Data Center Overlay District Design Standards

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Applicability

The following design standards will help guide the development of data centers in Prince William County. Guidance for site design, building design, and sustainability will assist with the County's goals to achieve more attractive and sustainable data center sites.

Site Design Standards

The site design standards apply to the development of land that will accommodate data centers, as well as the placement of data centers on a given site. The standards are intended to help minimize the physical, environmental, and visual impacts of data centers on adjacent development.

Building Design Standards

The building design standards are intended to guide the development of data center buildings and associated equipment. The goal of the standards is to ensure more visually appealing and welcoming data center developments that also minimize negative impacts in the built environment.

Sustainability Standards

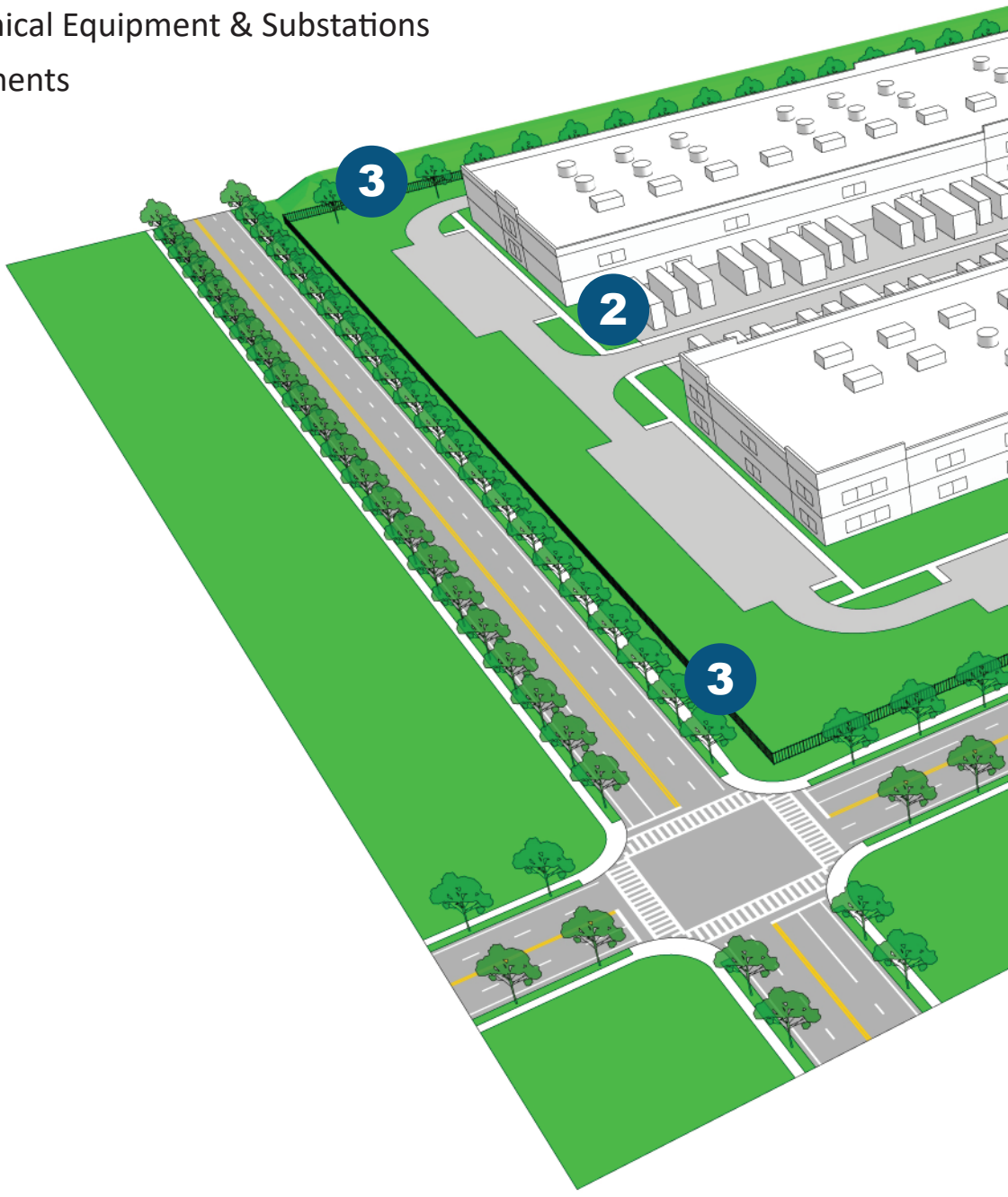
The sustainability standards are intended to guide the site and building principles that lead to more resilient and sustainable data center sites.

Data Center Overlay District — Site Design Stand

Site Design Standards

The Site Design Standards are intended to help minimize the physical, environmental, and visual impacts of data centers on adjacent development. The following elements are the primary areas of regulation and guidance associated with the site development of data centers in Prince William County.

- Building Placement & Orientation
- Screening of Mechanical Equipment & Substations
- Buffer Yard Requirements
- Fencing



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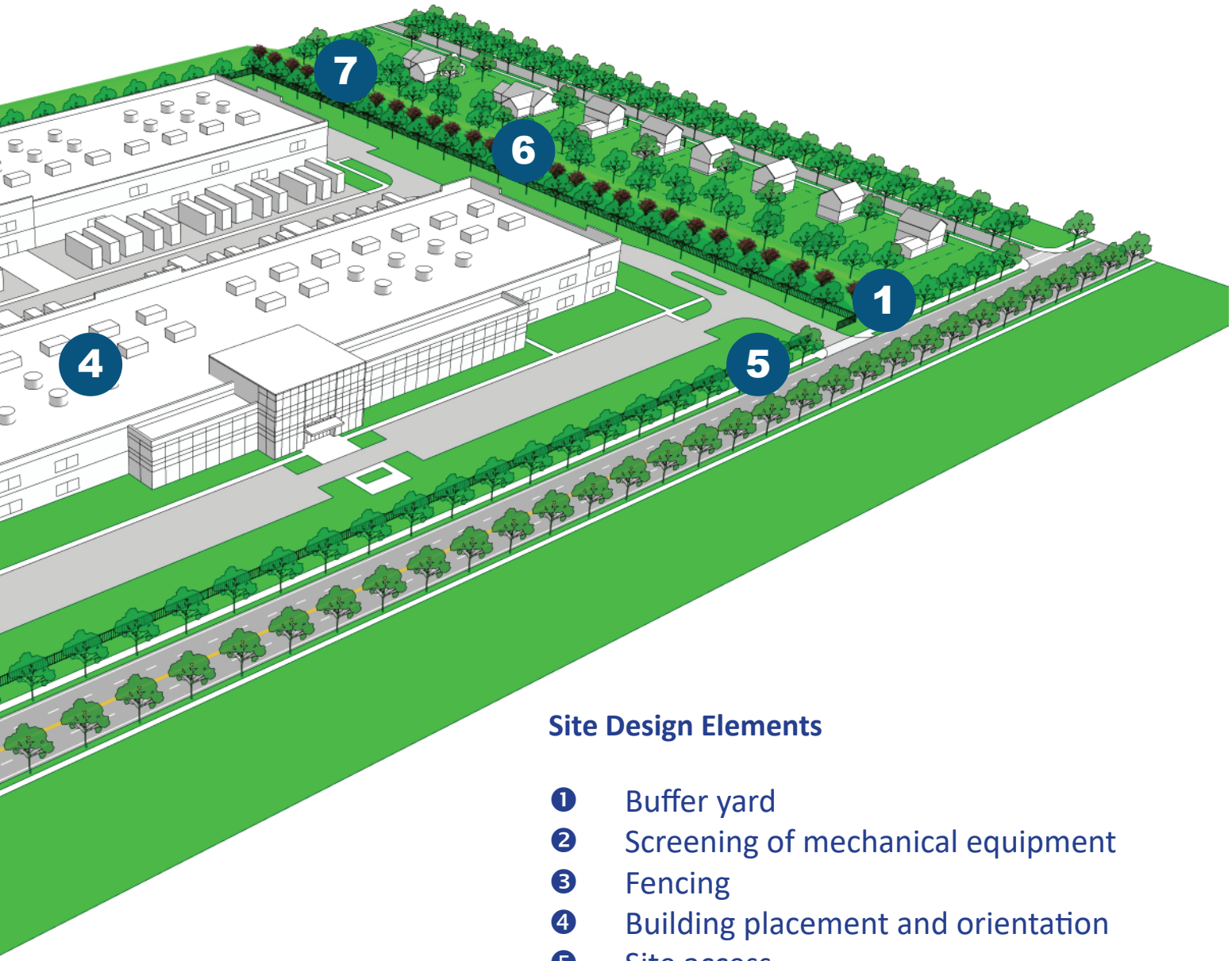


Site Design Elements

1. Buffer yard
2. Screening of mechanical equipment
3. Fencing
4. Building placement and orientation
5. Site access
6. Berm
7. Mature landscaping

Data Center Overlay District

Building Placement & Orientation

Intent

Reduce the visibility of parking and dock areas as viewed from important corners, viewsheds, street frontages and open spaces. Promote the County's sustainability goals by orienting buildings to take advantage of passive cooling and daylighting opportunities.

Standards

- Buildings shall orient primary facades, including visitor, staff and administrative functions, to primary adjacent roads.
- Loading docks and service entries of perimeter buildings shall not face public rights-of-way.
- On multi-building projects, loading docks shall be oriented to face each other to screen views of loading activities and reduce the amount of internal roadway needed.

Screening of Mechanical Equipment & Substations

Intent

In order to minimize visibility from adjacent roads and properties and to attenuate noise, ground and/or rooftop mounted mechanical equipment and on-site substations shall be screened from major arterials, interstates and abutting residentially zoned or planned properties.

Standards

- Screening may be provided by a principal building or existing vegetation that will remain on the property or is within a landscaping/buffer easement on an adjacent property.
- Mechanical equipment and substations not screened by a principal building or existing vegetation shall be screened by a visually solid fence, screen wall or panel, parapet wall, or other visually solid screen that shall be constructed of materials compatible with those used in the exterior construction of the principal building.
- Mechanical equipment, penthouses, and similar mechanical structures are integral to data center architecture and should be adequately conceived of and screened from adjacent streets and rights-of-way. The maximum height of data center parapets, or rooftop screening, should adequately screen equipment within a 10-foot allowable height extension for parapets.
- Power lines 34.5kV and below located along public and private rights of way shall be buried.
- Mechanical equipment shall also be carefully located and screened with materials that provide appropriate levels of noise attenuation to reduce any sound impacts on surrounding residential communities.
- On-site substations do not require a buffer between the Data Center and the Substation.
- Off-site substations, or those not screened by a data center, should include mature landscaping to minimize visual impact.
- Mechanical equipment and substations located in a manner found to have no adverse impact on adjacent roads and adjacent properties, as determined by the Planning Director, shall not be required to be screened.

Site Design Standards

Buffer Yard Requirements

Intent

A buffer yard is required in order to visually obscure or screen data centers from adjacent residentially zoned or planned properties. Where possible, the preservation and use of natural areas as buffers is preferred.

Standards

- Buffer yard plantings shall be installed in accordance with the requirements of the DCSM.
- For any side/rear yard abutting property that is not planned or developed with commercial or industrial uses, a buffer yard that effectively screens the site through a combination of yard separation, landscaping, and screening techniques should be included.
- For these properties, a minimum 100-foot buffer is recommended. This distance may be reduced through the inclusion of mature landscaping and an earthen berm that screens the site, and/or the combination of effective off-site screening and separation.
- Buffering adjacent to residential sites should sufficiently screen data center sites through the inclusion of adequate berm heights and landscaping. Berms should have a slope no steeper than 2:1, planted to a type C DCSM buffer standard.
- The linear co-location of utilities should not be located within buffer yards to protect the landscaping and the preservation of open space.

Fencing

Intent

Fencing around data center sites may be required in order to provide security and to screen data centers from adjacent properties. When fencing is required, it should meet the following standards.

Standards

- Fencing of the property is permitted, provided that fencing along public or private streets is not chain-link, with or without slatted inserts, and does not include barbed wire or other similarly visibly intrusive deterrence device.
- Chain-link fencing or barbed wire fencing are prohibited along public or private street frontages. This fencing allowance does not relieve a property owner from complying with all fire and access code requirements.
- The Planning Director may allow for alternative compliance with this requirement.

Examples of permitted fencing

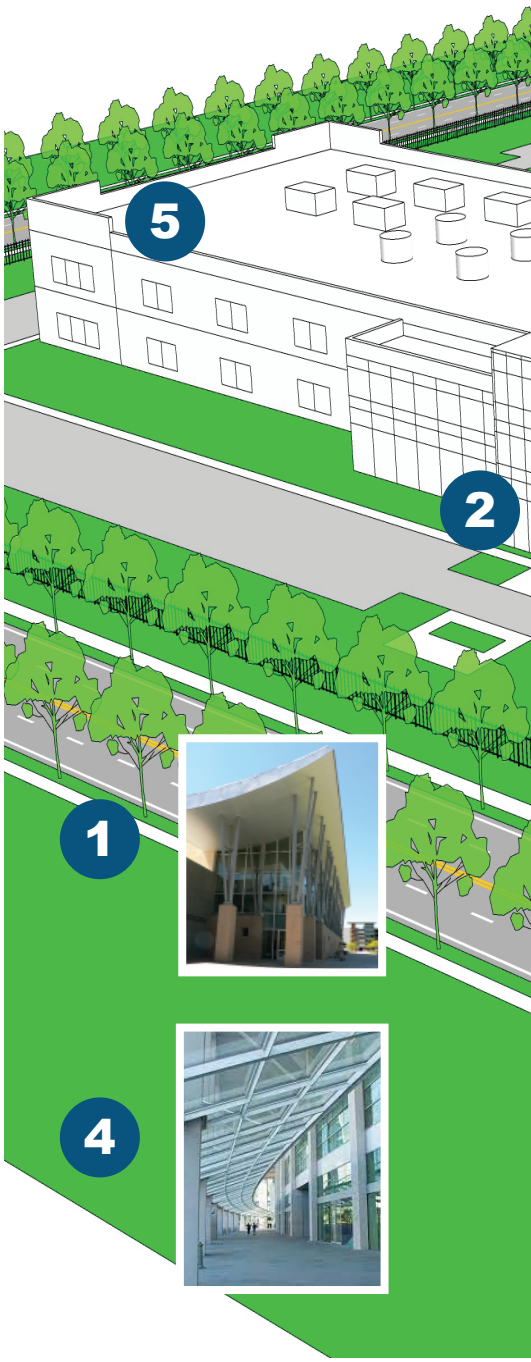
Building Design Standards

Standards for building design in Prince William County will ensure a base level of architectural quality that positively contributes to the built environment. The standards address the following elements of building design for data centers.

- Massing & Scale
- Entryways
- Fenestration / Windows
- Exterior Colors & Materials

In addition to the standards for building design that follow, design elements should be used to enhance the overall expression of data center buildings, with an emphasis on the pedestrian experience—particularly at entryways. All buildings shall include at least 5 of the following architectural features:

1. Overhang
2. Canopy or Portico
3. Recesses/Projections
4. Arcade
5. Raised corniced parapets over the entrance
6. Tower Elements (at strategic locations)
7. Variation in the roof line



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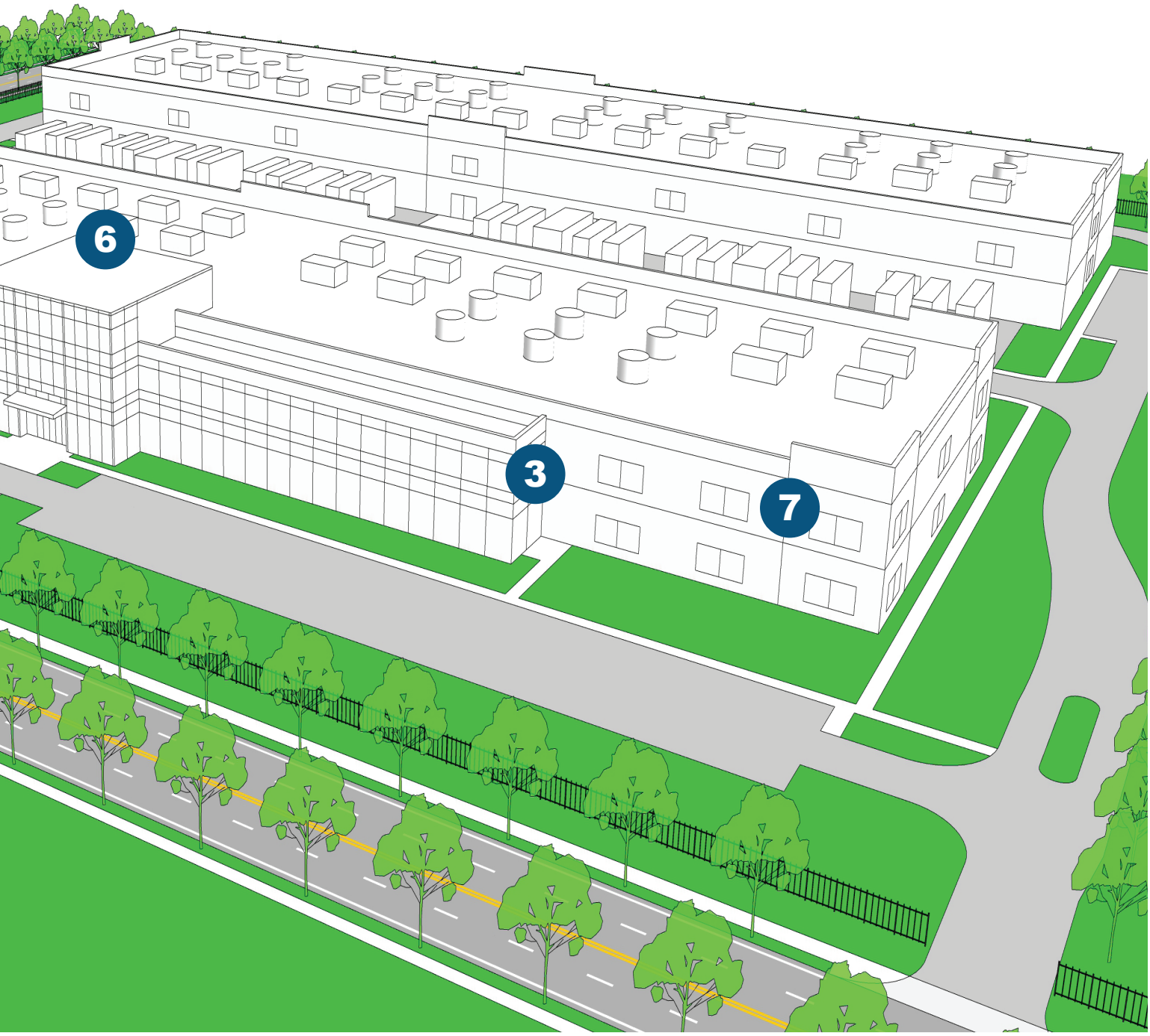

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Massing & Scale

Intent

Reduce the perceived scale of buildings by visually breaking down the large massing typical of industrial and warehouse buildings. Promote architectural variation through building articulation, massing, and the variation of roof lines to provide visual interest.

Standards

- Buildings shall use broad, large-scale architectural gestures to provide variety and modulation in facade and massing as seen from public rights-of-way.
- Variation at the ground plane shall be provided to create transitions in scale and mass as viewed from public rights-of-way.
- Provide additive and subtractive shifts in the building footprint to reduce mass and scale and to provide outdoor amenity spaces for employees and visitors.

Entryways

Intent

Provide an intuitive and clear delineation of primary building entryways and breakdown the perceived scale of buildings by emphasizing pedestrian-scaled entrances.

Standards

- Each building shall provide a well-defined entry sequence for pedestrian and vehicular uses from the street to the building.
- Secondary entrances shall be easily accessible and convenient to building parking and delivery areas, but not be dominant.
- Building entries shall be located so that they are easily identifiable with convenient public access.
- Primary building entryways shall provide a minimum of two of the following elements (in addition to required building design elements):
  - o Overhangs
  - o Distinct Fenestration
  - o Variation in Massing and Scale
  - o Protected Entry

Building Design Standards

Fenestration / Windows

Intent

Use windows for views (for occupant wellbeing) and daylighting (as a sustainability strategy), to further break up large wall areas, and to meet sustainability requirements for natural daylight throughout the building.

Standards

- Transparency shall be provided on faces of the building that face public rights-of-way—tinted glass is discouraged. Entries and primary corners should be transparent for safety, occupant wellbeing, and wayfinding.
- Office spaces associated with data centers shall be a minimum of 40% glazed on exterior wall. Data center spaces shall be a minimum of 15% glazed on exterior wall.
- Fenestration used as a method of breaking up large expanses of wall system (not as an associated office space) may use opaque glazing methods.

Exterior Colors & Materials

Intent

Use durable, low-maintenance materials that withstand the effects of time and contribute to the long-term viability of buildings. Use a limited palette of materials to emphasize variation in architectural massing or use, not as applique.

Standards

- Primary building facades shall use a neutral color palette and avoid high-contrast colors.
- Accent colors shall be selected to complement the dominant building color, and any color change should occur where changes in the building plane or recesses are provided.
- Colors shall not act as advertisements or billboards
- Building exteriors shall use materials with texture and character.
- Changes in materials shall be reflected in massing and/or offsets. The number of disparate materials should be limited to a maximum of three primary materials to avoid a busy appearance.
- All metal panels shall be fully engineered, architectural quality systems.
- Buildings shall incorporate materials defined below as “natural finish materials”. A minimum of 50% of the entrance elevation shall consist of those materials defined as “natural finish” materials, and a minimum of 25% of the other elevations. “Natural finish materials” are defined as:
  - Brick
  - Concrete (both precast and cast-in-place)
  - Metal panels or anodized aluminum
  - Glazing Systems

Data Center Sustainability Measures

Sustainability Measures

The development of data centers in Prince William County provides the opportunity for the county to meet goals associated with sustainability, combating climate change, and carbon neutrality. Standards related to site and building design provide guidance that will help meet these goals in the coming decades. However, the following measures should be incorporated to the maximum extent possible to ensure that the development of data centers is done in a sustainable manner that is consistent with the goals of the county.

Site Design Standards

- Minimize land disturbance and maximize on-site tree preservation by providing a tree preservation plan. As a part of the tree preservation plan submitted with the site plan a minimum of 10 percent of a site is required to be preserved as natural open space, unless other on and off-site mitigation is approved by the County.
- Locate buildings in close proximity, preferably walking distance, to transit and other community services.
- Reduce the heat island effect by minimizing impervious areas and enhanced landscaping.
- Incorporate permeable paving in parking areas.
- Reduce, control, and treat surface runoff through effective storm water practices that treat the quantity and quality of runoff.
- Provide bicycle parking in accordance with the DCSM.
- Use pervious pavement surfacing for parking lots.
- Aeration of water retention using solar power.
- Minimize habitat disturbance and provide wildlife corridors.
- Apply best practices for erosion control.
- Provide EV charging stations.
- Use LED exterior lighting.
- Minimize land disturbance.

Building Design Standards

- Recycle construction material waste.
- Incorporate heat reflective roofing.
- Use water efficiently, such as utilized closed loop water and cooling systems, to minimize the impact freshwater stock and encourage recycling water when possible.
- Use sustainable building materials in the construction of data centers.
- Enhance indoor environmental quality (IEQ) through the maximization of daylighting, ventilation and moisture control, and avoiding materials with high-VOC emissions.
- Use LED interior lighting.
- Provide LEED equivalent building standards.
- Capture and use 100% of reclaimed water.
- Trap and reuse heat sources to the maximum extent possible.
- Incorporate other innovative technologies to reduce power consumption.