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Prepared by: Clinton County EMA

Purpose: Provide an operationally focused analysis of the impacts, hazards, emergency response requirements, and stakeholder considerations associated with the construction and long-term operation of a major data center facility in Clinton County, Ohio.

Public Safety, Hazard, and Operational Impacts of a Proposed Data Center

Date: 25 November 2025

Executive Summary

The proposed construction of a large-scale, closed-loop, air-cooled data center in Clinton County represents a major shift in the county's infrastructure, operational landscape, and emergency management responsibilities. While the facility's long-term operations are low-occupancy and low-frequency from an emergency response perspective, the project introduces significant technical hazards, infrastructure demands, and public safety considerations that require planning across all phases—from pre-construction through steady operations.

The most substantial impacts fall within the Safety & Security, Health & Medical, Energy, Communications, and Hazardous Materials lifelines. Construction and commissioning create the highest risks due to electrical work, high-voltage system energization, lithium-ion battery activation, diesel generator testing, heavy contractor presence, and heightened theft/trespass activity. These phases also strain an already challenged fire/EMS system facing declining volunteer availability and thin daytime staffing. EMA's role expands significantly during this period, requiring enhanced coordination with all nine fire/EMS districts, law enforcement agencies, Wilmington services, and regional partners.

Long-term operations stabilize and ultimately strengthen several lifelines—particularly Energy and Communications—through improved transmission capacity, fiber redundancy, and potential regional generation expansion. Impacts to Food, Hydration & Shelter and Water Systems remain minimal due to Wilmington's updated wastewater capabilities and the facility's low water consumption profile.

Community perception, misinformation, and political visibility become secondary but important considerations. The presence of a major technology-sector asset increases public scrutiny during emergencies, can polarize segments of the community, and necessitates proactive, consistent public messaging from EMA and local government leaders.

Overall, the data center offers long-term resilience benefits but requires a deliberate, phased emergency management approach focused on technical readiness, interagency coordination, public information management, and ongoing evaluation of responder capacity. This briefing outlines the expected impacts across all FEMA lifelines and provides actionable recommendations to guide Clinton County's preparedness, planning, and stakeholder engagement.

Introduction and Context

Clinton County is being considered as the location for a large-scale, closed-loop, air-cooled data center to be constructed south of Wilmington. Wilmington would annex the site to provide water and sewer services, relying on its newly expanded wastewater treatment capacity. The project coincides with regional infrastructure growth, including new AES transmission lines transiting Clinton to Fayette Counties and the possibility of the county attracting a natural-gas generation provider in the coming years. These combined developments represent a significant shift in the county's energy, water, communications, and economic landscape.

Although data centers are low-occupancy facilities with a relatively small onsite workforce, they introduce complex hazards involving high-voltage electrical systems, lithium-ion battery storage, diesel generation, and critical infrastructure dependencies. These hazards place additional requirements on Clinton County's emergency response capabilities. This includes fire, EMS, law enforcement, public works, utility operators, and the Emergency Management Agency itself.

The purpose of this briefing is to outline the emergency management implications of the project, examine how the county's existing responder capacity aligns with potential needs, and identify the planning and preparedness actions required to ensure safe and resilient integration of this facility into Clinton County's infrastructure network

Operational Environment and Project Overview

The proposed data center would be constructed in phases, with an estimated 12–36 months of continuous contractor presence. The construction period brings elevated safety risks and logistical challenges that will affect multiple stakeholders. Once operational, the facility will shift toward a low-call but high-complexity risk profile typical of modern hyperscale infrastructure.

The site's closed-loop cooling design minimizes water demand and avoids the most controversial aspect of data center operations seen nationally. Noise-barrier systems reduce generator and mechanical sound impacts, while the proximity to Wilmington Airpark helps ensure that nighttime light and noise become negligible in comparison. As local farms continue aging out and younger generations increasingly decline to maintain agricultural operations, industrial development of this type aligns with ongoing socio-economic transitions in rural communities across Southwest Ohio.

From an EMA standpoint, the project represents a major shift in the county's risk picture. The facility will rely on heavy electrical use, redundant fiber communications, on-site diesel storage, and battery energy systems. Each of these systems carries distinct hazards that require specialized preplanning, interagency coordination, and technical response readiness.

Key EMA Concerns: Threats and Hazards

Electrical Hazards

The facility's reliance on high-voltage switchgear, redundant power feeds, and large transformer banks introduces significant risk during mechanical failure, maintenance accidents, or severe weather. Arc-flash events, switchgear malfunctions, and transformer fires are rare but high-consequence incidents requiring specialized response knowledge.

Lithium-Ion Battery Energy Storage Systems

Battery systems supporting uninterrupted power availability present one of the most serious technical hazards. Thermal runaway events produce extreme heat, toxic off-gassing, and prolonged burn durations. These incidents challenge departments that already face declining volunteer numbers and limited specialized training opportunities.

Generator and Fuel-Related Hazards

Multiple diesel generators will be present to maintain continuity of operations. These introduce risks of fuel spills, exhaust-related heat hazards, and fire events within confined mechanical corridors. Environmental management and fire suppression for these systems must be incorporated into local plans.

Construction Phase Risks

During the construction phase, Clinton County should anticipate a surge in heavy-equipment operations, trenching activity, electrical work, welding, and large volumes of contractor traffic. These conditions historically produce increased EMS trauma calls, worker injuries, theft, and trespassing cases.

Cyber and Threat "Noise"

In this context, "noise" refers to the increase in false signals, misinformation, misattributed incidents, online speculation, and low-quality threat chatter that often emerges around high-visibility technology infrastructure. Noise does not indicate an increased technical threat—it reflects public perception, rumor spread, and social amplification, not actual cyber activity originating from or targeting the facility.

While the data center itself does not increase cyber vulnerability for the county, public perception may tie unrelated cyber events to the facility, generating rumor cycles and emergency information demands. This "noise layer" can include inaccurate social media claims, conspiracy-style narratives, misattributed outages ("the data center must have caused it"), and community speculation whenever unusual activity occurs.

EMA should expect occasional hoax threats, swatting attempts, and misinformation that require swift public communication and rumor control. Maintaining a proactive information posture will help reduce confusion and keep county residents focused on accurate, verified information.

These individual hazards collectively shape the broader FEMA Community Lifelines that support Clinton County. The following section evaluates how these lifelines will be stressed or strengthened throughout each project phase.

FEMA Lifeline Impacts

Overall, the project strengthens Energy and Communications lifelines long-term while increasing short-term demand on Safety & Security, Health & Medical, Transportation, and Hazardous Materials during construction and commissioning. Water Systems and Food/Hydration/Shelter remain minimally impacted.

The construction and future operation of a large-scale data center in Clinton County will influence all eight FEMA Community Lifelines to varying degrees. While the facility's low day-to-day occupancy limits most operational impacts, the project introduces significant technical hazards, responder demands, infrastructure dependencies, and risk transitions that must be evaluated across each phase of its lifecycle. The following section applies the Clinton County Lifeline framework directly to these impacts and incorporates the operational realities facing local fire, EMS, and law enforcement agencies.

For EMA, these lifeline shifts highlight the need for expanded coordination, technical planning, and interagency engagement throughout the project. EMA's role will be to monitor lifeline stress points, support responder preparedness, and ensure countywide situational awareness across all phases of construction and operation.

Safety and Security Lifeline

(Law enforcement, fire services, search & rescue, government services, EOC, public safety functions)

The Safety and Security Lifeline experiences the greatest overall impact from the project, especially during the pre-construction and construction phases. Increased contractor presence, heavy equipment, and high-value materials elevate risks of theft, trespassing, and contractor disputes—placing new demands on the Clinton County Sheriff's Office, Wilmington Police Department, and other local police agencies.

Clinton County's nine fire districts, already challenged by declining volunteer availability, thin daytime staffing, and limited technical training depth, will face increased demands as the project moves toward commissioning and early operations. The facility's reliance on high-voltage electrical systems, lithium-ion battery storage, and diesel generators requires advanced fire preplans for every electrical enclosure, mechanical corridor, and generator hall. Mutual aid agreements may need revision to guarantee turnout during daytime hours when volunteer shortages are most acute.

EMA must be prepared for the possibility of activating the EOC—partially or fully—during commissioning events involving high-voltage system energization, generator testing, or battery activation. This phase represents the highest technical risk profile, and early coordination ensures a rapid multi-agency response if an incident escalates.

Government services—including the EOC, essential government offices, and schools—benefit indirectly from improved power and fiber infrastructure but must prepare for higher expectations of coordinated incident management during commissioning or technical emergencies. Long-term steady operations stabilize most Safety and Security demands but require annual preplan updates and interagency walkthroughs to maintain readiness for low-frequency/high-consequence incidents.

Food, Hydration, and Shelter Lifeline

(Grocers, food distribution, temporary hydration missions, shelters, hotels, agriculture, livestock)

Direct impacts on this lifeline remain low. The data center does not materially affect food access, agricultural operations, or shelter capabilities. Temporary increases in demand for local hotels and restaurants will occur during peak construction, but these increases do not stress the system.

During the construction phase, however, there is a higher potential for food truck vendors to set up in the Job & Family Services parking lot or nearby areas to capitalize on the increased daytime population of contractors. This activity is commercially driven, poses no lifeline strain, and does not negatively impact local food availability. It may temporarily increase traffic in and out of the JFS lot but does not change overall system function.

Closed-loop cooling avoids strain on hydration resources. Agriculture and livestock operations are not directly impacted, although land-use changes may contribute to long-term shifts already underway as local farms transition out of production.

Health and Medical Lifeline

(Hospitals, EMS, public health, pharmacies, dialysis, long-term care, VA, veterinary care, mortuary services, medical supply chain)

Construction significantly increases EMS demand due to heightened risks of falls, crush injuries, electrical shock, and equipment-related trauma. Clinton County's EMS districts—many reliant on aging volunteer rosters—will face additional pressure and responder fatigue. Commissioning introduces hazards associated with system energization, including arc-flash injuries, severe burns, inhalation hazards from battery off-gassing, and medical emergencies among technical staff or contractors.

Hospitals and emergency departments should expect low call volumes but potentially high-severity, low-frequency industrial injuries. Public health impacts remain minimal. Over time, steady operations revert to low EMS demand but require retention of technical competencies for complex trauma, burns, and electrical injuries.

EMA will need to coordinate closely with all nine fire/EMS districts to ensure agreements, preplans, and technical training support are aligned prior to commissioning and early operations. Volunteer staffing shortages make early coordination essential to maintaining response capability.

Energy Lifeline

(Power grid, generation, transmission, distribution, fuel storage, pipelines, gas stations)

The data center places the highest sustained demand on this lifeline. New AES transmission lines and the potential for Clinton County to attract a natural-gas generation provider will significantly strengthen regional power supply resilience, benefiting the data center and the community.

Construction increases localized energy consumption, but commissioning is the most demanding period due to energization of high-voltage systems, generator testing, and battery activation. Early operations require stable large-load integration, which may influence restoration prioritization and load-shedding strategies during outages.

Fuel distribution demands increase due to diesel storage and generator operations, though this remains manageable with coordinated delivery schedules.

Communications Lifeline

(Wireless, cable/wireline, broadcast, satellite, data centers, internet, CCEA alerts, IPAWS, NAWAS, PSAPs, dispatch, responder communications, finance/payment systems)

The Communications Lifeline gains substantial long-term resilience improvements. To meet hyperscale operational standards, the project brings new fiber backbone routes, redundant paths, and improved reliability

for both public and private sectors—including MARCS radio support, 911 PSAP connectivity, hospital networks, schools, and government systems.

During construction and commissioning, however, fiber installation poses risk of cutovers or accidental outages if not closely coordinated. EMA and local IT providers must ensure continuity of 911, CCEA alerts, public-safety communications, and financial transaction systems during these transitions.

Overall, steady operations result in a significantly strengthened communications environment for Clinton County.

Transportation Lifeline
(Roads, bridges, transit, freight rail, Wilmington Airpark operations)

Transportation impacts are most pronounced during construction when contractor volumes peak, heavy equipment is moved, and material deliveries increase. This may require traffic control by law enforcement and coordination with County Engineer and ODOT for routing oversized loads.

Commissioning sees moderate traffic associated with generator fuel deliveries and technical teams. Once operational, the data center's minimal staffing footprint produces negligible transportation effects. Wilmington Airpark operations are not disrupted, and the facility's lighting/noise profile remains far below that of existing nighttime airpark activity.

Water Systems Lifeline
(Potable water intake, treatment, storage, distribution; wastewater collection, treatment, discharge)

The closed-loop cooling design minimizes potable water impact, and Wilmington's new wastewater facility provides ample capacity to support the project without straining existing operations. Pre-construction and construction phases introduce stormwater runoff risks that require oversight from public works, county engineering, and EMA. Proper basin design and sediment controls are essential to prevent downstream flooding or erosion affecting rural properties.

Steady operations maintain low water-system impact, with only routine utility coordination required.

Hazardous Materials Lifeline
(Hazmat facilities, industrial agents, pollutants, contaminants)

Hazmat impacts escalate toward commissioning and early operations as generators, diesel tanks, and battery systems are installed and activated. Fire districts will need training on fuel spill mitigation, lithium-ion thermal runaway, battery off-gassing, and confined-space electrical fires. Declining volunteer fire staffing increases the difficulty of maintaining technical readiness.

Once the site reaches stable operations, hazardous materials risks remain persistent but predictable. EMA will need to maintain coordination with the facility operator for inspections, drills, and emergency planning notifications.

EMA should maintain an annual cycle of preplan reviews, drills, and multi-agency coordination meetings with the facility operator to ensure long-term readiness for low-frequency/high-consequence events.

Countywide Infrastructure Implications

The project coincides with major regional upgrades that will strengthen Clinton County's resilience. New AES transmission lines improve electrical redundancy, and if Clinton County can attract a natural-gas generation provider, this would significantly bolster regional load stability, benefitting both the data center and the broader community. New fiber pathways improve communications reliability, enhancing emergency services, healthcare systems, and government continuity capabilities.

Annexation by Wilmington ensures predictable water and sewer management. The city's new wastewater plant is well positioned to support this project without straining existing operations. Stormwater controls—if properly engineered—should mitigate runoff impacts on downstream rural properties.

These infrastructure enhancements reduce long-term EMA concerns but increase the need for integrated planning, joint exercises, and routine reassessment of hazards as the corridor south of Wilmington develops.

Community and Stakeholder Considerations

The broader community impact extends beyond immediate emergency response needs. Clinton County's rural demographics are shifting, with many farms transitioning ownership and younger generations opting for non-agricultural careers. As economic diversification accelerates, residents may express concerns about losing rural character, although much of this transformation has already begun.

EMA must prepare for heightened public interest and scrutiny, particularly related to power usage, water impacts, and cybersecurity myths. Clear and proactive public communication will help mitigate misinformation.

Responder capacity concerns may become central to community discussions. As industrial growth accelerates while volunteer numbers decline, residents may increasingly ask whether existing public safety agencies can protect expanded industrial assets. This may prompt long-term conversations about regionalized fire protection strategies, hybrid staffing models, or countywide recruitment initiatives.

Lifeline Demand Forecast Across Project Phases Chart

Data Center: Construction-to-Operations Hazard Timeline (EMA-centric view)

Lifeline	Pre-Construction	Construction	Commissioning	Early Operations	Steady Operations
Safety & Security	Moderate – early LE patrol needs, trespassing, initial fire service coordination, EOC awareness; volunteer staffing constraints	High – theft, contractor volume, increased LE/Fire/EMS workload; government services engaged for oversight	Moderate – high-risk system testing; technical readiness for fire/EMS; enhanced EOC/government coordination	Moderate – rare but high-consequence incidents; mutual aid reliance; ongoing LE alarms/security support	Low – stable operations requiring annual fire/EMS refresher training and routine LE/EOC coordination
Food, Hydration & Shelter	Low	Low	Low	Low	Low

Lifeline	Pre-Construction	Construction	Commissioning	Early Operations	Steady Operations
Health & Medical	Low	High – contractor trauma risk; EMS fatigue; hospital readiness	Moderate – electrical/battery injuries; hazardous inhalation potential	Moderate – complex but infrequent industrial medical events	Low
Energy	Moderate – utility coordination; load planning	High – construction power demand	High – system energization; generator and BESS activation	High – large-load grid integration	Moderate/Low – stabilized long-term operation
Communications*	Low	Moderate – fiber installation and cutover risks	High – activation of backbone data systems and rerouting	Moderate – early-phase adjustments and monitoring	Low – improved redundancy and countywide reliability
Transportation	Moderate – equipment arrival; routing of oversized loads	High – peak contractor and delivery traffic	Moderate – technical teams and generator fuel deliveries	Low	Low
Hazardous Materials	Low	Moderate – fuel staging, welding, equipment hazards	High – activation of diesel storage, generator systems, and lithium-ion BESS; hazmat technician readiness	High – full hazmat profile; ongoing training needed	Moderate – persistent industrial hazmat risk requiring annual drills
Water Systems	Low	Moderate – stormwater management; erosion control	Moderate – wastewater integration and continued stormwater oversight	Low	Low

*EMA should anticipate an increased public-information workload during construction and early operations, especially regarding power consumption, water use, and cybersecurity misinformation. Proactive rumor control and coordinated messaging with local government offices will be essential to maintain public confidence.

EMA Recommendations

1. **Conduct a Countywide Fire Service Census and Staffing Analysis**. Clinton County requires an accurate, unduplicated count of active firefighters, including personnel who operate in multiple districts, members with limited availability, and those holding specialized technical competencies. EMA should lead a structured census of all nine fire districts to document staffing levels, daytime and nighttime availability, and skill distribution. This will provide a factual baseline for assessing countywide readiness for generator, BESS, and high-voltage incidents and can inform THIRA/SIRA updates, training priorities, and long-term planning.

2. **Develop a Data Center Emergency Response Annex Internal to EMA**. EMA should draft a dedicated annex outlining notification triggers, known site hazards, lifeline stress points, response flowcharts, and coordination roles. The annex should be maintained by EMA, shared with fire/EMS/LE agencies for voluntary review, and updated annually. This ensures preparedness even in the absence of formalized participation by the data center operator.

3. **Establish a Recurring Data Center Emergency Preparedness Exercise Series**. Rather than forming a formalized multi-agency coordination group, EMA should establish a recurring exercise cycle focused on data center–related hazards and lifeline impacts. Exercises should rotate between tabletop, functional, and full-scale formats to progressively build readiness across fire/EMS districts, law enforcement agencies, Wilmington services, the County Engineer, and other local partners. Participation by the data center operator should remain optional but welcomed.

    - Tabletop Exercises (TTX): Conducted semiannually or annually to review plans, discuss hazard scenarios, validate notification procedures, and identify capability gaps. These low-cost sessions ensure continuous engagement even when operational tempo is high.
    - Functional Exercises (FE): Conducted periodically to test communications pathways, coordination workflows, EOC activation triggers, and responder decision-making during simulated electrical, BESS, or generator-related incidents. These exercises strengthen command-and-control functions without requiring physical deployment.
    - Full-Scale Exercises (FSE): Conducted as needed—preferably once every 2–3 years—to test on-scene operations, multi-district fire response, EMS triage, law enforcement site control, staging, and unified command. These drills provide the county with the clearest assessment of real-world technical readiness.

    This flexible, EMA-directed exercise structure maintains forward progress, enhances interagency coordination, and improves countywide operational readiness without relying on private-sector commitment to a standing committee.

4. **Support Fire/EMS Preplans, Mapping, and Hazard Familiarization**. EMA can assist fire/EMS districts by working with the GIS Office to provide mapping support, facilitating site visits when permitted, and maintaining copies of preplans in D4H. EMA should also integrate key updates into situational awareness tools and planning documents. Final responsibility for preplan content remains with each district, but EMA can support planning consistency and information flow.

5. **Incorporate Data Center Hazards Into THIRA/SIRA and the Hazard Mitigation Plan**. EMA should continue integrating data center–related risks into countywide assessments and planning documents, ensuring that evolving hazards—especially electrical, BESS, and hazmat risks—are reflected in capability targets, mitigation strategies, and future grant justification.

6. **Strengthen Public Information and Rumor-Control Preparedness**. EMA should develop pre-approved messaging templates addressing common concerns related to data center power consumption, water usage, cyber misinformation, construction impacts, and industrial hazards. These templates will support unified public information efforts during periods of heightened visibility, unusual activity, or incident response involving the facility.

7. **Produce a Fire/EMS Staffing Sustainability Briefing for County Leadership**. Using the results of the fire service census, EMA should develop a briefing detailing current staffing trends, cross-district duplication, specialized skill gaps, and projected future availability. This briefing will help local elected officials understand long-term challenges and may inform broader strategic discussions about responder sustainability and potential cooperative models.

8. **Coordinate Regional Training Opportunities and Technical Readiness Support**. EMA should identify training opportunities related to lithium-ion battery systems, arc-flash hazards, generator operations, and industrial fire behavior. EMA may seek grant support for regional delivery and track participation through D4H for situational awareness. Participation decisions remain with each agency.

9. **Maintain an Annual Cycle of Preplan Reviews and Hazard Walkthroughs**. EMA should maintain a schedule for updating preplans, conducting hazard reviews, and facilitating walkthroughs with participating agencies. These activities ensure that the county remains ready for low-frequency, high-consequence events associated with the facility's operations and changing technology.

Conclusion

The presence of a major technology-sector facility in a rural county can increase political visibility and stakeholder interest from state and federal agencies. While the data center itself is not a political actor, decisions related to land use, infrastructure prioritization, annexation, and economic development may receive heightened scrutiny. EMA should anticipate increased public attention during emergencies, greater sensitivity around restoration priorities, and occasional polarization among residents who view large-scale industrial development differently. These dynamics do not alter EMA's operational mission but may influence public information needs and stakeholder coordination during incidents.

The proposed data center represents a major infrastructural and economic opportunity for Clinton County. While the facility itself will generate very few emergency calls, the nature of its systems introduces high-complexity hazards that require advanced preparedness, well-developed preplans, and strong interagency coordination. Given the ongoing decline in volunteer firefighting personnel throughout the county, EMA must remain proactive in ensuring that emergency response capability matches the demands of modern industrial infrastructure.

Through early planning, deliberate communication, and strong partnerships across utilities, fire districts, EMS agencies, and local government, Clinton County can successfully integrate the data center while improving community resilience and operational readiness.

Acronyms:

AES – American Electric Power (regional transmission provider referenced through its AES Ohio projects, formerly known as Dayton Power & Light)

BESS – Battery Energy Storage System

CCEA – Clinton County Emergency Alerts

D4H – D4H Readiness & Response: A cloud-based incident management and resource tracking platform used by emergency management agencies, fire/EMS, and other response partners to manage incidents, document actions, maintain readiness data, track personnel participation, and support post-incident analysis

EMA – Emergency Management Agency

EMS – Emergency Medical Services

EOC – Emergency Operations Center

FE – Functional Exercise

FSE – Full-Scale Exercise

GIS – Geographic Information System

IPAWS – Integrated Public Alert and Warning System

LE – Law Enforcement

MARCS – Multi-Agency Radio Communications System

NAWAS – National Warning System

ODOT – Ohio Department of Transportation

PSAP – Public Safety Answering Point (911 Dispatch Center)

SIRA – Stakeholder-Input Risk Assessment

THIRA – Threat and Hazard Identification and Risk Assessment

TTX – Tabletop Exercise