CITY OF CHARLOTTE

May 11, 2026

# Briefing on Data Centers

## CITY COUNCIL BUSINESS MEETING

# Topics

1. Setting the Stage
2. Defining Types of Data Centers
3. Data Center Inventory and Zoning
4. Data Center Trends
5. Key Areas of Questions
6. Next Steps

# Current Land Use Context in NC

State legislation severely limits local zoning authority

1. **Current law: SB 382 / Session Law 2024-57**

   Session Law 2024-57 amended 160D-601 to limit local governments from down-zoning property without written consent from all affected property owners.

   Went into effect on December 11, 2024, and was 6 months retroactive.

   **Restricts reducing development density or limiting permitted land uses, significantly limiting municipal planning authority.**

2. **What to Watch**

   The legislature may consider changes to SB 382 during the short session.

# Common Types of Data Centers

- Not all data centers are the same.
- We have had small data centers in our community for decades.
- Facilities range from a small server room serving one business to large hyperscale campuses supporting cloud computing, artificial intelligence, and high-performance digital infrastructure.
- However, as scale increases, so do potential land use, infrastructure, power, cooling, and community impacts.

# Data Centers Exist on a Spectrum

Smaller/Local Support → Larger / Regional or Global Infrastructure

| Server Room | Edge Data Center | Enterprise Data Center | Colocation / Managed Service | Hyperscale / Cloud / AI |
|---|---|---|---|---|
| Small room supporting one organization | Smaller distributed facility closer to users | Supports one organization's internal systems | Commercial facility serving multiple customers | Large campus for cloud, AI, or high-performance computing |
| **5–100 kW** | **50 kW–2 MW** | **50 kW–5 MW** | **1–50 MW** | **100 MW+** |
| **Small business with server room** | **American Tower rezoning** | **City of Charlotte data center** | **Digital – Trade Street/N. Myers** | **Moore's Chapel AREP** |

# Data Center Inventory

## Currently Proposed

**American Tower**

- Edge Data Center
- RZ 2025-120; public hearing 6/15
- Up to 40,000 SF proposed
- 58 acres

**No other current data center rezonings or known data center permits identified by staff.**

## Existing Inventory

Approx. **1 million SF**

single-user facilities identified via tax parcels

Definition matters: server rooms and IT closets may not appear as separate land uses.

## Approved & In Permitting

**1 AREP / PowerHouse – Back Creek**

- Up to 2.5M SF in ETJ (I-2 CD)
- 122 acres
- Permitting: 1,250,100 SF total
- RZ 2023-030 approved 9/18/2023

**2 Moore's Chapel – Digital Realty**

- Up to 3M SF in ETJ (I-2 CD)
- 156 acres
- Permitting: 2.34M SF data center + 224K SF office
- RZ 2024-144 approved 5/19/2025

**3 Digital Realty Trade St. Project**

- estimated 165,000 SF (UC)
- Replaces approx. 40,000 SF building
- 2.6 acres
- LDC-P-2025-00016; in permitting

**Bottom line:** **Current new activity appears limited. Approved projects already represent substantial square footage and infrastructure demand.**

# Zoning Districts Where Allowed

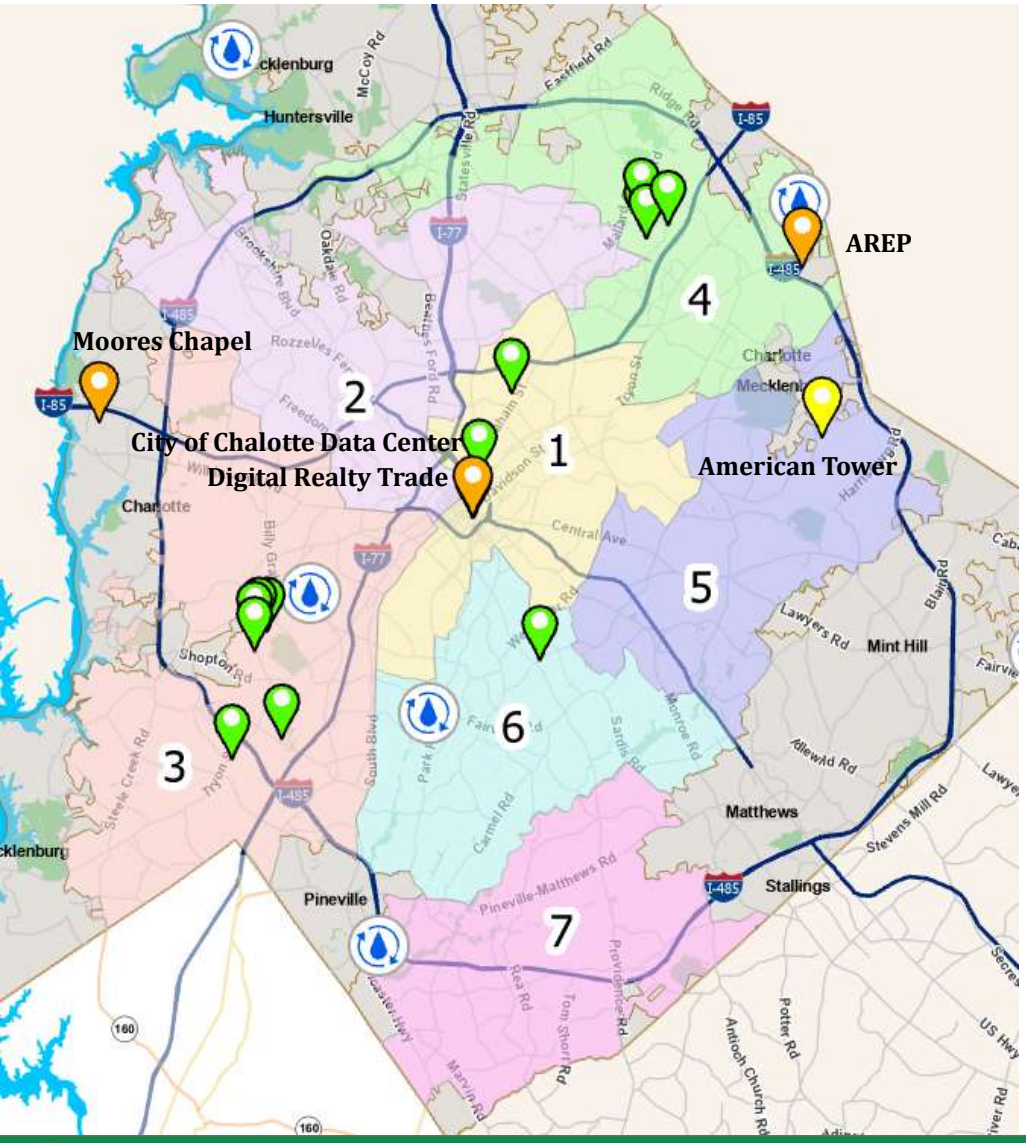
- **CG (General Commercial)**
- **CR (Regional Commercial)**
- **OFC (Office Flex Campus)**
- **RC (Research Campus)**
- **ML-1 (Manufacturing and Logistics 1)**
- **ML-2 (Manufacturing and Logistics 2)**
- **IMU (Innovation Mixed-Use)**
- **UC (Uptown Core)**

**UDO Definition: Telecommunications and Data Storage Facility:**

A facility, accessed only by employees, that houses computer systems and associated components, related to the transmittal and receiving of information, including but not limited to, telecommunications systems, telecommunication and telephone switching systems, cloud storage systems, and server farms.

# What is Allowed Today

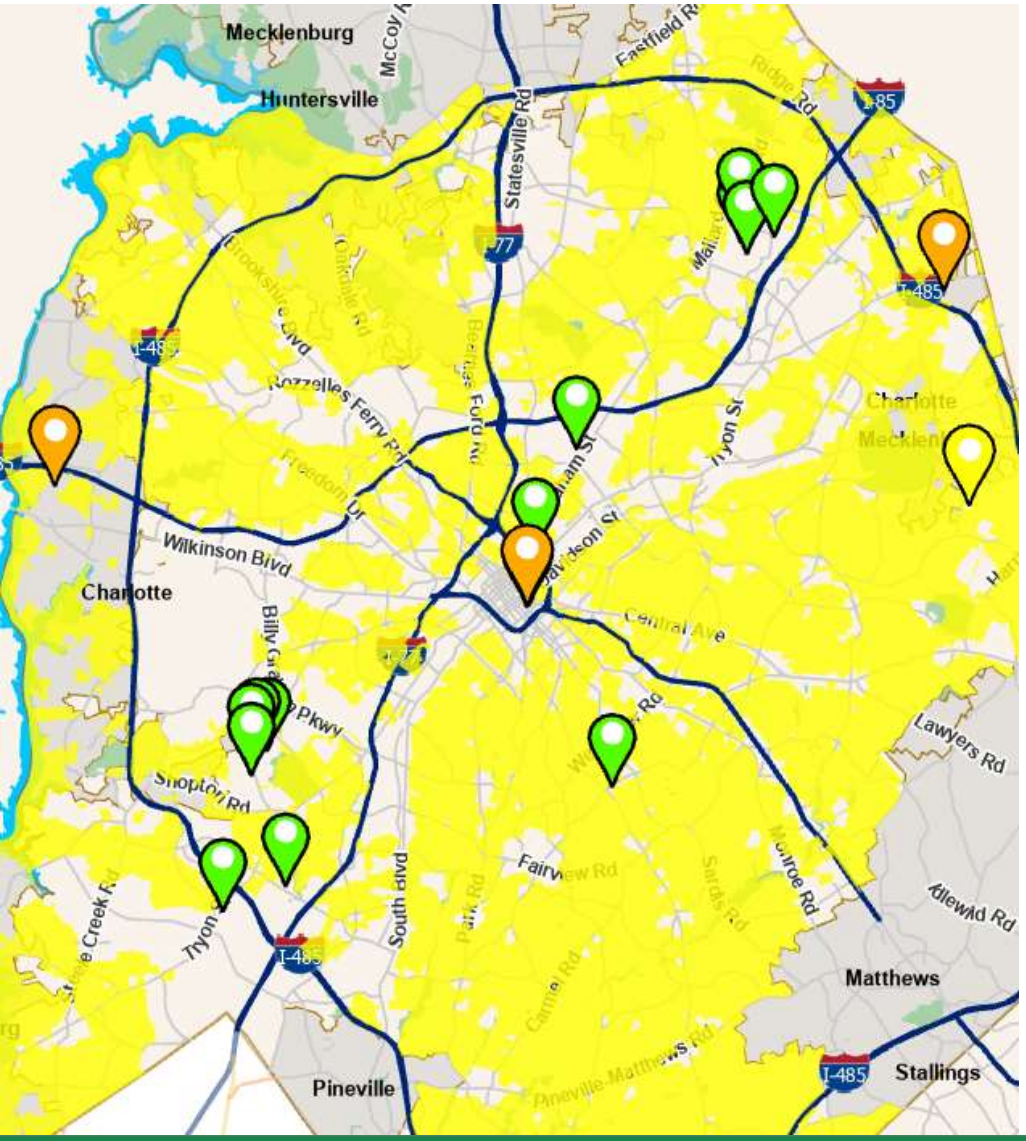
- **All data centers, regardless of size, type + capacity, are treated the same under the UDO**
- **Where allowed, data centers have no additional prescribed conditions**
- **Subject to applicable zoning + general development standards**
  - setbacks, height, transparency, landscape yards, screening, exterior lighting, etc.




# Existing/Proposed Data Centers

**Map Legend**

- Proposed Data Center
- Approved Data Center
- Existing Data Center
- Wastewater Treatment Plants




# Existing/Proposed Data Centers & Residential Zoning

**Map Legend**

- Proposed Data Center
- Approved Data Center
- Existing Data Center
- Residential Zoning Districts

# Data Center Trends

**IT**

## AI is driving demand

- AI growth is increasing demand for high-density GPU facilities.
- Distance from user affects speed (cloud storage needs differ than real time banking, emergency services)

**POWER**

## Power is the main constraint

- Power availability and land is a key constraint for large facilities.
- Grid connections can take longer than construction.

**WATER**

## Cooling and water needs are rising

- Cooling demand is rising, including liquid-cooled designs.
- AI workloads can significantly increase water use.

**ADAPT**

## Facilities are adapting

- More sites may pursue on-site generation, storage, power purchase agreements, nuclear, geothermal, or dedicated substations.
- Closed loop systems are becoming more common

**Bottom line:** **Data center growth is accelerating, while power, cooling, water, and supply chain constraints shape where and how facilities can be built.**

# Energy Consumption: Duke Energy

Data centers are growing, but they may not be the primary driver of current rate pressure.

**<1%**

Current share of statewide peak electric demand from data centers

**10% by 2030**

Projected share of North Carolina electric demand from data centers

**100+ MW**

Threshold where projects pay a non-refundable impact fee and all upgrade costs

## What This Means:

- Large-load customers pay the cost of delivering service to their sites.
- Recent rate increases are tied to residential growth.
- Future data center growth will require continued attention to generation, transmission, and grid capacity.

# Water Consumption

- **Small scale users: 64,000 gallons/day**
- **Large scale: Varies by cooling method**
  - Evaporative cooling (open loop): high water consumption
  - Recirculated water (closed loop): reduces water consumption by 70% as it is returned as wastewater
- **Total Irrigation demand for all users: 11MGD**
- **Stage 2 drought aims to reduce water by 16MGD** (existing data centers use 0.4%)

# Charlotte Water

## Two Hyperscale data centers have been approved

- AREP/PowerHouse
  - Peak summer use: 1.2 MGD of reclaimed water
  - Demand is lower in cooler seasons
- Moores Chapel – Digital Realty
  - Domestic water only: 35,000 GPD
  - Cooling is electric, not water-based

## How Projects are Reviewed

- Proposed developments undergo detailed engineering review.
- Developers pay for required infrastructure improvements.

## Preferred Sustainability Approach

- Encourage use of reclaimed water.
- Encourage efficient closed-loop cooling systems.

## System Planning

- Charlotte Water updates its systemwide master plan every 5 years.
- Planning accounts for growth, development, and rising water demand.

# Noise

- Sound is typically when there is on-site energy generation or when air cooling is used
- Some cities are considering noise and sound studies as part of permitting
- Noise depends on the type of center and may be more of a factor in rural areas when energy is unavailable
- During the 2023-030 a group took a field trip to a nearby hyperscale facility and found no noise concerns

# Jobs & Economic Development

**20–50**
**Typical new jobs per data center**

**$54K–$80K**
**Typical annual salary for data center technicians**

**Existing data centers contributed $1.17M 2025 tax revenue**

- Data centers can generate substantial tax revenue relative to their employment footprint, especially when paired with large capital investment.
- A hyperscale facility with ~2.5M SF in Charlotte could generate ~$40M in tax revenue annually
- They also tend to create limited direct demand on schools and roads compared with many other large development types.

# Potential Next Steps

State law limits some zoning changes, but the City still has tools to study impacts, strengthen review, and consider a temporary moratorium.

## What the City Can't Do

### Cannot change certain zoning criteria

- Cannot revise some location, buffer, or similar zoning standards through down-zoning action
- Limited by the Down-Zoning Law (**NCGS 160D-601**)

## What the City Can Do

### 1 Coordinate an interdisciplinary staff team

- Build a unified City strategy on data center issues
- Bring together specialized expertise across departments

### 2 Require more study / explore standards

- Consider stronger application materials through the Research and Study process (Example: noise mitigation plan, energy/water conservation plan)
- Explore performance-based standards for by-right development (Focus areas: noise, energy use, water use)

### 3 Consider a moratorium

- Moratorium must comply with NCGS 160D-107 (**Required steps: Hold a properly noticed public hearing** and adopt an ordinance that meets statutory criteria)

| Municipality | Moratorium | Definition of Data Center Pre-Moratorium |
|---|---|---|
| Charlotte | | Yes |
| Durham | Passed 05/2026 (60 Days) | No |
| Brevard | Passed 03/2026 (90 Days) | No |
| Kings Mountain | Passed 02/2026 (6 Months) | No |
| Wendell | Passed 04/2026 (Through 12/31/2026) | No |
| Gates County | Passed 06/2025 (1 Year) | No |
| Chatham County* | Passed 02/2026 (1 Year) | No |
| Town of Canton | Passed 02/2026 (1 Year) | No |
| Boone | Passed 03/2026 (1 Year) | No |
| Apex | Passed 04/2026 (1 Year) | No |
| Orange County | Passed 04/2026 (1 Year) | No |
| Rowan County | Passed 04/2026 (1 Year) | No |
| Swain County | Passed 04/2026 (1 Year) | No |

* The Chatham County moratorium was recently challenged in a lawsuit filed by Eco Tip West on April 23, 2026, that raises violations of state and constitutional law, and claims the Eco Tip data center is exempt from the moratorium.

# Recommendation

- **Hold a public hearing for a moratorium on May 26**
  - May 26: public hearing (needs 2 week notice period if >60 days)
  - June 8: Council action

- **Referral to TPD Committee:**
  - June 1: presentation and next steps overview
  - Late Summer: recommended actions

- **Interdisciplinary workgroup to convene on policy and next steps**

# Discussion