

Elements of the Farm Park Implementation Playbook

(WORKING DRAFT – PLANNING FRAMEWORK)

Strategic Intent

This initiative aims to develop an implementation framework that advances coordinated consideration of co-locating data centers and Controlled Environment Agriculture (CEA) greenhouses toward a pilot Farm Park in Southern Virginia. Building on the Resource Innovation Institute feasibility study and supported by a forthcoming GO Virginia Region 3 planning grant, the playbook will outline practical next steps aligned with current market conditions and available planning resources and facilitate coordinated engagement among public-sector leaders, data center developers and operators, CEA greenhouse developers and operators, supply chain companies, regulated energy providers, and fiber and network infrastructure providers.

As a potential first-of-its-kind co-location model in the United States, the playbook will organize the technical, economic, and governance considerations needed to support disciplined decision-making by industry developers and operators and by public-sector leaders. The intent is to establish a structured, infrastructure-forward foundation for evaluating scalable, multi-phase implementation in Southern Virginia.

Development of the playbook will include convening topic-focused workgroups to support the qualified subject-matter consultants engaged for the project. These workgroups will assist in addressing site selection and infrastructure requirements, economic and fiscal impact analysis, a workforce development assessment, legal and governance considerations under applicable Virginia law, and public infrastructure financing strategies. Private-sector businesses and allied stakeholders will be invited to participate to ensure practical, market-informed input and coordinated regional alignment. Representatives from local, regional, and state economic development organizations, relevant state agencies, regional workforce and education institutions, and regulated energy providers will also be invited to participate to support coordinated infrastructure planning, workforce alignment, and regulatory considerations.

1. Site Readiness and Infrastructure Capacity Assessment

Develop a framework to define the siting and operational requirements for co-locating data centers and CEA greenhouse facilities. This effort will include identifying the required core infrastructure capacity delivered by regulated energy providers and other enabling systems, including:

- Electric and natural gas service capacity and documented expansion pathways;
- Fiber availability, network capacity, and route redundancy;
- Water, wastewater, and stormwater infrastructure;
- Connectivity to primary and interstate road networks;
- Applicable zoning classifications, land-use approvals, and other related requirements;
- Local, state, and federal permitting pathways and anticipated approval timelines; and
- Long-term scalability, site capacity thresholds, and phased infrastructure expansion pathways.

The siting framework will also address CEA greenhouse-specific considerations, including:

- Solar orientation and seasonal light availability;
- Temperature and humidity patterns; and
- Prevailing weather conditions and climatic stability.

These environmental factors influence operational efficiency, energy demand, and the reliability of year-round controlled food production.

Using these defined requirements, the playbook will assess which currently publicly marketed Southern Virginia sites most closely align with the criteria, as identified by state, regional, and local economic development organizations. The analysis will evaluate relative strengths, required improvements, and infrastructure expansion opportunities needed to support a scalable, multi-phase, integrated co-location opportunity.

This section is analytical in nature and does not commit any locality or other landowner to a specific course of action. Its purpose is to clarify feasibility parameters, identify alignment gaps, and determine whether further technical development is warranted.

2. Workforce Capacity and Operational Readiness

Assess regional workforce capacity relevant to data center and CEA greenhouse operations, including construction and long-term employment requirements. Evaluate existing industry-recognized credentials, certification pathways, and training programs in or available to the region, and identify opportunities to expand or develop new credentials aligned with projected co-location needs.

This section will document how local, regional, and state-level workforce assets can support the combined operational demands of integrated facilities and clarify any additional coordination or credentialing needed to sustain scaled activity over time.

3. Economic, Fiscal, and Job Creation Impacts

Estimate the direct, indirect, and induced economic impacts of developing a pilot co-location initiative. The analysis will include employment effects during construction and operations, wage generation, supply-chain implications, and projected local, regional, and state fiscal impacts.

Data center investment and CEA greenhouse operations each independently generate documented economic and fiscal contributions. This assessment will quantify the combined impacts of an integrated co-location model. The objective is to document how co-location may aggregate capital investment, employment, infrastructure utilization, and supply-chain activity within a single host locality, across the Southern Virginia region, and for the Commonwealth, while strengthening the region's capacity to serve markets beyond Southern Virginia.

The analysis will also assess the contribution of CEA greenhouse operations to controlled, year-round food production and to strengthening regional and domestic supply-chain resilience.

This section will provide a structured accounting of anticipated economic scale, fiscal impacts, and external revenue generation to inform coordinated public-sector decision-making.

4. Shared Infrastructure and Integration Assessment

Outline the core infrastructure considerations for co-locating data centers and CEA greenhouses, including opportunities for thermal energy recovery and heat transfer, and on-site and off-site shared power configurations.

The assessment will examine energy and utility integration requirements, government permitting processes, preliminary capital implications, and operational reliability factors at the planning level. This analysis will consider operational compatibility, infrastructure reliability expectations, and scalability under projected load conditions and phased development scenarios. Particular attention will be given to identifying enabling infrastructure components that may require coordinated public-sector investment or site preparation to support efficient use of energy and public utility systems serving both industries within an integrated development framework.

5. Public Infrastructure Financing and Site Improvement Strategy

Identify public-sector financing and funding mechanisms that could support on- or off-site improvements and shared infrastructure needed to enable potential co-location development. The review will examine applicable federal, state, regional, and local tools relevant to the following:

- Utility extensions, infrastructure expansion, and capacity upgrades;
- Site grading and land preparation;
- Transportation access improvements;
- Water, wastewater, and stormwater system expansion; and
- Energy infrastructure enhancements and related enabling improvements.

This section will clarify:

- Available funding mechanisms and eligibility parameters;
- Sequencing requirements and timing considerations;
- Coordination roles among public entities; and
- Infrastructure phasing and expansion strategies.

The analysis will focus exclusively on public investment considerations for preparing sites for integrated development. It will not address financing for private data centers or CEA greenhouse investments; instead, it will define the public infrastructure required to support a competitive, scalable site environment.

6. Governance, Infrastructure Stewardship, and Strategic Coordination Framework

Define governance and coordination models to guide development and long-term oversight of a pilot Farm Park. Priority will be given to infrastructure stewardship and ownership structures for shared and enabling assets, including components that may be publicly financed and maintained, and to the allocation of responsibilities among public and private-sector stakeholders, including stewardship models that accommodate phased expansion and long-term capacity growth.

This section will also address sustained alignment with the regional workforce development pipeline for data center and CEA greenhouse operations to ensure operational continuity and long-term competitiveness.

In addition, the framework will outline strategies for the targeted recruitment of supply-chain and complementary businesses that support CEA greenhouse operations, including input suppliers, equipment providers, processing, packaging, and logistics firms, to strengthen the Farm Park ecosystem, increase year-round food production capacity, and expand service markets beyond Southern Virginia.

The objective is to present clear governance, infrastructure, workforce, and strategic recruitment options that position the Farm Park as a coordinated, competitive development platform.

7. Applied Research and Innovation Alignment

Describe how the Farm Park model can align with the CEA Innovation Center and related applied research and workforce assets in Southern Virginia, including collaborative initiatives between Virginia Tech and the Institute for Advanced Learning and Research. This section examines how applied research capacity, technical validation, industry advisory engagement, and workforce alignment can support a structured evaluation of the co-location model.

The objective is to clarify how existing research and technical expertise can support informed decision-making, operational feasibility assessments, and sustained advancement of integrated operations across data centers and CEA greenhouses.

Outcome

The *Farm Park Implementation Playbook* will serve as a disciplined starting point for organizing and documenting the economic, infrastructure, workforce, and governance considerations of a first-of-its-kind U.S. co-location initiative. By quantifying the aggregated economic and fiscal contributions to the host locality, the Southern Virginia region, and the Commonwealth, and clarifying the technical and capital parameters required for integrated development, the document will provide public-sector and business decision-makers with a structured basis for coordinating next steps.

The playbook will assess how an integrated co-location model can advance responsible infrastructure development, resource stewardship, and sustained community benefit, consistent with emerging expectations for community-centered data centers and advanced agricultural investments. By strategically aligning large-scale digital infrastructure with controlled-environment agricultural production, the initiative will evaluate whether coordinated co-location represents a scalable rural development model that strengthens year-round domestic food production while generating durable economic and fiscal returns for host communities.