

CASE STUDY

Digital Realty DC45 Data Center

Garland, Texas (Dallas-Fort Worth Metro)



Executive Summary

Digital Realty DC45 is a flagship Hyperscale Data Center facility within the expanding Digital Realty Garland campus in Garland, Texas. It forms part of a multi-phase development that includes core-and-shell buildings, fit-outs, and campus-scale infrastructure supporting high-density computing demands, particularly for AI, cloud, and enterprise workloads. Key highlights include:

- Building size: Approximately 410,000 sq ft (one of the primary buildings, featuring a tenant office and six dedicated data halls).
- IT load capacity: Up to 48 MW (six × 8 MW data halls).
- Campus potential: Over 1 million sq ft across multiple buildings on ~45–64 acres, with full build-out exceeding 150 MW critical IT load.
- Investment: ~\$120 million for the DC45 building; broader campus investment up to \$1.9 billion.
- Timeline: Construction March 2025–October 2026 (core phases); earlier phases operational or nearing completion by late 2025.
- Tenant example: Wells Fargo for an adjacent/related phase.

- Incentives: Significant tax rebates (50% sales tax for 20 years; property and personal property tax abatements) from the City of Garland.
- Power provider: Garland Power & Light (with Trinity Valley Electric Cooperative elements in permits).

DC45 delivers enterprise-grade reliability, scalability, and sustainability in one of North America's fastest-growing Data Center markets. It mirrors the depth and structure of comprehensive case studies for other major Texas facilities (such as those highlighting phased development, infrastructure redundancy, and economic impact).

1. Introduction and Project Overview

Digital Realty, a Global Leader in Data Center colocation and interconnection, developed DC45 as part of its strategic expansion in the Dallas-Fort Worth (DFW) market. The Garland campus addresses surging demand for high-power-density infrastructure driven by AI, cloud Hyperscalers, and enterprise digital transformation. DC45 (often referenced in filings as Digital Garland DFW37 or part of Project Gold Garland extensions) provides flexible white space in a purpose-built environment. The facility supports cabinet, cage, suite, and Hyperscale deployments with high availability and carrier-neutral connectivity. It builds on Digital Realty's established DFW presence (including the nearby Digital Dallas campus in Richardson) while leveraging Garland's business-friendly environment, fiber infrastructure, and power availability.

2. Location and Site Characteristics

Address: Primarily 1502 Ferris Road (DC45/DFW37 building) and adjacent parcels at 1505 Ferris Road and 1702 W. Campbell Road, Garland, TX 75044.

Site advantages:

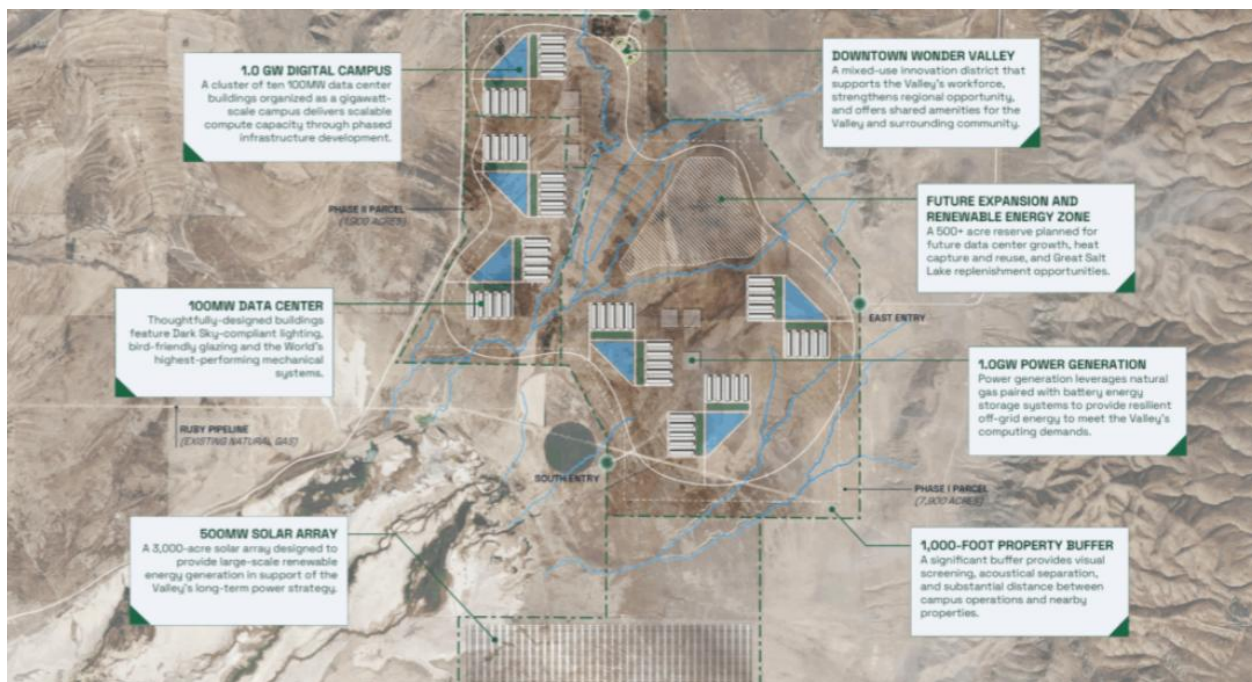
- Proximity to major fiber routes and existing Digital Realty/competitor ecosystems in DFW.
- Access to Garland Power & Light utility infrastructure.
- Strategic location near the President George Bush Turnpike (PGBT) for logistics and ~20–25 miles from DFW International Airport.
- 45+ acre master-planned campus with room for phased expansion.
- Outside major flood zones (typical for the area).

The site supports diverse utility feeds and future on-site or nearby substation enhancements.

3. Development History and Phased Approach

- **Early planning:** Campus concepts date to 2017–2018 announcements, with formal permitting accelerating in 2022–2023.
- **Phase 1 / Project Gold Garland** (1505 Ferris Road): ~181,200 sq ft core-and-shell (one-story); ~172,000 sq ft operational elements; completed ~2024. Tenant fit-out (including Wells Fargo-related) followed.
- **DC45 / DFW37** (1502 Ferris Road): 410,000 sq ft building with tenant office and six 8 MW data halls; \$120M project; construction March 2025–October 2026.
- **Broader campus:** Up to four additional buildings on the 45-acre Campbell Road site, targeting >1M sq ft total and >150 MW at full build-out.
- **Partnerships:** Joint venture elements with Mitsubishi Corporation for pre-leased capacity in the DFW region.

This phased model allows flexible tenant-driven build-outs while minimizing upfront risk.



This image is an illustrative master plan rendering of a large-scale data center campus (representative of phased, multi-building hyperscale developments like Garland).

4. Building Design and Technical Specifications

DC45 features modern industrial architecture with tilt-up concrete panels, steel structure, and high-security envelope.

Key specs (based on permitting and comparable Digital Realty facilities):

- **Raised floor / white space:** Flexible configurations supporting high-density racks (targeting 10–20+ kW/rack or higher for AI workloads).
- **Floor loading:** Typically 250+ lbs/sq ft (standard for hyperscale).
- **Ceiling height:** Optimized for overhead power/cooling distribution.
- **Design firm:** HED (for DFW37); Jacobs Engineering involved in earlier phases.
- **Fire suppression:** Early warning + clean agent or pre-action systems.
- **BMS/DCIM:** Integrated building management and data center infrastructure management platforms.

5. Power Infrastructure

DC45 and the campus emphasize redundancy and scalability for Mission-Critical loads.

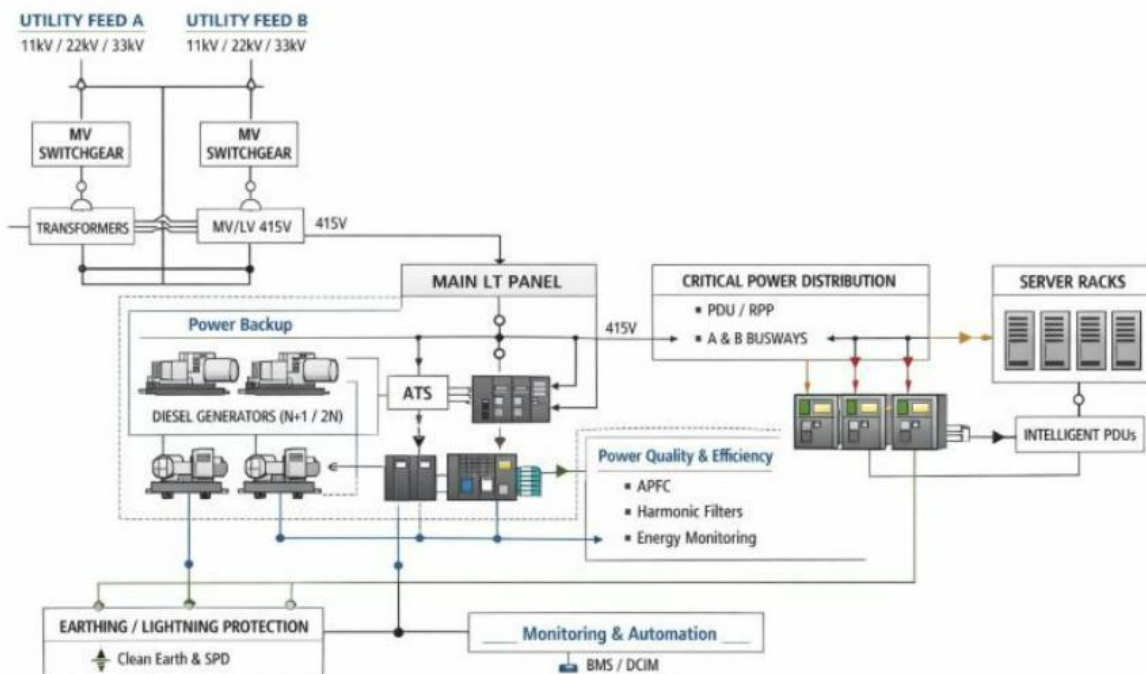
Power characteristics:

- **Utility:** Garland Power & Light (primary); potential dual feeds.
- **Critical IT load:** 48 MW for DC45 (six dedicated 8 MW halls).
- **Redundancy:** N+1 or 2N configurations typical (UPS and generators).
- **Backup:** Diesel generators with N+1/2N redundancy; on-site or campus-scale fuel storage.
- **Distribution:** Medium-voltage to low-voltage transformation, PDUs/RPPs, and intelligent rack PDUs.
- **Monitoring:** Advanced power quality, harmonic filtering, and DCIM integration.

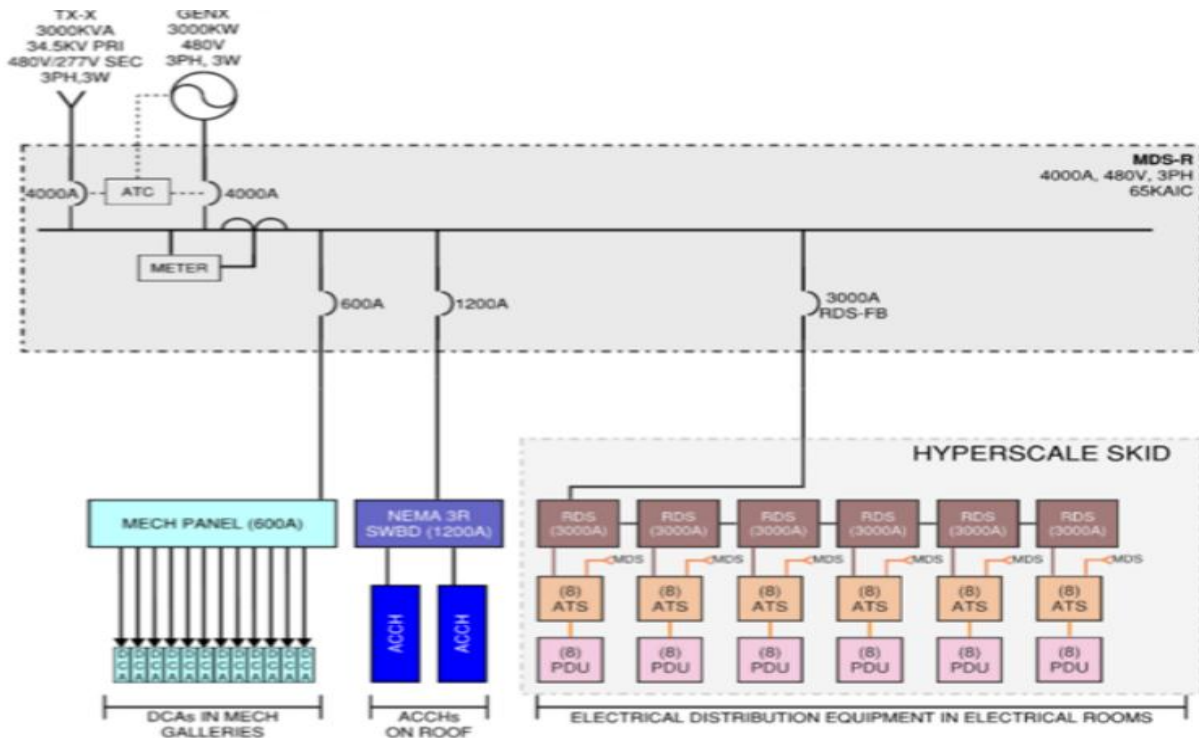
Below is a Representative single-line diagram (standard for high-availability data centers like DC45). Data center electrical single-line diagram showing utility feeds, transformers, UPS/generators, and critical distribution to racks.

Data Center Electrical System - Single Line Diagram

High Availability | Redundancy (N+1 / 2N) | Scalability | Energy Efficiency | Safety & Compliance



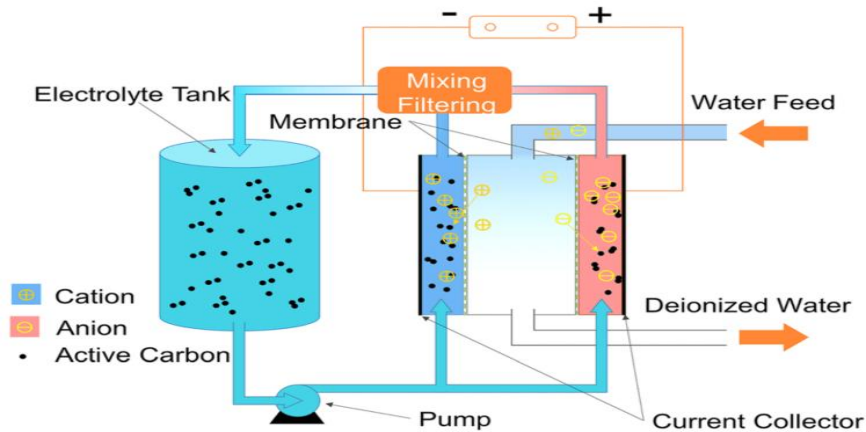
Below is a Hyperscale electrical distribution example with switchgear, PDUs, and redundancy paths.



6. Cooling and Mechanical Systems

DC45 employs efficient, scalable cooling suited to high-density IT loads (air-cooled, chilled water, or hybrid systems depending on tenant requirements). Typical features:

- N+1 redundant chiller plants or direct-to-chip/immersion options for future AI density.
- CRAC/CRAH units or row-based cooling in data halls.
- Free cooling/economization where climate permits (DFW benefits from cooler months).
- Water usage: Closed-loop or low-water designs in modern builds.
- High-purity (RO/deionized) water for initial cooling system fills and commissioning.



- PUE target: <1.3–1.4 (industry-leading; comparable facilities achieve strong efficiency).

7. Sustainability and Environmental Considerations

- Tax incentives tied to economic development support responsible growth.
- Potential for renewable energy procurement or on-site solar integration (common in Digital Realty portfolios).
- Water-efficient cooling and waste heat recovery opportunities.
- Compliance with local environmental standards and LEED or equivalent pathways where applicable.
- Long-term carbon-free energy matching aligned with corporate sustainability goals.

8. Security, Compliance, and Operations

- **Physical security:** 24/7/365 manned security, biometric/card access, CCTV, mantraps, perimeter fencing, and vehicle barriers.
- **Certifications** (typical for Digital Realty facilities): SOC 1/2/3, ISO 9001/14001/27001, PCI-DSS, HIPAA readiness.
- **Remote hands / smart hands:** Available.

Remote Hands is a basic support service where Data Center technicians perform simple, well-defined physical tasks on your equipment at your request (usually via ticket, phone, or chat).

The technician acts strictly according to your instructions — they do **not** diagnose problems or make technical decisions on their own.

Typical Remote Hands tasks include:

- Power cycling or rebooting servers and network devices
- Checking LED lights or console messages and reporting back
- Plugging in or unplugging network/power cables
- Visual inspections of equipment
- Inserting or removing media (tapes, USB drives, etc.)
- Basic cable management or labeling (simple jobs)

Smart Hands is a more advanced version of the service. It involves **skilled, trained technicians** who can perform more complex technical work and often use their own judgment to troubleshoot and resolve issues.

Typical Smart Hands tasks include:

- Rack and stack (installing servers, switches, storage into racks)
 - Hardware troubleshooting and diagnostics
 - Replacing failed components (hard drives, power supplies, fans, etc.)
 - Complex cabling and cross-connects
 - Basic OS installation or configuration
 - Firmware updates
 - Receiving and inventorying hardware shipments
 - Asset audits and documentation
 - More advanced troubleshooting and incident response
- **BMS and DCIM:** Real-time monitoring, alerting, and automated controls.
- **Disaster recovery:** Diverse power, cooling, and network paths.

9. Connectivity and Network Infrastructure

- Carrier-neutral with access to 1,000+ networks via Digital Realty's global platform.

- Metro Connect, Campus Connect, and direct cloud on-ramps (AWS, Azure, Google Cloud, etc.).
- High-density fiber entry points with diverse routing.
- Interconnection ecosystem supporting low-latency DFW metro and national peering.

10. Tenants and Utilization

- Confirmed: Wells Fargo (significant investment in related phase; operations staff expected).
- Target market: Hyperscalers, financial services, enterprise, AI/cloud providers.
- Flexible leasing: Cabinets to full halls/suites with customizable power densities.

11. Economic Impact and Community Benefits

- Direct investment: Hundreds of millions per phase; tenant capex in the hundreds of millions.
- Jobs: Construction-phase employment (hundreds); ongoing operations and support roles.
- Tax revenue: Significant contributions to Garland and Dallas County, offset by structured abatements that still deliver net positive fiscal impact.
- Broader benefits: Supports DFW's position as a top data center market; attracts related tech investment.
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12. Construction Timeline and Status – mid 2026 context

- Project Gold / early phases: Core-and-shell complete ~2024; fit-outs ongoing.
- DC45 (DFW37): Permitting advanced; construction ramping 2025, targeted delivery October 2026.
- Campus expansion: Ongoing phased development through 2026+.

Conclusion and Future Outlook

Digital Realty DC45 exemplifies modern hyperscale Data Center development: scalable power and space, robust redundancy, strong local partnerships, and alignment with explosive digital demand. The Garland campus positions Digital Realty to capture significant market share in Texas while delivering reliable, interconnected infrastructure for Mission-Critical workloads.

Future phases will likely incorporate even higher power densities, advanced liquid cooling, and deeper sustainability integrations as AI and cloud computing continue to evolve.

This **Case Study** draws on public permitting records, industry reporting, and standard technical practices for comparable Digital Realty facilities. Detailed as-built drawings and proprietary operational data remain confidential to the operator and tenants.