Data Center Development Policy & Moratorium

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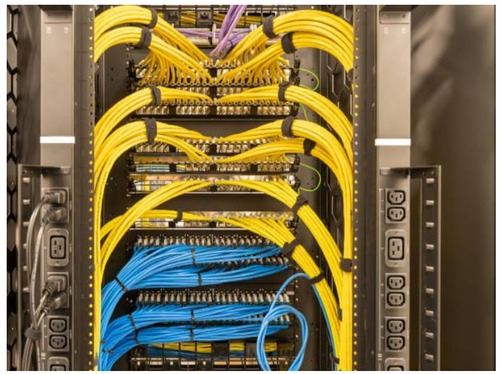
Background

- **Timeline**
  - May 14- MPT Stevens submitted a 2-minute pitch
  - June 2- Council approved the 2-minute pitch
  - June 26- ISR 2026-039 was provided on data centers, and the agenda committee moved it forward to a work session.
- **Approved Pitch**
  - Have a discussion on the possibility of creating a policy on how the City of Denton approaches AI data facility applications moving forward.
  - This would include, but is not limited to, a discussion on a temporary moratorium on future applications for the purpose of evaluating whether the projected infrastructure demand, environmental impact, and financial return associated with the two currently approved AI data facilities align with their projections once operational.

What is a Data Center?

- A facility for housing computer systems and related equipment used for the storage and processing of large amounts of data. Scale/size/purpose vary. Common components:
  - IT Equipment – Servers, storage drives, network routers, etc.
  - Physical Infrastructure – Cooling systems, air conditioning, redundant power supply, etc.
  - Connectivity – Fiber optics and/or other connections into and out of the facility.
  - Security – Gated, physical barriers, fire suppression systems, etc.






What is a Data Center?

- Classified into Four Types:
  - Enterprise – Internal IT Operations
  - Colocation – Multi-Client/HPC/AI
  - Hyperscale – Cloud Services/HPC/AI
  - Edge – Low Latency Local Processing
- Standardized by Rating:
  - Do not apply to HPC/AI or Crypto Mining.
    Instead referred to as Tier 0 Data Centers.
- Enterprise Data Centers:
  - Common in Businesses/Organizations.
  - Number in City is Unknown.
  - Not covered in this Presentation.

Comparison of

Uptime Institute
Data Center Tier Classifications

Feature	Tier I	Tier II	Tier III	Tier IV
Basic Description	Basic Capacity	Redundant Components	Concurrently Maintainable	Fault Tolerant
Uptime Guarantee	99.671%	99.741%	99.982%	99.995%
Redundancy	N (No redundancy)	N+1	N+1	2(N+1)
Maintenance Shutdown Required	Yes	Yes	No	No
Protection Against	Human Error Only	Human Error + Some Equipment Failure	Human Error + Equipment Failure	All Planned/ Unplanned Events
Distribution Paths	Single	Single	Multiple	Multiple + Isolated
Fault Tolerance	None	Limited	Concurrent Maintenance	Full Fault Tolerance
Cooling Requirements	Dedicated Equipment	Redundant Cooling	Redundant + Maintainable	Continuous + Redundant
Key Components	UPS, Generator, Cooling	All Tier I + Redundant Power/Cooling	All Tier II + Multiple Paths	All Tier III + Physical Isolation
Typical Use Case	Small Business/Office	Growing Business	Enterprise	Mission-Critical Operations

Source: The Uptime Institute's Data Center Tier Classification

What is a Data Center?

Tier 0/Hyperscale or Colocation Data Centers in Denton today:

- **Core Scientific, Inc.**
  - Warehouse Data Center for HPC/AI with up to 391 MW of electrical capacity.
  - Fixed Electrical Load – Load Factor of 94%.
  - Closed-looped cooling system.
  - Leasing approximately 79 acres of city-owned property.
  - Status – Nearing construction completion.
- **WAHA/Qumulus AI**
  - Modular Data Center for Crypto Mining with up to 20 MW of electrical capacity.
  - Variable Electrical Load – May shutdown instantaneously.
  - Air cooled system.
  - Leasing approximately 4 acres of city-owned property.
  - Status – Construction imminent.

Electric Impacts

- **Process**
  - Interconnection study required and >75MW require ERCOT approval.
    - <75 MW only require TSP approval. Can be other TSP providers (Oncor, Brazos, TNMP, and TMPA).
  - Obligation to Serve – DME and TSPs must serve with only limiting factor being capacity.
  - Developer pays full cost to interconnect unless improvements have ERCOT-wide benefits.
- **Capacity**
  - Recent studies show that Denton's electric transmission system was already running near its limits, even before new large developments came online.
  - New high-demand projects have increased the pressure on the system.
  - DME submitted improvement projects to ERCOT for review. If approved , DME can recover project costs once the upgrades are built and in service.
  - Following ERCOT decision, future DME transmission capacity for available growth will be clearer.

Water Impacts

- **Process**
  - Water distribution system modeling required.
  - Developer pays full cost of extending off-site infrastructure.
  - Water Impact Fees assessed based on meter size.

- **Data Center Water Usage**
  - Direct Evaporative Cooling (5-185 gallons/MWh)
    - 3,600,000 – 1,620,600,000 gallons*
  - Indirect Evaporative Cooling (211-555 gallons/MWh)
    - 151,920,000 to 4,861,800,000 gallons*
  - **Free-Air Cooling (zero, unless air is too dry)**
  - **Closed Loop System (3M to 5M gallons one-time; 60-100,000 annually)**

- **Capacity/Usage**
  - Total usage is 7 billion gallons per year.
  - Top 10 Customer Annual Usage (50-300M gal/year)
  - City has water capacity available for any closed-loop or free-air cooling system. Evaporative systems would be size-dependent.

*Based on a mid size data center (10,000 to 50,000 square foot and approximately 720,000 to 8,760,000 kWh per year)

Financials

Property-Based Revenues:

- Real Property
  - Data centers have paid over $3.1M in combined property taxes to Denton, Denton ISD, and Denton County. The City of Denton received about $780,000 of that total.
- Business personal property valuations (servers, equipment, etc.).
  - Taxable equipment (servers, hardware) is expected to become a major new revenue source in FY 2026–27.

Sales & Use Tax:

- Equipment purchases generate sales/use tax (varies by vendor and state exemptions).
- Data Centers have remitted approximately $475,000 in sales tax.

Operational Revenues:

- ROI & Franchise Fee
  - Data centers have provided over $8.8M in ROI/Franchise Fee revenue tied to electricity use.
- Land Leases
  - Core Scientific (78 acres) and WAHA/Qumulus (4 acres) leases have generated over $2M in lease revenue.

Revenue Comparisons:

- Fort Worth's 2024 data center property tax revenue totaled $83,018,299.
- Demonstrates the high revenue potential for cities with large data center campuses.

Zoning Background

- **Applicability**
  - City has zoning regulation of data centers inside city limits
  - Data center regulations would not apply to property in the ETJ

	Residential							Mixed-Use			Corridor		Other Nonresidential				Use-Specific Standards
	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Industrial Uses																	
MANUFACTURING AND PROCESSING																	
Craft Alcohol Production								S	P+	P+	P+	P	P	P	P		5.3.6A
Feedlot, Slaughterhouse, or Packaging Plant	S														S		
Food Processing, Less than 2,500 Square Feet								P+	P+	P+	P+	P+	P+	P+	P+		5.3.6B
Food Processing, More than 2,500 Square Feet								S+	S+	P+	P+	P+	P+	P+	P+		5.3.6C
Gas Well	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	Subchapter 6: *Gas Wells*
Manufacturing, Artisan								P+	P+	P	P	P	P	P	P		5.3.6D
Manufacturing, Low-Impact									S+	P+	P+	P+	P+	P	P		5.3.6E
Manufacturing, Medium-Impact													S	S	P		
Manufacturing, High-Impact															S		
Commercial Incinerator, Transfer Station															S		
Data Center, Modular														S+	S+	S+	5.3.6I
Data Center, Warehouse										S+	S+	S+	P+	P+	P+	P+	5.3.6J

Data Center Zoning History

2021- Request to rezone city-owned property near the Denton Energy Center from PF District to LI District was approved to allow for a data center warehouse.

Director Determination was made the proposed use was consistent with “warehouse and wholesale facility” use.

Apr. 2022- Discussion brought to Development Code Review Committee.

Sep. 2022- amendments approved by City Council.

Data Centers Designations

Category	Modular Data Center	Warehouse Data Center
Definition	Modular structure(s) including but not limited to pods, shipping containers, cargo containers, and similar storage containers.	Building or buildings intended for large-scale storage of specialized computing systems and hardware.
Screening	Opaquely screened from ROW and residential use or zoning district.	Opaquely screened from ROW and residential use or zoning district.
Setbacks	Min 100 feet from an adjacent residential zoning district or an existing residential use.	Min 100 feet from an adjacent residential zoning district or an existing residential use.
Studies	Environmental noise and vibration assessment is required.	Environmental noise and vibration assessment is required.
Noise	No more than 60 dba measured at the property line; *OR* Not increase ambient noise level more than 3 dba.	No more than 60 dba measured at the property line; *OR* Not increase ambient noise level more than 3 dba.
Lighting	Shall not exceed one foot-candle at any property line. Building-mounted lights shall be installed so that light is directed downward.	Shall not exceed one foot-candle at any property line. Building-mounted lights shall be installed so that light is directed downward.
Landscaping	Adjacent to residential uses require a minimum 30-foot-wide landscape buffer. Subject to minimum tree and landscape coverage requirements.	Adjacent to residential uses require a minimum 30-foot-wide landscape buffer. Subject to minimum tree and landscape coverage requirements.
Other	At least two elements from landscape buffer Table 7.E.	In MR and SC Zoning Districts, use shall be limited to a maximum of 55,000 sq ft of gross floor area per lot. Nonresidential and Mixed-Use Building Site and Building Design Standards.

Moratoriums in Texas

- What is a Moratorium?
  - Temporary pause on accepting or processing new development applications.
  - Moratorium cannot halt or invalidate already-filed applications (Vested under TLGC Chapter 245).
  - Limited to a defined geographic area which can be City limits and/or ETJ to the extent City has authority.

- Legal Basis (TLGC Chapter 212)
  - A municipality may impose a moratorium only if supported by specific findings related to:
  - Shortage of essential public facilities (water, sewer, drainage, or streets) (TLGC 212.135)
  - **Significant need for other public facilities (police, fire, or electric) (TLGC 212.1351)**
  - **Commercial moratorium for a need to update land development ordinances(TLGC 212.1352)**
    - Could not apply to property zoned for Heavy Industrial.

- Requirements for Imposing a Moratorium
  - City's must submit written findings supporting the necessity of the moratorium at adoption.
  - Written findings vary depending on the legal basis for the moratorium, but generally include evidence for why existing regulations are inadequate, the need to prevent the development from causing overcapacity of infrastructure, and the goals or working plan for achieving the objectives of a moratorium to address these issues.

Moratorium Process

Texas State Requirements (TLGC 212.134)

- ❑ **30-Day Notice Rule:** A municipality must publish a public hearing notice in the newspaper at least 30 days before holding each statutory hearing, with the dates set by resolution or ordinance.
- ❑ **Two Public Hearings:** The municipal governing body must conduct two separate hearings. The second public hearing cannot be held before the 30th day after the first hearing.
- ❑ **28-Day Reading Gap:** Initial reading must begin within 12 days of the second hearing. The adopting ordinance requires at least two separate readings spaced no less than 28 days apart.
- ❑ **Written Findings:** City must provide written findings for the moratoriums in the adopting ordinance.
- ❑ **Supermajority Vote:** To officially take effect, the ordinance must receive an affirmative vote of at least three-fourths of all members on the final reading.

8/18	**Resolution for Public Hearing** Council consideration of a resolution or ordinance setting the date for the first hearing.
8/22	**Newspaper Publication** Publish notice of public hearings in paper(starts the 30-day clock
9/22	**First Public Hearing** First public hearing related to the proposed moratorium.
10/27	**Second Public Hearing & 1st Reading** City Council holds 2nd hearing and first reading.
12/2	**Final Adoption & 2nd Reading** Requires a 3/4ths Council supermajority to adopt.
March	**Extension Public Hearing** Required to extend the moratorium to max 180 days. Must address why additional time is needed.
5/31	**Moratorium Ends** No additional moratoriums for Data Center for 2 years.

Possible DDC Amendments

Current Zoning

	Residential							Mixed-Use			Corridor		Other Nonresidential				Use-Specific Standards
	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Data Center, Modular														S+	S+	S+	5.3.6I
Data Center, Warehouse										S+	S+	S+	P+	P+	P+	P+	5.3.6J

SUP and Benefits

- Land-use tool that allows the City to evaluate case-by-case.
- Provides City Council additional information in decision-making.
- Adds transparency through public hearings.
- Allows Council to approve, modify, or deny based on community compatibility.

Possible DDC Amendments

- Require SUP for any zoning district
- Further restricting allowed zoning districts
  - Only allow in other non-residential zoning (GO, LI, HI, and PF) with the SUP
- Additional Use Specific Standards
  - Water and Wastewater Loading
  - Require closed-loop or free-air cooling systems

Sep 12

Newspaper Publication
Publish notice of public hearings in the local newspaper.

Sep 23

First Public Hearing
P&Z holds first public hearing and makes a recommendation.

Oct 13

Second Public Hearing
City Council holds public hearing.

Oct 27

Effective Date
DDC amendments become effective.

What Are Other Cities Doing?

City	Zoning	Screening	Noise	Setbacks	Lighting / Operations
Denton (Current)	Modular: SUP in LI, HI, PF Warehouse: Permitted in GO, LI, HI, PF. SUP in MR, SC, HC	Screen equipment, structures, storage areas from residential uses and ROW. Landscaping along all rights-of-way. Plus DDC Requirements.	Not to exceed 60 dBA at property line OR not cause an increase of 3 dBA of ambient noise.	Structures, on-site equipment, and outdoor storage area 100’ from residential zoning district / residential use.	Standard DDC Requirements – not to exceed 1 foot-candle at any property line.
Lewisville	Industrial Districts with an SUP only.	Unified Development Code / To be reviewed with each SUP.	Unified Development Code / To be reviewed with each SUP.	Unified Development Code / To be reviewed with each SUP.	Unified Development Code / To be reviewed with each SUP.
Fort Worth (Proposed)	Light, Medium, and Heavy Industrial Districts.	Adjacent to residential 50’ buffer with screening fence and row of evergreen shrubs.	Not to exceed 5 dBA above the pre-development ambient noise.	Building setback 250’ / Generators 300’ from residential district / use.	Zero foot-candles within 150 feet of residential use or district.
San Marcos	Not permitted in any zoning district.	N/A	N/A	N/A	N/A
Irving, TX	No longer permitted by-right; allowed strictly via Conditional Use Permit.	Subject to specific UDC design and compatibility standards. Rooftop screening required to be one foot taller than mounted equipment.	Must meet Irving's standard noise/performance limits.	Minimum 300-foot setback from any residentially zoned land.	Freestanding light fixtures shall not exceed 20 feet in height within 50 feet of any residential zoning district, 25 feet in height within 50 to 150 feet of any residential zoning district, and 35 feet in all other location
North Richland Hills, TX*	Tiered System: General (>10k SF) vs. Small-scale (≤10k SF). Small-scale requires an SUP.	Equipment must be fully enclosed within a building. If not mechanically feasible, must be heavily screened.	Generator testing restricted to daytime hours.	100-foot setback from residential property lines if equipment is not fully enclosed.	Enclosure-focused; open-air components strictly limited.
Hutto, TX	PUD / Special Districts: Controlled heavily through custom Planned Unit Developments.	Substations must be enclosed by a solid masonry fence at a minimum height of 6 feet to conceal equipment.	Must comply with standard City Noise Ordinance.	Typically 120+ feet of buffer/ROW plus additional landscape and building setbacks.	Landscaping, height, and site design standards managed through the UDC.

*Currently reviewing updates and considering an SUP for all data centers.

City Council Options

1. **Move forward with initiating public hearings and next steps for a moratorium.**

2. **Modify DDC for land use and add specific use standards to address concerns raised regarding data centers.**

   A. Require a Specific Use Permit for all Data Center Uses in any District.

   B. Remove Warehouse Data Centers from all Corridor, Mixed-Use Zoning Districts, and General Office Districts.

   C. Add specific use standards to require:
      - Water and wastewater loading studies.
      - Require closed-loop or free-air cooling systems.

3. **Combination or Other Options.**

QUESTIONS?