call vote. Motion carried unanimously.

H. ITEMS REMOVED FROM THE CONSENT CALENDAR: None

I. CORRESPONDENCE: None

J. NEW BUSINESS: None

Agenda Item 'Public Hearing' regarding Metro Fire 2027 Annual Budget was moved to follow Old Business.

K. OLD BUSINESS:

1. Continued discussion on Public Land Division Act 58 (Memo included in packet)
Assessor Dawn Kuhns addressed the Board referencing information included in the Memo, providing historical information dating back 30 years, explaining the Board's options (included in the Memo), and emphasizing that compliance with the local zoning ordinance still applies. Kuhns requested direction from the Board as to which option they favored so that the process of drafting a new Land Division ordinance can begin (and eventually go before the Board for approval). Discussion occurred and legal counsel identified no legal issues with either option.

Motion by Stevens to go with Option 2. Discussion occurred about not including a date at this time, a suggested date will be brought before the Board. **Stevens restated the motion: To go with Option 2 in accordance with the default date they have publicized. Motion supported by Scott. No discussion. Voice vote. Motion carried unanimously.**

2. Continued discussion on Acme Cemetery Water (information included in packet)
Discussion occurred about the Consumers Energy charges to run power to Acme Cemetery.

Motion by Scott, supported by Stevens, to move forward allowing Consumer's to hook up the meter at roughly $6,532.00 for the cemetery. No discussion. Roll call vote. Motion carried unanimously.

Motion by Scott, supported by Stevens, to move forward with the $1,400 hook up fee in addition to what was just passed. No discussion. Roll call vote. Motion carried unanimously.

3. Sewer Line
Discussion occurred about the City of Traverse City exploring options regarding emergency bypass connections into Acme's sewer line(s), payment for potential necessary modifications, timing, and safety issues. Board consensus was against moving forward based on current information.

L. PUBLIC HEARING: Annual Budget for Metro Emergency Services for fiscal year 2027 (Budget Proposal included in packet)
Metro Fire Chief Paul Macken addressed the Board. Discussion occurred about correcting a typographical error in the resolution (the correct funding amount for Acme is $1,586,614.00).

Public hearing opened at 6:58 p.m.

Acme resident Sheryl Kay complimented Metro and EMS services.

Public hearing closed at 6:59 p.m.

Motion by Scott, supported by Swanson, to pass Budget Resolution Acme Township, Grand Traverse County *Resolution 2026-22* Metro Emergency proposed budget as presented with the correction as mentioned. No discussion. Roll call vote. Motion carried unanimously.

Clerk Swanson requested Board approval to sign the L-4029 Tax Rate Request form.

Motion by Scott, supported by Stevens, to have township staff necessary sign the L-4029 in regards to our millages for emergency services. No discussion. Voice vote. Motion carried unanimously.

PUBLIC COMMENT and OTHER BUSINESS:

Trustee Wylie updated the Board stating the Yuba garage has been reshingled and required 5 new sheets of plywood not one adding to the cost. Branches have yet to be cut. Work continues on the township hall portico and electrical work for overhead lighting occurred today. Wylie invited Board members and staff to join him after the meeting to discuss final finish details.

Motion by Scott, supported by Stevens, to adjourn the meeting. No discussion. Voice vote. Motion carried unanimously.

The meeting was adjourned at 7:03 p.m.

DRAFT UNAPPROVED

ACME TOWNSHIP PLANNING COMMISSION
ACME TOWNSHIP HALL
6100 US 31 N Williamsburg, MI 49690
August 10, 2026 7:00 p.m.

CALL TO ORDER WITH PLEDGE OF ALLEGIANCE

ROLL CALL: Radu Danca, Doug Grove, Karly Wentzloff, Steve Feringa, Dave Hoxie
Excused: Timmins and Galante

Public comment opened at 7:04

Brian Kelley- Asked that the meeting time stays at 7pm, thinks the time change could impact public participation. Discussed stormwater pertaining to Northern Technology Solutions, concerned that the basins water table is very high, quoted the ordinance as well as the numbers that were provided. Discussed the house next door having a well drilled in 1983, a few feet from the project and water bubbling up at ground level. There is a tributary of Acme creek right behind the property. Pointed out the project's lack of infiltration test as well as a high water table at nearby properties. Would like the applicant to come back when they have that information.

Richard Kay- Doesn't support the time change, it was already previously brought up and didn't have support at that time. Feels it contributes to lower public turn out at the meetings along with the feelings no one is listening. Asked about the Mt. Hope- Grove project and the deed restriction information the township was presented with. Wanted to know if any action would be taken by the township in regards to the deed restrictions before construction begins.
Public comment closed at 7:09pm

A. **LIMITED PUBLIC COMMENT:** Members of the public may address the Commission regarding any subject of community interest during public comment periods by filling out a Public Comment Card and submitting it to the Secretary. Public comments are limited to three minutes per individual. Comments during other portions of the agenda may or may not be entertained at the moderator's discretion

B. **APPROVAL OF AGENDA: Motion by Feringa, support by Hoxsie to approve the agenda with the addition of G.3 and G.4.**
Motion carries unanimously

C. **INQUIRY AS TO CONFLICTS OF INTEREST: Feringa, new business 1.- explained to the resort manager and legal what the project was requesting in order to help them clarify the request. There was no financial benefit to him.**
Jocks didn't see any conflict.

D. **SPECIAL PRESENTATIONS:**

E. **RECEIVE AND FILE:**

1. **RECEIVE AND FILE**

a. Draft unapproved Township Board Regular Meeting Minutes 7.7.2026
Motion by Hoxie, support by Feringa to receive and file the Township Board meeting minutes of 7/7/2026.
Motion carries unanimously

F. **APPROVAL OF MINUTES:**

a. Approve Draft Planning Commission Meeting Minutes 6.15.2026
Motion by Feringa, second by Danca to approve the draft planning commission minutes from 6/15/26 with the edits below.
Motion carries unanimously
Corrections- pg. 2 Feringa, pg.3 ADU's/Feringa. pg.5 clarification that Turkey is the country. pg. 6&7 correct spelling of GreenBacker, Remove highlights.

CORRESPONDENCE:

1. Beckett & Raeder

2. Kay

3. Kelley 1- Ordinance in the packet is a good start, found areas of concern that need potential improvement. Encouraged the township to gather and review additional examples and thinks the township could benefit from an expert in the field. Talked about how the odor provisions of the township ordinance couldn't be adequately enforced in court and a compromise had to be reached, as well as referencing disappointment with the strength of the ordinance concerning the solar farm.

4. Kelley 2- Concern with non compliance of the stormwater ordinance on the site of Northern Technology solution. Asked that this project come back before the Planning Commission when they are in compliance with the stormwater and LID ordinance.

Wentzloff asked Jeff Jocks to address the deed restrictions.

Jocks- Two issues there, the first, the argument about the existence of deed restrictions. Just like I have, since I've represented the township and as far as I know every other municipal
attorney does this as well, I've recommended that you do not engage yourself with deed restrictions. They are private contracts between private parties and the township shouldn't be interpreting them, shouldn't be trying to apply them, enforce them or anything like that.
Issue two is the question of, I guess, a lie on the application or an allegation of a lie on the application, to the extent there is an issue with the application, the planning commission doesn't have any authority to address that, the only entity that would have authority
to address that would be the township board. So the board can take a look at it if it wants to question whether that was a lie on an application or not.

PUBLIC HEARINGS:

5. None

G. OLD BUSINESS:

1. None

H. NEW BUSINESS:

1. SPR 2026-02 -Northern Technology Solutions -
Derek Johnson- Explained that he and his partner do new construction home technology. They have been in business for nine months and they are now in need of a store front. They only have visitors at the site with appointments and it is seldom. It will mostly be used for storage and for parking their van. The type of technology they provide is; Audio, video, shades, lighting, anything full voltage in the house, security and networking.

Wentzloff -asked about the building timeline.

Johnson-Waiting to see what happens at tonight's Planning Commission meeting as well as what all the permitting offices say. Doesn't expect that any real construction will start until 2027, except maybe some excavation will start this year.

Wolf went on to discuss some of the outstanding items and some of the design elements that formerly fell under form based code and has transformed from that. This project is a

use by right. Started with building facade, item 1A, windows and transparency, a minimum of 75 percent of the ground floor facade between two and eight feet of sidewalk must be comprised of transparent non-reflexive windows and a denoted field 75 percent unattainable due to framing conflicts. The maximum coverage they can reasonably get is 63 percent. Along that same line as on number two, they do meet the minimum 30 percent and actually go above the 35 percent, but the windows are required to be vertically oriented as opposed to how they would like them to be horizontally oriented to better meet their aesthetics. On item number two, facade ornamentation, the decorative features as corners, pilasters, friezes that do not mesh well with their design and they would like to propose some other architectural decorative features that complement the building design. Wolf asked for Feringa's opinion about the architectural aspects.

Feringa- feels some of the requirements are very particular and should have some flexibility, and that the planning commission should take a closer look at this section and address some of the issues moving forward. It's hard when a good looking design comes in but doesn't meet the ordinance. In the case of this project the window proportions look pretty good, it would look forced to get the same look with vertical windows. Doesn't think the planning commission should be so nuanced as to dictate vertical vs. horizontal windows.Believes it should be left open to the interpretation of the design as a whole. Also brought up the 75% windows and how that needs to be looked at and taken into consideration with Michigan's new energy code. It gets very difficult to meet that energy code with that much glazing. Also the energy code does require that you have less windows on some of your buildings, especially residential, that makes it so you won't meet the Michigan Energy Code and you won't be able to get building permits. Also believes that because of the change in technology and advancement of different building supplies that the township should look at how those changes could impact the ordinance not only for the project in front of the committee tonight but also future projects.

Wolf- asked Jocks for clarification about needing a variance or a change in standards since the plan presented by Northern Technology Solutions has components that don't match the ordinance. Jocks concurred that a variance or change of standards within the ordinance is needed.
Acknowledged that the planning commission historically has not wanted to condition a bunch of items on approval, especially regarding stormwater, so there needs to be some more work done regarding the stormwater. The township engineer specifically had some concerns regarding the retaining wall. He wanted to see some detail about how the water was going to infiltrate from there, how that was going to be burdened and potentially trap the water. Wolf asked the project engineer to work with the township engineer to finalize those details on that wall to make sure that stormwater is not going to negatively impact the neighboring sites.
Discussed the dumpster enclosure, there is no height indicated of the dumpster behind the enclosure that needs to be added as well as landscaping between the dumpster area and bike rack would require landscaping screening.
Snow storage is noted on the plan that Shore Beach Rd. along the Acme parking lane will be used for snow storage. The Grand Traverse resort must grant permission. Per the stormwater ordinance Wolf isn't sure if this is legal, the planning commission would need to conditionally request that if it is not legal that snow storage would have to be off site.

Feringa asked if the easement is an existing easement. We just need to verify that it is allowed.

Wolf- Yes

Wentzloff asked if that was a question for Jocks. Wolf thinks because it is dealing with stormwater it is more of a question for the township engineer.
Discussion about parking, they have five parking spaces and one barrier free parking space. The planning commission has the ability to increase parking by
25% and may need to be open to doing that for the extra barrier free parking space. That would need to be noted in the conditions.
Building materials were discussed. Derek is willing to do whatever the township would like. Feringa talked about the new building materials and how they can be made from recycled materials with a lower carbon footprint and are often more durable to use. Although they can be more expensive. It was agreed that the dumpster enclosure and the masonry wall would match each other for consistency.
It would be helpful for the planning commission to see the plan updated to show the visual with the masonry wall and dumpster enclosure as well as updated elevation.
Outstanding issues to be addressed; facade glazing, consistency on dumpster enclosure parking spaces, snow removal and stormwater.

Discussion followed with Johnson about the best way to move forward regarding asking for a variance or waiting to see if the ordinance gets amended. Wolf explained the cost behind both processes and left the decision up to Johnson with the understanding that there is not enough information to vote on the project tonight but that it is all going in the right direction. The parking space issue will just be added to the approval and/or finding of fact.

2. Data Centers -SAMPLE Language-
Wolf- Shared language received from Beckett & Raeder that is being used in other Communities in Southern Michigan. So the committee doesn't have to create an Ordinance from scratch but has a framework to start from. Would like to discuss this More in September. The moratorium is or six months, through December, but can be extended if the planning commission needs more time.

Danca ?- asked Jocks if we have a moratorium on our data centers and the state of Michigan enacts a law that says no moratoriums anywhere, do they supersede our ordinances?

Jocks- yes, they would have to do it correctly, but if they said expressly that local municipalities can no longer zone for data centers, then it wouldn't be entirely up to the state.

Discussion followed about appropriate placement as well as water usage concerns; drying up wells,ponds and other natural water features on neighboring land. Discussed the water usage needed for start up of the closed loop systems and how much water that can actually take. The issue of tight security around them was also brought up as well as the future potential of the sites being targeted for sabotage or destruction of some sort. Different size data centers, there is a large scale and a small scale. A 50,000sq. foot data center is considered small.
Next steps, the commissioners review the materials and Wolf and Jocks work together to draft an ordinance that would work within Acme. Wentzloff requests a couple more

examples for the planning commission to look at before working towards draft language.
Wentzloff-asked how private wells could be monitored and enforced.
Hoxsie-gave examples from his family's agricultural properties that have water monitoring systems that someone comes out and checks monthly.
Jocks- listed all the testing that would be required if a data center qualified for a high volume review.
Grove?- Talked about the cooling systems and how much electricity they use, that is also a concern.

3. Election of Officers - with two committee members absent it was decided to wait until the September meeting for the election of officers. If for some reason members are absent in September the elections will still take place.

4. Proposed Meeting Time Change-
Wolf- explained that the time change issue was brought back because there are now new Committee members as well as confusion with the board meetings beginning at 6pm and The planning commission meetings starting at 7pm. Supervisor White has been asking For some consistency with meeting times. Wolf spoke with Galante and Timmins. Galante has no issues with the time change, Timmins works on over by the mall until 5pm and may be late on occasion if there are any issues with cross town traffic. Wolf is Willing to fill in for Timmins until she arrives.

Wentzloff- asked Jocks if there would be an issue with Wolf filling in for Timmins.

Jocks- didn't see any issues with it, but did remind the planning commission that just Because a time change has been requested by the supervisor the planning commission Has the right to set their own meeting time.

Grove- would like an earlier meeting time.

Feringa- is open to the time change, pointed out it can take him a while depending on Traffic. His drive is usually about an hour and it is like that a lot in the summer.

Wentzloff- would like the earlier meeting time, feels like there are times that the planning Commission gets to the end of the agenda and everyone is tired, making it harder to get Through the items.Thinks that 6pm is reasonable and is in favor of the time change as Long as all the members of the planning commission can make the 6pm time.

Jocks- reminds the planning commission to update the meeting schedule on the website.
Motion by Grove, support by Hoxsie to move the planning commission meeting time to 6pm, starting with the September 21, 2026 planning commission meeting.
Motion carries unanimously.

I. PUBLIC COMMENT & OTHER PC BUSINESS

Opened at 8:33pm

Brian Kelley- talked about the recent tariff applied to chinese solar panels and what that would add to finishing the solar project. As well as the need to rezone that property and pointed out adjacent land was zoned single family rural residential and thinks that would be more acceptable zoning in that area if the solar company decides to pull their SUP. Discussed the water usage of data centers as well as the additives added to the water, anti-corrosive and anti-bacterial additives that make the water toxic. Talked about the heat that data centers create

and how the temperature change affects a large area around the data centers.

Richard Kay- Commented about the excessive 24/7 noise data centers create and how he has heard that noise near a data center around Sault Ste. Marie. Also expressed his concern for the water and environment surrounding data centers, and wants the planning commission to be aware of those issues while looking at ordinances for data centers. Also would like to bring awareness to foreign companies backing US companies in the building of Data centers.

1. Planning & Zoning Administrator Report – Lindsey Wolf- Will be compiling a list for the planning commission to look at of ordinances that could use a little revamping.
2. Township Board Report – Dave Hoxsie-approved new planning commissioners, adopted township meeting room policies. Conduct for election security and discussion of capital improvement plans for the building.
3. Parks & Trails Committee Report – Radu Danca- nothing to report
   Wolf- a couple german exchange students have partnered with the the library to put in a free Lending library down at Bay Side park, there will be an event to highlight this.

ADJOURN: Motion by Grove, support by Hoxsie to adjourn.
Motion carries unanimously

B R i
Beckett&Raeder

Landscape Architecture
Planning, Engineering &
Environmental Services

Planning Report

Serving & Planning Communities Throughout Michigan September 2026

Top Story

Michigan Affordability and Responsible Growth Pledge

"We've seen how data centers can go wrong in other states, which is why on my watch, we've ensured Michiganders never see a rate increase and can rely on some of the strongest environmental protections for people and communities" Governor Gretchen Whitmer

In July, Governor Gretchen Whitmer announced that six artificial intelligence and data center companies (Anthropic, Google, Microsoft, OpenAI, Verrus, and Oracle) have signed the *Michigan Affordability and Responsible Growth Pledge*. The first state-level pledge in the nation, this pledge calls on these companies to invest in the electric grid, use clean energy, hire Michiganders, safeguard natural resources, and pay the full cost of data center construction and operation. Of equal importance, the Michigan Affordability and Responsible Growth Action Plan asks members of the legislature to adopt the Michigan Public Service Commission data center safeguards into state law including minimum billing demand, contract termination fees, credit and collateral requirements, minimum contract terms, and other efforts to ensure data centers pay the full costs they impose on the system. On top of these changes, data centers will have to comply with Michigan's 100% clean energy standard that was signed into law in 2023.

Governor's Office. 1. https://www.michigan.gov/whitmer/news/press-releases/2026/07/16/whitmer-secures-six-company-commitments-to-michigan-affordability-and-responsible-growth-pledge. 2. https://content.govdelivery.com/attachments/MIEOG/2026/07/16/file_attachments/3717043/Michigan_Affordability_and_Responsible_Growth_Pledge_FINAL%20%281%29.pdf

Governance

Are the Townships Alright?

"We're meeting our responsibilities, but it's a mess," Linda Paradiso, Houghton Township Clerk

According to a survey by the Center for Local, State and Urban Policy at the University of Michigan, more than three-quarters of Michigan townships and villages struggle to fill elected or appointed offices. Even when someone is on the ballot, he/she often run uncontested. Interviews with dozens of community leaders across Michigan cited reasons for lacking participation: looser social connections; positions that once took a few hours a month require more time but don't pay more; online harassment; and the growing distrust of government based on partisan national politics. Furthermore, Michigan township officials have far more responsibilities than those in other states. The state's 1,240 townships (most established before statehood) assess property values, collect property taxes, run elections, and provide other services compared to Ohio townships that maintain local roads and manage cemeteries, for example.

With limited leadership stepping up and so many responsibilities, running a small rural township has become an inefficient form of governance. One solution could be to merge with surrounding municipalities, however, each merging township must vote to approve the merger. Then, the merger must be approved by the county commissioners. Other Midwestern township are collaborating to limit their power, while at the state level, Illinois and Iowa are considering criteria for eliminating townships altogether.

Bridge Magazine. 1 https://bridgemi.com/michigan-government/rural-michigan-in-crisis-too-many-governments-that-too-few-want-to-lead/. 2. https://bridgemi.com/michigan-government/other-states-shrink-local-governments-michigan-law-preserves-archaic-mess/

Legal

Expanded Brownfield Development Program

Three bipartisan bills were passed this summer to expand local abatement and transformational brownfield programs that will allow more businesses and communities to rehabilitate and redevelop blighted sites. These bills extend development opportunities across Michigan to help build thriving communities and expand housing opportunity.

Senate Bill 723 expands the transformational brownfield program, increases transparency and reporting requirements, requires approved projects to include annual milestones, emphasizes affordable housing projects in residential developments, and streamlines the redevelopment process.

Senate Bill 721 and 722 extend the sunsets on the Commercial Redevelopment and Commercial Rehabilitation acts to allow both important programs to continue to operate. Both bills incentivize the refurbishing and development of commercial properties at local discretion.

Governor's Office. https://www.michigan.gov/whitmer/news/press-releases/2026/07/22/whitmer-expands-brownfield-development-program-growing-michigans-economy

Events

CEDAM Real Estate Development Boot Camp
September 14-18, Gaylord, MI
More information: https://app.glueup.com/event/rural-real-estate-development-boot-camp-2026-183166/?pk_campaign=widget-event-list

2026 Integrated Infrastructure Conference
September 23-24, Livonia, MI
More information: https://www.michigan.gov/mic/integrated-infrastructure-conference

Michigan Association of Planning
September 30-October 2, Kalamazoo, MI
More information: https://www.planningmi.org/aws/MAP/pt/sp/michigan-conference

Michigan Municipal League Convention
October 7-9, Traverse City, MI
More information: https://mml.org/event/convention-2/

From: Brian Kelley, Acme resident
To: Acme Planning Commission

August 10, 2026

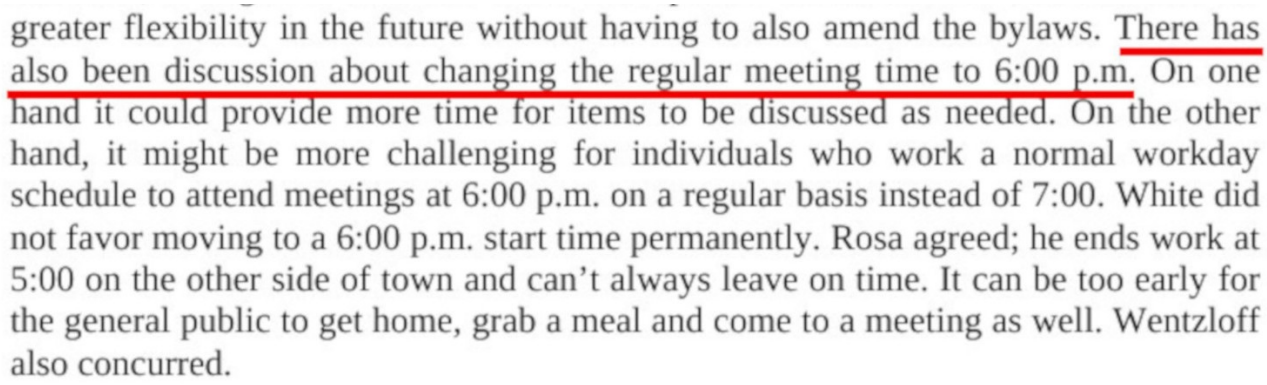
Re: Meeting time change

Greetings,

It is reasonable for the PC to ask whether the meeting time should change. But a change in the start time does not serve the interests of the community that the PC was appointed to serve.

This was discussed last year and the community was unanimous in their feedback - an earlier start time would make attendance difficult. The 7pm start, and the feedback from the community, have not changed in *decades*.

This was discussed at the December 17, **2012** PC meeting, with multiple current and recent members - including the Chair and Supervisor White - agreeing that such a change does not serve the interests of the community:



greater flexibility in the future without having to also amend the bylaws. There has also been discussion about changing the regular meeting time to 6:00 p.m. On one hand it could provide more time for items to be discussed as needed. On the other hand, it might be more challenging for individuals who work a normal workday schedule to attend meetings at 6:00 p.m. on a regular basis instead of 7:00. White did not favor moving to a 6:00 p.m. start time permanently. Rosa agreed; he ends work at 5:00 on the other side of town and can't always leave on time. It can be too early for the general public to get home, grab a meal and come to a meeting as well. Wentzloff also concurred.

Such a change would further diminish public engagement and participation.

Thank you,

Brian Kelley

RECEIVED
SEP 0 7 2026

Deciding to become a member of a township board was a generous donation of your time. It brings you to the table facing multiple decisions, problems and opportunities I am sure each of you had never really thought about prior to sitting at the council table together. Your time and effort is greatly appreciated. An additional plus to your group (to me) is that you have a **Yooper** amongst you!

I am sure that each of you has discovered or are discovering the importance of being an active participant on this team, as you learn of and about the many things you as a board member are asked to address. Often times it is listening to other members thoughts and ideas, and even more times it is to take time to learn the feelings, ideas, back grounds, concerns etc. of the community itself, as well as rules and laws. I would like to comment on some relatively recent happenings that will be examples of why 100% board membership involvement and learning is important – rather than just being ready to agree about something you have not personally addressed. I am not pointing a finger at any individual, as I have only met two of you, including the Yooper. ☺

Several times during my thirty years as a Realtor I was asked a question regarding what the future held regarding a parcel neighboring the property a client desired to buy. I would then go to the courthouse and find the recorded answer. Naturally as I found myself (for health reasons) moving to Acme, I too asked the question. I learned the property I inquired about, immediately behind the home I wanted, was zoned as four vacant lots for four single family homes or possibly a park for Crest Haven Hills subdivision members enjoyment. I was both pleased and excited as I envisioned new families with young children that I could possibly teach to play the piano, as well as an excuse for making chocolate chip cookies!

It was about four years later I learned our township board was taking it upon itself, to **change the zoning** of those same four lots adjacent to my property "to make the sale", and change it without regard to who the change would affect or benefit. In addition, in order to make the future use that the potential buyer of it desired, a federal act was invoked for which the act was never originated. Basically at the time I purchased my home, I was not told the truth. My personal thought is that a rising situation "*which in the end would involve many hundreds of people*" did not have *each* individual board member **research and view in person** the entire project, but rather possibly some just sat at a meeting and heard views or possible research, and think "why not?" or that It would be a financial benefit for the township so it must be good.

I have been made aware that the potential purchaser has requested an extension to his purchase deadline. What the reason is I do not know. I would like the board to return to the investigation regarding the potential zoning, and each actually personally inspect all aspects of the zoning change. Then together realize "we may have made an erroneous decision", and not give the requested extension.

My second situation, just as an example, is the locked gate at what became the north end of Apple Valley Road. I do not know if this was a township decision or maybe a county decision, but I believe it is a good example of what I am trying to express regarding many minds examining and sharing. Personally I did not live at 5776 Apple Valley Road at the time, so have no knowledge of what the situation entailed. It is my understanding that an agreement with the township/county was made, stating that a gate would be allowed to be erected at the adjacent condominium complex, stopping any traffic on Apple Valley Road going into or through the condo property. For this gift the owners of the Condominium property would be held responsible for keeping a portion of Apple Valley Road plowed in the winter.

My home is adjacent to the condo complex, next to the gate. My first winter as a resident I had a big surprise one day, as I returned home from grocery shopping on a very snowy day. As I approached my drive I discovered the snowplow had visited in my absence, and ***plowed me out*** as it went around the corner! Although I had never experienced such a happening, being a Yooper I got out of the car, hiked to my garage to get a snow shovel, and went back to the corner and shoveled to get my car home. Frustrated I wrote a letter to the Road Commission expressing my concern. I did receive a telephone call from the administrator. His first statement was that I did not live on Apple Valley Road, to which I responded that is not what my tax bill indicates, and it is where I get mail daily. As I had indicated in my letter to him, " all the snowplow driver had to do was back up" because of the gate, to which he replied *"our trucks do not have reverse."* Later that day I wrote a letter to the township supervisor and immediately upon receipt he was knocking on my door. We had a friendly and enjoyable visit, which covered more than snow, and he told me what had previously transpired regarding the condo situation and their future responsibility of plowing the road, and that he would take care of the matter. And he did!

However there continues to be a problem that not many are aware. Frequently drivers are directed by "Mrs. Map Lady" in their car, the suggested/recommended way from US 31 is through our subdivision and on to Meijers or Kalkaska etc. Maybe she has no clue about the gate, because some <u>condo residents</u> use that gate- so she sees it as a faster or logical route. There usually are two or three times a week that drivers are mystified as they come to an unexpected stop in front of my house at the gate. As one can expect they are not only mystified and surprised, usually they aren't "singing for joy!" There might be two a month who back up to the corner, or back up into my drive to turn around. No big deal. However the rest of them turn around in my front lawn. That I put in the "big deal" column. Last week it was the neighbor's side lawn. Last summer, on a Sunday afternoon, a young family from down state with two pre-schoolers in the car found themselves unexpectedly stopped at the gate. At exactly the same moment they stopped at the gate, their car died. After trying everything he knew to start the car it became evident he needed help! Remember I told you this was a Sunday, and I think you know how many "helps" are open on Sunday. Eventually he contacted a company who brought a VERY LARGE long truck on which the car would be loaded. The truck driver indicated it was impossible to take care of the situation without driving the LARGE TRUCK into my front yard with the car to turn it around or load. (Maybe he didn't have reverse either like Grand Traverse County snow plows) ☺ It was an enjoyable afternoon for me, as I made new friends and another reason for keeping chocolate chip cookies in the cookie jar for emergencies.

The main reason I am telling this story is to emphasize what I commented on in the beginning of my letter. It is so important for each member of any board to participate in all activities and feel that they have knowledge to share, and not necessarily complacently agree with everything presented as OK or BEST. Or if you feel you are not familiar with a subject – ask for time and find the answer you feel positive about or can prove. It could have been that if you had been involved in the *condo and locked gate situation,* maybe you would have already known what was going to happen (because some or one of the residents was continuing to use the gate) and helped address the GPS situation. I think maybe the answer to the problem is "that because one or some of the residents uses the gate, Mrs GPS sees the road being used and has no idea there is now a gate stopping rule". The real answer to the GPS problem might be "nobody" should have a key to the locked gate, and then nobody will get "miss-directions".

Likewise somebody in the decision making process might have thought to address whether the road is being plowed daily each winter– as was part of the agreement to allow the gate. (The answer is "Only Occasionally – not daily or when needed.")
Thanks for listening to my observations or thoughts on how we all can work together to make our area the cream of the crop.

Carolyn Lalas
5776 Apple Valley Road

Planning & Zoning

6042 Acme Road | Williamsburg, MI | 49690

Phone: (231) 938-1350 **Fax**: (231) 938-1510 **Web:** www.acmetownship.org

To: Acme Township Planning Commission

From: Lindsey Wolf, Planning & Zoning Administrator
Date: September 16, 2026
Re: Data Center SAMPLE Text Language

Background:
Staff discovered that data centers are a use by right in two zoning districts. As a result, the Acme Township Board issued a moratorium on Data Centers in May of 2026. The ordinance will expire in December of 2026 with the option of extending it until zoning text language can be drafted, approved, and adopted.

In the meantime, the Planning & Zoning Department has been attending education sessions and gathering text language for review before drafting language for Acme as recommended by the Planning Commission. Included in this packet are the following:

- A white paper from the Urban Land Institute on Local Guidelines for Development – model ordinance language included on pages 21 and 22 of the text.
- An article from Cherryland Electric discussing their current requirements for data centers.
- SAMPLE Data Center Zoning Ordinance Text Language written by Beckett and Raeder for Lima Township, MI.
- SAMPLE Data Center Zoning Ordinance Text Language written by Carlisle Wortman for Pittsfield Township, MI.
- SAMPLE Data Center Zoning Ordinance Text Language prepared by the attorneys at MTA.

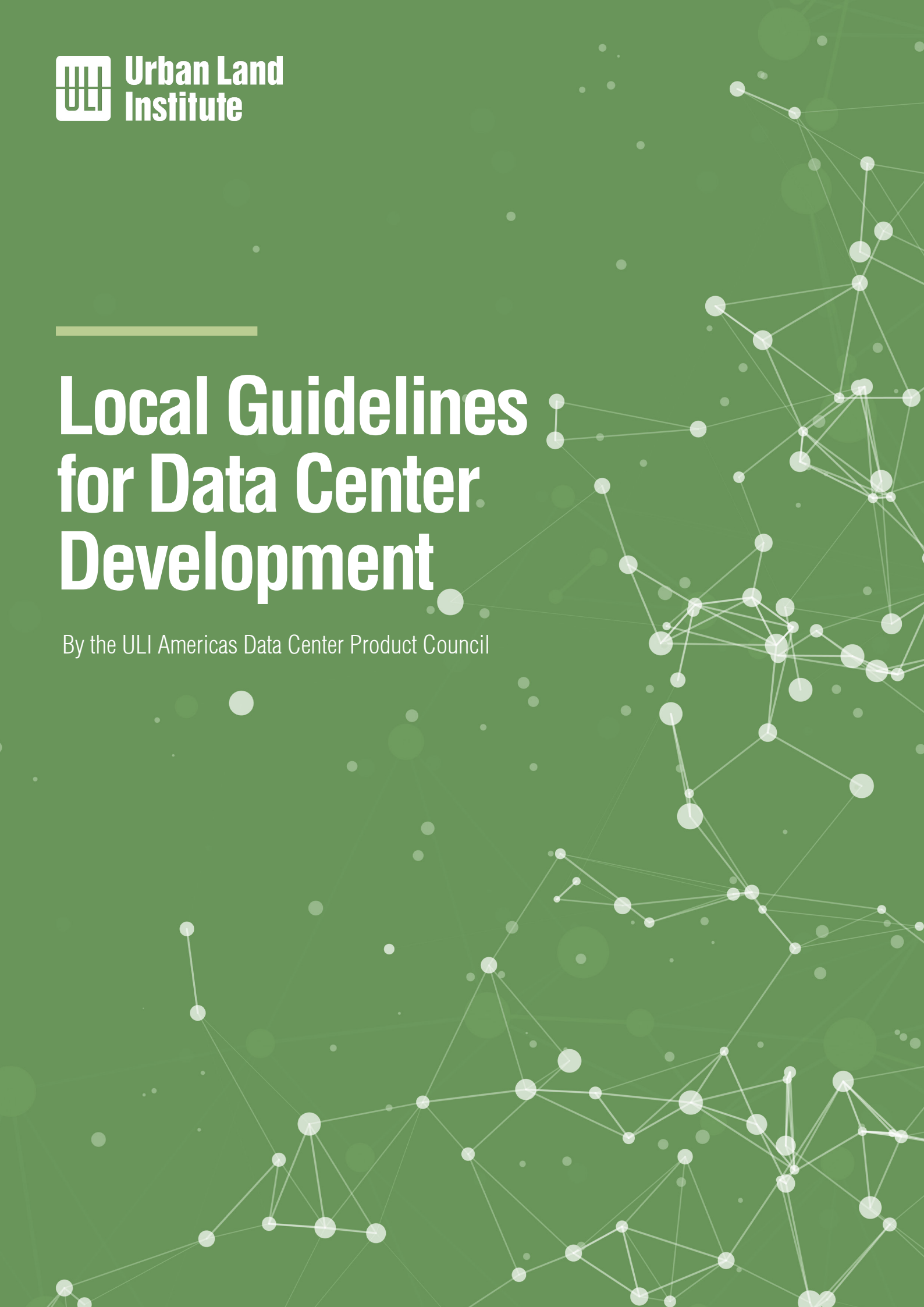
Next Steps in the Process:

1. The sample language has been shared with the Township Attorney for review.
2. Planning Commission discussion on the future of data centers in the Light Industrial and Commercial Corridor districts – currently a use by right.
3. Continued discussion on sample language: key elements, questions, concerns, etc.
4. The feedback from the Planning Commission will guide staff to draft an ordinance that would work within Acme. The draft will be presented to the Planning Commission prior to scheduling any public hearings.

Urban Land Institute

Local Guidelines for Data Center Development

By the ULI Americas Data Center Product Council



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About the Urban Land Institute

The Urban Land Institute is a global, member-driven organization comprising more than 48,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide. ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 84 countries.

More information is available at uli.org. Follow ULI on X (formerly known as Twitter), Facebook, LinkedIn, and Instagram.

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Urban Land Institute

ULI Americas Data Center Product Council

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1 Introduction: data centers 101

This paper seeks to demystify data centers and their purpose while offering a balanced model zoning ordinance for data center development that authorities having jurisdiction (AHJs) can adapt straight from the page. It also aims to provide a roadmap to data center development for local officials, planners, and other municipal decision-makers.

Data centers are still a relatively new land use, and they are often misunderstood or miscategorized. To be ready when data centers are proposed in your jurisdiction or to attract them, first it is important to understand their purpose in our society and how they function, as well as to have strategies to mitigate common challenges.

Essential infrastructure

In the morning, most of us brush our teeth or take a shower. We may not know where the water comes from or where it goes. We may not know that it is treated at a plant and arrives at our homes, where wastewater departs, is received in a facility, and is released into surface water systems.

These days, we often check our email or social media first thing in the morning, even before we shower or brush our teeth. The internet—like water, sewer, and power systems—has become part of our essential everyday infrastructure.

Water and sewage systems are typically financed and delivered by local cities or counties. Power is funded and delivered by a mix of public and private entities. Data centers, however, which form the backbone of the internet, are financed, developed, and operated primarily by privately held businesses. Unlike what occurs with other critical infrastructure systems, the development of data centers requires navigating a complex landscape of private property laws, environmental impact assessments, and local zoning regulations. Local officials, in other words, play a key role in ensuring access to the internet economy.

Purpose and function

A **data center** is a building that houses the infrastructure that supports the world's computing functions. This building is filled with servers that process and store the data commonly referred to as "the cloud."

Processing and storage

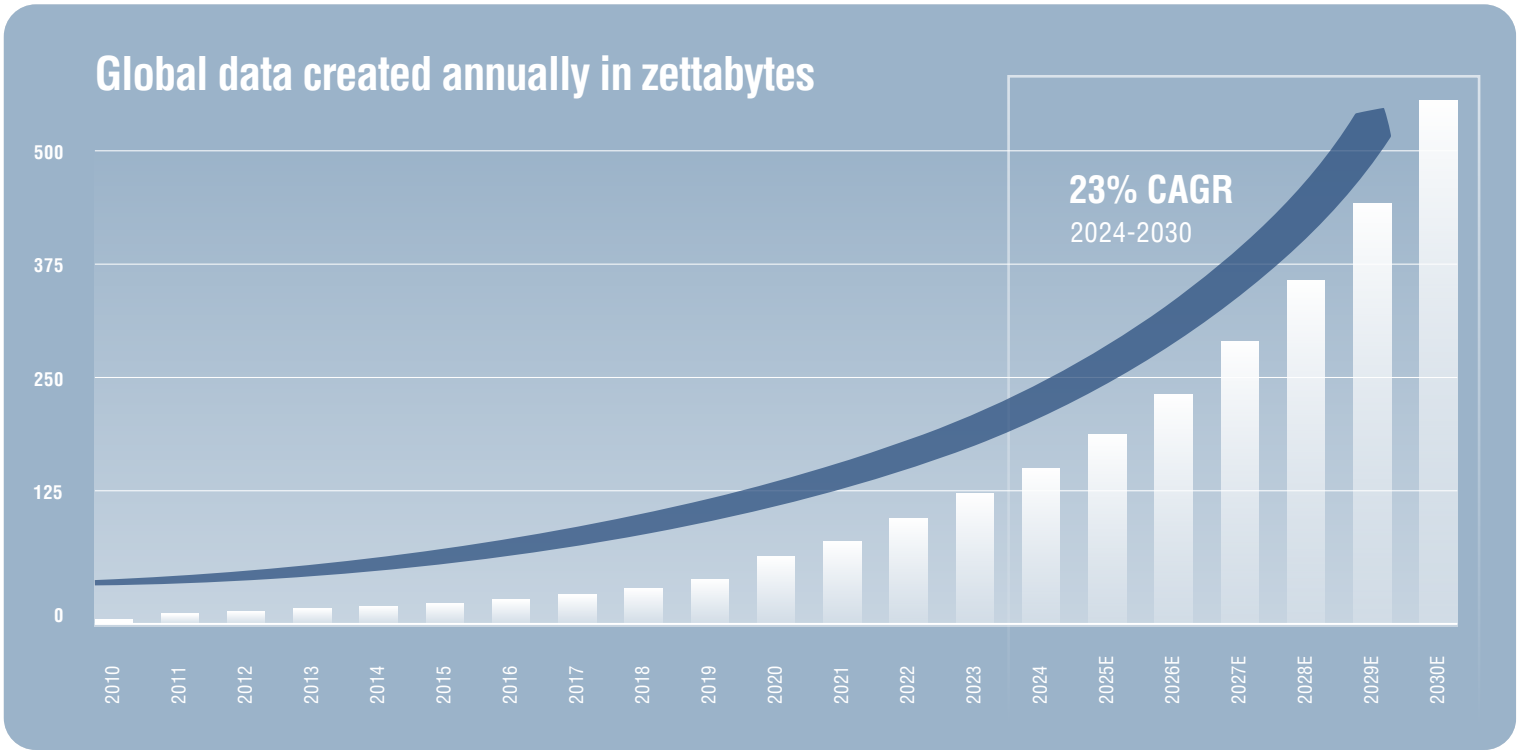
Whenever you swipe your credit card, join a Zoom meeting, or send an email, your virtual activity connects to a real place in the physical world: a data center.

What gets processed in a data center? A better question: what does not? Data centers house our national security systems, including military communications. They enable online commerce, financial services, health care, and other essential services. Each app on your phone—even offline apps that

sync—and every activity on the internet requires a data center.

When you use your smartphone, that tiny device does not process your requests. Instead, your phone asks questions that get answered in data centers—usually in a fraction of a second.[1]

Data centers' primary function is processing and accessing data, but they also store data, safeguarding sensitive information so it's inaccessible to hackers. When you save a file to the cloud, you are not storing it in the sky. A data center stores it, more efficiently and securely than a filing cabinet ever could.



Source: JLL Research, IDC

The demand for more data center capacity

Our economy and communities were able to continue functioning during the Covid-19 pandemic—when schools, workplaces, and social gatherings shifted to the internet—thanks in large part to the support provided by data centers. This change also moved us further into an economy that exists, largely, online.

The rise of remote work and advancements in artificial intelligence (AI) that require high-density computing increased the demand for processing and data storage, thus requiring more data center capacity. As a result, this property category has grown significantly.

If society and the economy continue the shift to the internet, we would seem to face a need for more data centers. Where these new data centers will be developed is a matter of great importance that requires several variables to come together. To discuss these variables, we first must discuss what a data center is.

Types of data centers

Corporate or **enterprise data centers**, which store and process a single organization's data, rose in prominence in the mid-1990s as the dot-com boom drove demand for fast internet connectivity and 24/7 operations. These data centers often store the data of financial institutions—think American Express or Wells Fargo—that typically own and operate such facilities themselves, rather than leasing them from a provider.

1 "One: You Use Data Centers," Where the Internet Lives, Google, podcast audio, https://podcasts.apple.com/us/podcast/one-you-use-data centers/id1541394865?i=1000501909698.

At **colocation data centers**, which include **retail data centers**, third-party operators lease data center space—a certain number of server cabinets, for example, or kilowatts (kW) to multiple companies.

Wholesale data centers are a type of colocation data center where a third-party developer rents large portions of the space and energy capacity to one company–often, all of it.

Telecom data centers, owned by telecommunications companies such as Verizon, are where traffic from cell towers "switches" to the internet. These facilities tend to be smaller than the other data center types and require less energy.

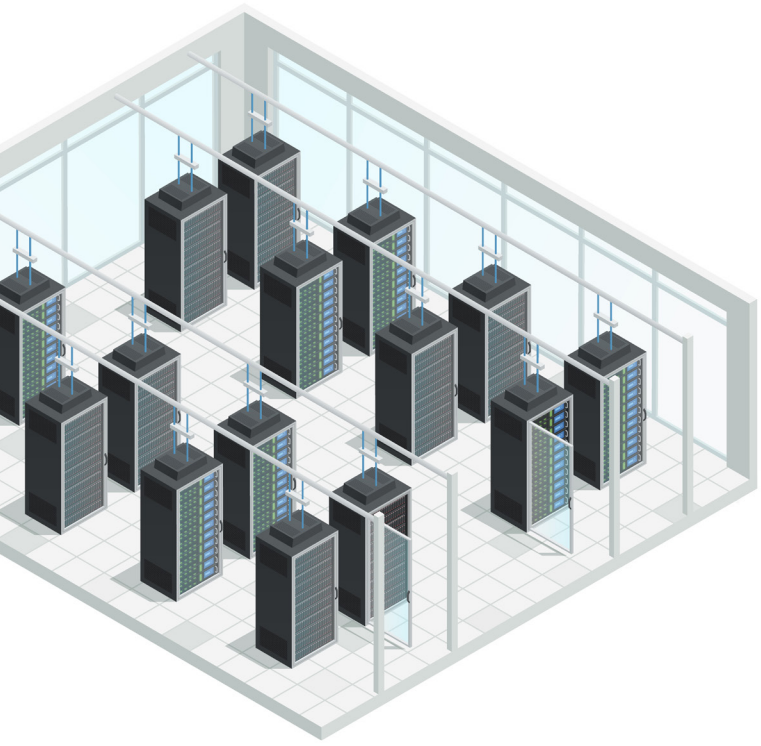
Hyperscale data centers are built for a single customer: one of the large tech companies that provide many of the services we use every day—Google (Google Cloud), Amazon (AWS), Microsoft, and Meta. These companies sometimes own their own centers, and sometimes they lease them from a third-party developer. These centers are built based on the data demands of the hyperscaler.

The name *hyperscaler* emphasizes the ability to scale resources up or down quickly and efficiently to meet demand. These companies have a massive number of users and generate vast amounts of data, which together demand substantial processing power and storage capacity, especially as user bases grow unpredictably.

Differences from industrial warehouses

Data centers differ from other forms of commercial real estate. They constitute a relatively new category and, until recently, they were concentrated in select geographic areas. As a result, the buildings housing our essential internet infrastructure are widely misunderstood.

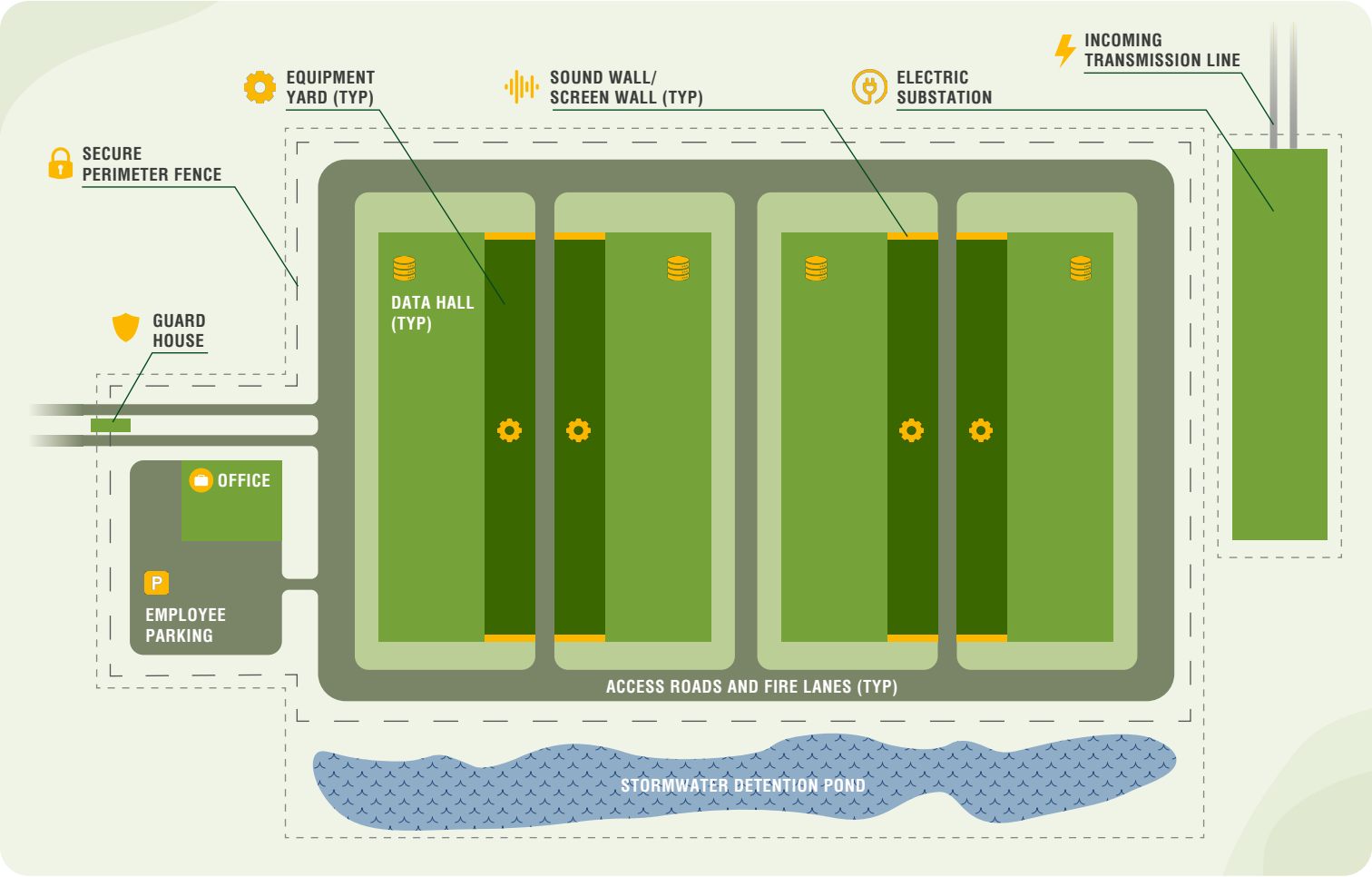
Typically, data centers are not explicitly mentioned in zoning codes. Instead, they fall under the umbrella of general industrial zoning uses. But because they store data, they are not typical warehouses. Their classification, as such, causes planning challenges, which we will detail further in a later section.



Here's how data centers differ from industrial warehouses or factories:

- Data centers are more compatible with other uses nearby because, unlike factories or warehouses, they are odorless and lack truck traffic.
- They are often taller than traditional single-story warehouses. Data centers can be single-story or multistory. Single-story data centers start at around 30 feet (9.1 meters) and multi-story data centers go up from there.
- They require fewer employees once construction is complete, so long-term impacts on traffic, schools, and public services are minimal.
- They need fewer parking spaces and plumbing fixture counts than are typically mandated by industrial codes.
- Data centers require more robust underground and above-ground infrastructure.
- Unlike warehouses and factories, data centers have external electrical and mechanical equipment.
- Some data centers need multiple layers of redundancy, which we'll discuss in a moment.
- Data centers require more security measures than industrial buildings, including 24/7/365 surveillance and controlled-access points.

Let's tour a hyperscale data center campus



Most of the data centers developed today are hyperscale data centers—typically within campuses. We tour one below.

Approaching the campus

As you approach a hyperscale data center campus, you are likely to encounter a fence or gate—often with a gatehouse—beyond which you may be able to see equipment yards and cooling equipment in the distance.

Security

Data center campuses have extensive security measures and strict protocols for employees and visitors. Infrared surveillance cameras and tall, anti-climb security fences that detect movement surround the property. A guard at the gatehouse checks guests' credentials outside. If you make it past this point—few people do—you will find another security checkpoint at the entrance to the data center building itself, where additional security personnel check badges.

Equipment yards

Before heading inside, let's first follow the winding campus driveway and stop at the mechanical and electrical equipment yards.

Electrical yards

In the electrical yards, you'll hear the low hum of static if you stand directly under the transmission lines. A nearby **utility substation transformer** receives this power and converts it down to the lower voltage needed for use inside. The medium-voltage power feeds into **switchgear** in the electrical yard—or another type of power distribution equipment that similarly dispenses electrical power throughout the data center.

Alongside the switchgear, you will see multiple generators that provide emergency power in case of an electrical utility outage. If they look like they aren't running, it's because they are usually turned off. Except during emergency outages, they are turned on only for monthly maintenance tests for a mere 30 minutes[2] and are quiet while running due to sound-attenuated enclosures.

2 GeneratorSource, "Data Center Generator Maintenance," GeneratorSource, January 2024, https://www.generatorsource.com/blog/January-2024/Data-Center-Generator-Maintenance.aspx.

Redundancy

Like hospitals, data centers require a high level of redundancy to ensure they never go down, and the generators are part of this preparedness. Redundancy is often also created through multiple power feeds. The servers have backup capacity, too. For instance, your inbox is stored on several servers so that if one fails, your emails remain accessible.

Mechanical yards

The mechanical yards operate similarly but typically focus on cooling rather than on power redundancy. On the ground, you'll find chillers that cool the data center. At some data centers, they are on the roof.

Heat is a byproduct of computer processing. The servers within data centers must remain cool to function correctly. There are multiple ways of to achieve this cooling, but for the purposes of this paper, we focus on three main categories: air-cooled chillers, water-cooled chillers, and evaporative cooling.

A highly efficient **air-cooled chiller system** is sealed in a closed loop and uses little to no water—less than the amount used in three single-family homes.

Both water-cooled and evaporative systems use more water and consume less electricity than air-cooled chiller systems. In an open-loop **water-cooled chiller system**, cooling towers evaporate water for cooling purposes. **Evaporative cooling** is primarily achieved by large air-handling units that move air across a wet medium to evaporate water, which removes heat and cools the air in the data hall.

Data center structure

Let's now make our way through the security checkpoint and into the data center building itself. Inside, we find the **data hall**, where the servers sit in rows of tall racks along a series of aisles fed by **electrical distribution equipment**. Data halls are the *pièce de résistance* of any data center. Such a structure is typically designed from the data hall outward, with all supporting infrastructure responding directly to its needs.

If you examine the racks from the floor upward, you see bundles of colorful fiber optic cables (inside of which are thin strands of glass) connecting servers to switches and routers. These cables enable high-speed data transfer. Without them, we would be unable to access the web or many of the apps we use daily. The cables are organized in lanes that converge at massive **switches**.

Inside the data center building, you also find electrical rooms that house other critical power supply infrastructure. Battery-powered **uninterruptible power supply (UPS) systems** sit in large cabinets against the wall. In the event of a utility outage, these systems feed power to **power distribution units (PDUs)** inside the data hall. UPS systems are the first-used backup power source and often prevent use of the generators outside.

The importance of clustering

The internet is a network of interconnected networks, and so are data centers. **Clustering** refers to the practice of linking the servers at multiple data centers with high-speed, low-latency connections so they work together as a unified system. This interconnected group is called a cluster, and each server in the cluster is called a **node**.

Importantly, clustering requires physical proximity: locating multiple data centers close to one another geographically so that optical signals in fiber cables don't lose strength. That's why a huge portion of global internet traffic passes through major hubs such as northern Virginia's "Data Center Alley."

Clustering also requires interconnection—linking these data centers through high-speed, low-latency connections.

Reduced latency

One primary reason for data center clustering is to reduce **latency**, the time it takes for information to travel from its source to its destination. When data centers are geographically distant from each other, latency increases, which leads to slower application performance for end users, including the dreaded "spinning wheel of death." When data centers are located near each other, data can travel shorter distances, and this information exchange runs faster. Due to quicker response times, the user experience improves.

Improved reliability

Clustering enhances redundancy. If one data center server goes offline, others in the cluster can take over, ensuring continuous service availability. Without clusters, one server failure could cause an outage with international implications. In the appendix, we explore this concept further through a case study.

Load balancing

Clustered data centers allow for more efficient **load balancing**, the process of distributing network traffic across multiple servers at interconnected data centers. This practice prevents any single server or center from becoming overwhelmed.

Shared infrastructure

Data centers require conduits for power and, in some cases, water. When data centers cluster, they benefit from shared power and cooling infrastructure while also reducing the need for long-distance fiber optic connections.

2 What happens when data centers come to your region: opportunities, challenges, and mitigations

Data centers can provide significant economic benefits and other opportunities. Data center projects also introduce unique planning challenges, however. To be prepared, and to seize opportunities when appropriate, AHJs must understand these challenges and how to mitigate them.

Opportunities

Support essential national infrastructure

Data centers contribute to national infrastructure and economic growth. Also, they enable the digital economy by underpinning businesses of all sizes in virtually every industry.

According to the United States Department of Energy[3], "At a national level, data centers are critical to supporting America's economic growth by powering businesses and enabling continued leadership in innovation, including for AI applications."

HERE'S HOW DATA CENTERS SUPPORT NATIONAL SECURITY AND ECONOMIC GROWTH:

They protect the privacy of all of the data within U.S. borders against cyber threats by powering security measures such as encryption, firewalls, and access controls.

They host critical infrastructure for our emergency services, providing the necessary computing power and data storage to support communication networks, emergency response coordination, and real-time data analysis during crises.

Our health care system depends on data centers. They enable a range of services, from telehealth visits to managing digital health records, and they even assist in providing data-analysis-informed diagnoses for patients.

Banks and the rest of our financial ecosystem rely on data centers for their daily operations.

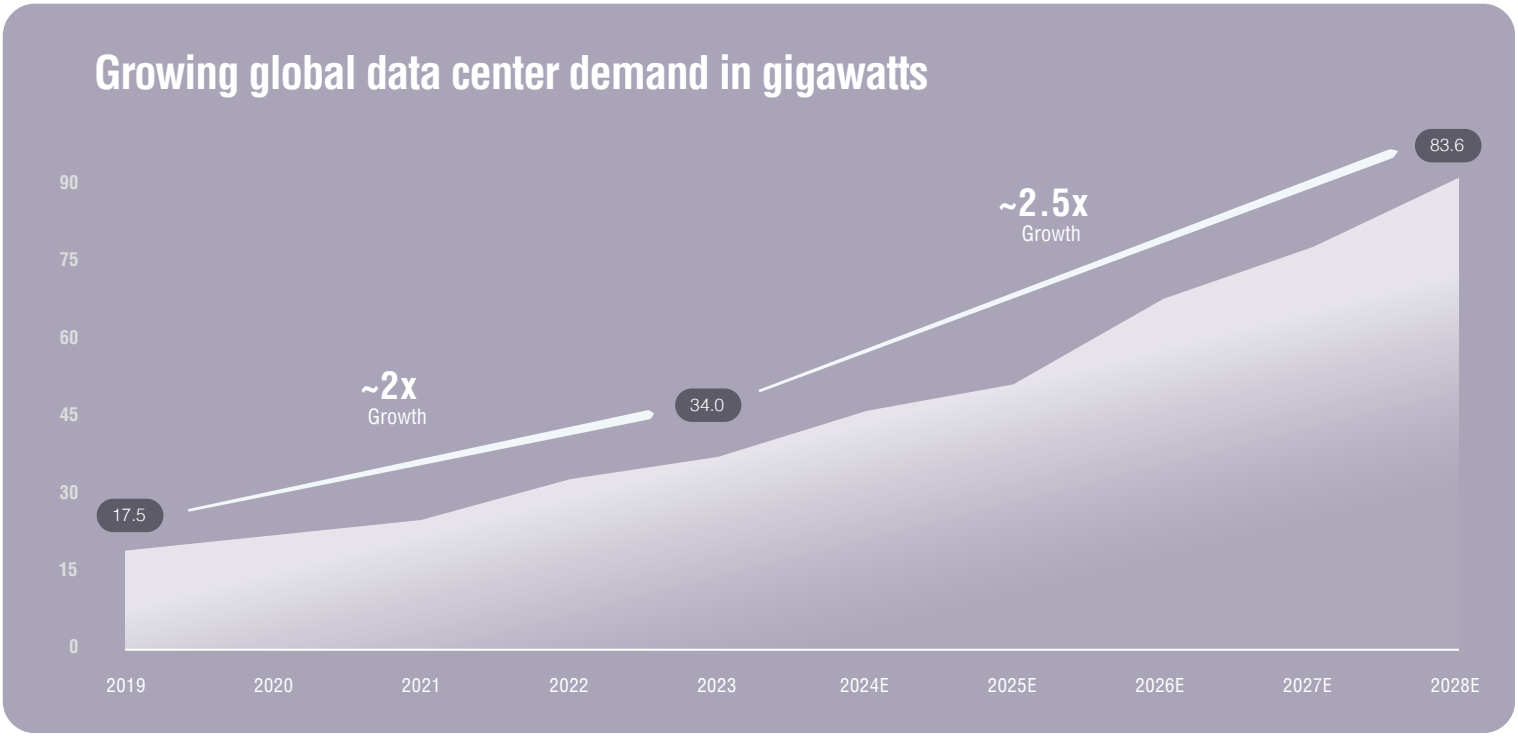
Data centers also support the development and deployment of emerging tech. Data centers are the backbone of AI infrastructure, which requires rapid data processing, storage, and analysis at scale.

On a macroscale, maintaining advanced data center infrastructure allows the U.S. to compete with such countries as China in the race for AI dominance, thus fostering economic growth and strengthening national security through technological leadership.

On a microscale, data centers also improve businesses' operational efficiency by democratizing access to supercomputer processing and secure cloud storage so that small businesses can compete more easily with larger corporations.

3 U.S. Department of Energy, "Clean Energy Resources to Meet Data Center Electricity Demand," https://www.energy.gov/policy/articles/clean-energy-resources-meet-data center-electricity-demand.

Increase much-needed processing and storage capacity



Source: CBRE, DC Bytes

Our needs for data center capacity have grown—and continue to grow at a fast clip as we create more data.

If we don't build data centers that support this increasing data density, it could hamper the economy, business operations, and our daily lives.

On a microlevel, a lack of data center capacity or redundancy makes files and apps load slowly. On a macrolevel, if we don't build enough data centers to meet our growing storage and processing needs, there will be outages with international consequences, like the October 2021 Meta outage. We include a case study on this incident and its profound impacts in the appendix.

Jobs

When data centers are in operation, they require fewer employees to operate than most other commercial properties, leaving minimal impacts on traffic in surrounding areas. A typical data center operates with fewer employees than other commercial or industrial facilities. Unlike industrial facilities, there is no fleet of trucks going in and out, which further minimizes traffic congestion.

More workers are present while the data center campus is under construction, though. Data center construction projects happen in phases, especially on larger campus developments, and these phases can extend over several years. This phased approach often leads to misunderstandings regarding the permanency of the increased traffic. Clear communication about the nature and duration of construction phases can help manage expectations and reduce misunderstandings.

This phasing approach has a plus side, however. Data centers create local construction jobs for tradespeople who otherwise travel from job to job—with less fossil fuel consumption thanks to reduced commuting. Jobs related to data center construction typically provide these workers, sometimes called journey-people, with more stability and longer timelines, offering a higher quality of life. This outcome, in turn, can prevent or alleviate labor shortages and reduce renovation and building expenses in the area, benefiting homeowners and businesses.

Although the operational workforce of data centers is relatively small, people employed in these roles are well-compensated, often earning six-figure salaries without the need for significant training or a college degree. During both the construction and operational phases, data center jobs boost to the local economy because workers spend at retail stores, nearby restaurants, hotels, and suppliers.

Data centers also indirectly create many jobs across the broader economy. According to PricewaterhouseCoopers International Limited[4] (PwC), each direct job in the U.S. data center industry

4 PwC, "Economic Impact Study of the US Data Center Industry," January 2021; "Data Centers and Ancillary Job Creation," TechIndustryReview, March 2022.

generates, on average, six ancillary jobs throughout the national economy. As a result, the total annual impact of the data center industry on national employment—combining direct, indirect, and induced effects from both construction and operations—grew from 2.9 million jobs in 2017 to 3.5 million jobs in 2021, representing a 20 percent increase.

Furthermore, the PwC study does not include jobs created by the cloud access and processing power that data centers enable. Data centers also facilitate zero-commute remote work across the country, further reducing fossil fuel consumption and contributing to a more sustainable economic model.

Tax revenue

Data centers provide municipalities with substantial economic and fiscal benefits through various forms of tax revenue (if unabated) that far exceed ones associated with other property types.

Hyperscale data centers are capital-intensive developments that can cost billions to construct—and are filled with high-value equipment and infrastructure. Taxes levied against them can be a windfall for AHJs.

A case in point: the data center tax base in Loudoun County, the central hub of North Virginia's Data Center Alley, increased from $15.996 billion in 2023 to $25.627 billion in 2024, constituting 58.5 percent of the municipality's total tax revenue.[5]

Data center owners pay two primary forms of property taxes. The first is real property tax, which applies to the land campuses are built on and the permanent structures that sit upon it, such as buildings. The second is personal property tax, which is levied on movable assets such as the servers and equipment inside data centers.

These revenues become significant boons to surrounding municipalities. In Loudoun, personal property tax revenue from computer equipment purchases for data centers surged by 170 percent in 2023, accounting for two and a half times the tax revenue.

The presence of data centers can also lower the overall tax burden for residents. In Loudoun, the general property tax rate is set at $0.87 per $100 of assessed value; it would be $1.33 (an additional 52 percent) but for the influx of data center developments, according to the county's executive director of economic development.[6] Revenue from data centers accounts for $0.47 of the tax rate, thereby alleviating the burden on other taxpayers.

Data center revenue can be channeled into net-zero programs and those related to health care, education, and other critical public services.

Data center revenue can be channeled into net zero programs and ones related to health care, education, and other critical public services. Revenue from data centers in Quincy, Washington, for example, has been used to fund local schools, public safety, and infrastructure improvements.[7]

By 2026, Loudoun County projects it will receive roughly $1.4 billion in tax revenue from the personal property tax it levies on computer equipment alone.[8] This amount constitutes nearly half of Loudoun County's entire fiscal 2021 budget of $3 billion.

Community incentive packages

Data center operators also provide significant benefits through incentive packages negotiated with municipalities that can include funding for schools or public infrastructure projects. In multiple cases, hyperscalers have funded renewable energy plants and created workforce development programs in areas where they operate.

As part of AWS' $10 billion data center campus investment in Mississippi, the company developed STEM-focused workforce training and career awareness programs for K-12 school systems and funded the state's first utility-scale wind farm.[9] You can learn more about the community benefits the hyperscaler provided in the appendix.

5 Emily Leayman, "Loudoun's Data Center Tax Base Jumps, Residential Increases Continue," Patch, February 8, 2024, https://patch.com/virginia/ashburn/loudouns-data-center-tax-base-jumps-residential-increases-continue.

6 Hanna Pampaloni, "Rizer: Land Value Increases Bring Benefits and Challenges," Loudoun Now, June 28, 2024, https://www.loudounnow.com/business/rizer-land-value-increases-bring-benefits-and-challenges/article_5b417aa8-3592-11ef-b587-f7ca7fd349c0.html.

7 Nick Parker, "Quincy Data Centers: The Data Center Conversation" (Presentation, Port of Quincy), https://wedaonline.org/wp-content/uploads/2020/10/Port-of-Quincy-Presentation.pdf.

8 "Loudoun Data Center Revenue Growth," Washington Business Journal, October 19, 2020, https://www.bizjournals.com/washington/news/2020/10/19/loudoun-data-center-revenue-growth.html.

9 Amazon Staff, "AWS plans to invest $10 billion in Mississippi, the largest capital investment in the state's history," About Amazon, January 25, 2024, https://www.aboutamazon.com/news/aws/aws-10-billion-investment-mississippi.

The region that includes Fredericksburg, Virginia—an emerging exurban hyperscale campus market located southeast of Loudoun County—is a case study in how AHJs can attract landslide economic and fiscal benefits while mitigating potential concerns well in advance.

In March 2024 Virginia's governor, Glenn Youngkin, alongside other state and local elected officials, announced that AWS was making a $35 billion dollar investment in data centers in Spotsylvania, Caroline, Stafford, and Louisa counties, creating approximately 2,000 new jobs. Also announced was AWS' contribution of $400,000 in community funds to those localities.

We explore how AHJs in the region did the work to prepare for and attract that investment in the appendix, which also covers similar measures in Elk Grove Village, Illinois, a unique suburban community northwest of downtown Chicago that modified its zoning code to attract data center development.

Challenges and mitigations

Sustainability

The sustainability of data centers is a significant concern for both AHJs, as well as for data center operators and developers, who ensure that their centers are designed and engineered to minimize emissions and other community impacts.

Grid impact

Let's address the misconception that data centers draw from the grid power that other customers, such as residential consumers and retail operators, could use. This concern is common among constituents when a data center is proposed in a municipality.

The grid is heavily regulated. Under existing federal regulations (and in Texas, the only state that regulates its own power grid), demand from a new customer cannot affect the reliability or availability of an existing customer.

Rather than taking power from the grid, new large-load customers such as data center operators face the challenge of finding readily available power that the utility can deliver—especially because many seek clean power sources.

According to the U.S. Department of Energy (DOE), as quoted in a recent article,[10] data centers can actually catalyze the grid's clean energy transition: "Near-term data center driven electricity demand growth is an opportunity to accelerate the build-out of clean energy solutions, improve demand flexibility, and modernize the grid while maintaining affordability."

Here's why: in many municipalities, energy providers are obligated to meet the power demands of various users. When a significant portion of demand comes from data center operators, many of which have strong commitments to using renewable energy, that activity accelerates the greening of the grid. These companies, driven by their climate goals, place considerable pressure on utility providers to adopt cleaner energy solutions.

> "Near-term data center driven electricity demand growth is an opportunity to accelerate the build-out of clean energy solutions, improve demand flexibility, and modernize the grid while maintaining affordability."
>
> *U.S. Department of Energy*

Unlike AHJs, which cannot create the demand to push forward such changes themselves, data center operators wield considerable influence by creating substantial demand for renewable energy.

This dynamic forces utilities to accelerate and help finance their transition to greener energy sources, thereby modernizing the grid to meet contemporary environmental standards. Public officials have a critical role to play in this scenario. By ensuring the existence of clear and easy-to-follow guidelines for data center development within their jurisdictions, AHJs can become integral to the solution, thus fostering a cleaner energy infrastructure.

Conversely, discouraging data center development could inadvertently push these operations into regions with less stringent grid standards and undermine broader sustainability efforts. Thus, the collaboration between data center operators and local governments is pivotal in driving the clean energy transition and ensuring grid modernization.

10 U.S. Department of Energy, "Clean Energy Resources."

Grid sustainability

Data center companies—third-party developers, operators, and hyperscalers among them—typically have far stricter carbon reduction commitments than do municipalities themselves.

- The top five hyperscalers have a combined renewable energy portfolio totaling more than 45 gigawatts (GW) worldwide, the equivalent of roughly 118,215 Tesla Model 3 motors[11] running on full power—and that figure doesn't include on-site generation.[12] Roughly 57 percent of global corporate wind and solar capacity tracked by S&P Global Commodity Insights is tied to these five companies alone.
- Amazon first committed to powering all of its operations, including AWS data centers, with 100 percent renewable energy by 2025. As of 2023, Amazon reported achieving this goal early, with 100 percent of its electricity consumption matched with renewable energy sources. The company also set a goal to reach net-zero emissions by 2040.[13]
- Microsoft committed to designing and operating data centers that are carbon negative, water positive, and zero waste before 2030, procuring 100 percent renewable energy on a global scale by 2025, and significantly expanding and decarbonizing local electricity grids.[14]
- Apple has committed to becoming carbon-neutral across its entire supply chain and product life cycle by 2030. This effort includes using nearly 10 GW of existing renewable energy and investing in new renewable generation.[15]
- Google, meanwhile, announced its goal in September 2020 to operate carbon-free, on clean local electricity, 24 hours a day, 7 days a week, 365 days a year by 2030. From 2010 to 2023, the company signed more than 115 agreements totaling in excess of 14 GW of clean energy generation capacity.[16]
- Meta committed to net zero emissions for its supply chain and to becoming water positive by 2030. The company plans to power all of its data centers with renewable energy by 2025.[17]

The methods through which hyperscalers and data center developers are working toward these goals include:

On-site generation: Some data centers have solar panels or other renewable energy sources installed directly on their premises. Wind and solar require a lot of land, however, and on-site land is usually scarce. As such, these projects typically provide only a small portion of data centers' total energy needs.

Power purchase agreements (PPAs): In a PPA, data center companies (the buyers) sign long-term contracts with renewable energy providers (the sellers) to purchase electricity from specific wind or solar farms. PPAs often support the development of new renewable energy, thus contributing to overall grid decarbonization and improving the grid mix for local residents and businesses.

Renewable energy certificates (RECs): Companies purchase RECs to offset their energy consumption, which supports the economics of clean energy development. RECs are not necessarily tied to the specific municipalities where data centers are located, though.

Investment in renewable projects: Hyperscalers often invest directly in the development of new renewable energy projects.

Diesel generators

The role of diesel generators at data centers is often misunderstood. As we discussed elsewhere, these generators are present only as a backup power source.

Also worth noting is that diesel generators are subject to a comprehensive regulatory framework. The Environmental Protection Agency (EPA) sets federal standards implemented and enforced at the state level for generators, and states may

11 U.S. Department of Energy, "How Much Power is 1 Gigawatt?" Office of Energy Efficiency & Renewable Energy, https://www.energy.gov/eere/articles/how-much-power-1-gigawatt.

12 S&P Global Market Intelligence, "Datacenter Companies Continue Renewable Buying Spree, Surpassing 40 GW in US," S&P Global, https://www.spglobal.com/market-intelligence/en/news-insights/research/datacenter-companies-continue-renewable-buying-spree-surpassing-40-gw-in-us.

13 Amazon, "Climate Solutions," Amazon Sustainability, https://sustainability.aboutamazon.com/climate-solutions.

14 Microsoft, "Microsoft's Datacenter Community Pledge: To Build and Operate Digital Infrastructure That Addresses Societal Challenges and Creates Benefits for Communities," Microsoft Blog, accessed September 15, 2024, https://blogs.microsoft.com/blog/2024/06/02/microsofts-datacenter-community-pledge-to-build-and-operate-digital-infrastructure-that-addresses-societal-challenges-and-creates-benefits-for-communities/.

15 Apple Inc., "Apple's Climate Roadmap," Apple Newsroom, https://www.apple.com/newsroom/2021/07/apples-climate-roadmap/.

16 Google, "Build a Carbon-Free Future for Everyone," Google Sustainability, accessed September 15, 2024, https://sustainability.google/projects/carbon-free-24x7/.

17 Meta, "The Next Stage of our Climate Commitment: Net-Zero Supply Chain Emissions by 2030," Facebook Newsroom, https://about.fb.com/news/2021/10/the-next-stage-of-our-climate-commitment-net-zero-supply-chain-emissions-by-2030/.

have additional requirements.[18] Once permitted, each diesel generator's operation is bound by strict regulations. Operators typically may run generators for only a limited number of hours per year for routine maintenance and inspection purposes.

Although it varies by facility, generators at data centers are typically used far less than these rules dictate. Generators' brief monthly operation to ensure proper functioning is comparable to running a pump system that's been inactive for an extended period—regular checks prevent potential issues that accompany prolonged inactivity, such as seized components or degraded lubricants.

Greener alternatives to diesel are in various stages of development, but none has been proved at scale yet.

Water sustainability

Cooling accounts for almost 40 percent of the total energy consumed by data centers, McKinsey and Company estimates.[19] Several factors determine the type of cooling that is most sustainable yet still suitable for the job.

Air cooling can be more efficient at lower load percentages and smaller equipment capacities. It can also be sustainable at any scale when the data center is located in an area with a high percentage of renewable sources in the energy grid, including ones generated on site.

When cooling processes require water, nonpotable water sources can be used so as not to reduce the local drinking water supply. Nonpotable water is treated—either at a local plant or, in some cases, on site–to remove contaminants, solids, and impurities. Then recycled water is then distributed in plum-colored pipes, which accounts for the nickname the **purple pipe system**. To pursue it, companies often consider access to recycled wastewater an important factor in the early stages of site selection.

Hyperscalers have even helped AHJs finance such projects, though that's not always viable, which makes proximity to existing treatment facilities a key consideration. In 2012, Google funded the construction of the Sweetwater Creek Sidestream Plant in Douglas County, Georgia, which we explore further in the appendix.

Electrical utility transmission and distribution

When developers vet a site for a data center, they consider whether there are adequate transmission lines. At the local level, there can be pushback against the building of new transmission lines, inside and outside a data center context. Local pushback against transmission lines increased by 57 percent from 2022 to 2023, according to Columbia Law School research.[20]

This challenge exists not just for data centers but also for the clean energy transition. One truism says that the transition can't happen without transmission. Here's why: as more sectors such as transportation go electric, overall power demand is likely to increase, requiring greater transmission capacity. Grids in the U.S. are not connected, which is a problem because such clean energy sources as solar and wind are often located far from urban centers, where electricity is most needed. Connecting grids across the country requires a plethora of new transmission lines.

"By the 2030s, we need to build so many new lines that they would reach to the moon if they were strung together," says Bill Gates, cofounder of Microsoft, in a video on his YouTube channel. "And by 2050, we'll need to more than double the size of the grid, while replacing most of the existing wires."

Most transmission lines, built between the 1950s and the 1970s, are now outdated.[21]

How did we get here? For a long time, electricity generation was centralized, and there was no need for a connected grid. Large coal-powered plants and nuclear power plants produced massive amounts of electricity in specific locations. This electricity was then distributed widely to homes, businesses, and industries throughout a large area. Power flowed primarily in one direction: from centralized plants to distributed end users.

As we transition to clean grid sources, however, we need a less centralized, more distributed system. Unlike fossil fuel plants, renewable energy sources are often geographically dispersed, variable in output, and located far from major consumption centers. They require a shift to an interconnected grid with diverse, distributed sources, one that's more resilient to outages and increasingly frequent extreme weather events caused by climate change. This shift requires more cross-regional transmission or inter-regional transmission. It requires . . . transmission lines.

18 U.S. Environmental Protection Agency, "Regulations for Emissions from Heavy Equipment with Compression-Ignition Engines," https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-heavy-equipment-compression.

19 Srini Bangalore et al., "Investing in the Rising Data Center Economy," McKinsey & Company, January 17, 2023, https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/investing-in-the-rising-data center-economy.

20 "Opposition to Renewable Energy Facilities in the United States," Sabin Center for Climate Change Law, Columbia Law School, May 2023, https://scholarship.law.columbia.edu/sabin_climate_change/200/.

21 Bill Gates, "The Surprising Key to a Clean Energy Future," Gates Notes, January 24, 2023, https://www.gatesnotes.com/Transmission.

Often, constituents don't understand that transmission lines are an essential part of our sustainable future, even without data center demand. Properly communicating this message to a community isn't easy, but it's essential. Siting data centers near transmission infrastructure is most efficient, as doing so allows for use of the existing infrastructure and the associated rights of way for new infrastructure, if needed.

Sound

Another common community concern is sound. Most mitigations related to it are already baked into the development process. Data center designers, architects, and engineers tend to design data center campuses to mitigate impacts from sound upon nearby neighbors, including strategic placement of generators away from other uses. Developers typically employ on-site acoustic monitors as part of regulatory entitlements to ensure sound levels remain within acceptable limits.

Let's discuss where sounds occur at data center campuses. Remember the low hum in the equipment yards? It comes from cooling equipment. Screens and sound attenuators make it barely audible.

Generators make mechanical sounds, albeit only when they are turned on for testing or emergencies. Sound impacts can also be easily mitigated by housing generators in sound-attenuated enclosures with proper exhaust systems.

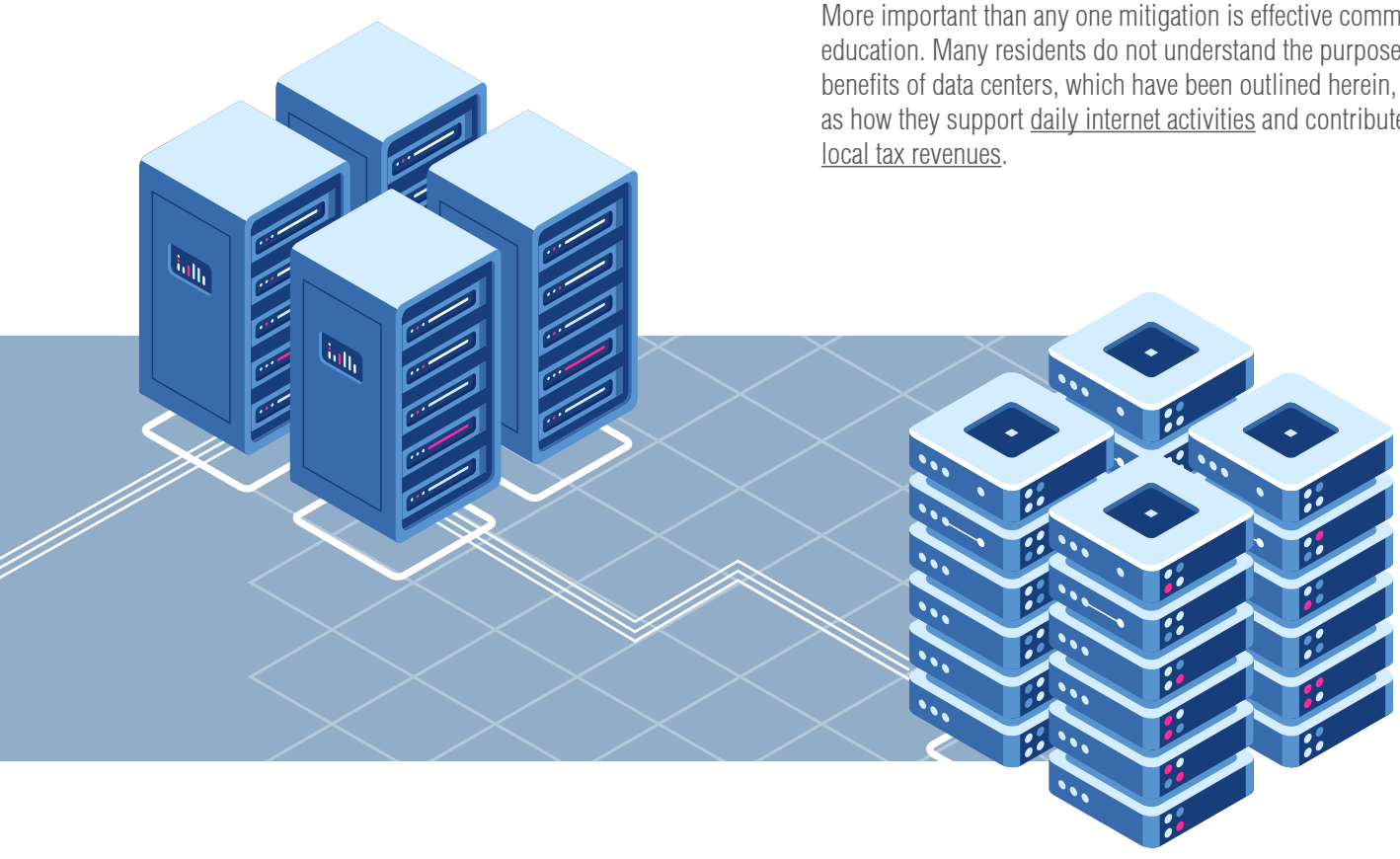
Aesthetics

Community members often raise concerns about whether data center campuses will look as if they fit into the community. This issue can be mitigated by:

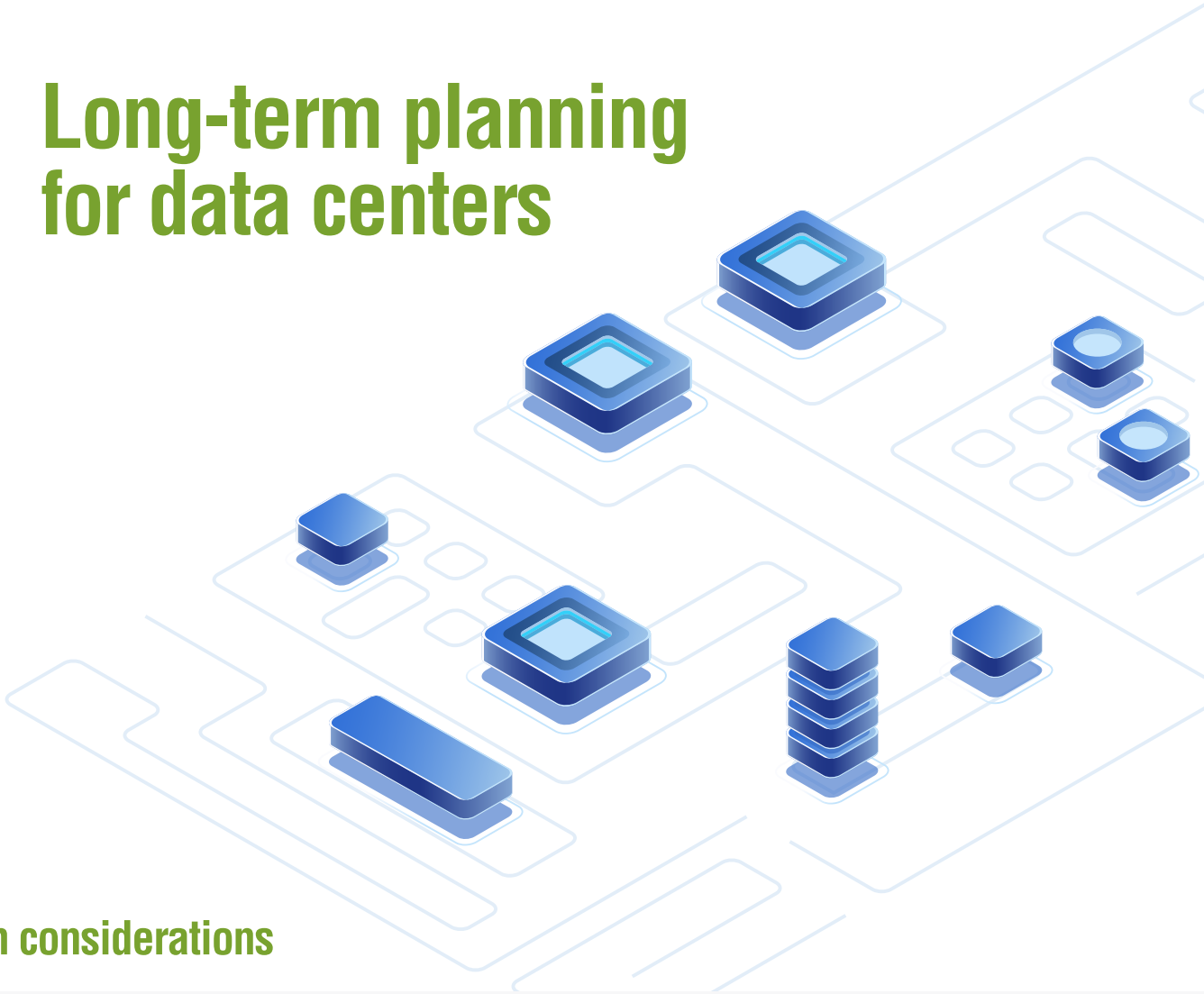
- Creating buffer zones near residential and retail areas
- Employing glass façades in key areas to make data centers more closely resemble office buildings than industrial complexes
- Applying other exterior design techniques that use materials and colors to blend buildings into their surroundings, if required and appropriate to the context

Although these mitigations are effective, it's important not to codify excessively specific or restrictive design standards into zoning codes, as doing so can discourage data center development. Exceedingly stringent height restrictions, for example, could hinder the functional design of these facilities. Balancing aesthetic considerations with operational needs of data centers is key.

More important than any one mitigation is effective community education. Many residents do not understand the purpose and benefits of data centers, which have been outlined herein, such as how they support daily internet activities and contribute to local tax revenues.



3 Long-term planning for data centers



Location considerations

Because of their unique operational and physical requirements, several crucial factors must be considered when deciding what sites suit data centers:

Power

Data centers are power-intensive. Reliable and robust access to power is non-negotiable, making proximity to high-capacity substations essential.

Roads

Whereas operational traffic is minimal, the initial construction phase generates more traffic. Thus, easy access to highways and major roads is vital for logistics and transportation.

Land

Hyperscale campuses require ample land area to accommodate both the facility and its accompanying infrastructure.

Discharge infrastructure

If there is runoff from water-based cooling, a site will need adequate infrastructure for wastewater discharge, such as a connection to a municipal sewer system, an on-site water treatment facility, or proper drainage.

Wet utilities

Some data centers require access to municipal water supply greater than what typical industrial developments need. The climate goals of most hyperscalers and developers are driving demand for recycled, rather than potable, water.

Frequent missteps

Common pitfalls in planning for data centers include:

Height restrictions:

Failing to allow sufficient building height can impede the efficient design of cooling systems, which rely heavily on vertical space for optimal airflow. The minimum height for a single-story data center could be as much as 30 feet (9.1 m). In denser jurisdictions with higher land basis, multistory data centers are common and typically require at least 66 feet (20.1 m) of height, in addition to considerations for rooftop equipment. Minimum heights are generally measured ground level to the roof line. Ancillary height structures, such as parapets, equipment platforms, screens, and stairwells can add another 15–20 feet (4.6–6.1 m) of height in some cases.

Zoning challenges:

The lack of a uniform land-use category for data centers presents challenges for localities in siting these facilities appropriately. Data centers typically fall between office and industrial/warehouse uses, which often makes the applicant request variances that appear to be special considerations rather than basic requirements. This outset can lead to high-stakes decision-making by exception that undermines the existing zoning codes.

Building code challenges:

Typical building code requirements around occupancy and plumbing fixtures may need to be modified for data center uses.

Parking and plumbing standards:

Regulations developed for office or warehouse uses often impose excessive parking and plumbing fixture counts on data centers, which necessitate variances and complicate the planning process.

Substation zoning:

Substations often fall under different categories than does the data center itself, creating further zoning inconsistencies and the need for additional, sometimes separate, approvals for one campus.

Construction confusion:

Data center campuses are often built over time, as we discussed above, which can cause planning confusion. The sightlines of a campus may change over time, so it's important to consider both the full campus and each individual building in the planning process.

Fire Department considerations:

Fire departments that are not yet experienced with data centers might not know that the on-site batteries and generators are for backup purposes only, so education is essential. Yet even though those backups aren't frequently used, data centers are built with robust fire detection and suppression systems. Modern batteries for UPS applications include multiple safety features, including battery management systems that monitor voltage, temperature, and current. Fuel tanks for backup generators are typically stored in separate, fire-rated enclosures, and secondary containment systems are used to prevent fuel spills and leaks.

Clear rules benefit all parties

Clear rules in zoning codes and land use plans, as well as in the entitlement and permitting processes, benefit all stakeholders involved in data center development, including the surrounding community.

Clarity simplifies the planning process, reduces the amount of planning that is done by exception, and lets communities gain maximum financial benefits from data center developments.

In the next few sections, we discuss planning options for AHJs seeking to be prepared to regulate thoughtful data center development, to attract it, or both. We also provide a model zoning ordinance that municipalities can adopt, designed to address common concerns while avoiding excessively restrictive measures that could hinder data center development.

4 Regulating data centers

Planning-related options

AHJs that want to bring data centers to their region can start by identifying strategic locations. Municipalities should perform comprehensive analyses to determine suitable areas, based on power availability, infrastructure, and environmental impact.

Ideally, more than one area should be designated for potential development—as with the process for industrial parks—to provide flexibility and attract varied investments.

Option 1: Create an overlay district

One option for guiding the development of data centers is to incorporate an overlay district. An overlay district is mapped to certain areas of the jurisdiction's zoning map without necessarily changing the underlying zoning district and what is allowed therein.

A historic overlay district is a common application of this tool. It typically provides for certain additional standards—an expansion of the uses that might be permitted in that district, a limitation of them, or some mix of the two.

A data center overlay district can allow for the development of data centers and prescribe that such development meet certain standards or requirements. An overlay district clearly indicates where and under what circumstances data centers are permitted and provides additional direction to any data center developer seeking to develop in that jurisdiction.

Option 2: Create a planned innovation, research, and technology (PIRT) district

PIRTs—and their regional equivalents, which include innovation zones, technology corridors, and research and technology parks—offer municipalities a flexible approach to land use that goes beyond traditional industrial or commercial zoning.

This designation allows for a mix of uses and can adapt to the specific requirements of data centers without necessitating a rezoning. Data centers in a PIRT district can integrate seamlessly with adjacent research facilities or tech hubs, fostering synergistic growth and innovation. Examples of successful PIRT districts include Palo Alto's Stanford Research Park.[22]

When data centers are sited clearly as being a by-right use, data center developers are more likely to consider the location for investment because they have the required certainty that the land they acquire won't struggle or be delayed in the approvals process. In the appendix, we explore how Elk Grove Village did so successfully.

Option 3: Note preferred data center locations in the comprehensive plan and invite owner- or hyperscaler-initiated rezoning applications

AHJs can identify preferred locations for data center development in their comprehensive plans and invite rezoning applications in those areas.

Municipalities and data center companies can agree on development conditions—sometimes called proffers, development agreements, or conditional zoning—which are voluntary commitments made by developers in return for allowed zoning. They outline specific conditions or promises agreed upon to mitigate the impact of proposed developments or to otherwise benefit the municipality's residents.

Development conditions may include infrastructure improvements, restrictions on use, environmental protections, community benefits, and other strictures. They are flexible enough to apply to various zoning categories, including PIRTs.

Option 4: Implement a specific data center zoning district defined by ordinance

Creating a data center-specific zoning district is a solution that's more detailed and restrictive than the previous three. We recommend it as a best practice in many jurisdictions because it establishes clear guidance on where data centers are permitted by right and eliminates the possibility that high-stakes decisions are made by exception. The ordinance should define data centers and outline general standards for building them, such as building size thresholds, height limits, and floor area ratio (FAR) requirements.

The zoning ordinance should include specific use standards for data centers, such as parking, setbacks, buffering, plumbing fixture counts, equipment screening requirements, and operational sound limits. The next chapter consists of a model ordinance that AHJs can adopt.

22 "About Stanford Research Park," Stanford Research Park, https://stanfordresearchpark.com/about/.

5 Model zoning ordinance guidelines

AHJs that want balanced and transparent zoning standards that mitigate unwanted impacts while encouraging the many potential benefits of data center development can take this zoning ordinance off the page and adapt it.

No two jurisdictions are the same. Each needs to layer in its own considerations.

Our intention, however, is to offer a strong foundation upon which AHJs can build zoning districts for data centers defined by ordinance. Note that the language provided below is to be included in the zoning ordinance and there may be other provisions that govern development, such as in the building code as it pertains to plumbing fixtures, that may need to be adjusted.

For example:

- Rural counties can consider additional guidelines and requirements when a data center is adjacent to certain agricultural uses or other sensitive uses.
- Urban municipalities can consider additional guidelines and requirements when a data center is adjacent to transit hubs or to prioritize pedestrian activity.

Zoning categories

Broadly, zoning districts in which data centers have specific considerations fall into four categories:

Residential: Because data centers are ultimately an industrial use, we believe that data centers are not appropriate in residential districts.

Industrial: Given the nature of data centers, they should be permitted in all industrial categories, from light industrial to heavier industrial. In such areas, data centers should be permitted as any other industrial use would be allowed, including following the same height, setback and landscaping requirements.

Rural/agricultural: In rural areas, data centers should be permitted to the extent that industrial uses would be permitted in such areas, provided that the same conditions are applied that would be applied to permissible industrial uses on such land. If another industrial use would require a certain setback, landscaping treatment or other mitigation on rural or agricultural land, our recommendation is that the same conditions be applied for a data center on such land.

Commercial: Data centers in commercial areas can be appropriate, provided they comply with certain use standards as set forth below. For the purpose of this section, commercial districts are defined as ones that permit a diversity of nonresidential uses, such as office and retail.

Use standards for commercial areas

Data centers shall be permitted by right in commercial districts if the following criteria are met:

1. To provide screening and reduce noise levels, all equipment for cooling, ventilation, or otherwise operating the facility—including generators or other power supply equipment—must be fully enclosed, except when determined by the [zoning administrator] not to be mechanically feasible. If the zoning administrator determines that full enclosure is not mechanically feasible, all equipment for cooling, ventilation, or power generation must be screened by a wall or similar barrier. In addition, any accessory electrical substation must be screened from adjacent nonindustrial properties or public streets by a wall or similar barrier. This standard does not apply to solar panels.
2. A data center building must include a main entrance feature that is differentiated from the remainder of the building façade by a change in building material, pattern, texture, color, or accent material. The entrance feature must also either project or recess from the adjoining building plane.
3. The primary façades of data centers must include either:
    a. A change in the primary facade surface for every approximately 150 horizontal feet of at least one of the following: building material, pattern, texture, color, or accent material; or

b. A minimum of thirty percent (30%) of the primary facade shall be comprised of windows, doors, or similar fenestration design features such as faux windows that are generally distributed horizontally and vertically across the façade.

c. These standards do not apply to accessory uses.

d. For the purposes of this requirement, a primary facade shall be deemed to be a facade that fronts on a public street.

4. Buildings may be constructed up to one hundred (100) feet (30.5 meters) in height or taller with special exception approval and subject to FAA limitations.

5. FAR shall not exceed [1.5 times the maximum FAR of the commercial district] without approval of a special exception. With approval of a special exception, the FAR may be increased to [2.5 times the maximum FAR of the commercial district].

Use standards for industrial areas adjacent to residential

Although data centers are appropriate in all industrial zoning categories, special attention may be afforded when industrial land is adjacent to residential. In such cases, the following language could be included in the locality's zoning ordinance:

1. Where industrial is adjacent to residential or any other sound-sensitive use, any data center building or ancillary equipment should (1) be located at least 200 feet (61 m) from the residential or noise-sensitive use or (2) meet the other standards set out for data centers in the commercial districts set out in section 1.

   a. A lesser distance that does not conform to the standards in paragraph 1, above, may be allowed with special exception approval.

Parking requirements for all data centers

As referenced elsewhere in this document, the parking requirements for data centers are far less than would be required for another industrial or commercial use of a similar size. Overbuilding parking for a given data center site or campus can be unnecessarily costly but more importantly creates excess impervious surface and avoidable environmental consequences. Accordingly, we recommend that the parking requirements for data centers be established either by:

1. Applying the parking requirements for office that exist in the ordinance, but only to the portion of the data center building that is actually utilized for office space; or

2. Requesting a staffing plan from the data center developer and allowing such data to inform the minimum number of needed parking spaces.

6 Appendix, contacts, and additional resources

Appendix: case studies

Google's Gmail and the need for redundancy

According to Google's podcast *Where the Internet Lives*,[23] Gmail launched in 2004 while offering a staggering 1 gigabyte of storage—more than 250 times the capacity of other email services at the time.

Gmail revolutionized user expectations and increased the need for data center capacity. It made every individual's account data exist on multiple interconnected servers at Google's hyperscale data centers, ensuring that users always have access to their personal information, even in the event of individual server failures, and allowing users to search and organize emails in a new way.

The Meta outage and the quest for data center capacity

The October 2021 Meta outage affected Facebook, Instagram, WhatsApp, Messenger, Oculus, and other services, making them inaccessible to billions of users for six to seven hours. This disruption, caused by an ill-timed and erroneous maintenance command, led to a cascade of failures that severed Meta's data centers from the internet. The primary cause was a lack of redundancy in the backbone network, which left no failover capacity for critical services.[24]

The economic impact was significant, with individuals and businesses that relied on these services facing major interruptions—amplified by the fact that many users sign in to other apps and services through their Facebook logins. As Mike Isaac and Sheera Frenkel wrote, in the New York Times, this mix of factors led "to unexpected domino effects such as people not being able to log into shopping websites or sign into their smart TVs, thermostats, and other Internet-connected devices."[25] Meta's stock value dropped by billions of dollars during and after the outage.[26]

Google's financing of a water treatment plant

In 2012, Google funded the Sweetwater Creek Sidestream Plant in Douglas County, Georgia. This move made its nearby data center the first in the state to use recycled water for cooling. Google partnered with the Douglasville-Douglas County Water and Sewer Authority on an initiative to conserve the Chattahoochee River's potable water supply, especially during droughts and summertime.

AWS' community incentives package in Mississippi

As part of AWS' $10 billion data center campus investment in Mississippi—the single largest capital investment in that state's history—the company funded Mississippi's first utility-scale wind farm, located in Tunica County, and developed STEM-focused workforce training and career awareness programs for K-12 school systems.

The hyperscaler committed to supporting local educational institutions—community colleges, technical schools, universities, and workforce development organizations—by developing training programs for high-demand career pathways in data center construction and operations, as well as the broadband expansion sector. AWS also provided a free cloud computing curriculum to local institutions and learners.

Fredericksburg, VA's windfall

Located southeast of Loudoun County, Fredericksburg, Virginia, is an emerging exurban hyperscale campus market. Alongside its regional partners, it represents a case study in attracting data center development—and landmark economic and fiscal benefits–while also mitigating potential concerns well in advance.

In March 2024, Virginia's governor, Glenn Youngkin, alongside other state and local elected officials, announced that AWS was making a $35 billion investment in data centers in Spotsylvania, Caroline, Stafford, and Louisa counties, thereby creating approximately 2,000 new jobs. It was also announced

23 Fischer Barry, "Two: Inside the Walls," Where the Internet Lives, December 9, 2020, podcast, 40:54, https://www.google.com/about/datacenters/podcast/.

24 Kerry Sheridan, "Facebook Outage: Social Media Giant Blames Network Problem for Global Disruption," BBC News, October 4, 2021, https://www.bbc.com/news/technology-58793174.

25 Mike Isaac and Sheera Frenkel, "Gone in Minutes, Out for Hours: Outage Shakes Facebook," New York Times, October 4, 2021, https://www.nytimes.com/2021/10/04/technology/facebook-down.html.

26 Greg Roumeliotis, "Facebook Services, Including Instagram and WhatsApp, Suffer Worldwide Outage," Reuters, October 5, 2021, https://www.reuters.com/technology/facebook-instagram-whatsapp-suffer-outage-2021-10-04/.

that AWS would be contributing $400,000 in community funds within those four localities, which, together with bordering Fredericksburg, constitute an economic region: the Fredericksburg Area Association of Realtors service area.

What Youngkin called the largest single economic development investment in the history of the state didn't happen by accident. The Fredericksburg Regional Alliance (FRA) at the University of Mary Washington and other regional groups had together been paving the way for data center development since 2016, when they also focused on ensuring the facilities would be built away from residential areas or well-buffered if close to them.

"The reality is [that] this region is one of the [fastest-growing] areas in the Commonwealth. With growth comes the need for infrastructure and services that the area can [afford only] by attracting new revenue sources or raising taxes on local businesses and residents," stated Curry Roberts, president of the FRA, in a local op-ed. "To get ahead of this [need], leaders in our region have worked for over a decade to attract data centers and the tremendous local tax revenue they bring."

According to Roberts, the regional coalition began its quest by evaluating 50 sites to determine whether—based on zoning, transmission lines, and water access—they were compatible with data center use. The coalition eventually narrowed it list down to 15 locations across five localities, with each site exceeding 100 acres. This groundwork set the stage for an ambitious economic development plan aimed at attracting major industry players such as AWS.

Roberts emphasized the importance of getting information in front of the public proactively, rather than waiting for opposition to arise. Stafford County, for example, held several community meetings to educate people about data centers before any specific projects were proposed.

Stafford and Spotsylvania counties set the stage for evaporative cooling by engineering recycled wastewater systems for that purpose in data centers. These systems are now used by data centers, which pay for the service, thus creating additional revenue for the localities.

When AWS approached regional leaders in 2018 about a data center project, the FRA was able to act quickly. It coordinated with localities to harmonize tax rates and depreciation schedules on a parcel that straddled several jurisdictions, ensuring a straightforward fiscal environment for AWS.

Although the project stalled during the pandemic, by 2023 AWS had acquired and entitled approximately 2,500 acres (1,012 ha), paving the way for the development of 18 million to 19 million square feet (1.7 million–1.8 million sq m) of data center space.

Tax benefits from the investment are immense. According to Roberts, for every dollar of service demanded by a data center, the operator is paying $13 in taxes.

Elk Grove Village's innovation district

Elk Grove Village, Illinois, a suburban community northwest of downtown Chicago, is located at a major fiber intersection. It intentionally attracted data center development through a combination of zoning code modifications, the promotion of strategic location advantages, and proactive communication with the development community.

Since its formation, the village has had unique zoning. The eastern half of the community, adjacent to O'Hare International Airport, is home to the largest contiguous industrial park in the United States and is zoned as such. The western half of the village is primarily residential and zoned to protect housing.

Matthew Roan, the village manager of Elk Grove Village, said the municipality updated its zoning code to spur redevelopment within its office park by creating a new "innovation and technology" zoning district that specifically permitted data centers as an approved use, thus inviting data center operators to fill unused space.

Additional modifications to the zoning code allow data centers to have greater building heights and front-yard fencing or screening that wouldn't normally be permitted for industrial uses. Other changes reduce parking requirements. All of these changes allow data center builders to get their projects off the ground more quickly, amid the certainty that the structures can be built and won't struggle in the approvals process—an uncertain phase that makes land acquisition too risky for some parties.

This proactive approach has attracted data center developers and hyperscalers, including Meta and Microsoft. Roan, who has served in various roles in village government since 2000, said it brought significant economic benefits to the region, including long-term development and permit fee revenues, financial assistance for local school districts and other taxing bodies, high-quality site aesthetics, and temporary construction jobs. The increased tax and fee revenue from data centers allowed the village to reinvest in infrastructure improvements and redevelopment projects, he said.

This strategic positioning of Elk Grove Village as a data center hub exemplifies how proactive municipal policies can drive growth and innovation—as well as stable economic returns. Once data centers make their large capital investments, Roan said, they tend to stay in the community long term, unlike more transient industrial users.

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7 Glossary

air-cooled chiller system: A cooling system sealed in a closed loop that typically consumes very little water—less than the amount used in three single-family homes.

clustering: The practice of data centers locating near one another, connecting their servers to work as a unified system, or both.

colocation data centers: Multi-tenant data centers where third-party operators (developers) lease data center space—a certain number of server cabinets, for example, or kilowatts (kW) to a host of other companies.

corporate data centers: Also called enterprise data centers, these facilities store and process a single organization's data. These data centers often store the data of financial institutions—think American Express or Wells Fargo—that typically own and operate such facilities themselves, rather than leasing them from a provider.

data center: A building or campus that houses the infrastructure that supports the world's computing functions.

data hall: The rooms in data centers where data is processed and stored.

evaporative cooling: A cooling system that uses large fans to move air across a wet medium to evaporate water, which removes the heat from the data center and cools the air.

hyperscale data centers: Large data center buildings or campuses that process and store the data of companies that often need to scale up or scale down their infrastructure quickly.

hyperscaler: A company that occupies and operates a large data center building or campus. These companies—which include AWS, Microsoft, Google and Meta, often need to "scale up" their infrastructure quickly.

latency: The time it takes for information to travel from its source to its destination.

load balancing: The process of distributing network traffic across multiple servers at interconnected data centers.

node: An individual server in a cluster of servers.

phasing: A process for data center campus construction that occurs in stages.

power distribution units (PDUs): Devices that distribute energy to servers, network devices, and other equipment within a rack.

power purchase agreements (PPAs): An agreement between a data center company (the buyer) and a renewable energy provider (the seller) to purchase electricity from specific wind or solar farms.

purple pipe system: A recycled water setup whereby water is treated to remove contaminants, solids, and impurities and then distributed via plum-colored pipes.

renewable energy certificate (REC): A tradable commodity wherein each REC equates to the generation of 1 MWh of power from a qualified renewable resource, usually wind or solar power generation facilities.

switch: A device used to connect network devices and route data through interconnected networks.

switchgear: Power distribution equipment that controls, protects, and distributes electrical power throughout the data center.

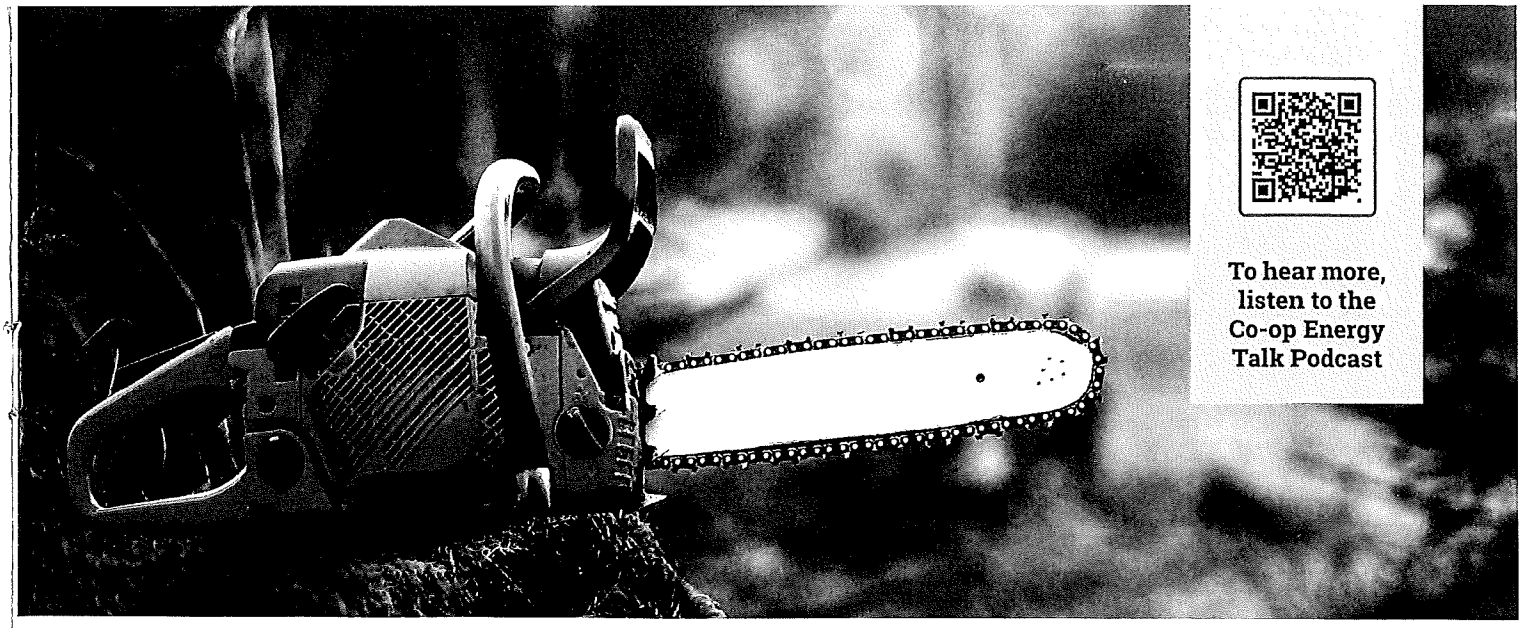
telecom data centers: Where traffic from cell towers "switches" to go out to the internet. Typically owned by such telecommunications companies as Verizon, these centers tend to be smaller facilities than the other data center types and require less than 10 kWs.

uninterruptible power supply (UPS) systems: Electrical equipment used in data centers to provide battery backup power in the event of a power outage.

utility substation transformer: A large electrical device in the electrical yards of a data center campus that steps down high-transmission voltages from the utility grid to lower, more manageable medium-voltage levels suitable for distribution throughout the data center.

water-cooled chiller system: An open-loop pipe system in which water removes heat from the refrigerant.

wholesale data center: A type of data center where a third-party developer rents a large portion of the space, the energy capacity, or both to one company–often, all of it.



To hear more, listen to the Co-op Energy Talk Podcast

Data Centers and Chainsaws

By Rachel Johnson, Cherryland CEO

Last spring, the forecasts started rolling in. An ice storm was coming, and it looked like it was going to wallop us.

I stopped by our warehouse to check in with the line crews. Nobody was standing around waiting to see how bad it would get. They were sharpening chainsaws, stocking trucks, and coiling wire. Operational readiness is in our DNA here at Cherryland.

For Cherryland, the storm turned out to be a lot milder than predicted. All that preparation for a punch that never really landed. But the preparation was still worthwhile.

That mindset is exactly how your cooperative is approaching one of the most talked-about topics in our industry right now: data centers.

You've probably seen the headlines. These massive computing facilities—the ones powering everything from artificial intelligence to your streaming service—use staggering amounts of electricity. A single hyperscale data center can use more power than every Cherryland member combined, several times over. As they spread across the country, they bring both real opportunity and real risk.

Today, developers are not knocking down our door. We are not actively discussing any data center development in our service territory. That makes it the perfect time to prepare in case they do.

Like every electric utility in Michigan, we're legally required to serve a large facility if one decides to build here. That's why we've spent this year developing policies aimed at protecting your interests.

These policies start by requiring non-refundable deposits to ensure we don't spend staff time on speculative projects. If a developer is serious, and they make the deposit, they will be required to cover all engineering studies and infrastructure upgrades needed to serve them. Additionally, they must pass strict financial screenings, put down significant collateral, and sign long-term contracts with real exit penalties—so if they ever walk away, they don't leave you holding the bill.

In the spirit of these policies, Cherryland also recently signed onto a national ratepayer protection pledge, a White House initiative aimed at ensuring regular consumers do not subsidize the data center boom.

These requirements put structures in place to protect your interests, without slamming the door on development. A large electric load from a serious, financially sound company could actually benefit members by spreading our fixed costs across a bigger base and helping keep everyone's rates stable. We're not anti-growth. We're anti-you taking on the risk.

Many developers will hang up the moment they hear how rigorous our requirements are. That's fine by me. We're not chasing this, but if the right opportunity ever knocks, we'll answer from a position of strength.

Storm forecasts remind us not to panic, not to assume the worst, but to always be prepared. That's how we show up for you when the storm hits and it's how we're approaching this one, whether it ever arrives or not.

Whatever is coming our way, your cooperative is ready.

Draft Zoning Ordinance Amendments, by Section

Section 1 – Amendments

Pursuant to this Ordinance, the following sections of the Township of Lima Zoning Ordinance shall be amended in accordance with the below text upon the effective date of these amendments:

Section 2.2. Definitions.

...

Closed-Loop Cooling System. A sealed system where coolant circulates continuously, absorbing heat from a source, and then transfers that heat to a heat exchanger for removal, without the coolant ever being exposed to the environment.

Data Processing or Computer Center, Large-Scale. A building greater than 50,000 square feet in gross floor area which is used primarily for the storage, management, processing, and transmission of digital data, which houses computer or telecommunications equipment and associated components related to digital data operations, as well as systems for water supply, wastewater management, and electrical power generation necessary to serve these operations.

Data Processing or Computer Center, Small-Scale. A building or group of buildings less than or equal to 50,000 square feet in gross floor area which is used primarily for the storage, management, processing, and transmission of digital data, which houses computer or telecommunications equipment and associated components related to digital data operations, as well as systems for water supply, wastewater management, and electrical power generation necessary to serve these operations.

Monitoring Well. A well structure designed and installed to provide controlled access to obtain representative ground water samples and hydrogeologic information to detect the occurrence of seepage, ground water levels and other data in order to evaluate levels of potential ground water contamination and subsidence due to excessive ground water consumption.

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Article 4 - Zoning District Regulations

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Section 4.5.15 – LI – Light Industrial - Special Uses (All Special Uses subject to Section 3.3)

10. Shops fabricating merchandise to be sold on the premises, provided not more than five (5) persons are employed on the premises in such production.
11. Data Processing or Computer Center, Small-Scale, subject to the standards of Section 5.59 of this Ordinance.

12. Data Processing or Computer Center, Large-Scale, subject to the standards of Section 5.59 of this Ordinance.

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4.5.14 R-O, Research Office District.

R-O, Permitted Uses

1. Corporate, executive and administrative offices.
2. ~~Data processing or computer centers, including sales, service and maintenance of electronic data processing equipment.~~[1]

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4.5.17 VC – Village Commercial.

Permitted Uses

10) Retail office supply, computer and business machine sales and related computer and business machine repair and maintenance services.

Article 5 - General Provisions and Supplementary Regulations

Section 5.59. Data Processing and Computer Centers

5.59.1 In addition to other regulations set forth in this ordinance; all data processing or computer centers shall conform to the following requirements[1]:

a. Minimum Land Area: The minimum land area for all data processing or computer center sites shall be no smaller than is required under Section 4.6.A – 4.6.C of the Zoning Ordinance (Schedule of District Regulations) for the LI – Light Industrial zoning district.
b. Open space: A minimum of 25% of the land area of any data processing or computer center must be preserved as open space.
c. Setbacks: For large-scale data processing or computer centers, the minimum setback for buildings and structures, including any substations or other above-ground structures required to support power demand, shall be 500 feet from all lot lines, and the minimum setback for parking shall be 350 feet. For small-scale data processing or computer centers, setbacks for LI – Light Industrial uses as stated in sections 4.6.A – 4.6.C of the Zoning Ordinance shall apply.
d. Buffering and Greenbelts: For large-scale data processing or computer centers, a 100-ft.-wide greenbelt must be maintained along the perimeter of the property. Within the 100-ft. greenbelt required for large-scale data processing or computer centers, a berm shall be provided to a height of six (6) feet, with a side slope no steeper than 3:1 (three (3) foot horizontal to one (1) foot vertical). The top of all berms shall have a level horizontal area of at least ten (10) feet in width. For small-scale data processing or computer centers, greenbelts shall be required based on the minimum requirements under Section 6.2 of this Ordinance.
e. Screening / Fencing: The project site shall be appropriately demarcated by fencing or screening methods in addition to the required berm under subsection d above, including walls or fences, at the discretion of the Planning Commission. The Planning Commission may evaluate screening fence or wall materials and heights based on aesthetic, noise or light mitigation, or security needs. The use of barbed wire is prohibited within view from a public or private street.
f. Parking: 1 for each employee based on the maximum employee shift.
g. Noise:
    i. Maximum Allowable Noise. The applicant shall model sound impact and submit a report detailing sound modeling results, demonstrating sound pressure level not to

exceed 50 dBA (Leq (1-hour)) at the nearest property line of a rural or residential zoning district, to include the RC, AG-1, AG-2, RR, R-1A, R-1B, R-1C, R-1D, or R-2 zoning districts.

ii. **Ambient Sound Level.** Noise shall also account for ambient sound levels. Ambient sound level means the A-weighted sound level of all sound associated with a given environment, exceeded 90 percent of the time (L90) measured with a sound level meter set to the fast-time-weighting and being a composite of sounds from many sources during the period of observation, which shall be at least ten minutes, and shall be while the sound from the noise source of interest is not present. The Township has discretion to require one or more measurements of ambient sound levels at different times of the day. For each time-of-day measurement, the Township has discretion to require measurements at one or more distinct locations adjacent to or on the site, to reflect different conditions related to traffic and other background noise. Sound pressure level measurements in Leq (1-hour) for the proposed data processing or computer center facility shall be submitted with corrections for each ambient sound measurement.

h. **Air Pollution**: All equipment, including gas-powered generators for backup power and other equipment, must minimize air pollutant emissions. Where specific emissions standards are enforced by the State of Michigan or the United States Environmental Protection Agency (EPA), the most stringent available standards for regulating air emissions and for testing equipment must be used. Airborne emissions must adhere to the standards of Section 6.3 of the Zoning Ordinance. If a conflict exists between Section 6.3 of the Zoning Ordinance and the most strict available state or federal standards, the most strict available state or federal standards shall prevail.

i. **Vibration.** Data processing or computer centers shall not generate any vibration in violation of Section 6.4 of this Ordinance.

j. **Cooling Methods.** To preserve the availability of the nearby potable water supply and to maintain the integrity of area surface and groundwater resources, any data processing or computer center that proposes to use water cooling must do so primarily through a closed-loop cooling system or recycled water system that does not rely primarily on evaporative water cooling. New water extraction and usage shall be limited primarily to potable drinking water and restrooms for employees, humidification systems, fire suppression, and irrigation. Water used for cooling data processing or computer center equipment is limited to no more than 25% of all new water usage, measured annually as the average water usage in gallons per day (GPD).

k. **Water Usage**: Water Utilization Report to be submitted with application to detail minimum total daily intake volume and water source(s), discharge volumes and destination, cooling system details, and to demonstrate compliance with the County's stormwater regulations and compliance with the requirements of applicable authorities for public (Chelsea or Sylvan Township) or private (Washtenaw County) water service and wastewater disposal. If a private / well water supply method is proposed, provide details for monitoring wells. An annual report shall be provided to the Township zoning administrator which demonstrates consistency with the original project terms regarding water usage.

l. **Impacts to nearby water bodies.** If any wells or ponds on neighboring properties go dry as a result of water usage by the Data Processing or Computer Center, the developer and/or the tenant will pay all costs to restore the pond or water service of such neighboring wells.

m. **Energy Demand**. An Energy Management Plan shall be submitted with application to detail annual electricity demand, supply sources to be utilized, energy storage capacity, and use of

renewable/ clean energy. The Energy Management Plan shall include a maximum feasible renewable energy capacity analysis that demonstrates the maximum feasible supply of power on site can be provided by on-site solar and/or wind energy facilities given the size of the project. The data processing and computer center shall be constructed with on-site solar and/or wind energy facilities and shall utilize these facilities for power generation pursuant to this maximum feasible renewable energy capacity analysis. An annual report shall be provided to the Township zoning administrator which demonstrates consistency with the original project terms regarding energy demand.

n. Electronic Waste Plan. An Electronic Waste Plan shall be submitted with application to outline procedures for safe removal and recycling/disposal of server infrastructure and hazardous materials. An annual report shall be provided to the Township zoning administrator which demonstrates that the site is compliant with the original electronic waste plan.

o. Third Party Expert Reviews. Upon receiving an application for a data processing or computer center project, the Township shall establish an escrow payment account or escrow payment accounts as necessary to solicit expert third-party reviews of reports and analyses pursuant to this section and, where applicable, to monitor compliance with the standards set forth in this section regarding noise, air pollution, vibration, cooling methods, water usage, energy demand, and/or electronic waste disposal, as deemed necessary by the Township. The applicant shall submit initial payments for these third-party expert reviews in accordance with fees set forth by resolution of the Township Board of Trustees. Additional fees shall be submitted upon request by the Township based on the scope and complexity of review and monitoring services.

p. Metering and Records. All power and network measurements shall be made with calibrated instrumentation and retained for a minimum of three (3) years. Facilities shall maintain power meter logs, cooling system logs, network telemetry or provider confirmations, staffing records, and maintenance schedules for a minimum of three (3) years and shall produce these records upon request.

q. Decommissioning Plan. The application shall include a decommissioning plan that that is consistent with agreements reached between the applicant and other landowners of participating properties and that ensures the return of all participating properties to a useful condition similar to that which existed before construction. The decommissioning plan must describe the following:

    i. Anticipated life of the data processing or computer center;
    ii. The manner in which the project will be decommissioned;
    iii. Actions that will be taken to restore the site;
    iv. The process for removal of specific equipment;
    v. The estimated cost of the decommissioning process;
    vi. The method for ensuring that the owner and/or operator will have sufficient funds available for decommissioning and restoration, including, but not limited to, the posting of a financial security for decommissioning and restoration; and
    vii. The terms under which the financial security listed under this section will be executed and enforced by the Township, including penalties for failure to provide the financial security upon a continuous period of inactivity without decommissioning the site.

r. Financial Security for Decommissioning. A financial security must be provided for decommissioning in the form of a bond, a parent company guarantee, or an irrevocable letter of credit, or cash. The amount of the financial security shall not be less than the

estimated cost of decommissioning the data processing or computer center facility, after deducting salvage value, as calculated by a third party with expertise in decommissioning, hired by the applicant. Such financial security shall be submitted prior to the commencement of construction.

s. Operational Status. A data processing or computer center shall be deemed "operational" only if it meets all of the following criteria during a continuous period meeting the duration requirement in the sections below:
    i. Power Utilization. Continuous, measurable utility grid power draw or behind the meter generation load allocated to IT equipment exceeds eighty percent (80%) of the facility's average peak IT power consumption, which is the arithmetic mean of the monthly peak IT power values measured over the preceding twelve (12) months of full operation, unless the Township prescribes an alternative metric (e.g., 95th percentile) by regulation. If less than twelve (12) months of prior full operation exist, the baseline shall be established per rules promulgated by the Township. Power draw shall be measured at a point that captures only IT load (e.g., IT distribution bus or rack PDUs) using calibrated meters. Measurements shall be recorded at a minimum sampling frequency of fifteen (15) minutes.
    ii. Cooling System. An active heat rejection or mechanical cooling system (evaporative, chilled water, or direct expansion) is operating and capable of maintaining environmental conditions required for energized IT hardware. Capability shall be demonstrated by compliance with applicable industry environmental standards (e.g., ASHRAE) or by documented engineering specifications and recent functional tests.
    iii. Network Connectivity. Active, provider provisioned fiber optic or satellite connectivity is carrying live bi directional data traffic through a designated meet me room (MMR) or equivalent interconnection facility. Live data traffic shall be evidenced by metered network telemetry or provider confirmation and shall exceed a de minimis throughput threshold established by rule.
    iv. On Site Staffing. On site personnel presence shall equal or exceed eighty percent (80%) of the employee hours of the facility's peak employment average over the preceding twelve (12) months of full operation. Only qualified personnel as defined below, assigned to standard operating shifts, may be counted toward this requirement. Staffing shall be documented by timekeeping, access logs, payroll records, or equivalent records. "Qualified personnel" shall include employees whose duties are within technical operations, IT administration, facility engineering, or roles otherwise designated by the facility and accepted by the Township. The Township may prescribe minimum training, certification, or experience requirements by rule.

t. Planned outages. A data processing or computer center may have a planned outage for a period not to exceed three (3) months if the facility provides prior written notice to the Township and documents the outage in other relevant reporting requirements of this section. Force majeure events, emergency conditions, or other exceptions may be considered by the Township upon timely submission of supporting documentation.

u. Automatic Decommissioning Requirement. If a data processing or computer center is not operational for a continuous one-year period, or if substantial action on the project is discontinued for a period of one year, the project shall be deemed abandoned and must be decommissioned. The owner, operator, permit holder and/or their successor(s) in interest shall have one year to complete decommissioning of the facility. The decommissioning shall be in compliance with the approved decommissioning plan, and the owner, operator, permit

holder and/or their successor(s) in interest shall notify the Township when the project has been decommissioned.

v. **Notice and Cure.** Prior to final determination of decommissioned status, the Township shall provide written notice to the facility operator and allow a reasonable cure period.

w. **Commitments to terms** of the noise, air pollution, water usage, energy demand and electronic waste documentation may be required by the Planning Commission to be bound to a development agreement that is recorded against the property.

x. Construction Requirements

i. **Hours of Construction Activities.** All work at the site shall be performed during regular working hours (7:00 a.m. to 7:00 p.m.), and Contractor will not permit the performance of Work on Sunday or any legal holiday without the permission of the Township, except for the purpose of making emergency repairs and for the proper protection of the Work, such as the curing of concrete.

ii. **Lighting.** Any lighting that is required to complete construction of a data processing or computer center must comply with the standards of Section 6.7 of this Ordinance (Artificial Lighting, Exterior Lighting, and Glare).

iii. **Use of Roadways and Site Access.** Construction vehicles with a gross vehicle weight rating, actual gross weight, or a gross combination weight of 10,001 pounds or more used by the data processing or computer center primary contractor or subcontractors shall be subject to the restrictions applying to commercial trucks as defined and regulated in Ordinance No. 28 (Truck Route Ordinance). The Township and its representatives, including third-party experts, Testing Agencies, and Governmental Agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection, and testing. The data processing or computer center contractor shall provide proper and safe conditions for such access.

iv. **Dust control and water usage.** The data processing or computer center primary contractor and all subcontractors must present acceptable plans to suppress and control dust. Where possible, a suitable dust suppressant other than water should be used for dust suppression. Where water is required to be used as a method of dust control during construction, the data processing or computer center primary contractor and all subcontractors must secure required permits from for groundwater or public water withdrawals.

v. **Violations.** Any construction related to data processing or computer centers that does not comply with this subsection shall be deemed a violation of this Ordinance and punishable as provided by Section 3.11 (Sanctions for Violations), herein.

y. Compliance, Enforcement and Penalties.

i. **Compliance Submissions.** Data processing or computer center facilities shall submit periodic attestations and supporting records as prescribed by Lima Township to demonstrate compliance with the requirements of this section.

ii. **Inspections and Audits.** The Township may inspect, audit, or require third party verification of records and instrumentation.

iii. **Penalties.** Violations of this Section shall be punishable as provided by Section 3.11 (Sanctions for Violations), herein and shall be subject to penalties, administrative remedies, or other enforcement actions as provided elsewhere in this ordinance. The Township shall publish an enforcement schedule by rule.

iv. **Appeals.** Facilities may administratively appeal determinations of dormancy or decommissioning pursuant to procedures established by the Township.

v. **Reimbursement of costs.** The data processing or computer center shall reimburse Lima Township for all costs incurred in monitoring compliance with the requirements of this section.

Article 14 - Amendments

Section. 14.1. Initiating Amendments.

Section 14.1.A. Amendments to the Future Land Use Map and Master Plan.

1. The Planning Commission and Township Board are obligated to review their adopted community-wide Master Plan at a duration of every five years or less under the Michigan Planning Enabling Act (PA 33 of 2008). Additionally, opportunities may be presented by external interested parties to explore amendments to portions of the Master Plan at a greater frequency or in a more specific focus area than is available with Township-wide Master Plan based on a perceived public safety, health, welfare or economic interest.

2. The Planning Commission may explore and potentially recommend adoption of, and the Township Board may adopt, amendments or modifications to all or a portion of the Township's Master Plan or the boundaries of its future land use map or a sub-area therein.

3. Amendments may be initiated by the Township Board, the Township Planning Commission, or by petition of one (1) or more property owners of Lima Township, or by one or more people acting on behalf of, and with the written consent of, a property owner(s) of Lima Township. All proposed amendments shall be referred to the Township Planning Commission for review and recommendation before action may be taken thereon by the Township Board.

4. Certain land uses or land use categories introduced through proposed changes to the Township's future land use map which are not otherwise consistent with previously established land use goals or objectives of the Township's adopted Master Plan may be proposed by interested parties on the premise that such uses must be accommodated to because of a demonstrated need for the use within either Lima Township or in the surrounding area within the state.

5. At the discretion of the Planning Commission, extensive data shall be required to demonstrate this type of land use need. At the discretion of the Planning Commission, market analyses, feasibility studies, environmental impact studies, and other studies may be required to justify an amendment to the future land use map or Master Plan on the basis of the uses accommodated by the amendment meeting a demonstrated need in Lima Township.

6. At the discretion of the Planning Commission or Board of Trustees, community engagement efforts including open house events, design charettes, public input surveys, and other methods may be requested in order to inform a recommendation for or against an interested party-initiated amendment to the future land use map or Master Plan.

Section 14.1.B. Amendments to the Zoning Ordinance or Zoning Map.

The Township Board may, from time to time, amend, modify, supplement, or revise the district boundaries or the provisions and regulations of this ordinance. Amendments may be initiated by the Township Board, the Township Planning Commission, or by petition of one (1) or more property owners of Lima Township, or by one or more people acting on behalf of, and with the written consent of, a property owner(s) of Lima Township. All proposed amendments shall be referred to the Township Planning Commission for review and recommendation before action may be taken thereon by the Township Board.

Section 14.2. Fees.

Section 14.2.A. Fees for Interested Party Initiated Master Plan Amendment Exploration by the Planning Commission.

1. The Township Board shall establish, by resolution, fees for the process of prompting the Planning Commission to study and review requests for amendments to the future land use map or as part of a partial or sub-area, or whole, update of the Township's adopted Master Plan.

2. Fees shall reflect a value proportional to the land area covered by the request and the administrative cost of facilitating Planning Commission study sessions, community engagement efforts, a public hearing, and other formal processes required for Master Plan amendments in accordance with the Michigan Planning Enabling Act (PA 33 of 2008).

3. Submittal of an application and fee by an interested party does not guarantee of a requested future land use map or master plan amendment.

Section 14.2.A. Fees for Zoning Ordinance or Zoning Map Amendments.

The Township Board shall establish, by resolution, fees for zoning amendment petitions. The fee shall be paid in full at the time of filing of the petition, and no part of the fee shall be returnable to the petitioner. Fees shall not be required for amendments proposed or requested by any government agency or body.

Section 14.3. Zoning Ordinance Amendment Procedures.

Section 2 – Severability

Should any provision or part of this Ordinance be declared by any court of competent jurisdiction to be invalid or unenforceable, the same shall not affect the validity or enforceability of the balance of this Ordinance, which shall remain in full force and effect.

Section 3 – Repeal

All other provisions of the Zoning Ordinance, or Ordinances or parts of Ordinances, in conflict with this Ordinance are hereby repealed only to the extent necessary to give this Ordinance full force and effect.

Section 4 – Savings

Nothing in this Ordinance shall be construed to affect any suit or proceeding pending in any court or any rights acquired or any liability incurred, or any cause or causes of action acquired or existing, under the Zoning Ordinance, or any act or Ordinance hereby repealed as cited in Section 3 of this Ordinance; nor shall any just or legal right or remedy of any character be lost, impaired, or affected by this Ordinance.

Section 5 – Effective Date

The provisions of this Ordinance are hereby ordered to take effect seven (7) days after publication of the notice of adoption in a newspaper of general circulation within the Township. This Ordinance shall be immediately recorded by the Township Clerk in the Township Ordinance Book as soon as it is adopted, which record shall be authenticated by the signatures of the Supervisor and Clerk and shall be published in a newspaper of general circulation in the Township within fifteen (15) days of passage.

A copy of this Ordinance may be purchased or inspected at the Clerk's Office, 12172 Jackson Road, Dexter, Ml 48130 during normal business hours.

Section 6 – Adoption

This Ordinance is hereby declared to have been adopted by the Township Board of the Township of Lima at a meeting duly called and held on the ## day of XXXX, 2026, and ordered to be given publication in the manner prescribed by law.

I hereby approve the foregoing Ordinance,

_____ _____

Ann Kwaske, Clerk Bill Van Riper, Supervisor

Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

SECTION 40- 11.~~50~~51: High Resource Demand Facilities

A. Purpose and Intent

The purpose of this ordinance is to establish a regulatory framework for siting, design, operation, and decommissioning of High Resource Demand Facilities, which include Data Centers and Data Processing Centers, in order to balance local economic benefits with protection of public health, safety, welfare, public infrastructure capacity, ~~natural resources,~~ and neighborhood character~~,~~ as well as local biodiversity, soil, water, and air quality. Standards are intended to:

1. Direct High Resource Demand Facilities to locations with existing and adequate infrastructure, redevelopment and infill of existing sites, and minimal land-use conflicts;
2. Avoid and mitigate nuisance impacts (noise, vibration, light/glare, air emissions);
3. Ensure efficient use of electricity and water, prioritizing renewable energy and conservation;
4. Promote context-appropriate architecture and robust screening;
5. Ensure compatibility with adjacent land uses and the Township's Master Plan; and
6. Ensure responsible decommissioning and site restoration.
7. ~~6.~~ Ensure High Resource Demand Facilities are developed in a manner that provides environmental benefits by protecting local ecology and minimizing greenhouse gas and carbon emissions to the greatest extent practicable.

B. Applicability

1. This section applies to High Resources Demand Facilities, Data Center and Data Processing Center uses, including Large-Scale, Small-Scale, and Accessory as defined herein.
2. High Resources Demand Facilities, Data Center and Data Processing Center uses, including Large-Scale, Small-Scale are not permitted as a principal use unless approved as a Planned Unit Development for the purpose of a High Resources Demand Facilities, Data Center and Data Processing Center and adopted through the PUD process set forth in Article 6.
3. Approval is contingent upon the applicant demonstrating conformance to the requirements of this ordinance and other standards of the Zoning Ordinance.
4. Where conflicts exist between this section and other provisions, this section governs. Where silent, other applicable provisions apply (e.g., lighting, landscaping, stormwater, and performance standards).
5. A facility shall not avoid applicability by dividing operations among multiple buildings, modules, tenants, parcels, or phases under common ownership or control.
4. ~~4.~~

C. Definitions

1. High Resource Demand Facility (HRDF): A principal nonresidential facility, campus, or group of buildings under common ownership or control that is characterized by (i) continuous or near-continuous operation, and (ii) significant mechanical, electrical, or cooling infrastructure, and that meets the applicability criteria in subsections (A) and (B) below.

   A facility shall be considered an HRDF only when the criteria of both A *and* B below are met:

   A. Operational Characteristics. The facility includes one or more of the following operational characteristics that are integral to the primary use:
      1. Central plant or large-scale mechanical cooling and/or ventilation systems serving process loads or IT/electronic equipment;
      2. On-site emergency generation with an aggregate nameplate capacity exceeding 2,000 kW or 2 MW, and/or on-site fuel storage exceeding 10,000 gallons;
      3. Dedicated electrical transformation/switchgear yard, substation, or similarly intensive electrical infrastructure primarily serving the facility;
      4. 24-hour operations and/or operational necessity requiring uninterrupted environmental control (temperature/humidity) or high-reliability power systems.

   B. Resource/Infrastructure Thresholds. The facility exceeds one or more of the following thresholds, as demonstrated by applicant-prepared estimates and utility/service provider documentation, including any phased expansion approved or constructed within five (5) years:
      1. Water demand: average daily water demand > 100 gpm;
      2. Sanitary sewer: average daily sanitary discharge > 50,000 gallons/day;
      3. Electric demand: maximum contracted demand or designed peak demand > 10 MW (or equivalent documented kW);
      4. Hazardous materials / regulated wastes: storage, use, or generation requiring reporting under [EPCRA Tier II and/or applicable state hazardous materials reporting] and/or generation of hazardous waste at a level regulated under [state/federal hazardous waste generator requirements], as documented on a materials inventory submitted with the application.

   Exclusions. HRDF does not include general warehousing/distribution, general manufacturing, or office uses unless the Zoning Administrator determines, based on operational characteristics and supporting documentation, that the facility is substantially similar in operational profile to HRDF-type facilities (e.g., high-reliability power demand and continuous environmental control serving electronic/process loads) and meets subsections (A) and (B).

Aggregation. Multiple buildings, modules, or phases located on the same site or on contiguous parcels under common ownership or control shall be aggregated for purposes of determining HRDF status and whether thresholds are exceeded.

Relationship to Data Centers. A Data Center or Data Processing Center that meets the HRDF definition shall be considered an HRDF and shall comply with all applicable HRDF supplemental standards.

2. Data Center: A facility used for the centralized storage, management, processing, and transmission of digital information, typically containing computer servers, data storage systems, telecommunications equipment, power distribution systems, cooling and ventilation systems, uninterruptible power supplies, backup generators, and associated support infrastructure. The term includes colocation centers, cloud-computing facilities, hyperscale computing facilities, cryptocurrency mining facilities, artificial intelligence training facilities, and similar high-intensity information technology operations. The term does not include small server rooms, IT closets, or similar equipment rooms that are clearly accessory and subordinate to another lawful principal use.
3. Data Processing Center: A building or portion of a building used primarily for the manipulation, analysis, computation, or transformation of digital information through computer hardware or specialized equipment. A Data Processing Center may include servers or digital processing equipment, but is typically of smaller scale or lower intensity than a Data Center and may involve office or administrative functions associated with data manipulation. The term does not include general business offices or accessory server rooms subordinate to a principal use.
4. Large Scale Data Center and Data Processing Center: A center equal or greater than 25,000 sq ft gross floor area or located on a site greater than 10 acres.
5. Small Scale Data Center and Data Processing Center: A center less than 25,000 sq ft, often serving local or regional networks.
6. Accessory Data Center and Data Processing Center: A center that is clearly incidental and subordinate to a principal use (e.g., hospital, university, large employer) and less than 10,000 sq ft.
7. Battery Energy Storage System (BESS). One or more electrochemical energy storage containers, inverters, switchgear, and associated equipment, which may be co-located with a High Resource Demand Facility to provide resiliency or load management.
8. On-site Substation/Switchyard. Electric utility facilities (e.g., transformers, breakers) necessary to serve a data center.
~~8.~~ 9. Ecological Integrity Assessment: A professional evaluation of the existing and potential ecological functions and conditions of a site and its surrounding area, including, as applicable, wetlands, woodlands, waterways, natural drainage systems, wildlife habitat, native vegetation, soils, groundwater, surface water, and other natural resources. The assessment shall identify existing ecological conditions, significant natural features, potential impacts of the proposed development, and measures to avoid, minimize, or mitigate adverse impacts to ecological functions and natural resource systems.

D. Districts Permitted and Process

1. Districts
    a) High Resource Demand Facility: allowed as a conditional use in I – Industrial only. Prohibited elsewhere.
    b) Large-Scale Data Centers and Data Processing Centers: allowed as a conditional use in I – Industrial only. Prohibited elsewhere.
    c) Small-Scale Data Centers and Data Processing Centers: allowed as a conditional use in I – Industrial ~~and BD – Business District~~. Prohibited elsewhere.
    d) Accessory Data Centers and Data Processing Centers: allowed as a Conditional Land Use accessory to an approved principal use in the I, Industrial, -BD, Business District, C2 – Regional Commercial Corridor, and PF – Public Facility districts. Prohibited elsewhere.
2. Process
    a) The Planning Commission shall hold a public hearing as set forth in 3.05 and make a recommendation to the Township Board.
    b) The Township Board, upon a recommendation from the Planning Commission, shall ~~approve~~ consider approval of site plan and conditional use.

E. Required Engagement Steps (minimum standards)

1. Pre-application conference (mandatory)
    a) Applicants shall meet with planning staff prior to submitting an application.
    b) Staff shall identify expected engagement topics, impacted stakeholders, and the required contents of the Community Engagement Plan.

2. Community Engagement Plan (CEP) (required with application)
    a) A CEP shall be submitted as part of the application package and must include:
        - Project overview (site, size, phasing, anticipated construction timeline);
        - Draft public information materials (fact sheet, FAQs);
        - Engagement schedule and methods;
        - Proposed meeting formats and locations (including virtual option);
        - List/map of stakeholders and the Engagement Area;
        - Languages and accessibility accommodations;
        - Communication channels (project website, email list, hotline);
        - Process for documenting comments and responses; and
        - Proposed Risk Mitigation
    b) The Zoning Administrator shall determine whether the CEP is complete prior to scheduling public hearings.

3. Neighborhood meeting(s) (mandatory, prior to first public hearing)

a) The applicant shall hold at least one neighborhood meeting no fewer than 21 days and no more than 60 days prior to the first public hearing.

b) Notice shall be given to all property owners and addresses (if different) within ~~500~~ 1,500 feet of the proposed project site. If a property is within ~~500~~ 1,500 feet and is part of a subdivision, homeowners, or business owners association, all members of the association shall be notified.

~~b)~~c) Notice shall be given to all locally impacted utility providers.

~~c)~~d) Additional neighborhood meetings may be required if:

- There are significant amendments, based upon determination of the Zoning Administrator, to the plan between Planning Commission or Township Board reviews; or
- The Planning Commission or Township Board directs additional engagement due to public interest.

~~d)~~e) Meeting requirements:

- Held at a location within Pittsfield Township that is ADA-accessible, and available after 5:00 p.m. on a weekday or on a weekend;
- Virtual participation option must be provided;
- Applicant must provide interpreters upon request with at least 7 days notice; and
- Meeting must include a Q&A segment and accept written comments.

4. Report

a) After each neighborhood meeting, the applicant shall submit a report to the Township providing at a minimum, the following meeting details:

1. Meeting details (location, time, etc)
2. Meeting sign in sheet
3. Meeting minutes

F. Dimensional Standards

1. Minimum Lot Area:
   a) High Resource Demand Facility: 10 acres
   b) Large-Scale: 10 acres
   c) Small-Scale and Accessory: 2 acres.
2. Maximum Building Height: 45 feet / 3 stories
3. Maximum Lot Coverage: 60%.
4. Minimum Setbacks:
   a) High Resource Demand Facility: ~~400~~ 500 feet from any residentially used or zoned property, primary/secondary school, medical clinic, park, day-care center and preschool, hospital or medical center. 200 feet from all other property lines.
   b) Large-Scale: ~~400~~ 500 feet from any residentially used or zoned property, primary/secondary school, medical clinic, park, day-care center and preschool, hospital or medical center. 200 feet from all property lines.

c) Small-Scale- and Accessory: 100 feet from any residentially used or zoned property, primary/secondary school, medical clinic, park, day-care center and preschool, hospital or medical center. 75 feet from all property lines.

5. Greenbelt:
   a) A minimum 50-foot landscaped greenbelt shall be provided along all property lines. The greenbelt shall include an opaque screen meeting Landscape Screening Type A.
6. Siting:
   a) A High Resource Demand Facility, including but not limited to a Large-Scale Data Center, shall not be located on any parcel that is within 500 feet of any residential zoned or used property, primary/secondary school, medical clinic, park, day-care center and preschool, hospital or medical center.

G. Site and Design Standards

1. Architecture & Façade Articulation
   a) Massing and Scale
      1. Building massing, height, bulk, scale, and proportion shall maintain consistency with the existing character of the adjacent buildings.
      2. Building design should employ coordinated massing to produce overall unity, scale, and interest.
      3. Rooflines and pitches shall be proportionate to nearby structures so as to provide transition or mitigation of significant changes to scale.
   b) Architectural design and building materials.
      1. Facade variation. Wall designs must provide a minimum of three of the following elements, in addition to transparency requirements, occurring at intervals no greater than 25 feet horizontally and 10 feet vertically:
         a. Expression of structural system and infill panels through change in plane not less than three inches.
         b. System of horizontal and vertical scaling elements, such as: belt course, string courses, cornice, pilasters.
         c. System of horizontal and vertical reveals not less than one inch in width/depth.
         d. Variations in material module, pattern, and/or color.
         e. System of integrated architectural ornamentation.
         f. Green screen or planter walls.
         g. Translucent, fritted, patterned, or colored glazing.
         h. Transparency as required in Section 40-11.50(F)(2)(b).
      2. Architectural style shall not be restricted. Rather, evaluation of the appearance of a project shall be based upon compatibility and the quality of its design and relationship to surroundings.
      3. Buildings within the same development should be designed to provide a unified and easily identifiable image. Methods to achieve this include using similar architectural styles and materials, complementary roof forms, signs, and colors.

4. Minimize monotony of expansive exterior walls by incorporating the following elements: staggering of vertical walls; recessing openings; providing upper-level roof overhangs; using green/living walls; using deep score lines at construction joints; contrasting compatible building materials; use of variety and rhythm of window and door openings; use of horizontal and vertical architectural elements, use of horizontal bands of compatible colors; and providing changes in roof shape or roofline.
5. Facades shall provide visual interest from both vehicular and pedestrian viewpoints.
6. Entrances to individual buildings shall be readily identifiable to visitors through the use of recesses or pop-outs, roof elements, columns, or other architectural elements.
~~6.~~7. Use of green roofs is encouraged as a means to minimize monotony of exterior features, provide on-site stormwater treatment, reduce ambient air temperatures, and encourage biodiversity.

c) Material standards.

1. Durable building materials, simple configurations, and solid craftsmanship are required. At least 75% of walls visible from public streets, exclusive of wall areas devoted to meeting transparency requirements, shall be constructed of brick, glass, metal (beams, lintels, trim elements, and ornamentation only), wood lap, stucco, split-faced block, or stone. Vinyl or aluminum siding shall only be used for accents. Exterior Insulation Finishing Systems (E.I.F.S.) or similar material is not permitted as a primary building material.
2. Materials shall be selected for suitability to the type of buildings and the architectural design in which they are used. Applicant shall demonstrate a good-faith effort to source sustainable building materials, including, but not limited to, reclaimed wood, recycled steel, and recycled concrete, to the greatest extent practicable.
3. Material selection shall be consistent with architectural style in terms of color, shades, and texture; however, monotony shall be avoided.
~~4.~~ Materials shall be consistent with adjoining buildings.
~~5.~~4. Buildings shall have the same materials, or those that are architecturally compatible, for construction of all building walls and other exterior building components wholly or partly visible from public ways and public parking lots.
~~6.~~5. In any design in which the structural frame is exposed to view, the structural materials shall be compatible within themselves and harmonious with their surroundings.
~~7.~~6. Transitional features.
    a. Transitional features are architectural elements, site features, or alterations to building massing that are used to provide a transition between higher-intensity uses and low- or moderate-density residential areas. These features assist in mitigating potential conflicts between those uses. Transitional features are intended to be used in combination with landscape buffers or large setbacks.

b. Intensity. A continuum of use intensity, where moderate-intensity uses are sited between high-intensity uses and low-intensity uses, shall be developed for multibuilding developments. An example would be an office use between commercial and residential uses.
c. Height and mass. Building height and mass in the form of building step-backs, recess lines or other techniques shall be graduated so that structures with higher-intensity uses are comparable in scale with adjacent structures of lower-intensity uses.
d. Architectural features. Similarly sized and patterned architectural features, such as windows, doors, arcades, pilasters, cornices, wall offsets, building materials, and other building articulations included on the lower-intensity use shall be incorporated in the transitional features.

2. Mechanical, Loading, and Rooftop Equipment
   a) Mechanical equipment shall be fully enclosed unless where mechanically unfeasible based on manufacturers' specifications.
   b) If located outside of a building, all mechanical equipment (HVAC, generators, cooling towers, transformers) shall be fully screened by architecturally compatible walls/panels.
   c) Rooftop equipment shall be screened by a parapet wall, equipment penthouse, or visually solid screen on all four sides. Rooftop equipment that is visible above the parapet wall shall be set back from the exterior or parapet wall at a distance no less than the height of said equipment.

   d) Service/loading areas shall be oriented away from residential districts where feasible and screened per Section 13.
3. Lighting
   a) Security and area lighting shall comply with ~~the Lighting Ordinance~~ 40-13.05, Lighting: full cutoff fixtures, down-directed, and shielded to prevent glare and light trespass beyond property lines.
   ~~a)~~b) Warm-colored LED bulbs must be used to approximate a natural light source: color temperature less than or equal to 3000 Kelvin and Color Rendering Index greater than or equal to 80.
   ~~b)~~c) Maximum maintained illuminance at the property line shall not exceed 0.5 foot-candles adjacent to residential and 1.0 foot-candle elsewhere
4. Landscaping & Buffers
   a) Provide required greenbelts and landscape screening per Section 13. Where abutting residential, a minimum Type A opaque buffer (e.g., berm/wall plus evergreens) within the setback is required.
   b) Parking lots shall meet interior landscaping ratios; heat island mitigation via shade trees is required
5. Stormwater and Wastewater
   a) Stormwater.

1. Onsite detention and water quality treatment are required per the Washtenaw County Water Resources Commissioner (WCWRC). Designs shall address potential thermal impacts from large roof/pavement areas and condenser discharge.
2. Structural green infrastructure shall be used to meet WCWRC requirements to the greatest extent practicable. Structural green infrastructure includes, but is not limited to, pervious durable surfaces, rain gardens, vegetated swales/bioswales, and vegetated green roofs.
~~1.~~3. Applicant must design such that pollutant load of runoff from impervious surfaces is managed on site to the greatest extent practicable.

b) Withdrawals/Discharge.
   1. Any large quantity water withdrawal or discharge shall comply with applicable state and county permits. Approval by the Township shall be contingent upon written confirmation from the applicable utility and regulatory agencies that the proposed withdrawal or discharge will not adversely impact existing users, system capacity, groundwater resources, or downstream infrastructure for the duration of the facility's lifespan.
   2. Township approval shall be conditioned upon a finding that the proposed withdrawal or discharge:
      a. will not exceed available system or aquifer capacity at full build-out;
      b. will not displace or impair existing or reasonably foreseeable users;
      c. will not require public investment or system expansion to serve the facility; and
      d. will not result in stranded or oversized infrastructure in the event of facility closure or decommissioning.

6. Traffic and Construction Management
   a) A Construction Logistics and Traffic Management Plan is required, identifying haul routes, delivery windows, worker parking, and dust/mud control.
   b) Construction hours shall be limited to 7:00 a.m.–7:00 p.m. Monday–Saturday unless otherwise approved.

H. Performance Standards

1. Noise and Vibration
   a) Noise Limit for high frequency (>125 Hz) sound. Routine operations (including cooling equipment) shall not exceed 50 dBA Leq at the property line. Nighttime (10 p.m.–7 a.m.) limits adjacent to residential shall be no greater than 40 dBA Leq. In addition, the development shall comply with all requirements of 14.02. Noise.
   ~~a)~~ Noise Limit for low frequency (≤125 Hz) sound. Routine operations (including cooling equipment) shall not exceed 45 dBC Leq at the property line. Nighttime (10 p.m.–7 a.m.) limits adjacent to residential shall be no greater than 35 dBC

Leq. In addition, the development shall comply with all requirements of 14.02. Noise.

b) Octave-Band Analysis. The applicant shall provide octave-band analysis to measure low-frequency sound in any octave band. This analysis must include sound pressure level measurements or modeling for, at a minimum, the 16Hz, 31.5 Hz, 63 Hz, and 125 Hz frequency bands. The analysis shall identify all significant stationary noise sources, including but not limited to cooling towers, chillers, condensers, transformers, pumps, air handling equipment, and emergency generators. The octave-band analysis shall evaluate low-frequency sound impacts at all property lines and at the nearest residentially used or zoned properties. Analysis shall evaluate those conditions reasonably expected to produce the highest levels of low-frequency sound at the property boundary and at the nearest affected receptor.

c)

~~b)~~ Vibration. Operations shall not cause ground-borne or perceptible vibration exceeding 0.10 mm/sec RMS particle velocity measured at the property line per ANSI S2.71/ISO 2631 criteria, or successor nationally recognized standards for continuous human exposure to vibration.~~criteria.~~ Operations shall not generate any perceptible vibration capable of causing harm, discomfort, annoyance, or structural impacts to adjacent properties. Compliance shall be demonstrated through pre-occupancy and post-occupancy vibration testing by a qualified independent acoustical or vibration engineer.

d) Tonal and Impulsive Noise. Noise containing a clearly audible tonal component such humming, whining, or other discrete frequency including impulsive or intermittent noise shall also be evaluated in accordance with applicable ANSI/ASA S12.9 standards.

~~c)~~

e) Generator Testing. Routine testing shall only occur between 8:00 a.m.–6:00 p.m. weekdays. Testing shall not exceed 100 total hours annually. Testing shall comply with the noise limits as set forth in Section 11.~~50~~51.H.1

1. Generator testing shall require 2-hour advance notice to the Township, unless such testing is conducted pursuant to a regular annual testing schedule that has been provided to the Township in advance.~~.~~

~~d)~~2. Operators shall post 2-hour advance notice of any generator testing to the public dashboard required by Section L(6)(d) of this ordinance.

f) Measurement Protocol. Compliance shall be demonstrated via pre and post-occupancy sound studies by a qualified acoustical engineer. Noise measurements or predictions should be adjusted for special sound characteristics consistent with ANSI/ASA S12.9 methods, including a +5 dB adjustment for prominent discrete tones and applicable adjustments for impulsive noise. The adjusted sound level should be used for compliance evaluation.

~~e)~~ Upon receipt of documented complaints or when deemed necessary by the Township, the Township may require additional acoustical testing by an

independent acoustical engineer at the owner's expense. Such testing shall be conducted under operating conditions that represent the highest reasonably anticipated sound levels generated by the facility, including, as applicable, the simultaneous operation of all fixed and mobile noise-generating equipment, mechanical and cooling systems operating at maximum or peak anticipated capacity, emergency generators, and any other equipment or activities identified by the Township or independent acoustical engineer as having the potential to produce elevated sound levels. Testing shall be conducted during representative conditions reasonably expected to result in the highest sound levels at the property boundary and at the nearest affected receptor. The Township retains the right to require corrective measures if limits are exceeded.

~~f)~~g) ~~Vibration. Operations shall not cause perceptible vibration at the property line per ANSI/ISO criteria.~~

2. Air Quality and Emissions
   a) All stationary engines, cooling towers, and emission sources shall comply with the federal Clean Air Act and the Michigan Department of Great Lakes and Energy ("EGLE") rules. Required Air Use Permits to Install (PTI) must be obtained and kept current.
      ~~a)~~1. On site operation of stationary engines, hydrocarbon generators, or other non-renewable energy sources for continuous, prime, peaking, or routine non-emergency energy supply is prohibited.
   b) Generators. New generators shall meet EPA Tier 4 Final standards. Dispersion modeling may be required when generators are placed within 500 feet of residential, schools, parks, or hospitals.
   c) Cooling Towers. Cooling towers shall include drift eliminators and be managed to prevent particulate emissions or microbial contamination.
   d) Thermal Emissions. The facility shall be designed and operated so that thermal emissions do not cause a sustained increase in ambient air temperature at any property line beyond the limits below, measured at 5 feet above grade:
      1. Residential or mixed-use property line: not more than +2°F above ambient background, averaged over any 15-minute period.
      2. Nonresidential property line: not more than +4°F above ambient background, averaged over any 15-minute period.
      3. No thermal emission shall create unsafe conditions on sidewalks, trails, roadways, or public spaces due to icing, fogging, or thermal plume interaction with winter conditions.
   e) Odor and Airborne Contaminants. Facility operations shall not create odors, aerosols, cooling tower drift, particulate matter, or airborne contaminants that constitute a nuisance or adversely affect adjacent properties. Cooling tower drift eliminators shall limit drift loss to 0.001% or less of the circulating water flow rate, or equivalent industry standard.
3. Power and Electrical Capacity

a) The applicant or operator shall provide a capacity confirmation letter or certification from the electric utility provider demonstrating that sufficient electrical capacity is available to serve the proposed facility.
    1. The capacity confirmation letter or certification shall also state that all costs associated with required infrastructure improvements, upgrades, interconnections, or extensions necessary to serve the facility shall be borne solely by the applicant or operator.
    2. The applicant shall be responsible for all coordination with the electric utility provider and shall comply with all applicable utility requirements and regulatory approvals.
b) The applicant shall submit a Utility Infrastructure Impact Assessment prepared by a qualified professional and supported by documentation from the serving electric utility, as available, demonstrating:
    1. Available transmission and disruption capacity;
    2. Expected peak electrical demand;
    3. Required substation or transmission upgrades;
    4. Expected impacts to the electric system reliability;
    5. That all infrastructure improvements required to serve the facility shall be financed by the applicant and shall not be borne by existing utility customers for the Township.

~~3.~~c) The Township may deny any application if evidence demonstrates the proposed facility would materially reduce electric system reliability or available capacity for existing customers.

~~3.~~4. Energy and Sustainability

a) Efficiency Target. Applicants shall design for PUE of 1.2 or lower, or demonstrate the highest efficiency reasonably achievable given site constraints; documentation shall be provided at the time for Site Plan review and post-occupancy.
b) Renewable Energy. The applicant shall demonstrate that on-site renewable energy generation will meet at least 90 percent of the project's projected annual energy demand. If the applicant demonstrates, to the Township's satisfaction, that this standard cannot reasonably be achieved through on-site generation alone, the Township may approve compliance through a combination of power purchase agreements, renewable energy credits, or utility green power programs. Any approved renewable energy source or procurement method shall not include nuclear energy.
c) Heat Reuse. Applicant shall provide a feasibility analysis for waste-heat recovery or district-energy interconnection.
d) Reporting. See Section ~~I~~J for annual reporting requirements.
e) Water Conservation.
    1. Cooling shall be designed as a closed-loop / closed-cycle system with no routine discharge of noncontact cooling water to the sanitary sewer/POTW or to surface waters, in order to comply with applicable local sewer use ordinances (including prohibitions/limitations on

noncontact cooling water and heat to the POTW) and EGLE discharge/withdrawal permitting requirements (including NPDES authorization and Michigan Water Quality Standards, and large-quantity withdrawal registration/review where applicable

~~1.~~2. Water Efficiency Monitoring. Applicants shall install permanent water metering capable of separately measuring process water, cooling water, domestic water, and irrigation water. Annual water consumption reports shall be submitted to the Township.

f) Security and Emergency Access
   1. Perimeter Security.
      a. Sites shall be fully enclosed with a perimeter security system, which may include fencing, walls, or equivalent barriers not less than eight (8) feet in height.
      b. Security barriers shall be designed to balance safety with community character; opaque fencing must be screened with landscaping where visible from public roads or residential areas.
   2. Access Control.
      a. All site entrances shall include controlled access gates, guard stations, or equivalent security technology to prevent unauthorized entry.
      b. Visitor and delivery access points must be separated from employee access points wherever feasible.
   3. Emergency Access.
      a. A minimum of two (2) points of emergency vehicle access shall be provided, with clear signage and unobstructed pathways around the building.
      b. Access drives shall be constructed to fire department standards, with sufficient load-bearing capacity for emergency apparatus.
      c. Fire lanes shall be maintained free of obstructions.
   4. Cameras.
      a. Installation and maintenance of a perimeter camera surveillance system capable of monitoring all vehicular and pedestrian access points, building entrances, and outdoor mechanical/equipment areas is required.
      b. Cameras shall be positioned to minimize intrusion into adjoining residential properties and public rights-of-way, while still providing full coverage of the site.
      c. Camera systems shall be continuously operational (24 hours per day, 7 days per week) and recordings shall be retained for a minimum of 30 days.
      d. A security plan, including camera layout, monitoring procedures, and data retention policies, shall be submitted as part of site plan review.
   5. Fire Protection.

a. Sites shall be equipped with an automatic fire detection and suppression system designed to protect both building occupants and sensitive equipment.
b. Suppression systems shall comply with National Fire Protection Association (NFPA) standards and be approved by the Fire Marshal.

6. Hazardous Materials.
   a. Any use of hazardous materials (including fuels for backup generators, batteries, and chemicals for cooling systems) shall comply with federal, state, and local storage, reporting, and disposal requirements.
   b. Applicants shall provide a Hazardous Materials Management Plan identifying on-site materials, storage methods, spill prevention measures, and emergency response procedures.
   c. Applicant shall provide a fire protection plan.
7. Emergency Response Plan. Applicants shall submit an Emergency Response Plan to the Township at the time of Site Plan review, which must include:
   a. Site layout for emergency responders.
   b. Fire suppression and alarm systems description.
   c. Backup generator location and fuel storage details.
   d. Contact information for on-site security and facility management.

~~d.~~8. Annual Emergency Coordination. Facility operators shall provide annual emergency response coordination meetings, training opportunities, or site familiarization tours for Township Fire, Police, EMS, and emergency management personnel

~~Operators shall provide annual training opportunities or site orientations to local fire, police, and emergency medical services.~~

~~4.~~5. Battery Energy Storage Systems (if provided)

a) Battery Energy Storage Systems (BESS) shall be an accessory component to the principal use of the property.
b) BESS shall comply with NFPA 855, the Michigan Building/Fire Codes, and manufacturer's specifications.
c) Setbacks. Outdoor BESS containers shall be set back a minimum of 100 feet from property lines and 300 feet from residential districts/uses, unless a greater distance is required by NFPA 855 based on technology and aggregate capacity.
d) Protection. Applicant shall provide: vehicle impact protection, fire-rated separation where required, gas detection, ventilation, and emergency shutoffs.
e) Applicant shall include a BESS-specific emergency response plan and data sheet package.

f) Battery Energy Storage Systems shall include continuous thermal monitoring capable of detecting abnormal cell temperatures and thermal runway conditions.

~~e)~~g) The system shall include remote emergency shutdown capability accessible by emergency responders in accordance with NFPA 855 and Fire Department requirements.

~~5.~~6. On-Site Substation/Switchyard (if provided)

a) Shall be located to minimize visual and noise impacts; and shall provide evergreen screening and security fencing consistent with utility standards.

b) Transformers shall include integral secondary containment sized per state rules.

c) Transformer noise shall comply with the noise standards established in Section H, regardless of utility ownership.

~~b)~~d) Transformers and substations shall incorporate acoustical shielding to comply with property line noise limits.

I. Use of Consultants and Cost Recovery

1. The Township may retain qualified consultants to review energy efficiency, water use, air quality, ecological performance, BESS safety, renewable energy, stormwater, and related matters.
2. All reasonable costs for these reviews shall be escrowed by the applicant.

J. Monitoring and Reporting

1. Commissioning Documentation: Prior to Certificate of Occupancy, Applicant shall submit commissioning results for mechanical/electrical systems and acoustical compliance.
2. An Annual Report (by March 31) is required and shall include:
   a) Actual annual energy consumption (MWh) and calculated PUE;
   b) Renewable energy procurement and percentage of total load;
   c) Water usage (gallons) and cooling method;
   d) Generator testing/operating hours and emissions compliance statement with current EGLE permits;
   e) Sound level monitoring summary; and
   f) Summary of efficiency/cooling/security upgrades implemented~~.~~; and
   ~~f)~~g) Ecological Integrity Assessment and summary of potential positive environmental interventions.
3. Failure to monitor and report may be grounds to revote any Township approvals.

K. Decommissioning

1. Plan Required. As a condition of Conditional Land Use and Site Plan approval, the applicant shall submit a Decommissioning and Site Restoration Plan that address:
   a) Triggers for decommissioning.
   b) Methods for removal of structures, equipment, utilities, and impervious surfaces.
   c) Recycling and disposal of equipment and hazardous materials.

d) Final grading, soil stabilization, and revegetation.
e) Restoration of the site to a condition compatible with surrounding uses.

2. Triggers for Decommissioning
   a) A center shall be considered abandoned if it ceases operations for a period of 12 consecutive months, unless the owner provides evidence of intent to resume operations.
   b) Decommissioning must begin within 6 months of abandonment and be completed within 12 months of abandonment.
3. Financial Guarantee
   a) Prior to obtaining a building permit, the applicant shall post a financial guarantee in the form of a letter of credit, bond, or escrow account acceptable to the Township.
   b) The obligation to provide and maintain a financial guarantee is a continuing covenant that runs with the land and binds the owner, applicant, operator (if different), and all successors and assigns. No sale, conveyance, assignment, foreclosure, lease, or other transfer of any interest in the property shall impair or release the obligation to maintain the financial guarantee. The Township shall not release any financial guarantee unless the Township has confirmed in writing that the obligations secured thereby have been fully performed or that an acceptable substitute financial guarantee has been provided. The amount of the financial guarantee shall equal 150% of the estimated decommissioning cost, as determined by a qualified engineer and approved by the Township.
   c) Estimates for the cost of decommissioning must be updated and verified via independent third-party review every 5 years and adjusted for inflation. The Township may request additional financial guarantees based on the change in estimated cost. Costs associated with third-party verification and review of decommissioning cost estimates shall be borne solely by the operator.
   ~~c)~~d) The Township may request verification of guarantor solvency on an annual basis.
4. Removal Standards
   a) All above-ground structures, including buildings, mechanical equipment, cooling towers, security fencing, and pavement not otherwise serving a reuse, shall be removed.
   b) Below-ground infrastructure, such as foundations and utilities, shall be removed to a minimum depth of 36 inches below grade unless otherwise approved.
   c) Materials shall be recycled to the maximum extent practicable.
5. Site Restoration
   a) The site shall be restored with topsoil, seeded or planted with native vegetation, and stabilized to prevent erosion.
   b) The Township may approve alternate restoration plans if the site is proposed for redevelopment consistent with the Master Plan and zoning ordinance.
6. Failure to Decommission

a) If the owner fails to complete decommissioning in accordance with the approved plan, the Township may draw upon the financial guarantee to complete the work.
b) The Township reserves the right to seek recovery of any costs incurred in excess of the financial guarantee collected.

L. Risk Mitigation

1. Purpose and intent
    a) High Resource Demand Facility (HRDF) and Data Centers can generate community impacts and service demands related to energy consumption, water use, stormwater, noise, traffic/road wear, visual impacts and aesthetics, public safety coordination, and long-term site management.
    b) The purpose of this Section is to require a Risk Mitigation Plan for High Resource Demand Facility (HRDF) and Data Centers that:
        1. Mitigates impacts that are reasonably attributable to the facility;
        2. Provides transparent, measurable commitments that support Township goals; and
        3. Establishes clear enforcement and reporting mechanisms.

2. Applicability
   A Risk Mitigation Plan is required for any new High Resource Demand Facility (HRDF) or Data Center or expansion that meets one or more of the following thresholds:
    a) Gross floor area of 10,000 square feet or more;
    b) IT load of 10 MW or more (nameplate/critical IT load); or

3. Plan Submittal Timing
    a) The applicant shall submit the Risk Mitigation Plan concurrently with the Site Plan and Conditional Use application.
    b) The Planning Commission may deem an application incomplete until the Plan is provided in a form sufficient to evaluate compliance with this Section.

4. Required contents of the Risk Mitigation Plan

   The Risk Mitigation Plan shall include, at minimum:

   a) Project overview. Site plan summary; construction phasing; expected operational date; anticipated employment (construction and permanent); and a description of on-site infrastructure (including electrical and water systems as applicable).
   b) Impact analysis. A concise, plain-language description of expected impacts on:
        1. public utilities and infrastructure (electric, water, sewer as applicable, and prepared by an independent, industry-recognized third-party);
        2. stormwater and groundwater protection (prepared by an independent, industry-recognized third-party);
        3. traffic and roadway wear (construction and operations);

4. noise, lighting, and hours/character of operations;
5. public safety coordination (fire, EMS, police); and
~~5.~~6. local ecology, biodiversity, air quality, and soil quality (prepared by an independent, industry-recognized third-party); and
~~6.~~7. long-term site management and decommissioning (if applicable).

5. Risk mitigation- commitments. The applicant shall provide commitments meeting all baseline requirements in subsection 6.- Each commitment must include:
   a) a measurable deliverable (e.g., dollar amount, number of trainees, percentage, kWh, gallons, acres, etc.);
   b) a timeline/milestones;
   c) the responsible party
   d) reporting method; and
   e) proposed remedies if the commitment is not met.

6. Requirements
   As a condition of approval, the applicant shall commit to the following requirements, in a form acceptable to the Township:

   a) Local workforce and procurement.
      1. Good-faith local hiring and contracting plan, including outreach to Washtenaw-area unions/trades, community colleges, and workforce programs; and
      2. Annual reporting of construction hours and permanent jobs by residency (to the extent permitted by law) and contracting spend by geography.
   b) Public safety coordination and preparedness.
      1. Pre-occupancy coordination meeting(s) with Township fire/EMS and code officials;
      2. Facility emergency response information provided to Township (site contact list, shutoffs, hazard inventory, access plan); and
   c) Environmental performance.
      1. A water stewardship plan (efficiency, leak detection, and, if applicable, reuse/recycling strategies);
      2. A noise and lighting management plan demonstrating ongoing compliance and complaint response procedures; and
      3. A sustainability/energy plan describing how the facility will minimize emissions and peak-load impacts (e.g., efficiency measures, demand response participation, renewable procurement strategy), to the extent within the applicant's control.
      ~~3.~~4. An ecosystem services plan describing how the facility will minimize and/or improve local ecological performance, air quality, soil quality, and biodiversity.

d) Community access and transparency. Public-facing reporting dashboard; community advisory meetings during construction; neighborhood hotline with response times; third-party audits of key metrics (energy, water) where feasible.

e) Infrastructure improvements. Roadway, non-motorized, transit, or signal improvements proportionate to traffic and construction impacts; utility upgrades directly serving or mitigating impacts;

f) Environmental enhancements. On-site habitat restoration, tree canopy targets, native landscaping, green infrastructure, carbon reduction commitments, or renewable energy support.

7. Review standards and findings
   a) The Township Board shall approve, approve with conditions, or deny the application based on whether the Risk Mitigation Plan:
      1. Contains all required elements in subsections 4 through 6;
      2. Provides clear, measurable commitments;
      3. Demonstrates that commitments are reasonably related to anticipated impacts and Township objectives; and
      4. Includes enforceable mechanisms for implementation and reporting.
   b) Approval may include conditions to ensure commitments are proportional and administratively feasible, consistent with the standards specified in the zoning ordinance.

8. Development agreement; security; enforcement
   a) Incorporation into approval. All commitments in the approved Risk Mitigation Plan shall be conditions of approval and shall be incorporated into a Development Agreement and/or recorded document, as determined by the Township.
   b) Annual reporting. The operator shall submit an annual report to the Township documenting compliance with each commitment for the prior calendar year. Reports shall be made publicly available except for proprietary or security-sensitive information.
   c) Noncompliance. If the Township determines a material commitment is not being met, the Township may:
      1. Require a corrective action plan with a defined cure period;
      2. Draw upon performance security where applicable;
      3. Pursue civil remedies authorized by the zoning ordinance; and/or
      4. Initiate permit/approval enforcement consistent with the ordinance.

9. Modification

   A material modification to an approved Risk Mitigation Plan (e.g., reduction in deliverables, extended timelines, or removal of a commitment) shall require Township approval in the same manner as the original Plan, unless the approving body determines the modification is minor.

M. Standards

1. The Planning Commission shall determine, and shall provide evidence of its determinations in its report to the Township Board, that the following standards have been met. Failure to meet any standard may be grounds for recommendation of denial:

   a). The Planned Unit Development (PUD) standards set forth in Section 6.02.B.

SECTION 40- 11.~~50~~51: High Resource Demand Facilities

Nonresidential Districts Use Table						
	Commercial		Industrial and Office Districts		Public Facility	
Use Category	C-1	C-2	I	BD	PF	Specific Use Standard (Article, Section)
Industrial						
High Resource Demand Facility:			C			40- 11.50
Large-Scale Data Centers and Data Processing Centers			C			40- 11.50
Small-Scale Data Centers and Data Processing Centers			C			40- 11.50
Accessory Data Centers and Data Processing Centers		A	A	A	A	40- 11.50

SAMPLE DATA CENTER ORDINANCE VERSION 1.0

Note: This is a sample ordinance to regulate the development and operation of data centers within a township. These provisions may not suit the unique aspects of your township or may regulate too much or too little for your area. **Adopting this ordinance without considering changes to fit your community is strongly discouraged and may have negative legal consequences. Please consult with your township attorney.** Additionally, new information continues to come out often, so please check back periodically to see if there are newer versions of this sample.

TOWNSHIP OF _____

ORDINANCE NO. _____

ADOPTED: _____

EFFECTIVE: EIGHT DAYS AFTER PUBLICATION AFTER ADOPTION

An Ordinance to amend the Township Zoning Ordinance to authorize Data Centers; to provide regulations and standards for Data Centers; to repeal all ordinances or parts of ordinances in conflict herewith, and to provide an effective date.

TOWNSHIP OF _____
_____ COUNTY, MICHIGAN

ORDAINS:

DATA CENTER ORDINANCE AMENDMENTS TO TOWNSHIP ZONING ORDINANCE

SECTION I
DEFINITIONS ADDED TO SECTION _____

The following definitions shall be added to Section _____ of the Township Zoning Ordinance, and shall be inserted into said Zoning Ordinance so that all definitions are in alphabetical order:

Cooling System: Any system, equipment, or apparatus used to regulate temperature and/or humidity within a Data Center, including but not limited to air conditioning units, cooling towers, and liquid cooling systems.

Data Center: A facility or operation consisting of computer systems and associated equipment designed, constructed, and operated for the primary purpose of intake, processing, storage, and/or distribution of computer data and electronic information. Associated equipment shall include all buildings, structures, and components used in the operation of the Data Center, including but not

limited to servers, routers, switches, storage devices, cooling systems, backup power systems, electrical distribution systems, and telecommunications equipment.

Sensitive Land Uses: A land use that includes educational facilities (Pre-K through 12), college dormitories, commercial child care facilities, hospitals, long term care facilities, nursing homes, retirement homes, campgrounds, parks (excluding linear trails), and dwellings.

SECTION II
ADD A NEW SECTION _____, TITLED "DATA CENTERS"

A new Section _____, titled "Data Centers" is hereby added to the Township Zoning Ordinance to read as follows:

Section _____. Data Centers.

I. PURPOSE

The purpose of this Section is to establish minimum requirements and regulations for the construction, location, operation, and decommissioning of data centers. This Section is designed to ensure that data centers are constructed and operated in a manner compatible with nearby uses of land, the natural environment, and the capacities of public services and facilities. It is also designed to mitigate nuisance impacts and to avoid adverse impacts on important areas such as farmland, Sensitive Land Uses, or valuable natural resources.

II. GENERAL STANDARDS

The following requirements shall apply to all Data Centers in addition to the other generally applicable standards found in the Zoning Ordinance and to the extent of a conflict this Section shall apply:

A. **Site Selection.** Data Centers shall only be allowed as a special land use in the Industrial District [customize to fit individual municipal industrial districts by reference].

B. **Lot Coverage.** Data Centers shall not exceed the maximum lot coverage allowed in the Industrial District.

C. **Placement and Setbacks**. Data Centers shall be arranged, designed, and constructed to be harmonious and compatible with the site and surrounding properties. Data Centers shall be sited to minimize the visual impacts of the bulk of the building on a line-of-sight basis from adjacent public streets and Sensitive Land Uses and to minimize the impacts to natural resources. Data Centers shall comply with the minimum setbacks applicable to the Industrial District except as otherwise provided in this Section.

1. Cooling System components including chillers, fans and compressors must

be surrounded by full height sound attenuation screening that must be designed to blend with the architectural style, materials, and color of the building:

i. If roof mounted, there must be a 1,500-foot minimum setback from the sound attenuation screening to the closest Sensitive Land Use lot lines. This distance is measured from the nearest part of the sound attenuation screen to the property line of the Sensitive Land Use.

ii. If ground mounted, there must be a 1,000-foot minimum setback from sound attenuation screening to the closest Sensitive Land Use lot lines. This distance is measured from the nearest part of the sound attenuation screen to the property line of the Sensitive Land Use .

2. Generators shall be located within full acoustic enclosures to the maximum extent possible. Enclosures must be designed to blend with the architectural style, materials, and color of the building and cannot be located within 1,000 feet of any Sensitive Land Use, measured from the nearest part of the enclosure to the property line of the Sensitive Land Use . Roof mounted generators are prohibited.

D. **Height**. The height of a Data Center, except for electric distribution and transmission poles, shall not exceed the maximum height permitted for structures in the Industrial District.

E. **Visual Screening**. Views of a Data Center shall be minimized from public rights of way, adjacent properties, and Sensitive Land Uses, to the extent reasonably practicable using architectural features, earth berms, landscaping or other screening methods that will harmonize with the character of the property and surrounding area. The Planning Commission may require reasonable measures to minimize visual impacts by preserving existing natural vegetation, requiring new vegetative screening, or other appropriate measures on a site- specific basis. In making this determination, the Planning Commission is specifically authorized to consider whether additional visual screening measures are appropriate where a Data Center is proposed to be located on property adjoining or within the view of a Sensitive Land Use..

F. **Sound**. The Data Center must comply with all federal and state regulations related to noise thresholds and any Zoning Ordinance Industrial District noise limitation. In addition, except as otherwise allowed in this Section, noise levels shall not exceed the following noise thresholds as measured at the Data Center property line shared with any non-industrial use or the property line of the closest Sensitive Land Uses as follows:

1. No sound shall exceed 55 dB(A) weighted (Laeq-10 min) between the daytime hours of 7am to 7pm.

2. No sound shall exceed 45 dB(A) weighted (Laeq-10 min) between the nighttime hours of 7pm to 7am.

3. No source of steady tonal sound shall exceed 65 dB(C) weighted (Lceq-10 min) at any time.

4. Octave Bands (dBz) will be maintained at acceptable levels.

G. **Lighting**. The Data Center must implement dark sky-friendly lighting solutions, and all lighting must be designed to direct light downward. The facility must produce zero footcandles of light at the property line.

H. **Vibrations**.

1. No Data Center shall be operated, maintained, or tested in a manner that generates a ground-borne vibration level exceeding a Peak Particle Velocity (PPV) of 0.01 inches per second (in/s) at any point along the Data Center's property line. This limit applies across all vibration frequencies between 1.0 Hz and 100 Hz. The 0.01 in/s PPV threshold applies to measurements taken in any of the three mutually perpendicular axes (vertical, longitudinal, or transverse). If any single axis exceeds 0.01 in/s, the Data Center is in violation.

2. Generators must be equipped with vibration isolation and mitigation systems.

3. Data Centers must have continuous vibration monitoring at spacing of no less than 500 feet along all property lines which sit within 1,000 feet of the property line of any Sensitive Land Use.

I. **Water Usage Standards.** A Data Center shall maintain a Water Usage Effectiveness of no more than two tenths (0.2). As used in this Section, “Water Usage Effectiveness” or “WUE” is defined as the ratio of total annual building water consumption (liters) to information technology equipment energy consumption (kilowatt-hour). Evaporative cooling is prohibited.

J. **Energy Usage.**

1. Data Center facilities must be designed to maintain a Power Usage Effectiveness of no more than one and two-tenths (1.2). As used in this Section, “Power Usage Effectiveness” or “PUE” is defined as the ratio of total facility energy consumption divided by the total IT equipment energy consumption (servers, switches, storage devices, etc.). Total facility energy includes all power entering the building, such as cooling systems, lighting, power delivery components, and IT equipment. IT equipment energy

includes only the power used by computers, servers, storage, and networking devices.

2. Data centers must be designed and operated in compliance with the energy code requirements specified in whichever of the following is most stringent:

   i. The latest adopted Michigan Energy Code;

   ii. The latest published ASHRAE Standard 90.4; or

   iii. Michigan-specific data center energy code requirements adopted by rule, which may include more detailed criteria.

3. The Data Center shall have on-site energy storage capable of supplying not less than fifty percent (50%) of the facility's peak electrical demand for a minimum duration of fifteen (15) minutes, for purposes including grid stabilization, brownout mitigation, and peak-load support. Energy storage systems shall be configured to prioritize discharge during utility-declared peak events and grid emergencies to reduce localized voltage sag, transformer overload, and outage risk in surrounding neighborhoods.

4. The Data Center must demonstrate that it will supply the Center's energy needs independently of the current energy available within the Township and that it complies with all state and federal requirements for the provision of energy to supply its needs.

K. **Generators**. Testing and exercising activities of generators are limited to 9am to 5pm weekdays and are prohibited on any State holiday. No more than two (2) generators shall be tested simultaneously. The use of other backup power sources which serve to reduce or eliminate diesel generator noise and emissions shall be utilized to the maximum extent practicable. All generators must be U.S. EPA Tier 4 compliant.

L. **General Impacts**. Any use or activity producing air, dust, smoke, glare, exhaust, heat, or humidity in any form shall be carried on in such a manner that it is not perceptible at or beyond the Data Center property line.

M. **Public Safety**. All Data Centers must develop and comply with an Emergency Response Plan and Fire Response Plan that shall provide reasonable protection of the public health, welfare and safety during all phases of construction and operation.

N. **Signage**. The Data Center shall post all necessary signage to comply with any applicable electrical, building, and fire codes. Clearly visible warning signs shall be located at the base of any transformers, substations, or electrical components handling energy capable of causing harm to human beings. The Data Center

operation shall provide a 24-hour emergency contact signage visible at the access entrance.

O. **Access Drives**. The Data Center shall provide safe and convenient vehicular access to the site, including sufficient on-site queuing areas at the security gate. The Data Center shall include access drives sufficient to accommodate adequate emergency response to all components.

P. **Surface Water Runoff**. All surface water runoff created by construction and operation of the project shall be effectively managed on-site.

Q. **Building and Electrical Codes**. The Data Center and all associated equipment shall comply with all applicable building and electrical code requirements and any applicable federal or state regulations. A qualified engineer shall provide written certification that the design, installation, and any interconnections are compliant with manufacturer and industry standards, all applicable local construction and electrical codes, and any applicable federal or state regulations.

R. **Permits**. All Data Centers shall be required to apply for and obtain all necessary permits, including but not limited to building, electrical, plumbing, and mechanical permits.

S. **Transmission and Distribution Lines**. Other than transmission or distribution lines for interconnection to the electric power grid, all electrical wiring shall be buried underground; except where the manufacturer's engineer or a qualified engineer employed by the utility that owns/operates the electrical power grid to which the system shall be interconnected certifies an underground wiring installation is not permitted by an applicable code and/or applicable federal/state regulation, with attached complete documentation supporting any such certification.

T. **Transfer of Ownership.** No transfer in ownership of the Data Center shall occur prior to providing 60 days' notice to the Township and upon Township approval verifying that the new owner has the ability and means to carry out the terms of the special land use and site plan approval and agrees in writing to carry out such terms. Approval shall not be unreasonably withheld by the Township.

U. **Environment and Community Impact.** A Data Center shall provide, at time of application for special land use permit, detailed analysis by qualified individuals of the Data Center's impact on the environment of the site and surrounding area, and the impact on the community. All environmental impacts must be in compliance with Federal, State, and local standards.

V. **Construction Hours**. Construction Hours shall be limited to 7:00 a.m. – 7:00 p.m. Monday through Saturday unless otherwise approved by the Planning Commission.

W. **Decommissioning**. A Data Center must have a Decommissioning Plan and Agreement as provided in this Section.

III. APPLICATION REQUIREMENTS AND PROCEDURE

A. **Special Land Use Permit and Site Plan Application Requirements**. Any proposal for a Data Center shall require an application for special land use permit approval and for site plan approval. All required fees and escrow fund shall accompany the application. An incomplete application will not be accepted. The application shall be subject to the general special land use and site plan review requirements in addition to the following submission requirements:

1. The name, address, and contact information of the applicant.

2. The name, address, and contact information of the proposed operator of the Data Center, if different from the applicant.

3. The address and parcel number of each property to be used for the Data Center, including demonstrated proof of ownership, lease, or easement permitting all proposed construction on said property.

4. The planned date for the start of construction of the Data Center and the expected duration of construction, including a description of any construction phases for the Data Center, the proposed timeline for construction of each structure or major component, and a description of any areas where future expansion is anticipated.

5. A description of the expected uses of the Data Center.

6. A description of each Special Land Use standard under the Township's Zoning Ordinance, a detailed statement demonstrating compliance with each Special Land Use standard, and all information and supporting materials relied upon by the applicant in support of their statement of compliance.

7. A description of each standard described in this Section, a detailed statement demonstrating compliance with each standard, and all information and supporting materials relied upon by the applicant in support of their statement of compliance (i.e. sound studies and modeling, vibration studies and modeling, environmental studies, etc).

8. A preliminary electrical plan for the Data Center showing all underground and above ground wiring, the location of any electrical infrastructure, the location and capacity of any interconnections, and any electrical safety devices.

9. Information and supporting materials detailing the anticipated PUE,

electrical use, maximum possible electrical load, and pre-approval or authorization from applicable electricity service providers that such capacity is available to serve the Data Center.

10. Information and supporting materials detailing the type, size, and location of all Cooling Systems and water usage including the WUE analysis. Such analysis shall include proof of capacity on public water and sewer systems to support the proposed intake and discharge of water for the Data Center.

11. Information and supporting materials detailing the type, size, and location of all onsite energy storage and backup power generation, and whether and how such equipment is to be tested.

12. The expected direct impacts of the Data Center on the environment and natural resources and how the applicant intends to address and mitigate these impacts. The Applicant shall describe all environmental features of the proposed project site and surrounding area, including natural resources, waterways, flora and fauna which may be impacted by the proposed project. The description shall include the anticipated impacts on the environment and habitats and mitigation measures for such impacts.

13. A decommissioning plan as described in this Section.

14. A detailed site plan of the proposed Data Center, showing the location, height, and design of all components of the Data Center, including distances from all existing and proposed structures/buildings and fencing on the site to all lot lines including to all boundaries of a leased site, where applicable, and to all structures/buildings within 2,000 feet of the subject property.

15. A site plan depicting all proposed means of ingress and egress which demonstrates compliance with any applicable fire or emergency response regulations.

16. A landscape plan depicting all proposed changes to the landscape of the existing site, including grading, vegetation removal, fencing and vegetative screening.

17. A map of any existing overhead and underground major facilities for electric, gas, telecommunications transmission within the facility and surrounding area.

18. A fire response plan and an emergency response plan containing, at a minimum, all of the following:

    i. A description of all chemicals or hazardous materials that will be used during the construction or operation of the facility and describe their purpose and location within the facility.

ii. A detailed evaluation of any risk of intentional or inadvertent chemical or hazardous material discharge, the likelihood of such events, risk mitigation measures to prevent such events, and emergency notification and response plans in the case of such events.

iii. A description of all electrical, fire, smoke, and similar environmental risks, their likelihood, and mitigation measures both before and after an emergency.

iv. A description of the current emergency and fire response capacity and equipment available within the Township and the surrounding area, and whether such capacity and equipment is sufficient to address the risks described in the Plans. If the capacity or equipment is insufficient, the Plan must include a detailed description of such deficiencies and how the facility will attain sufficient emergency response capacity, whether by improvements to local emergency and fire authorities, private emergency management measures, or other means.

v. A description of emergency shutdown procedures, how such procedures are triggered, and any effects that an emergency shutdown may have on the operation, utilities, or emergency response plans.

vi. A description of if and how the Township and the public shall be notified of emergencies at the Data Center to the extent that such emergencies have the potential to result in impacts to the Township or the public.

vii. Evidence of consultation or a good faith effort to consult with local fire department representatives, first responders, and emergency managers to ensure that the Plan is in alignment with acceptable operating procedures, capabilities, resources, etc. If consultation with local fire department representatives is not possible, provide evidence of consultation or a good faith effort to consult with the State Fire Marshal or other local emergency manager.

viii. A description of all on-site equipment and systems to be provided to prevent or handle fire emergencies.

ix. A commitment to review and update the plan with fire departments, first responders, and county emergency managers at least once every three (3) years.

x. Analysis should include identification of any specific equipment or training deficiencies in local emergency response capacity and recommendations for measures to mitigate deficiencies.

xi. Other information the applicant finds relevant or wishes to present to the Township.

IV. DECOMMISSIONING AND REMOVAL

A. All Data Centers shall be required to provide a Decommissioning Plan and comply with said plan and the requirements of this Section for the lifetime of the project.

B. The Decommissioning Plan shall include all of the following:

1. State the anticipated life of the project;

2. Describe estimated decommissioning costs in current dollars and provide that this figure will be updated every fifth (5th) year after commencement of operation of the system;

3. Define the conditions upon which decommissioning will be initiated. At a minimum decommissioning shall be required if the Data Center is abandoned. Abandoned shall mean that the Data Center ceases operations for a period of 12 months, unless the current responsible party provides sufficient evidence and guarantee of the intent to resume operations to the Planning Commission.

4. State that decommissioning will allow the Data Center to be repurposed for general industrial use through the removal of aspects of the Data Center specific to use as a Data Center.

5. Describe the timeframe for completion of decommissioning activities;

6. Describe any agreement with the landowner regarding decommissioning; and

7. State the party responsible for decommissioning.

C. The Applicant shall further submit a Decommissioning Agreement to be signed by the applicant, operator, or party responsible for decommissioning and shall bind all successors, heirs and assigns.

D. Decommissioning shall begin within 6 months of abandonment or other trigger and shall be completed within 18 months.

E. The Decommissioning Plan shall include financial assurance in the form of a bond. The amount of the financial assurance shall not be less than the estimated cost of decommissioning the Data Center. Salvage value shall not be included in the estimated cost of decommissioning. The financial assurance must be posted in at one-hundred-and-twenty-five percent (125%) total decommissioning value by the start of full commercial operation and continuously maintained for the period of the life of the Data Center. During construction a financial assurance must be maintained in an amount to return the site to the original condition and such assurance shall be required until the full financial assurance is provided at the start of the full commercial operation.

V. DEVELOPMENT AGREEMENT.

A. The Planning Commission shall require a development agreement between the applicant/property owner and the Township to ensure completion of the approved site plan and continued compliance with required standards. The development agreement may address, but is not limited to, the following: The property's legal description; the zoning district in which the property is located; the site plan as approved; conditions of site plan approval; security for general improvements; compliance with standards during and after development; maintenance of the site during and after development; open area maintenance; stormwater management; roads and drives; sewer and water; Township engineer approval of construction plans; easements for and assignments of utility lines; pedestrian sidewalks; tree preservation; wetland preservation; landscaping; electricity and gas use; lighting; construction access; construction work schedule; performance guarantee; engineering plans and certifications; site grading and setbacks; monuments and markers; warranties; proceedings for failure to maintain repair or preserve development elements; reimbursable costs to the Township; enforcement procedures; duration of agreement; and construction oversight.

VI. SMALL-SCALE OPERATION EXCEPTION

A. The provisions of this Section shall not apply to a Data Center which is constructed and operated solely as an accessory and subordinate use to an existing principal use on a property, so long as that Data Center is (1) housed entirely within existing structures which conform to all zoning and other permit requirements, (2) creates no adverse impacts on adjacent land uses, and (3) requires no additional approvals from a utility provider with respect to electrical or water usage.

SECTION IV
AMEND SECTION _____

Section ____ of the Township Zoning Ordinance is amended to add the following use as a

special land use in the Industrial Zoning District:

- Data Center

SECTION VI
SEVERABILITY

The provisions of this ordinance are hereby declared to be severable and if any clause, sentence, word, section or provision is hereafter declared void or unenforceable for any reason by a court of competent jurisdiction, it shall not affect the remainder of such ordinance which shall continue in full force and effect.

SECTION VII
REPEALER AND EFFECTIVE DATE

All ordinances or parts of ordinances in conflict herewith are hereby repealed. This ordinance shall take effect 8 days after publication after adoption.

MEMORANDUM

TO: Acme Township Planning Commission

FILE NO. 5385.00

FROM: Jeffrey L. Jocks, OLSON, BZDOK & HOWARD, P.C.

DATE: July 10, 2013

RE: Officer Election Process

The purpose of this memo is to set out the general process that this Planning Commission has used for elections of Planning Commission officers. The process is basically the same as found in Robert's Rules of Order.

1. The Chairperson states that elections for officers shall begin and that each officer shall be elected in turn.

2. The Chairperson opens nominations for the office of Chairperson.

3. Any member of the Planning Commission may nominate any other member for Chairperson.

4. Voting for Chairperson occurs in the order of nomination. The person nominated first is voted upon by roll call vote and if a majority votes in favor of that person being elected as Chairperson, then no more votes are taken. If there is not a majority in favor, then the person nominated second is voted upon, and so on until a nominee is elected by a majority. The nominee recuses him or herself from voting.

5. Steps 2 through 4 are repeated for Vice Chairperson and then for Secretary.

Planning & Zoning

6042 Acme Road | Williamsburg, MI | 49690

Phone: (231) 938-1350 **Fax**: (231) 938-1510 **Web:** www.acmetownship.org

To: Acme Township Planning Commission

From: Lindsey Wolf, Planning & Zoning Administrator
Date: September 16, 2026
Re: Zoning Ordinance Text Amendments

It was noted at the August 10, 2026, meeting that several requirements within the current Acme Township Zoning Ordinance Adopted 2022 (as amended) are very particular and should have some flexibility within the US-31/M-72 Mixed Overlay District. For example, there is currently an application open for a modern building design that does not meet the facade standards for this district. Since the introduction of these requirements, there has only been one (1) application to build a structure from the ground up.

Those discussion items include:

- Build-To Line (vs. standard setback)
- Ground floor ceiling height
- Window Transparency
- Façade ornamentation
- Façade Massing
- Customer Entrances
- Building Materials

Staff has asked Planner of Record, John Iacoangeli, to discuss the history of what was previously referred to as Form-Based Code in Acme prior to making any changes. The complete text and areas of concern are highlighted in red.

BUILT-TO-LINE: An alignment established a certain distance from the property line, or right-of-way easement if present, to a line along which the building shall be built. Front porches and handicap ramps shall be exempt from build-to line requirements, and must occur behind the property line.

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3.4.7 C - Corridor Commercial District

A. Dimensional Standards:

C - CORRIDOR COMMERCIAL DISTRICT	
LOT OCCUPATION	STANDARD
Minimum Lot Width	40 feet
Minimum Lot Area	3,500 square feet
Maximum Lot Coverage	70%
Maximum Impervious Surface	85%
Base Density	14 dwelling units / acre
PRINCIPAL BUILDING	STANDARD
Front Built-To-Line	20 - 35 feet
Side Street, Corner Lot Built-To-Line	20 - 35 feet
Side Setback	3 feet
Rear Setback	25 feet
Maximum Height	3 stories - not to exceed 45 feet
Minimum Ground Floor Area	400 square feet
Minimum Floor Area / Unit	400 square feet
ACCESSORY BUILDING	STANDARD
Permitted Location	Rear yard only
Front Setback	---
Side Setback	3 feet
Rear Setback	10 feet
Principal Building Setback	10 feet
Maximum Height	≤ principal building
Maximum Ground Floor Area (cumulative)	≤ principal building or 2,500 square feet, whichever is less
PARKING	STANDARD
Permitted Location	Side or rear yard only
Front Setback	---
Side Setback	5 feet
Rear Setback	10 feet

B. Additional Requirements:

1. The Corridor Commercial District shall be subject to the US-31/M-72 Mixed Use Overlay District standards in Article 4, along with all other applicable standards of this Ordinance.

2. Waterfront parcels in the C - Corridor Commercial District shall meet the requirements of waterfront properties in Article 4.

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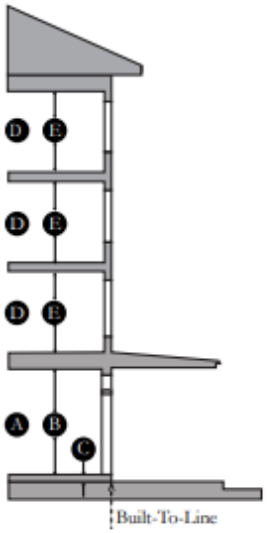
4.2.7 Land Use Development By Floor

LAND USE	MHN	CS	C	CF
Ground Floor (A)				
Residential Use	Yes	Yes	No*	No*
Public / Private Uses	Yes	Yes	Yes	Yes
Transportation / Utility Uses	Yes	Yes	Yes	Yes
Office Uses	No	Yes	Yes	Yes
Commercial Uses	No	Yes	Yes	Yes
Lodging Uses	No	No	Yes	Yes
Ceiling Height (min.) (B)	9'	---	14'	14'
Finish Level Above Grade (max.) (C)	4'	4'	1'	1'
Upper Floors (D)				
Residential Uses	Yes	Yes	Yes	Yes
Public / Private Uses	Yes	No	Yes	Yes
Transportation / Utility Uses	No	No	No	No
Office Uses	No	Yes	Yes	Yes
Commercial Uses	No	No	Yes	Yes
Lodging Uses	No	No	Yes	Yes
Ceiling Height (min.) (E)	9'	---	9'	9'



* Customary accessory uses may occupy the rear ground floor in the C and CF districts provided a minimum depth of fifty (50) feet along the front of the ground floor is provided for non-residential uses. Residential may be located on the entire ground floor as a part of a multiple family residential project.

4.2.9 Facade Components and Materials (All Buildings Except Residential Only)

A. Windows and Transparency:

1. A minimum of seventy five (75%) percent of the ground floor story front facade between two (2) feet and eight (8) feet above the sidewalk must be comprised of transparent, non-reflective windows into the nonresidential space.
2. A minimum of thirty (30%) percent of the upper story front facade measured floor to floor shall have transparent, non-reflective, vertically oriented windows.

Feringa- feels some of the requirements are very particular and should have some flexibility, and that the planning commission should take a closer look at this section and address some of the issues moving forward. It's hard when a good looking design comes in but doesn't meet the ordinance. In the case of this project the window proportions look pretty good, it would look forced to get the same look with vertical windows. Doesn't think the planning commission should be so nuanced as to dictate vertical vs. horizontal windows. Believes it should be left open to the interpretation of the design as a whole. Also brought up the 75% windows and how that needs to be looked at and taken into consideration with Michigan's new energy code.

After discussion with the code office there is no conflict with code as the windows will still need to meet the minimum energy requirements. The reflective/non-reflective is simply cosmetic.

B. Facade Ornamentation: All visible elevations shall include decorative features such as cornices, pilasters, and friezes. Building recesses and protrusions will be required on larger buildings to break long uninterrupted building walls.

There should be flexibility to allow for modern building designs.

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C. Facade Massing: Front façades sixty (60) feet wide or more shall incorporate wall offsets of at least two (2) feet in depth (projections or recesses) a minimum of every forty (40) feet. Each required offset shall have a minimum width of twenty (20) feet. Such offsets, along with other architectural components, shall be allowed to deviate from the established built-to-line.

E. Customer Entrances:
1. Each side of a building facing a public street shall include at least one (1) customer entrance, except that no building shall be required to provide entrances on more than two (2) sides of the structure that face public streets. Buildings fronting two (2) streets on a corner lot may satisfy this requirement by having one (1) customer entrance located at the corner of the building placed at a forty five (45) degree angle to the street intersection.

2. Buildings shall have clearly defined, highly visible customer entrances that include no less than three of the following design features:
a. Canopies/porticos above the entrance;
b. Roof overhangs above the entrance;
c. Entry recesses/projections;
d. Arcades that are physically integrated with the entrance;
e. Raised corniced parapets above the entrance;
f. Gabled roof forms or arches above the entrance;
g. Outdoor plaza adjacent to the entrance having seating and a minimum depth of twenty (20) feet;
h. Display windows that are directly adjacent to the entrance; or
i. Architectural details, such as tile work and moldings, that is integrated into the building structure and design and is above and/or directly adjacent to the entrance.
Some of these seem redundant canopies, roof overhangs, gabled roofs or arches above entrance and very specific to a more classical design.

F. Building Materials:
1. Use of traditional building materials shall be used. Fluted concrete masonry units and scored concrete masonry unit block, although not considered traditional building materials, may be used but shall not exceed twenty five (25%) percent of the surface square footage of any portion of the building exposed to a public right-of-way, customer access or parking area.

2. Materials such as exterior insulation finish system (EIFS), concrete panels, and panel brick are not considered traditional building materials and shall not be used.

On August 10, 2026, Feringa talked about the new building materials and how they can be made from recycled materials with a lower carbon footprint and are often more durable to use. Although they can be more expensive.

Also, as requested by the Planning Commission staff has put together a list of additional items from the Zoning Ordinance that are worthy of discussion. Those items include:

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Article 3.2: Regulated Uses Table: Marihuana grow facilities within the AG district as a use by right.

REGULATED USES	ZONING DISTRICTS								
	AG	SFR	SFN	MHN	RMH	CS	C	CF	LIW
Kennels	S*								S*
Livestock Auction Yards	S*								
Live/Work Units							P	P	P
Manufactured Homes					P				
Manufactured Home Parks					S**				
Manufacturing, Light									P
Marinas						S			
Medical Marihuana Establishments:									
- Grower	P*								P*
- Processor	P*								P*
- Provisioning Center							P*		P*
- Safety Compliance Facility									P*
- Secure Transporter									P*

Several complaints regarding odor beyond the property boundaries have been received regarding the facility off Bates Road. Staff is recommending that this be amended to a special use within the AG district with supplementary standards regrading setbacks from neighboring uses (specifically residential – the ordinance already speaks to schools, institutions, playgrounds, etc.) and odor control measures.

Article 7: Supplemental Use Standards

Add standards for facilities with drive-in or drive-through standards such as traffic study requirements, minimum parcel size, etc.

Next Steps in the Process:

The feedback from the Planning Commission will guide staff and legal to draft ordinance amendments that would guide and support growth in Acme. The draft(s) will be presented to the Planning Commission prior to scheduling any public hearings.

REQUEST FOR AMENDMENT TO ZONING ORDINANCE
Section 4.2.9 – Facade Components and Materials (All Buildings Except Residential Only)

To: Acme Township Planning Commission
Re: Request to Amend Section 4.2.9 – Facade Components and Materials
Date: August 11, 2026

Dear Members of the Acme Township Planning Commission:

We respectfully request that the Acme Township Planning Commission consider an amendment to Section 4.2.9, **Facade Components and Materials (All Buildings Except Residential Only)**, of the Acme Township Zoning Ordinance.

The purpose of this request is to provide greater flexibility in building design and material selection while continuing to promote attractive, well-designed commercial and nonresidential buildings within the Township.

Current Ordinance

The current ordinance establishes the following requirements:

A. Windows and Transparency

1. A minimum of seventy-five (75%) percent of the ground floor story front facade between two (2) feet and eight (8) feet above the sidewalk must be comprised of transparent, non-reflective windows into the nonresidential space.
2. A minimum of thirty (30%) percent of the upper story front facade, measured floor to floor, shall have transparent, non-reflective, vertically oriented windows.

B. Facade Ornamentation

All visible elevations shall include decorative features such as cornices, pilasters, and friezes. Building recesses and protrusions will be required on larger buildings to break long uninterrupted building walls.

Proposed Amendment

We respectfully propose that Section 4.2.9 be amended to read as follows:

4.2.9 Facade Components and Materials (All Buildings Except Residential Only)

A. Windows and Transparency

1. A minimum of fifty (50%) percent of the ground floor story front facade between two (2) feet and eight (8) feet above the sidewalk must be comprised of transparent, non-reflective windows into the nonresidential space.
2. A minimum of thirty (30%) percent of the upper story front facade, measured floor to floor, shall have transparent, non-reflective windows.

B. Facade Ornamentation

Building recesses and protrusions will be required on larger buildings to break long uninterrupted building walls.

Basis for the Requested Amendment

The proposed changes are intended to provide reasonable design flexibility while maintaining the Township's objective of encouraging attractive and functional development.

1. Greater flexibility in building materials

The existing seventy-five percent (75%) ground-floor window requirement significantly limits the range of building materials and facade treatments that can be incorporated into a building. Reducing the requirement to fifty percent (50%) would still provide substantial transparency at the pedestrian level while allowing designers and property owners greater flexibility to incorporate masonry, stone, metal, wood, architectural panels, and other appropriate materials.

2. Accommodation of different architectural styles

A single prescriptive window percentage does not necessarily result in better architecture. Different architectural styles use windows, solid wall areas, materials, proportions, and architectural details in different ways. A seventy-five percent window requirement can make it difficult or impossible to achieve certain legitimate architectural designs that may otherwise be attractive and appropriate for the Township.

Similarly, requiring vertically oriented windows on upper stories can unnecessarily restrict architectural expression. Some building styles are better served by horizontal windows, grouped windows, larger openings, smaller openings, or other window configurations. Removing the requirement that upper-story windows be vertically oriented would allow designers to create buildings that are better proportioned and more consistent with their intended architectural style while retaining the thirty percent transparency requirement.

3. Avoidance of unnecessary construction costs

The current requirements can create additional construction costs by requiring a greater amount of glazing than may be necessary for a particular building's design or function. Reducing the ground-floor requirement from seventy-five percent to fifty percent would allow developers and property owners to make more appropriate and cost-effective decisions regarding the balance between glazing and other facade materials.

The intent is not to eliminate quality or architectural interest, but rather to avoid requiring a particular building component at a level that may not be appropriate for every building.

4. Energy efficiency and building performance

Excessive glazing can also have implications for the energy performance of a building. Depending on orientation, glazing type, solar exposure, and building design, additional windows can increase heat gain, heat loss, cooling requirements, and heating requirements.

Allowing a greater proportion of appropriately designed solid facade areas can provide architects and engineers with additional opportunities to improve the overall energy efficiency and performance of a building. The proposed amendment would therefore allow the building envelope to be designed according to the specific conditions and needs of the project rather than relying on a uniform window percentage for all buildings.

5. Greater architectural flexibility regarding facade ornamentation

The existing facade ornamentation provisions can also unnecessarily constrain architectural design. Features such as cornices, pilasters, and friezes may be appropriate for certain architectural styles, but they do not necessarily complement every building design.

Requiring specific decorative elements on all visible elevations may result in architectural features that are added primarily to satisfy the ordinance rather than because they contribute meaningfully to the design of the building.

The proposed language would retain the requirement for recesses and protrusions on larger buildings where necessary to break up long, uninterrupted walls, while eliminating the more prescriptive requirement for specific decorative features. This approach would continue to address building massing and visual interest while allowing architects greater freedom to accomplish those goals through materials, building form, fenestration, articulation, and other appropriate design elements.

Conclusion

The requested amendment would not eliminate standards for building appearance. Rather, it would establish a more flexible framework that allows quality architecture to be achieved through a variety of building styles, materials, and design approaches.

The proposed fifty percent (50%) ground-floor transparency requirement would continue to provide significant pedestrian-level transparency. The thirty percent (30%) upper-story window requirement would continue to provide visual interest and natural light while removing the unnecessarily restrictive vertical-orientation requirement. Likewise, retaining the requirement for building recesses and protrusions on larger buildings would continue to address long, uninterrupted building walls without prescribing specific architectural ornamentation.

We believe the proposed amendment would better balance the Township's goals of attractive development, architectural quality, economic feasibility, energy efficiency, and flexibility in design.

We respectfully request that the Acme Township Planning Commission review this proposed amendment and consider forwarding it through the appropriate process for amendment of the Zoning Ordinance.

Thank you for your consideration.

Respectfully submitted,

Derek Johnson
Northern Technology Solutions
231-645-2356
derek@northerntechnology.com