History of Data Centers in Prince William County
Before the Overlay (Pre-2016):

- Increased data center growth in County
- Demands for new infrastructure to support use
- Significant community concerns related to power infrastructure
- Board initiated the creation of the Data Center Opportunity Zone Overlay District (DCOZOD)
Background – 2016 Overlay:

- **Focus of ZTA**
  - Land use compatibility
  - Economic development goals
  - Infrastructure needs
- **Solutions implemented**
  - New definitions
  - New overlay district
  - Amended policies for substations
Background – 2019 Overlay:

- Focus of ZTA
  - Adjust boundary to account for new priorities:
    - Remove high visibility employment areas
    - Add areas ideal for data center development
    - Correct for mapping and use inconsistencies
  - Architectural design of data centers
- Solutions implemented
  - Removed 1000 acres from overlay district
  - Added 642 acres to overlay district
  - New design guidelines for data centers
  - Increase floor-area-ratio up to 1.0 in the overlay
Initiation – May 16, 2021

• Prince William Board of County Supervisors initiated amendments to County policies and regulations related to data center development including the Data Center Opportunity Zone Overlay District, the Design and Construction Standards Manual, the Comprehensive Plan, the Zoning Ordinance, and other appropriate development regulations.

• The Board directed staff to include the following items in the scope of work:
Approved Scope of Work

Community Engagement

Information Gathering
- Market Demand and Analysis
- Emerging Trends
- Best Economic Development Practices
- Economic Impact

Policy Development
- Overlay District Expansion
- Design Guidelines
- Sustainability Guidelines
- Land Use/Infrastructure Impacts

Legislative Approval
- Boards, Committees, and Commissions
- Planning Commission
- Board of County Supervisors
DCOZOD Comprehensive Review, **DPA2021-00020**

**Information Gathering**
Summer 2021

**Public Engagement Phase 1**
Fall 2021
Includes Stakeholder Interviews

**Policy Development**
Fall 2021

**Public Engagement Phase 2**
Winter 2022

**Legislative Approval**
Spring 2022

We are Here
Current Status of the Overlay District
As of May 27, 2021

Data Center Sites With the Overlay: Economic Development Market Viability Review

<table>
<thead>
<tr>
<th>DESCRIPTIONS</th>
<th>TOTAL ACRES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parcel Occupied or Not Available for Sale</td>
<td>4,121.9</td>
</tr>
<tr>
<td>Not Market Viable</td>
<td>514.3</td>
</tr>
<tr>
<td>Assemblage or Another Step Needed</td>
<td>739.6</td>
</tr>
<tr>
<td>Topographical or Environmental Issues</td>
<td>1,681.5</td>
</tr>
<tr>
<td>Already Owned by Data Center Developer</td>
<td>1,120.6</td>
</tr>
<tr>
<td>Site Ready</td>
<td>634.4</td>
</tr>
<tr>
<td>Grand Total</td>
<td>8,712.3</td>
</tr>
</tbody>
</table>
Prince William County Data Center Market Study
Study components

- Emerging Trends in the Industry
- Best Practices in Economic Development (Incentives)
- Economic Impact Analysis
- Market Demand Assessment
• Exponential increase worldwide of digital communication and services = need for more and more data centers.

• In 2020, the U.S. data center market is valued at $8.4 billion and is projected to reach $13.91 billion by 2026 at an annual growth rate of 8.63%.

• COVID-19 boosted demand for data centers – lockdowns initially created 25 – 30% internet traffic upsurges, then stabilized but stayed high.

• The pandemic brought about increased awareness of benefits of cloud services and need for more secure and robust IT environments.
Emerging Trends

• Data centers continue to be one of the fastest growing real estate sectors with government agencies and business reconfiguring their digital infrastructure for remote work capabilities.

• There was 329.6 MW of net absorption in 2020 across the 7 primary US data center markets, second highest annual absorption amount after 2019.

• 2020 data center vacancy fell to 8.5 percent despite 11 percent growth in new supply.

• Investor interest led to a 62 percent increase in data center construction pipeline nationally—457.8 MW data center construction underway nationally.
Emerging Trends

Larger Trends Impact on Northern Virginia:

- NoVa continues to be largest data center market in the world--48% of the primary market inventory in the U.S. Next largest is Dallas with 13% of market.
- Jones Lang LaSalle reports in 2020 NoVa data center market had 323 MW of net absorption, with social media accounting for 54% of that or 176 MW.
- All real estate data center outlooks predict ongoing market strength for NoVa.

% of Primary Market Inventory

Source: CBRE Research, CBRE Data Center Solutions, H2 2020
Industry Site Selection Factors

- Economic development agencies identify 6 key factors for data center site selection:
  - fiber connectivity,
  - access to electrical power,
  - environment,
  - access to water,
  - a skilled workforce, and
  - incentives.
- The most important factors are fiber availability and access to power.
Economic Development Incentives

Virginia:
• Retail Sales and Use Tax Exemption for minimum $150 million capital investment, 50 or more employees earning at least 1.5x average local wage
• Distressed localities need only create 10 jobs and make $70 million capital investment for exemption.

Maryland:
• Sales and Use Tax Exemption on data center personal property for 10 years if investment is at least $5 million and 5 jobs are created.
• In Tier 1 counties (distressed or rural) investment requirement is $2 million. This includes Prince George’s County.
Economic Impact Analysis

- BAE prepared an economic impact analysis of data centers on the Prince William County economy using IMPLAN, an economic modeling software package on a prototype data center.
- IMPLAN reports direct impacts, indirect impacts, and induced impacts.

### Prototype Data Center in Prince William County

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Feet</td>
<td>250,000</td>
</tr>
<tr>
<td>Construction Cost per SF</td>
<td>$1,100</td>
</tr>
<tr>
<td>Total Construction Costs</td>
<td>$275,000,000</td>
</tr>
<tr>
<td>Square Feet per Worker</td>
<td>9,000</td>
</tr>
<tr>
<td>Permanent Jobs</td>
<td>28</td>
</tr>
<tr>
<td>Total Compensation per Worker</td>
<td>$180,000</td>
</tr>
<tr>
<td>Total Worker Compensation</td>
<td>$5,040,000</td>
</tr>
</tbody>
</table>

Note:
- All dollar amounts in 2021 dollars.
- (a) Includes labor and materials costs for building construction. Excludes IT equipment-related expenditures.
- (b) Excludes construction jobs supported during construction period.
- (c) Average compensation is for permanent jobs, not construction period jobs.

Source: BAE
### Economic Impacts of Construction of Prototype Data Center in Prince William County

<table>
<thead>
<tr>
<th>Impact (a)</th>
<th>Employment</th>
<th>Labor Income</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>1,697</td>
<td>$110,695,000</td>
<td>$275,000,000</td>
</tr>
<tr>
<td>Indirect</td>
<td>407</td>
<td>$23,166,000</td>
<td>$73,394,000</td>
</tr>
<tr>
<td>Induced</td>
<td>301</td>
<td>$11,747,000</td>
<td>$44,400,000</td>
</tr>
<tr>
<td>Total</td>
<td>2,406</td>
<td>$145,608,000</td>
<td>$392,794,000</td>
</tr>
</tbody>
</table>

### Notes:
- Totals may not sum from parts due to independent rounding.
- (a) Dollar figures given in 2021 dollars.
  - Dollar amounts rounded to the nearest thousand dollars.

### Sources:
- IMPLAN; BAE, based on various data center studies.
# Economic Impact Analysis

## Annual Economic Impacts of Operation of Prototype Data Center in Prince William County

<table>
<thead>
<tr>
<th>Impact (a)</th>
<th>Employment</th>
<th>Labor Income</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>28</td>
<td>$5,040,000</td>
<td>$33,479,000</td>
</tr>
<tr>
<td>Indirect</td>
<td>133</td>
<td>$5,889,000</td>
<td>$17,915,000</td>
</tr>
<tr>
<td>Induced</td>
<td>22</td>
<td>$873,000</td>
<td>$3,302,000</td>
</tr>
<tr>
<td>Total</td>
<td>183</td>
<td>$11,802,000</td>
<td>$54,696,000</td>
</tr>
</tbody>
</table>

### Notes:
- Totals may not sum from parts due to independent rounding.
- (a) Dollar figures given in 2021 dollars. Dollar amounts rounded to the nearest thousand dollars.

### Sources:
- IMPLAN; BAE, based on various data center studies.
Data center real estate specialists say NoVa continues to show strong demand. Loudoun County (Ashburn) has highest demand, but few land options.

Prince William County is the primary NoVa back-up site to Ashburn/Loudoun County.

Land prices for data centers continue to accelerate – announcement on 8/13/21 of Amazon Web Services purchase of 17.15 acres for $32.5 million in Loudoun Gateway area.

Real estate brokers predict continued strong demand for Prince William County.

### Northern Virginia Recent Site Sales

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>SIZE (Acres)</th>
<th>SALE DATE</th>
<th>SALE PRICE</th>
<th>PRICE/ACRE</th>
<th>BUYER</th>
<th>SELLER</th>
</tr>
</thead>
<tbody>
<tr>
<td>5945 Wellington Rd, Gainesville</td>
<td>58</td>
<td>Apr-21</td>
<td>$52,400,000</td>
<td>$903K</td>
<td>Amazon</td>
<td>Chuck Kuhn</td>
</tr>
<tr>
<td>8322 Bethlehem Rd, Manassas</td>
<td>5</td>
<td>Mar-21</td>
<td>$2,750,234</td>
<td>$546K</td>
<td>Iron Mountain</td>
<td>Lucky Seven Manassas Inc (David Warren)</td>
</tr>
<tr>
<td>11500 Prince William Pkwy, Manassas</td>
<td>17</td>
<td>Mar-21</td>
<td>$7,371,625</td>
<td>$425K</td>
<td>Iron Mountain</td>
<td>Warren family</td>
</tr>
<tr>
<td>Sycolin Rd, Leesburg</td>
<td>50</td>
<td>Mar-21</td>
<td>$27,000,000</td>
<td>$538K</td>
<td>TA Realty</td>
<td>John Andrews</td>
</tr>
<tr>
<td>Sycolin Rd, Leesburg</td>
<td>95</td>
<td>Mar-21</td>
<td>$60,000,000</td>
<td>$632K</td>
<td>TA Realty</td>
<td>NV Real Estate Two LLC (Jack O'Donnell)</td>
</tr>
<tr>
<td>14721 Avion Pkwy, Chantilly</td>
<td>46</td>
<td>Jan-21</td>
<td>$55,900,000</td>
<td>$1.2M</td>
<td>Amazon</td>
<td>Principal Financial</td>
</tr>
<tr>
<td>21445 Beaumeade Cir, Ashburn</td>
<td>7</td>
<td>Jan-21</td>
<td>$21,500,000</td>
<td>$3.02M</td>
<td>American Real Estate Partners, Harrison Street Investment Management</td>
<td>Chirisa Tech Centers</td>
</tr>
</tbody>
</table>

Source: Cushman-Wakefield, 2021.
Other Areas of Note Potentially Competitive to Prince William County include:

• Henrico County – Only network access point (NAP) in the country that connects land-based data centers to underwater data cables to Spain and Brazil.

• Frederick County, MD – In June 2021 Quantum Loophole announced the purchase of a 2,100-acre property in Frederick County for data centers with land costs less than $50,000 per acre. The site has “power, water, and proximity to Northern Virginia needed for success.”
Observations & Conclusions

- Land prices for proposed data centers are rising to unprecedented heights in Loudoun County and Prince William County with recent deals at $1 million plus per acre.
- The primary drivers for data center site selection are availability of reliable power and access to fiber—NoVa offers both.
- Local personal property tax rates are a factor, but all other things being equal, are not the primary consideration for data center site selection.
- Though other areas in the broader region could become more serious competitors for data center investments over time (i.e., Henrico County, VA and Frederick County, MD) there is practically unlimited demand for data centers in NoVa.
- The high rate of growth for data centers in NoVa will continue and be abated only by the lack of land availability.
Prince William County Stakeholder Interview Feedback
Prince William County
Data Center Opportunity Zone Overlay District Comprehensive Review
Stakeholders

Agricultural and Forestal Districts Advisory Committee
American Battlefield Protection Program
American Battlefield Trust
Baltimore/DC-Metro Building Trades
Buchanan Partners
Bull Run Civil War Round Table
Casa
Christopher Consultants
City of Manassas
Commercial Development Committee
Compton & Duling, LLC.
Conway Robinson State Park
Digital Gateway
Dominion Power
Friends of the Occoquan
Greater Prince William Climate Action Network
Greater Prince William Trails Coalition
Historic Prince William
House Family Farm
LOCCA-PELT
Manassas Battlefield
Manassas Park
Marine Corp Base Quantico
Mid County Civic Association (MIDCO)
National Association for Industrial and Office Parks (NAIOP)
National Parks Conservation Association
Northern Virginia Electric Cooperative
Piedmont Environmental Council
Prince William County Historic Commission
Prince William Trails & Streams Coalition
Prince William Conservation Alliance
Prince William Forest Park
Prince William County Chamber of Commerce
Prince William County Soil and Water Board
Realtor Association of Prince William
Sierra Club
St. John Properties
SummitIG
The Coalition to Protect Prince William
The Wiley Companies, Inc
Town of Haymarket
Vanderpool, Frostick & Nishanian, P.C
Virginia Coop Extension Service
Virginia Native Plant Society
Vulcan Quarry
Walsh, Colucci, Lubeley & Walsh
Weber Rector
Woodbridge Potomac Communities Civic Association

Internal Stakeholders

Building Development - Development Services
County Archeologist
Department of Parks, Recreation & Tourism
Economic Development

Land Development - Development Services
Long Range Planning
Prince William County Service Authority
Watershed Management - Public Works
Non-Industry Themes:
Historic/Cultural, Local/Federal, County, Environmental, Civic

Overall quality of life for County residents should be the most important consideration in the development of new data centers.

Financial benefits of data centers are appreciated but should not overshadow the potential adverse impacts of a data center only economy.

Build-out the existing overlay prior to expansion.

Balance data centers with other industrial uses/services.

Need to understand what the vision for the County is in relation to data centers. A sustainable vision is missing.
- What elements do residents of PWC give value to? This should be considered overall.

Protect and enhance the historic and cultural assets of PWC as a priority.
- Concern about viewshed corridors and the impact on historic sites.
Data centers should not adversely impact infrastructure availability for others.

- Developers should advance the County’s energy sustainability goals.
- Concern about energy and water impacts on adjacent communities.

Protect and enhance the natural environment and ecology of PWC as a priority.

- Protect Prince William Forest Park and habitat throughout the County.
- General concern about a lack of understanding and respect for the natural environment.
- The County should consider purchasing environmentally sensitive areas to protect them.
- The rural economy should be incentivized in light of data center development.

Preserve greenfield areas of the county by exploring the redevelopment of existing underutilized sites.

- New development models (location and multistory).
- Preserve and expand Prince William County Park.

Potential mitigation measures:

- List of data center impacts.
- Map open space and cultural resources to specify areas that should not be developed.
- Height limits in sensitive areas, requiring detailed viewseshd studies.
- Focus development in other areas (brownfields/greyfields, Possum Point).
- Consider sound impacts.
- Need more green building measures and metrics.
- Tree planting alone is not good enough for screening.
- Context sensitive design
The Overlay District has not made it easier for developers to move projects forward.

Greenfield sites are more attractive for development than redevelopment sites—particularly for a campus setting (~3-4 data centers).
- Landscaping can be easy to accommodate in setbacks, but can also hurt in achieving allowable Floor Area Ratios (FAR).

Architectural standards can be prohibitive, but level the playing field.

Tax/assessment environment in PWC is not as stable as developers/owners would like.
- The tax rate for projects is not predictable.

New development models are being used (e.g., adaptive reuse, infill).
- Certain models may be cost prohibitive but not enough infill property to address demand.
- The demand for data centers has removed available industrial land.

The labor market for data centers is highly competitive.
- PWC has a good pool of labor.
- NVCC is partnering with the Data Center Coalition to help with employee pipeline.
<table>
<thead>
<tr>
<th>Industry Themes: Infrastructure, Builders/Developers, Real Estate</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PWC is an attractive location for data centers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ The cost of land is rising with limited overlay capacity of land.</td>
</tr>
<tr>
<td>▪ Several entities are competing for each lease.</td>
</tr>
<tr>
<td>▪ Low cost of energy.</td>
</tr>
<tr>
<td>▪ Existing robust infrastructure networks.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Information and data will only increase over time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ There has been a 500% increase in internet traffic with only a 6% increase in energy consumption.</td>
</tr>
<tr>
<td>▪ A critical efficiency is being reached and energy may be a limiting factor moving forward.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PWC is not an attractive place for data centers from an approval perspective.</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Speed to market is critical, the local/state government can help to expedite approvals for data centers (entitlements, site plans, building permits, etc.) and utilities (public utility permits, easements).</td>
</tr>
<tr>
<td>▪ Known requirements are helpful for upfront planning (e.g., design guidelines, LEED).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consider a more flexible approval process for data center development.</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ The Overlay adds an additional layer of red tape—it was supposed to expedite the process but does not seem to have done that.</td>
</tr>
<tr>
<td>▪ Suggestion to remove the Overlay and rely on the Special Use Permit process—giving the BOCS more transparency into each project.</td>
</tr>
<tr>
<td>▪ Do not downzone properties in the Overlay.</td>
</tr>
<tr>
<td>▪ Consider new development models</td>
</tr>
</tbody>
</table>
Quick Survey –
forms.office.com/g/tDNznjPg6t
Approved Scope of Work

Information Gathering
- Market Demand and Analysis
- Emerging Trends
- Best Economic Development Practices
- Economic Impact

Policy Development
- Overlay District Expansion
- Design Guidelines
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- Boards, Committees, and Commissions
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- Board of County Supervisors

Community Engagement
Data Center Opportunity Zone Overlay District Comprehensive Review

The Data Center Opportunity Zone Overlay District (DCOZOD) was created to promote the development of data centers within areas of the County where there is existing infrastructure that could effectively support the proposed use. This District continues the County's efforts to attract and advance high-tech industrial development while limiting negative impacts to communities. Data centers are on the Board's adopted List of Targeted Industries for New, and Expanding Companies revised on August 4, 2020.

BOARD OF COUNTY SUPERVISORS INITIATION

On May 18, 2021, through Res. No. 21-227, the Prince William Board of Supervisors initiated amendments to County policies and regulations related to data center development, including the Data Center Opportunity Zone Overlay District, the Design and Construction Standards Manual, the Comprehensive Plan, the Zoning Ordinance, and other appropriate development regulations.

PROJECT TASKS

This project has been broken down into the following tasks: research of the data center industry, public outreach & community engagement, policy development, and adoption of new policies through the public hearing process. These tasks build off of each other and help to inform the next steps in this project. Public outreach & community engagement is a distinct task, opportunities to provide public input are available during all tasks of this project.
DCOZOD Comprehensive Review, **DPA2021-00020**

**Information Gathering**
- **Summer 2021**

**We are Here**

**Policy Development**
- **Fall 2021**

**Public Engagement Phase 1**
- **Fall 2021**
  - Includes Stakeholder Interviews

**Public Engagement Phase 2**
- **Winter 2022**

**Legislative Approval**
- **Spring 2022**
• For more information: www.pwcva.gov/planning

• For follow up questions & comments, please contact:
  datacenteroverlay@pwcgov.org
  (703) 792-7359