

1. Protection of Groundwater Resources and Responsible Water Use

1.1 Managed Surface-Water Supply

Data centers in Jefferson County should obtain water through an existing public utility system supplied by a managed surface-water source, subject to confirmed utility capacity, reliability, treatment capability, and applicable regulatory approvals.

1.2 Groundwater Protection

Data centers should be prohibited from withdrawing groundwater directly, including through on-site wells, groundwater dewatering, or other groundwater-source systems, for cooling, domestic use, construction, fire-protection testing, irrigation, or other operational purposes.

1.3 No Indirect Groundwater Dependence

A data center should not rely on a public or private utility supply sourced from groundwater for normal operations. Any utility serving the facility should identify and document its water source and certify the extent to which its supply is derived from managed surface-water resources.

1.4 Reclaimed Water & Gray Water

Where technically feasible and authorized by applicable health, plumbing, environmental, and utility requirements, data centers should use reclaimed water, treated wastewater effluent, gray water, or other approved non-potable water sources for cooling towers, toilet flushing, irrigation, and other appropriate non-potable uses as the preferred use. Reuse systems must be properly designed, monitored, maintained, and protected against cross-connections, leaks, discharges, or seepage that could threaten public health or groundwater quality.

1.5 Low-Water Cooling Technology

Data centers should be required to use low-water or water-efficient cooling technology, including air-cooled, closed-loop, hybrid, direct-to-chip, or other demonstrably low-water systems. An applicant proposing a more water-intensive system should demonstrate that it provides equal or greater protection of local water resources and that no feasible lower-water alternative is available.

1.6 Water-Management Plan

Before approval, each applicant should submit a water-management plan identifying anticipated average and peak daily water demand; source or sources of water; proposed cooling technology; estimated annual water use; anticipated reclaimed-water, gray-water, wastewater generation; chemical-treatment practices; and potential effects on public-water capacity, wastewater capacity, streams, springs, wells, and groundwater resources.

1.7 Water Discharge Monitoring

Prohibit any unpermitted discharge of wastewater, process water, cooling water, fuel-contaminated runoff, chemicals, sediment, or other pollutants to surface waters, wetlands, drainageways, storm sewers, or groundwater. Data centers should be required to discharge all non-stormwater effluent to utilities with advanced treatment facilities such as CTUB. All onsite or offsite infrastructure required to treat effluent flows leaving the data center property and entering municipal owned system.

1.8 Wetlands and Marsh Protection

Data centers should not be located within wetlands, marshes, floodplains, or other environmentally sensitive areas. Data center should fund local watershed conservation and restoration efforts for the same water source that the cooling water is extracted from.

2. Protection of Air Quality and Public Health

2.1 Primary Use of Grid Power

Data centers in Jefferson County should be designed to operate primarily on electricity supplied through the regional electric grid.

2.2 Preference for Non-Combustion Backup Power

Where feasible, data centers should prioritize battery energy storage, redundant utility connections, and other non-combustion backup-power systems before relying on on-site fuel-fired generators. Backup systems should be designed to minimize air emissions, noise, fuel storage, traffic, and risks to neighboring residents and prioritize natural gas over diesel when available.

2.3 Major-Source Air-Permit Review

Every proposed data center should complete a comprehensive air-emissions assessment before County approval. Where projected emissions meet the legal threshold for a major source, the applicant must obtain all applicable major-source permits, including Prevention of Significant Deterioration or other New Source Review authorization, before construction or operation.

2.4 Best Available Emission Controls

Applicants should use the best available air-emissions control technology and operational practices appropriate to the facility. The analysis should evaluate cumulative emissions from all generators, boilers, cooling equipment, construction activity, delivery traffic, and other on-site emission sources, rather than considering each engine or source in isolation or phase of project.

2.5 Public Notice, Comment, and Hearing

All air-permit applications, emissions analyses, and supporting technical studies should be publicly available. Projects with significant emissions, substantial community interest, or potential effects on nearby homes, schools, farms, health-care facilities, or sensitive

environmental resources should be subject to a meaningful public-comment period and a locally accessible public hearing.

2.6 Responsible Outdoor Lighting Using Dark-Sky Standards

Comply with international illumination dark-sky standards.

3. Stormwater Management and Soil-Contamination Mitigation to Corresponding Local Jurisdiction

3.1 Stormwater and Drainage Protection

Jefferson County should require major data centers and other large-scale developments to protect neighboring properties, public infrastructure, streams, and water resources from stormwater impacts during construction and throughout the life of the project.

3.2 Independent Plans and Effective Controls

Applicants must submit independently reviewed stormwater, drainage, grading, and erosion-and-sediment-control plans. Effective controls must be installed and maintained before land disturbance begins, and construction should be phased to reduce exposed soil and unmanaged runoff.

3.3 No Increased Downstream Impacts

Applicants must demonstrate that the proposed development will not increase flooding, erosion, sedimentation, or drainage impacts on downstream properties, public roads, streams, springs, or other water resources.

3.4 Inspection, Enforcement, and Financial Assurance

The County should retain authority to conduct enhanced inspections, require immediate corrective action, and issue stop-work orders when stormwater or erosion-control measures fail. Applicants should provide adequate financial assurance so that cleanup, repairs, restoration, and project-related damages are paid by the developer—not residents or taxpayers.

4. Local Staff and First-Responder Safety Review

4.1 County and Fire-Rescue Review

Jefferson County should require major data centers and other large-scale developments to provide County staff and the local first-due fire station with a safety and operational review before construction begins and again before occupancy.

4.2 Required Safety Information

The review should address site access, building layout, fire-protection systems, water supply, hydrant locations and fire flow, utility shutoffs, fuel and battery systems, hazardous materials, emergency communications, and anticipated emergency-response needs.

4.3 Pre-Incident Planning and Developer Responsibility

Applicants should complete reasonable safety measures identified by local responders, including pre-incident planning, site walk-throughs, emergency drills, training, equipment evaluation, access improvements, and mutual-aid coordination. The applicant should bear the reasonable costs of project-specific planning, training, equipment, and mitigation measures necessary to safely serve the facility.

Noise, Setbacks, and Vegetative Screening			
Property Type	Noise (dBA) Maximum	Setbacks (site & building)	Vegetative Screening
Industrial Use or Zone	70 dBA	50 ft minimum	Minimal buffer along side and rear; complete buffering along frontage for 8-10 minimum height planting
Commercial Use or Zone	65 dBA	100 ft minimum	A mixture of plantings that is predominantly evergreen, 6-foot minimum height at planting. Complete buffering and screening required.
Agricultural/Residential Use or Zone	55 dBA	1,000 ft minimum	A mixture of plantings that is predominantly evergreen that is non-invasive with goal of providing native and/or hybrid native, 8–10-foot minimum height at planting. Staggered multi-layers as appropriate Complete buffering and screening required. Consider design factors such as walls or landscape to limit visual disturbance.
Institutional Use/Zone (schools, churches, etc.)	60 dBA	1,000 ft minimum	A mixture of plantings that is predominantly evergreen that is non-invasive with goal of providing native and/or hybrid native, 8–10-foot minimum height at planting. Staggered multi-layers as appropriate Complete buffering and screening required. Consider design factors such as walls or landscape to limit visual disturbance.
Any Historic Designation Property	55 dBA	1,000 ft minimum (from historic structure)	A mixture of plantings that is predominantly evergreen that is non-invasive with goal of providing native and/or hybrid native, 8–10-foot minimum height at planting. Staggered multi-layers as appropriate Complete buffering and screening required. Consider design factors such as walls or landscape to limit visual disturbance.