TRG
TRANSIT - RELATED GROWTH AREA

TOWN OF Herndon

SOM

SITE CONDITIONS ANALYSIS

TOWN OF HERNDON TRANSIT-RELATED SMALL AREA PLAN
NOVEMBER 2022

TOWN OF HERNDON TRANSIT RELATED SMALL AREA PLAN

SITE CONDITIONS ANALYSIS

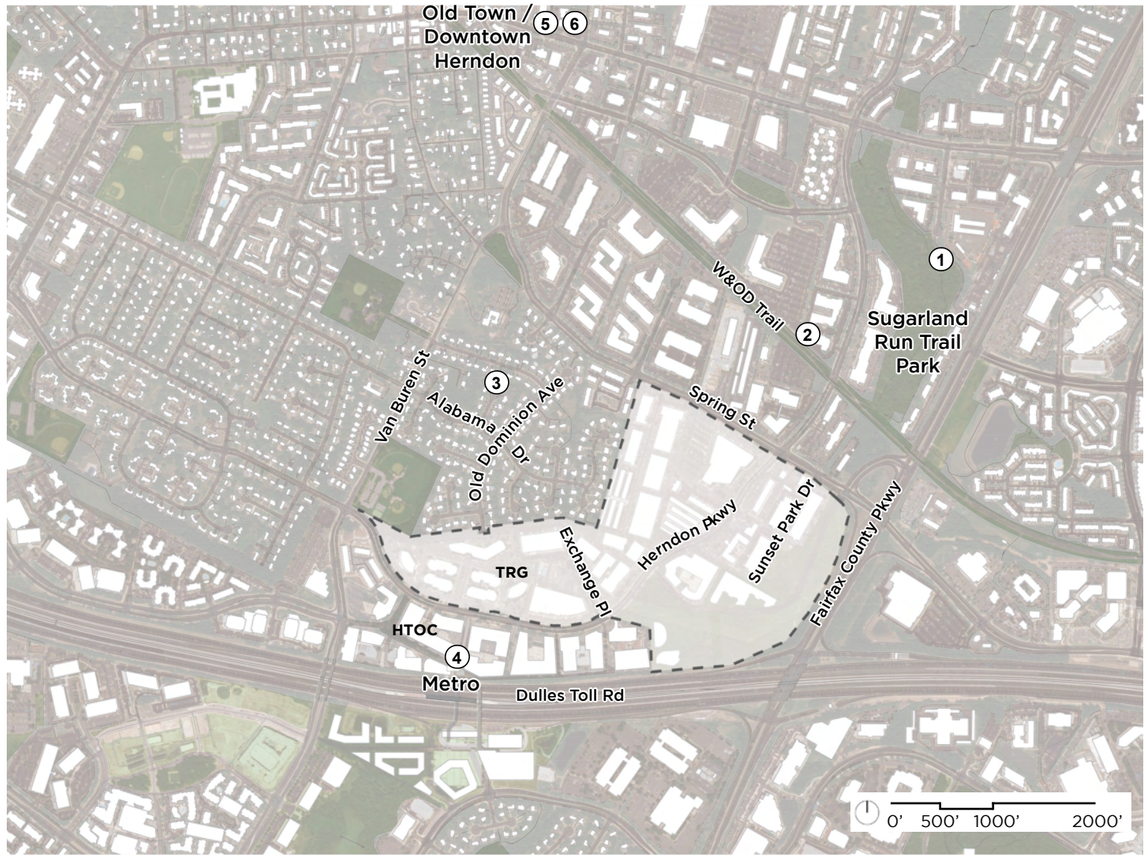
INTRODUCTION

The purpose of this study is to analyze site conditions and highlight key features on the TRG that will help inform the Constraints and Opportunities Report, with the ultimate goal of shaping the design vision for the TRG.

This Site Condition Analysis memorandum reviews and analyzes environmental constraints of the study area including identification and study natural resource areas, view corridors, wetlands and potential remediation issues and needs. Grade and other features of the transitional space, frontages and buffers between existing residential neighborhoods and existing properties in the TRG have been studied and mapped.

Our analysis highlights property ownership patterns within the TRG. We present findings about physical impacts of the Dominion Energy easement and overhead lines. Our analysis comments on the impact on future development and density as it relates to building heights and locations, as well as activities and site features.

Site Context | **Views of the Vicinity**

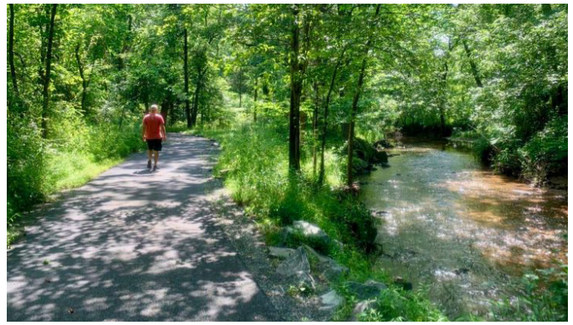


The TRG site lies at the southern boundary of the Town of Herndon, across the street from the Metro Station and the ongoing HTOC development area, bounded in large part by major roadways: Dulles Toll Road, Fairfax County Parkway, Spring Street and the Herndon Parkway.

The Downs of Herndon, a single-use, single-family home neighborhood, borders the rest of the site, at the northern perimeter.

The W&OD Trail, a popular, regional biking enthusiast destination lies just one block from the TRG Spring St. boundary, at a 7-minute bike ride to the Old Town of Herndon and to the Reston Town Center.

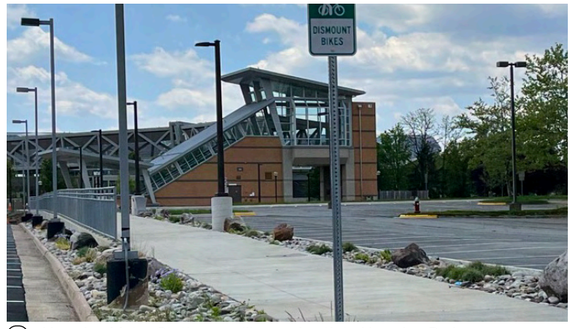
Another park amenity lying just a block from the TRG is the Sugarland Run Stream Valley Park, whose waterway seemingly originates within the TRG.



1 Sugarland Run Stream Valley Park

2 W & OD Trail

3 The Downs of Herndon

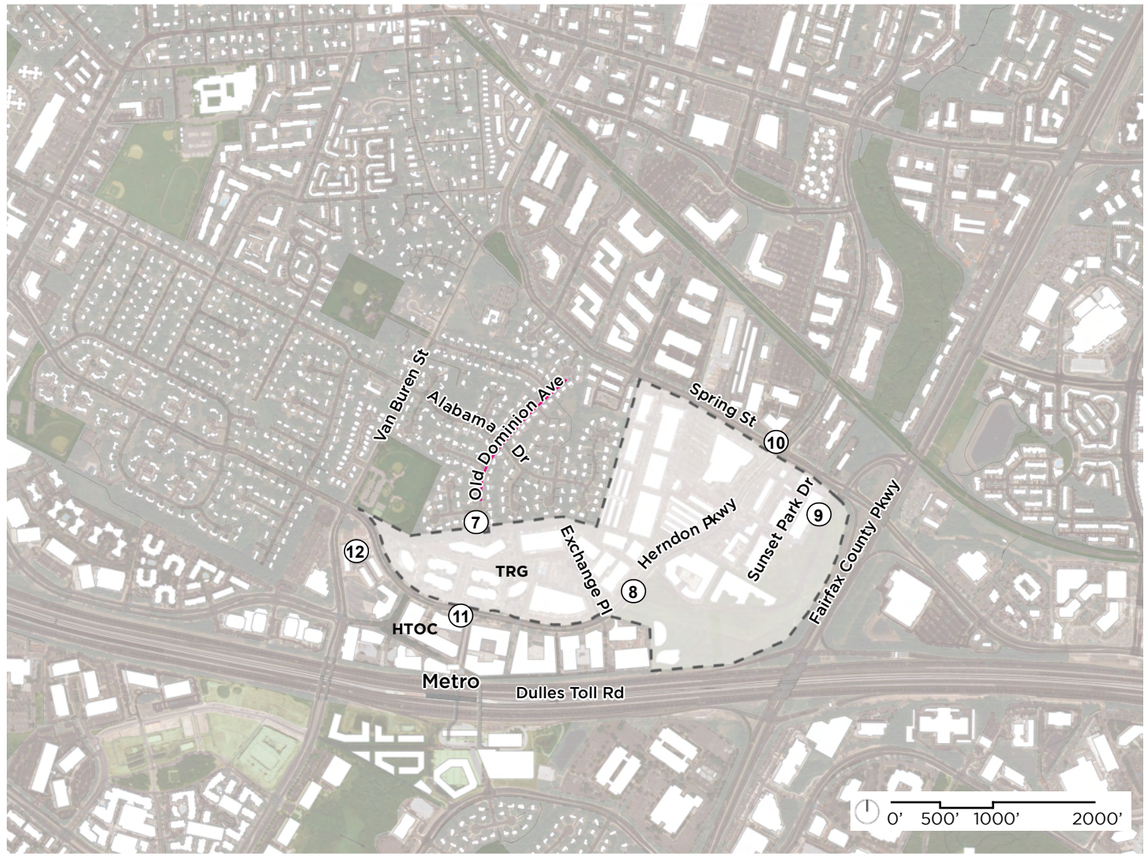


4 Herndon Metro Station, pavilion and path to Herndon Parkway

5 Downtown Herndon, landmark shop by the W&OD Trail

6 Downtown Herndon, new Junction Square mixed use development

Site Context | **Views Around the Site**



The western part of the TRG, between Exchange Place and Van Buren St, is the area within a 5-minute walk from the Metro, with newly built pedestrian crossing (photo 11) connecting the Metro Station path to the TRG across the Herndon Parkway. Further north lies a pedestrian opening through the vegetated buffer (photo 7) connecting to the Downs neighborhood. It is known for residents to walk to Sunset Business Park (photo 9) via this connector, presently a circuitous 15-minute walk through multiple office building parking lots and along the winding Herndon Parkway.

The largely vegetated area abutting Fairfax County Parkway with a small frontage to Herndon Parkway (photo 8) is the apparent origin of the Sugarland Run, a stream that runs northward through a forested trail park outflowing to the Potomac River.

The intersection of Spring St and Herndon Parkway (photo 10), is the major auto-oriented access to the TRG site, juxtaposing with the proximate Sugarland Run greenery, and the existing (photo 12) and planned neighborhoods planned towards the west.

⑦ Pedestrian dirt path through vegetated to Old Dominion Avenue

⑧ Herndon Parkway

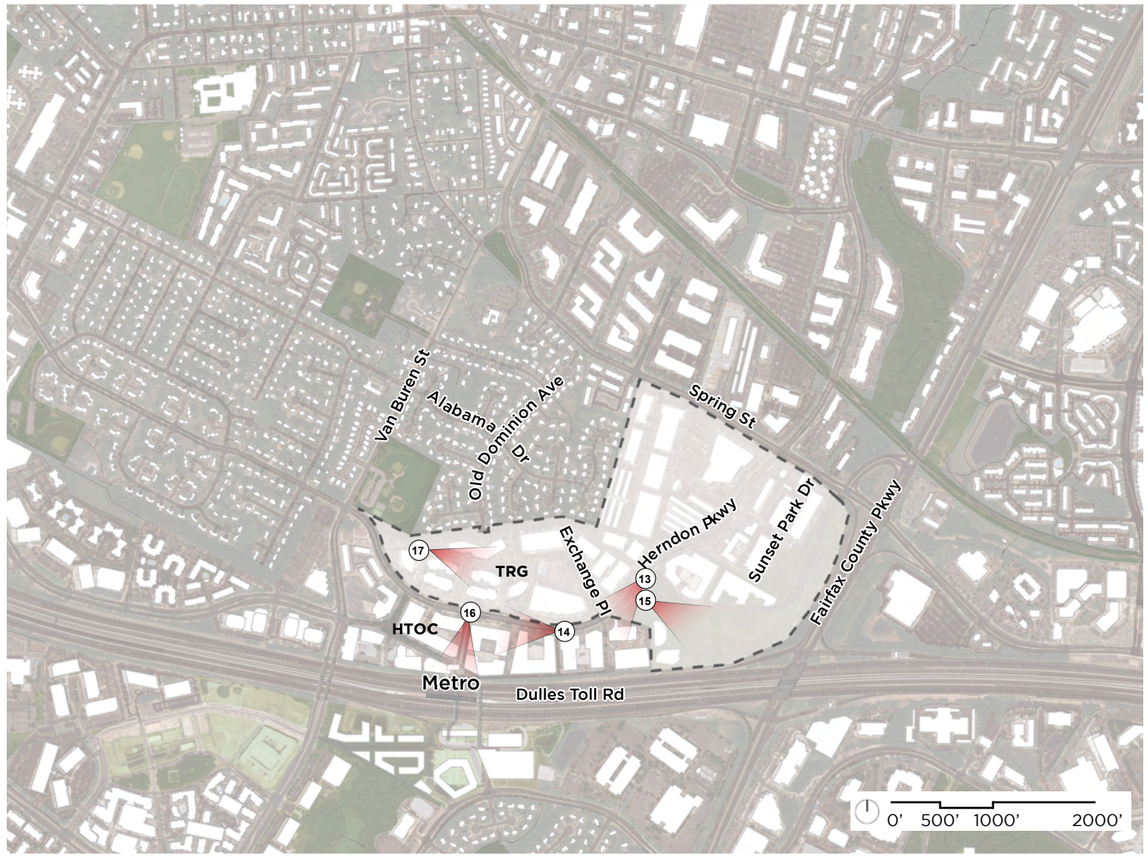
⑨ Sunset Business Park

⑩ Spring Street

⑪ Metro Station pedestrian crossing to TRG at Herndon Pkwy

⑫ Metro Square Condo Complex

Site Context | **View Corridors**



The TRG features several scenic vistas and view corridors. The most significant view corridor follows the Dominion easement in the east-west direction. The easement is free of obstructions and extends in straight-line segments, creating continuous unimpeded views. This corridor frames two views, one of the undeveloped space, and the second of the Reston skyline.

While the Dominion easement has the benefit of framing view corridors, the pylons and wires themselves could be considered eyesores. In the Visioning stage, design strategies can be employed to highlight the view corridor, and simultaneously obscure the electricity pylons. Careful placement and orientation of building masses, location and species of trees, and streetscape design can all help to highlight existing views.

⑬ View along the greener segment of Herndon Parkway, near Fairbrook

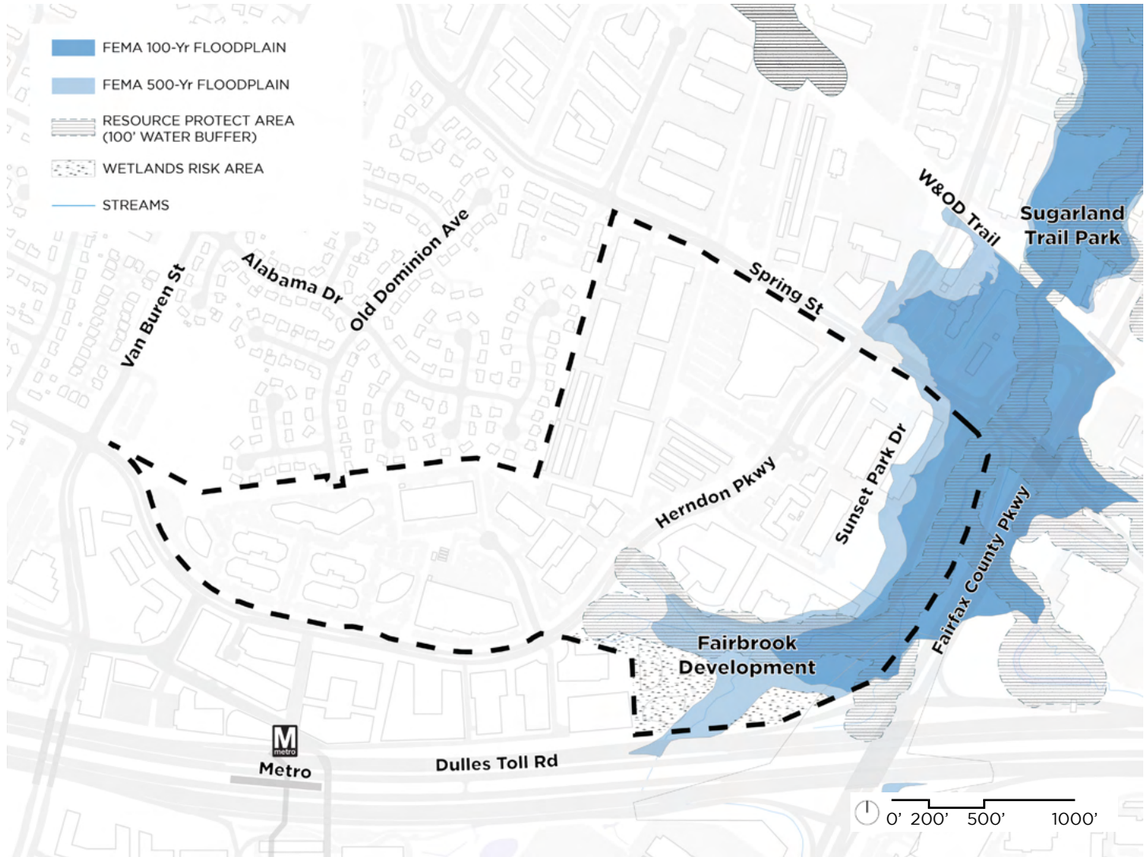
⑭ Typical view along the Herndon Parkway

⑮ Potential Sugarland Run stream and trail gateway

⑯ View towards the Metro pavilion, to be flanked by HTOC development

⑰ View of the new Reston Gateway skyline from the TRG

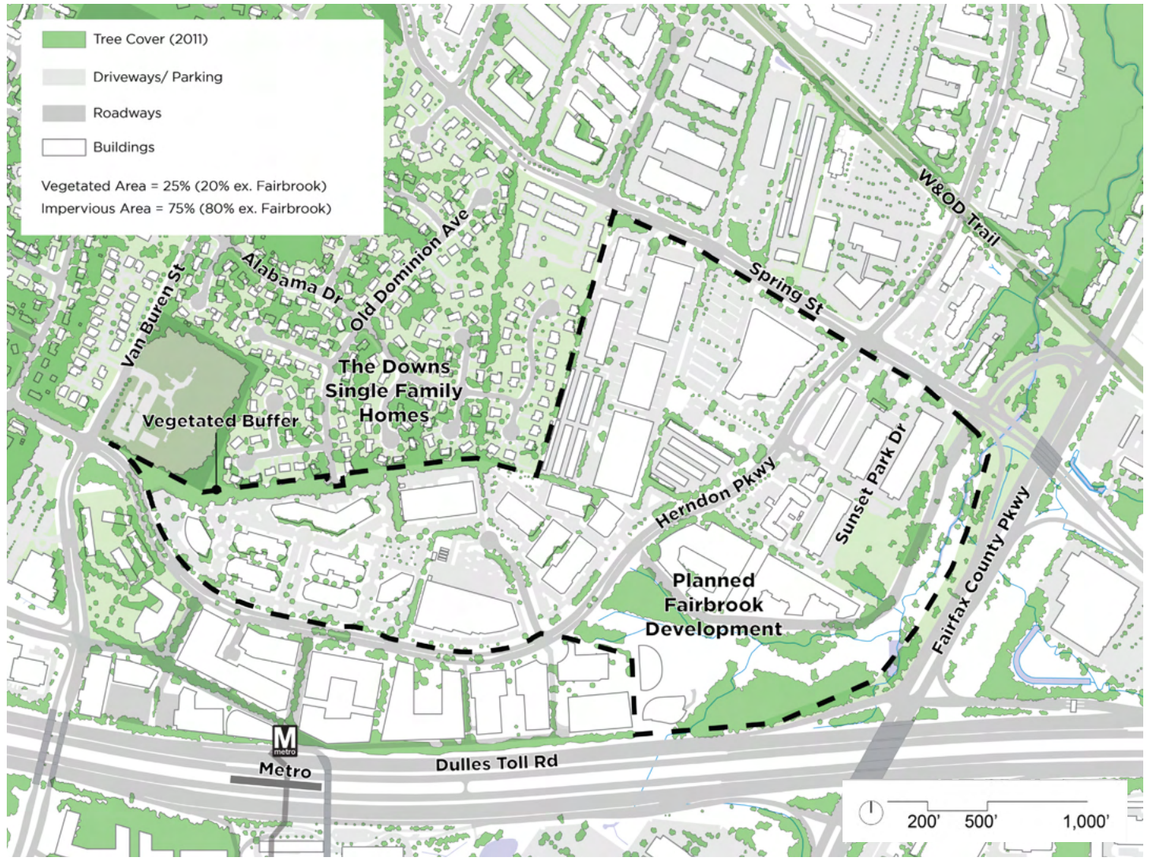
Site Features | **Natural Resources**



Wetlands and RPA's shall be field verified by a wetlands expert prior to any design or site plan submission. Impacts are subject to Army Corps of Engineers approval, and shall be analyzed at the site plan level. Field surveys and assessments have already been done as part of the Fairbrook Development and lie with the Town's records for reference. The planning-level observations herein are based on an inspection of the overall site, utilizing imagery and GIS data.

The vast majority of the TRG, 77%, is already developed as office/industrial and is impervious and void of natural resources. Wetlands and RPA areas, lie on 23% of the TRG, consisting of most of the Fairbrook property and bordering the Fairfax County Parkway. The area on the Fairbrook property contains three tributary streams to Sugarland Run which lie outside of the major floodplain. There are other natural resource areas, but they lie within the floodplain, which is already a protected area, and therefore, not an area of concern for future development. Development within the floodplain is heavily restricted and

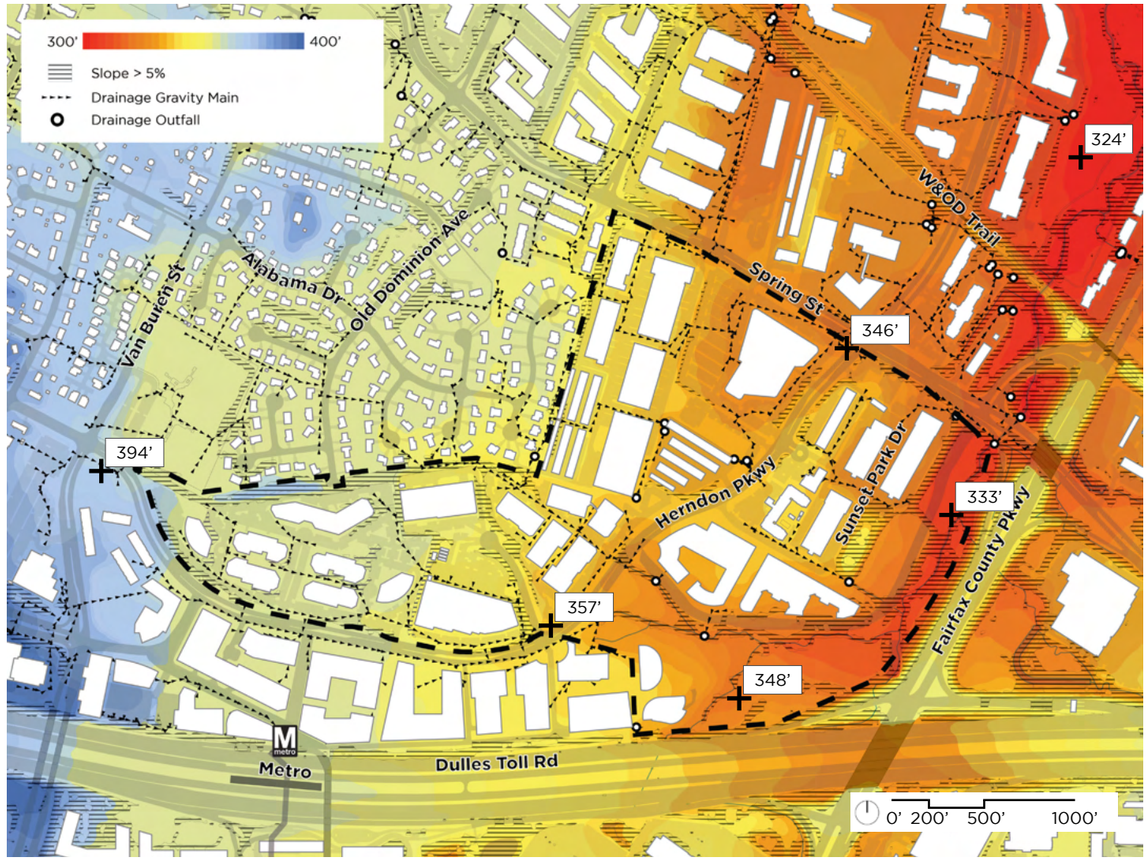
Site Features | **Tree Cover**



is subject to FEMA approval. Any development within the "wetlands risk area" will be difficult due to the presence of natural resources. Since the potential development areas containing natural resources are low in quantity, the potential for wetland remediation, mitigation, credits, stream restoration, etc., are of low concern. As long as stormwater quality and quantity regulations are met, there should not be significant impacts to current natural resources.

Aside from the floodplain and the Fairbrook property, the permeable areas within the TRG are minimal, those being the green area between the floodplain and Sunset Park Drive, and scattered peripheral landscaped buffers. These areas may be vegetated, but most likely do not contain any natural resources, as these are man-made features. Areas within the Dominion easements most likely do not contain natural resources since they have been previously graded, and more importantly are also heavily regulated and subject to restrictions and encroachment agreements with Dominion.

Site Features | **Topography**



Overall, the site slopes gently from east to west at approximately 2-3%. Along the north to south axis, the TRG is nearly flat.

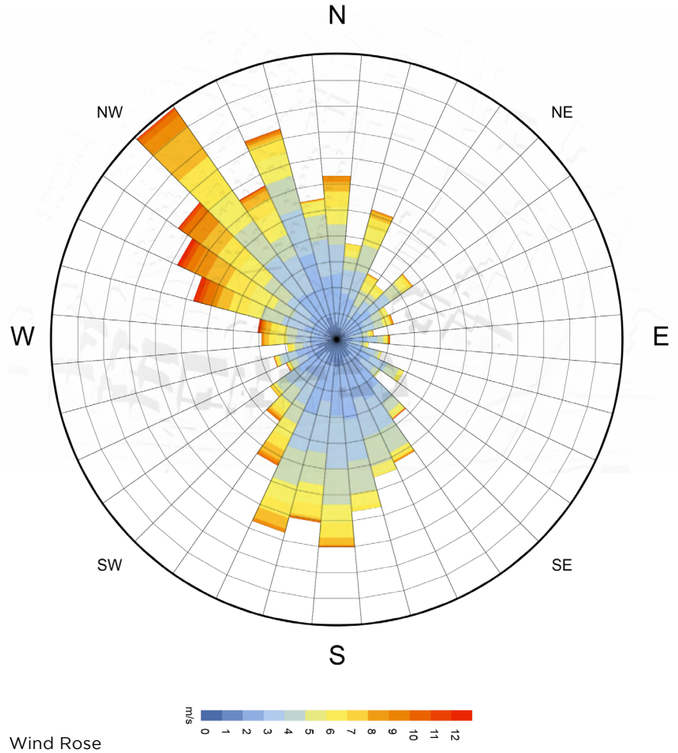
Within the TRG, there are steeply sloped areas: the banks of Sugarland Run; the embankments of the Fairfax County Parkway and the Dulles Toll Road; and the vegetated buffer separating the TRG from the Downs. These areas more or less fixed, but should have minimal impact on any redevelopment within the study area. There are also steep slopes centrally located within the TRG which separate building edges, parking pads, and roadways. These steeply graded areas would likely need to shift with any redevelopment.

The existing drainage and sewer gravity mains follow the east to west slope and outfall primarily into Sugarland Run, at the east of the site.

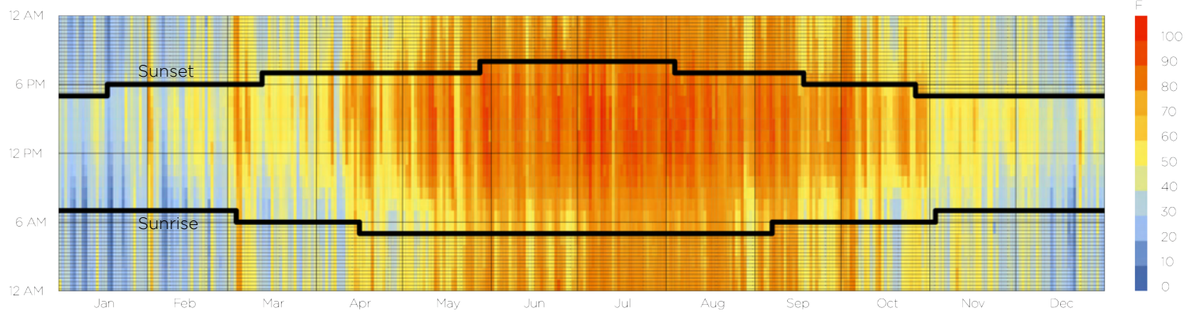
Site Features | **Climate & Wind Patterns**

Overall, Herndon’s climate is characterized by hot, humid summers and mild winters. Design strategies should seek to mitigate high temperatures in the summertime. Open, public space should have areas which are shaded in the summer. Paving and landscape materials should be carefully chosen to avoid excessive heat build up. Additionally building orientations should be carefully chosen to avoid excessive solar radiation.

Generally, the major winds are along the north-south rather than east-west axis, with the predominant wind coming from the NW. In this case, the NW wind approaches the TRG from the Downs of Herndon. Wind speeds are generally moderate, with upper bounds of approximately 26 mph, which the National Weather Service characterizes as a “Strong Breeze.” Future development in the HTOC may affect the experience of southerly winds within the TRG.



Wind Rose
Segment length indicates relative wind frequency.
Segment direction indicates the direction that the wind is coming *from*
Segment color indicates wind speed.



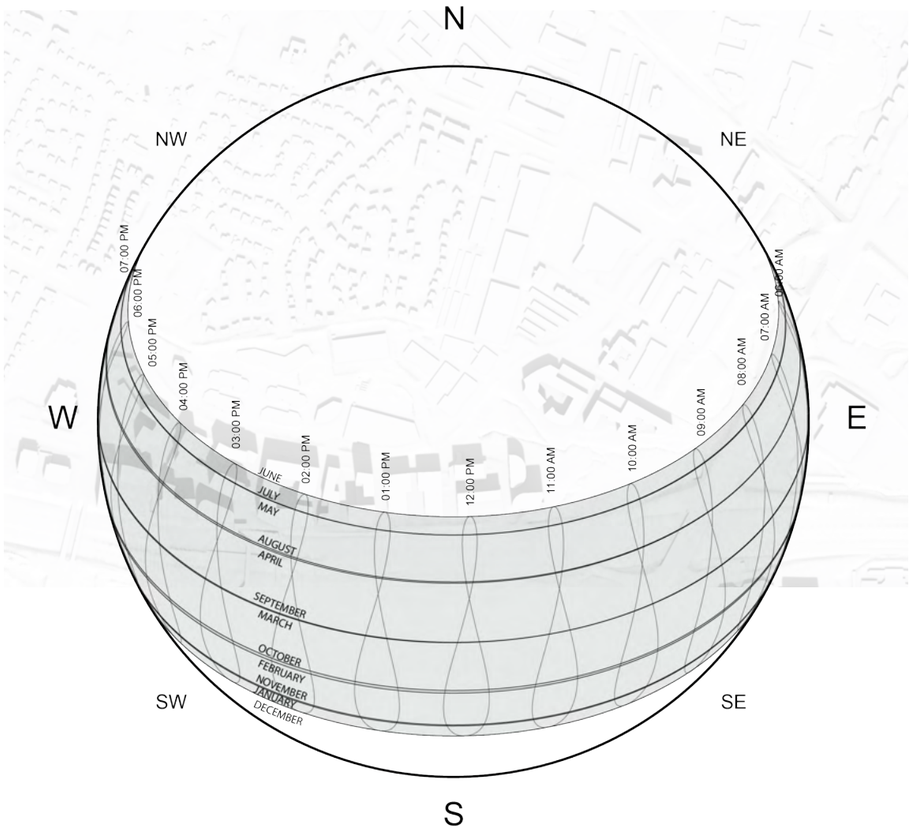
Hourly Dry Bulb Temperature (30-yr average)

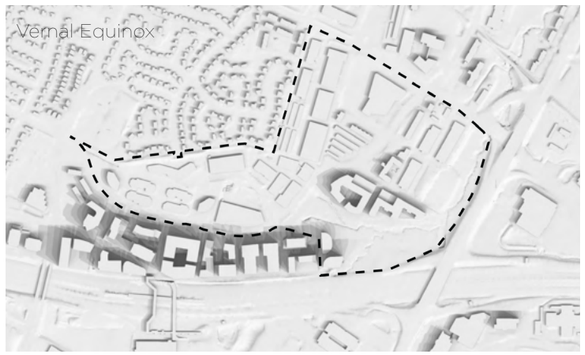
Site Features | **Sun Orientation & Shading**

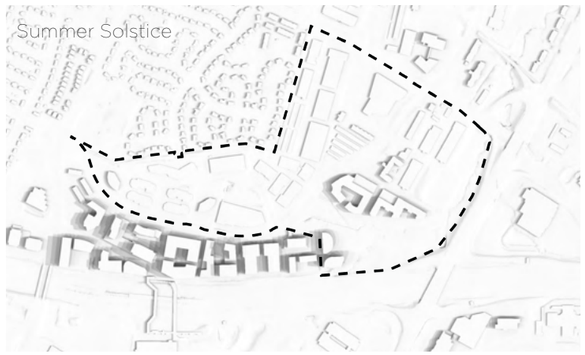
With the anticipated development of the HTOC a study was conducted to evaluate what, if any, shading impacts should be expected within the TRG boundaries. In order to approximate future HTOC development, the general building masses illustrated in the original HTOC report were used. Where available, approximate building masses from approved HTOC developments were used. For the solstices and equinoxes, hourly shadow patterns were modeled and overlayed for the hours of 8:00 AM - 4:00PM.
Even at full HTOC build out, the vast majority of the TRG will not be significantly impacted.

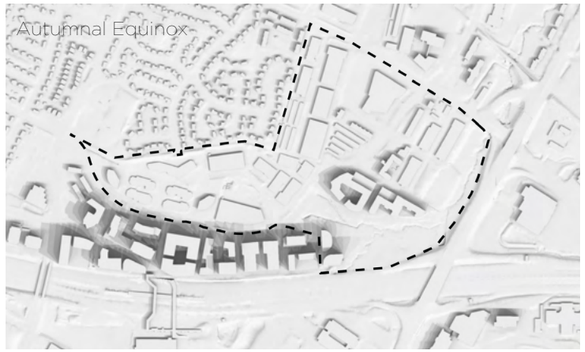
However, the stretch of the Herndon Parkway immediately adjacent to the HTOC would be shaded at least some part of the day throughout the year. In the weeks surrounding the winter solstice, some shading should be expected to cross the Parkway and impact the TRG for ~200 feet at the ground plane.

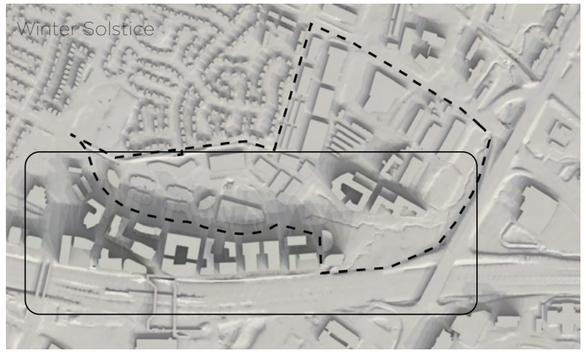
In the Visioning Phase, consideration to sun orientation and shading should be prioritized, especially when it comes to building mass orientation.



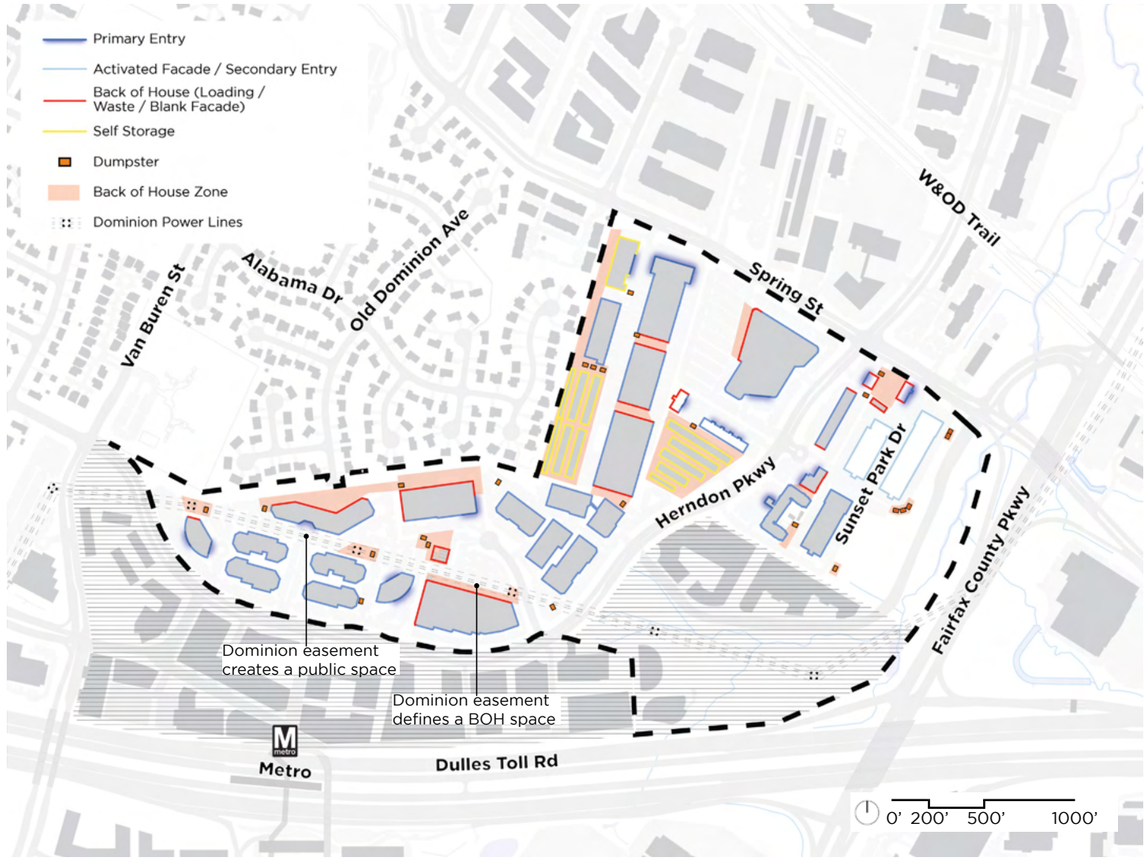








Site Features | **Building Orientation**

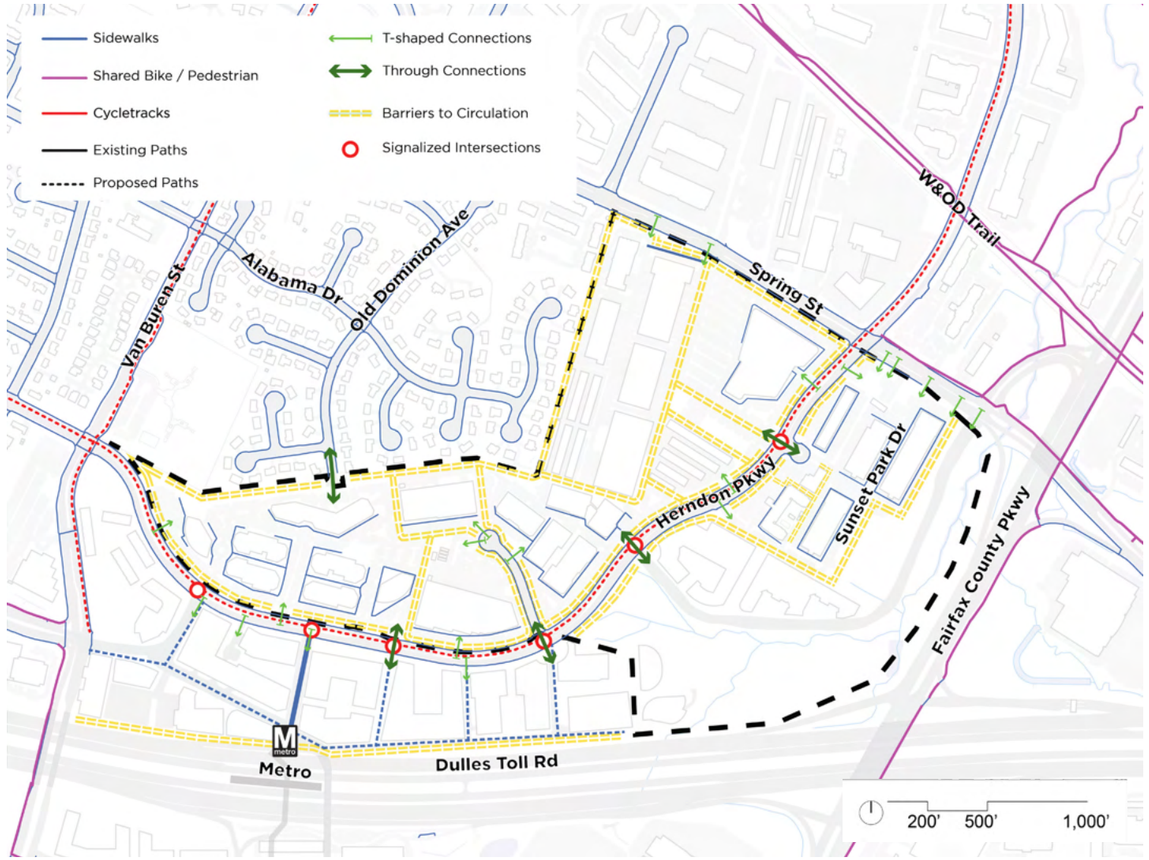


The map above illustrates the existing building orientations within the TRG, and the way in which front of house (FOH) vs back of house (BOH) spaces are organized. In its current configuration, there is little differentiation in the way in which FOH and BOH zones are distributed throughout site. In some areas, BOH zones abut natural barriers, which create clearly defined and obscured areas for these service functions. In other parts of the study area, however, BOH zones are located prominently within the site. In some cases, the BOH of one building faces the main entry of another. This lack of hierarchy is problematic because it creates amorphous, ill-defined public spaces.

This challenge should be addressed during Visioning by creating clearly differentiated areas for gathering (building approaches, entries and public space) and service (waste collection and removal, loading, etc.)

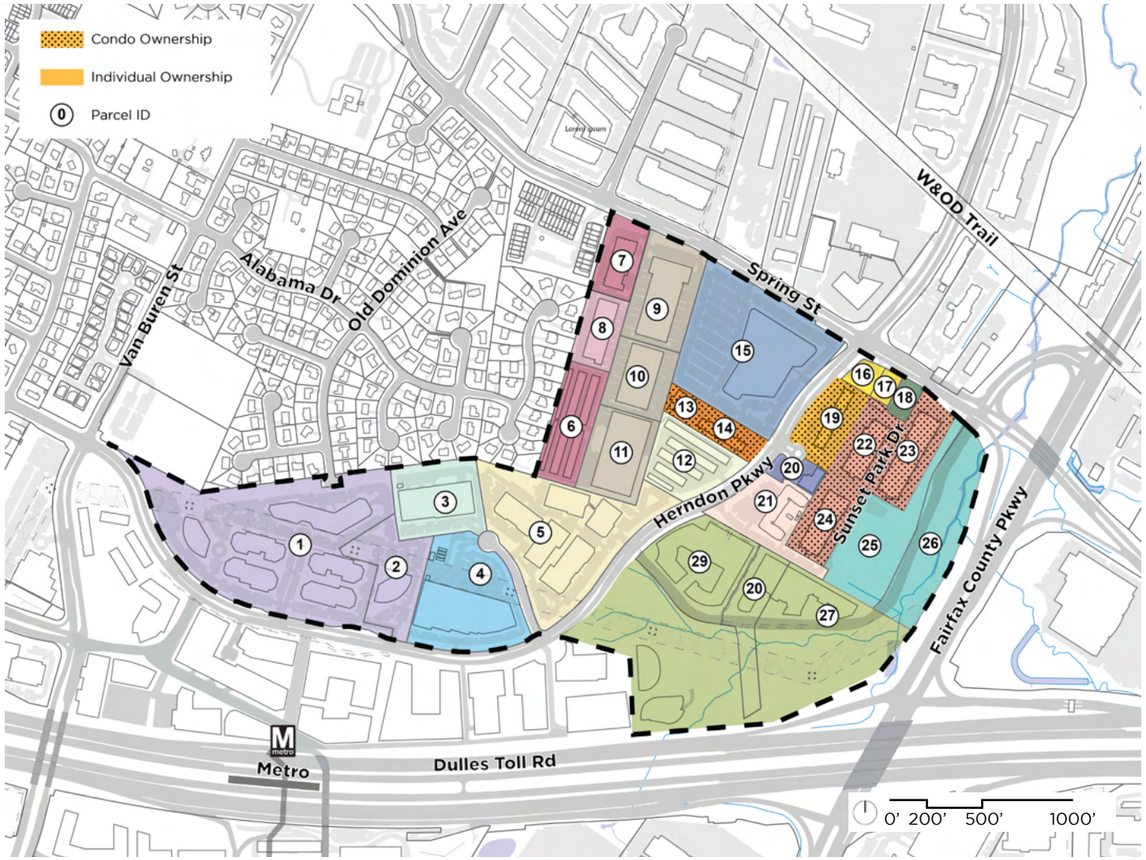
This lack of spatial organization can also be seen in the existing circulation patterns. Generally, buildings within the TRG are laid

Site Features | **Site Circulation**



out in a "sea of parking," without a continuous street network. This configuration works well for passenger vehicles, which use Herndon Parkway to reach their parking lot, and leave the same way. For pedestrians or cyclists, however, who might need to transverse the study area, this lack of a street network presents a challenge. In the design process, particular attention should be paid to creating a network of shared, legible, continuous paths, that integrate seamlessly with the HTOC, Spring Street and Van Buren Street.

Constraints & Opportunities | **Property Ownership Patterns**



The map above illustrates property ownership, where each property owner is denoted by a unique color. Note how some colors span across multiple parcels, revealing the opportunity of single ownership (e.g., parcels 1-2 and 9-10-11), whether contiguous or not (parcels 6 and 7). Condo ownership (like parcels 22-23-24) may bring either a challenge or an opportunity, depending on how condo owners work together.

The TRG has 26 parcels and 94 owners. A majority of the land (88%) is owned by individual property owners and the remaining land area (22%) is owned by condo ownership. Condo ownership properties include the Springwood Professional Center, Parkway Crossing and Sunset Business Park.

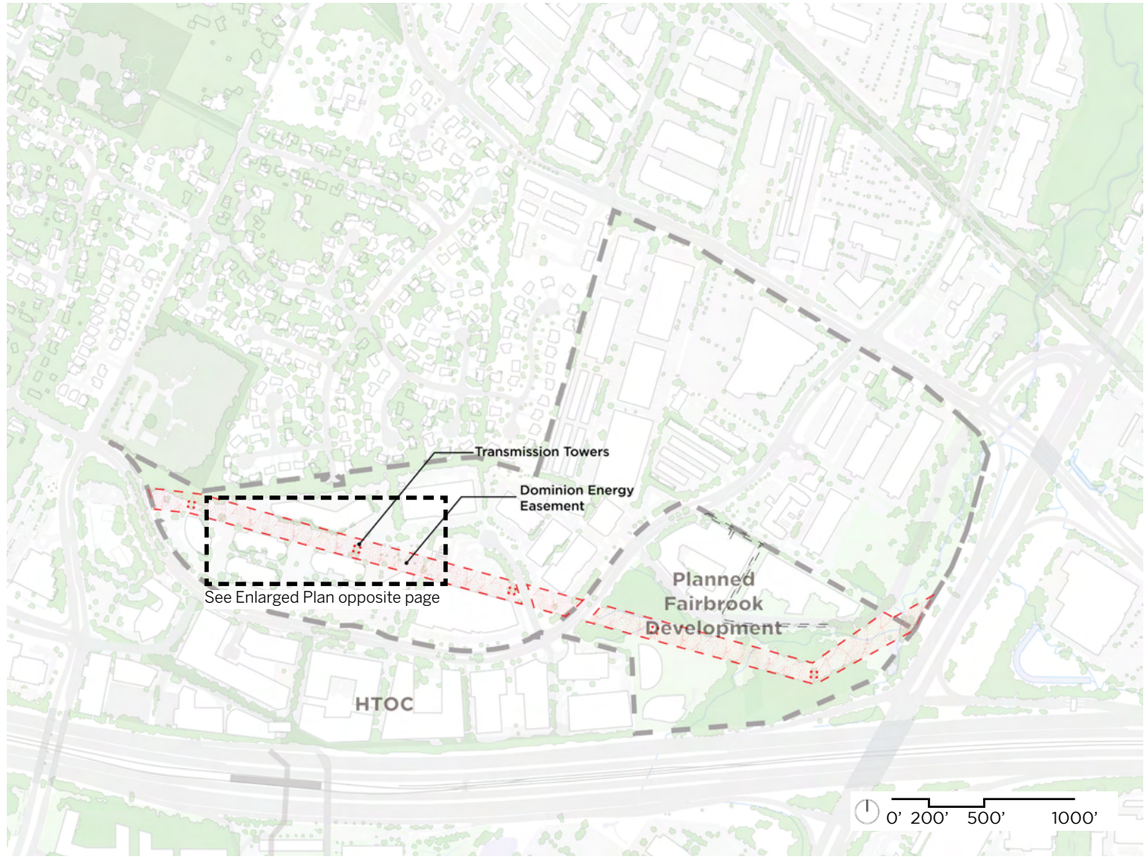
One prevalent opportunity throughout the TRG is building age: most of the buildings date back to the 1980's and 1990's, which puts them at the end of their useful lifespan or are likely in need of will need major renovation in the near future.

Parcel ID	Property / Main User	Number of Owners	Year Built / Added	Building Age (Years)	Property Land Area (SF)	Property Land Area (Acres)	Property GFA (SF)	FAR	Height (Stories)
1	Shorenstein, Monroe Business Center	1	1986	37					1, 1, 3
2			1988	35	822,649		253,263	0.31	3
3	Beanstalk	1	1985	38	158,158		73,094	0.46	1
4	Freddie Mac / Data Center	1	1985	38	272,598		136,603	0.50	2
5	Rooney, Exchange Pl	1	1985	38	410,222		108,402	0.26	1
6	Security Public Storage	1	1985	38					1
7			2004	19	207,645		102,663	0.49	1
8	331-351 Victory Dr	1	1982	41	77,390		36,921	0.48	1
9	301-315 Spring St, 340-366 Victory Dr	1	1980	43					1
10	308-330 Victory Dr		1975	48					1
11	300-302 Victory Dr		1977	46	422,766		204,635	0.48	1
12	Public Storage	1	1985	38	131,586		45,520	0.35	1
13	Springwood Professional Center	5	1988	35					2
14		14	1988	35	76,200		31,400		2
15	Boeing	1	1985	38	432,166		208,265	0.48	2
16	Office Center	1	1987	36					3
17	(vacant)		n/a	n/a	38,016		10,760	0.28	1
18	Dunkin Donuts	1	1969	54	22,223		4,469	0.20	1
19	Parkway Crossing	18	2005	18	97,200		36,000	0.37	2
20	465 Herndon Parkway	1	1995	28	33,621		16,678	0.50	2
21	Hyatt House	1	1999	24	127,894		87,100	0.68	4
22	Sunset Business Park	12	1984	39					1
23		14	1984	39					1
24		17	1984	39	309,100		125,300	0.41	1
25	(vacant, green area)	1	n/a	n/a					n/a
26	(vacant, green area, Sugarland Run)		n/a	n/a	415,580			-	n/a
	TRG (without Fairbrook) Totals:	**94**			4,055,014	**93.1**	**1,481,073**	**0.37**	
27	Fairbrook	1	n/a	n/a					n/a
28			n/a	n/a					n/a
29			1985	38	1,200,741		89,000	0.07	2
	TRG, Including Fairbrook Property, Totals:	**95**			5,255,755	**120.7**	**1,570,073**	**0.30**	

Property Data Summary	SF	Acres	GFA (SF)	FAR
TRG Parcels	4,055,014	**93.1**	**1,481,073**	**0.37**
Fairbrook Parcels	1,200,741	**27.6**	**89,000**	**0.07**
TRG Parcels Total:	5,255,755	**120.7**	**1,570,073**	**0.30**

48% of the buildings in the TRG are single-story followed by 20% 2-story buildings and only two 3-story buildings, yielding a low median FAR is 0.46., which may fit existing zoning in a pre-transit era, but the TRG Small Area Plan is looking increase FAR to be attune with transit oriented developments.

Location

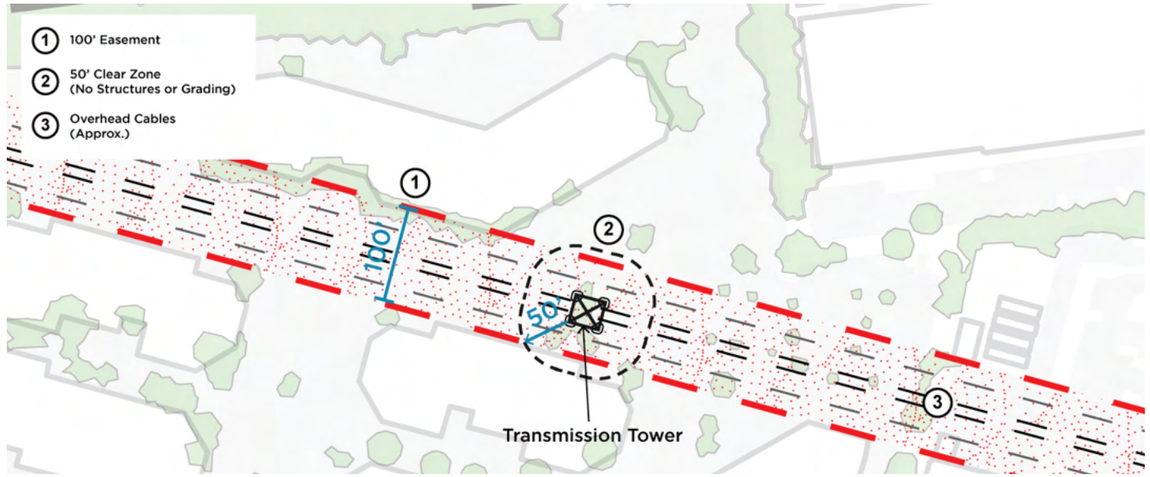


The Dominion Easement bisects the western portion of the TRG site, the area within a 5-minute walk from the Metro and across the Herndon Parkway from the planned HTOC development.

Buildings presently flank the easement on both sides, making its 100-foot clear zone readily apparent in maps and aerial photos, such as the bird's eye view on opposite page. Most of the clear zone is being used for driveways, parking lots, and low landscaping. Dumpster enclosures also exist on the easement, even though requirements (listed and illustrated on opposite page) rule out structures on the easement.

Although the easement poses a major constraint on the TRG, it could also be viewed as an opportunity: is it a divider or a connector; a parking or a park? These opportunities will be explored in the next stages of the project.

Requirements



Enlarged Plan showing clearance requirements

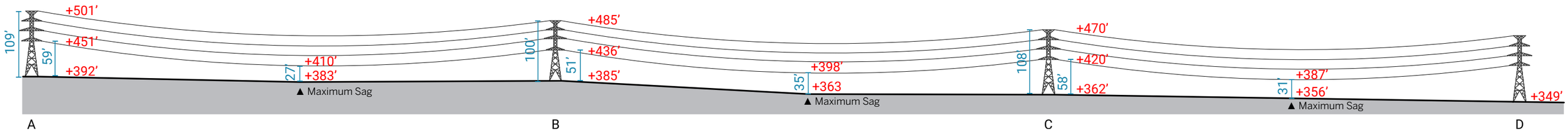
General Requirements:

1. No buildings or structures, including dumpsters and playhouses, are allowed within the easement
2. Road finished grade min 25' clearance under maximum sag of power line
3. No grading within 50' of transmission tower
4. Minimum 36" cover for any storm, water, or sewer within the easement. Wet utilities to be designed for heavy vehicle loading.
5. No blasting within easement
6. Signs shall be no more than 10' in height, and minimum 50' from any structure
7. Light poles shall be maximum 14' in height above grade and no closer than 50' from any structure
8. Contractor to restore any disturbed area within the easement
9. Any encroachments into the easement shall be coordinated with Dominion and subject to an "Encroachment Agreement"

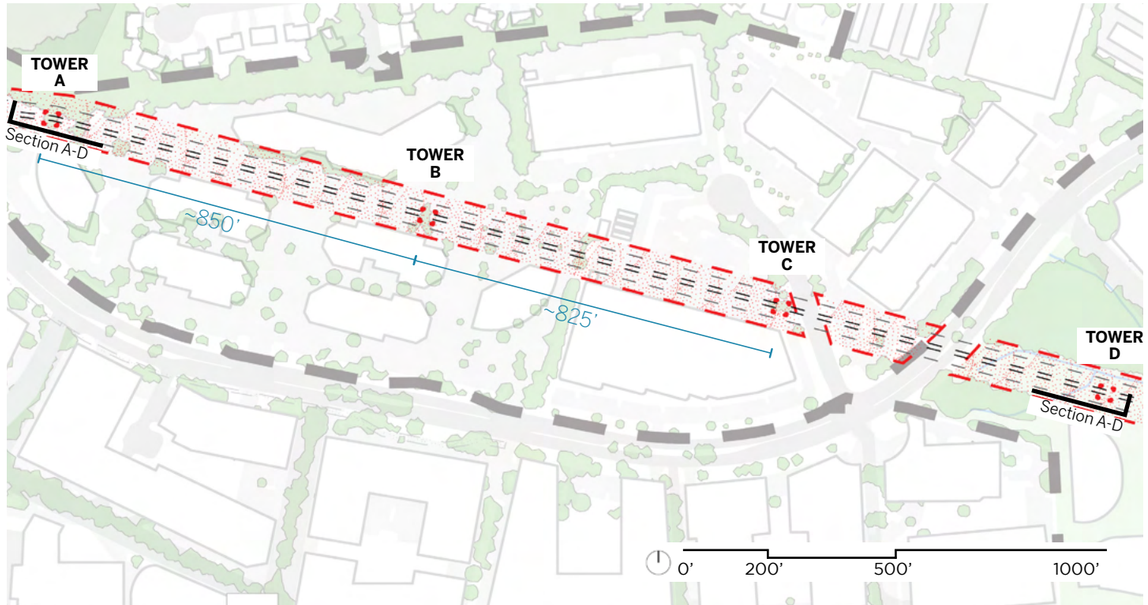
Note that final requirements are determined by an agreement with Dominion.

Bird's eye view of the Dominion Easement from the Sugarland Run stream

Constraints & Opportunities | **Dominion Easement**



Section A-D, taken from drawing below



View of transmission Tower A (see exhibit on opposite page)

There are three transmission towers on the contiguous western portion of the TRG bounded by Herndon Parkway. Those towers are approximately 825 to 850 feet apart, roughly the distance of two large city blocks. The towers are at least twice as tall as the buildings around them, as seen in the photo on opposite page. A 109' height is nearly as tall as a 10-story residential building, or an 8-story office building.

The buildings are presently oriented parallel to the easement, which would maximize views to the cables from the third story upward. This is not an issue, however, as the buildings are less than three stories tall. Building orientation should be considered to minimize views to towers and cables. A 10-story building could potentially have cable-free views on the top five stories, depending on the location, as the cables drops as much as 32' from tower to maximum sag.

Attention must also be paid to maximum sags, as some are as low as 27' above grade, just two feet higher than a street light pole.

Although the Dominion Easement is perceivably flat as it crosses the TRG, the site in fact drops 43' from Tower A to Tower D, over the course of approximately 2,440.' Much of this grade change can occurs at property divisions, such as between the Shorenstein and Freddie Mac parcels, as seen in photo to the right.

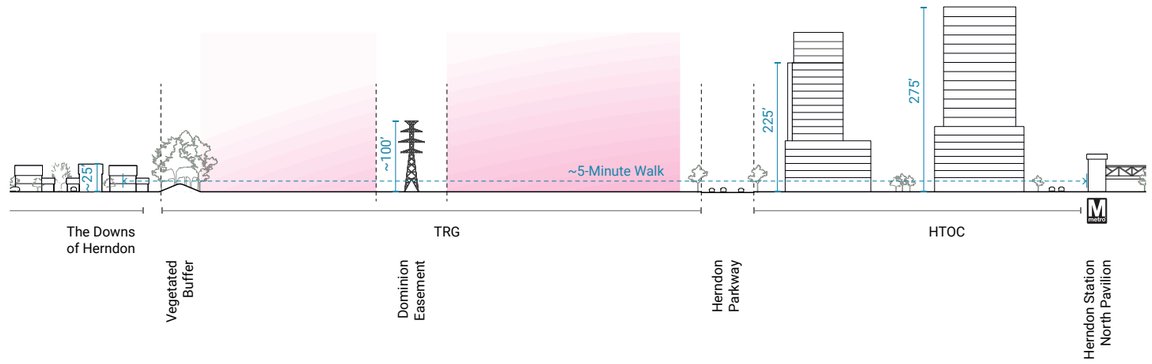
The Opportunity

The TRG Small Area Plan will null current zoning height limitations in favor of new ones, to be attune with transit-oriented densities given the opening of the Herndon Metro Station.

The Opportunity for the TRG lies in higher building heights and development densities within the Metro Station 5-minute walk radius, that could gradually decrease towards the Downs neighborhood and the 10-minute walk zone going eastward towards Spring Street.

The Transect study section reveals a TRG flanked by 25' and 225' heights from Downs to HTOC, with the opportunity to potentially infill development to gradually match those heights, in order to fit with the surrounding context from a scale perspective. The Dominion towers and 100'-max cable heights may present a visual challenge for surrounding buildings, however also lends itself as the threshold between higher and lower heights at the TRG.

The Transect



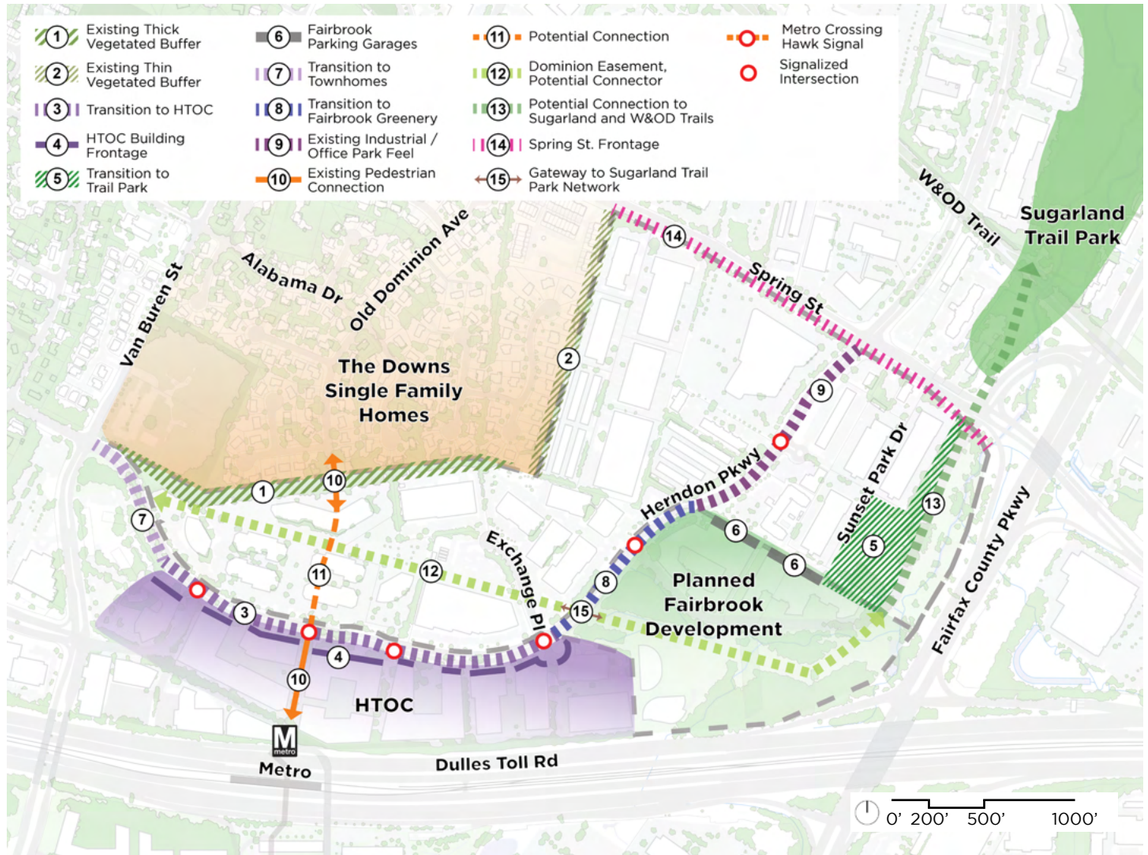
Ongoing Developments Across the Herndon Parkway

View 1 one of the Fairbrook development options: 8-story residential, new Fairbrook Dr, Sugarland Bridge Park, and 11- & 19-story office buildings

View 2 Parkview

View 3 555 Herndon Parkway

Transitional Spaces, Frontages & Buffers



The substantial **buffer** (1) between the Downs neighborhood and the TRG should be maintained and enhanced if necessary. The existing buffer by the self storage properties (2) is presently thin and improvements in the vegetative screening should be considered.

Within the TRG, Herndon Parkway can be divided into four segments, each with a distinct character. Starting from the west, the first segment features a quiet transition to the mid-density residential use at Metro Square townhomes (7); followed by nearly a half-mile of HTOC mixed use high-rises (3, 4); then the high-density hustle and bustle reaches a green break at the Fairbrook property (8); and the final segment has an industrial feel approaching Spring St.

Of these four transitions along the Parkway, the SAP can only effect both sides of the street at (9), which presently industrial. Special consideration needs to be paid to this transect in particular. The other three segments are outside the TRG scope, so opportunities can be explored on how to face, meet or complement the other side of the Parkway.

The transition between the Sunset Business Park (5) and the tributary streams of Sugarland Run presents a significant opportunity for improvement. This buffer area could become a great amenity to Sunset Park, with the potential of joining the larger trail park network (13).

Transitions bring **connections.** The potential connection (13) to the Sugarland and W&OD Trail networks already connects to the entire TRG via the Dominion easement (12). This can be viewed either major constraint or great opportunity.

From trails to rails, the easement connects to Metro (11), and to the Downs residential neighborhood (10-north).

All of this multi-modal and amenity connectivity brings the opportunity of walkability, which is good for business, promotes social interaction and is compatible with the Town's values.

Frontages and gateways: As the Market report notes, Spring Street presently has the highest visibility in numbers. It is an auto-centric 1/3 mile long stretch of industrial frontage, which lacks curb appeal, but it features a unique mix of business and local destinations. This frontage poses aesthetic and placemaking challenges to be explored.

Other gateways are filled with opportunity as well: the Metro connection (11) must be explored for opportunities to create a sense of arrival and connectivity throughout the TRG. And Fairbrook's gateway to the Sugarland Run Trail Park Network must be explored from across the Parkway on the TRG side. The easement forces an open space on the TRG across from that gateway, perhaps lending itself to a more green gateway.

These three aforementioned gateways potentially vary in character from transit hub, to greenway, to industrial...or whichever unique character is yet to be found for the Spring Street and Herndon Parkway area.

Another opportunity lies in the parking garages in the planned Fairbrook development, which include exposed facades (6) that face the hotel and Sunset Park area. This zone could be viewed as a **transition space, a buffer or back of house,** depending on how its designed.

Conclusions

Context

The TRG site lies at the periphery of the Town of Herndon along the Dulles Toll Road, a short drive or ride to the Old Town of Herndon and the Reston Town Center, with nearby recreational destinations like the W&OD Trail and the Sugarland Run Trail Park. It is largely surrounded by residential low-density neighborhoods.

Property Ownership Patterns:

Note:

The Fairbrook property is well under development, and therefore the SAP should plan to integrate and complement their current plan, rather than proposing a plan for the parcel.

Multiple-owner challenges:

Seventeen property owners control the 26 parcels of the TRG (excluding the Fairbrook property). Three of those parcels are condominiums, which which could complicate any design proposals. Areas with multiple parcels under single ownership reduce the challenges of planning for multiple owners.

5-Minute Walk from Metro Area:

Three property owners control the properties within the 5-minute walk radius from the Metro. The largest and closest of these is the Shorenstein property, which covers approximately two thirds of the 5-minute walk area.

Natural Resources

Excluding the Fairbrook property, the TRG is 80% impervious surface with minimal natural resources and vegetated areas.

The natural, green and forested areas are adjacent to Sunset Business Park, perhaps bringing an opportunity to that presently industrial area.

Topography

Except at edges, the TRG is gently sloped (~2-3%) from east to west. The grade changes within the central area of the TRG are mostly man-made and would likely change with any redevelopment.

Climate, Sun Orientation & Shading

Overall, the TRG should not be significantly impacted by shadows from HTOC development. Careful design strategies should be employed to create naturally cooling spaces for the summer months.

Circulation

Currently, the TRG lacks a cohesive network of streets within it. Except for Herndon Parkway, which bisects the TRG, there are no defined streets. Creating legible, accessible pathways will be a necessary component to creating a walkable zone.

Dominion Easement

The Dominion Easement presents both challenges and opportunities. An agreement should be reached with Dominion regarding the potential uses and allowances on the easement, as these vary on a case-by-case basis. Potential for cross-site connectivity and integration within a neighborhood setting should be explored, and precedents for open spaces should be researched.

Building orientation, heights, and views should be studied relative to the electricty pylons and cables, taking into account the variable cable heights across the site.

Heights

The SAP aims to increase density and building heights within the TRG. The Visioning stage will evaluate what the transect should look like, as potential development transitions from single family homes to high-rise HTOC, bisected by power transmission lines.

Transitional Space, Frontages and Buffers

The TRG site is rich in opportunities for character diversity.

The SAP could propose a distinct character for the Herndon Parkway between the Fairbrook property and Spring Street, as the TRG controls both sides of the Parkway at this segment. Moving west on the Parkway presents the TRG with the challenge of how to transition or with the opportunity of how to complement the other side of the Parkway, as development varies between green Fairbrook, bustling HTOC, and quiet mid-rise homes.

Finding curb-appeal on Spring Street will be a challenge. Buffers along the Downs neighborhood should be maintained and enhanced where necessary.