TRG
TRANSIT - RELATED GROWTH AREA

TOWN OF Herndon

SOM

CONSTRAINTS & OPPORTUNITIES + PROJECT GOALS

TOWN OF HERNDON TRANSIT-RELATED SMALL AREA PLAN
JANUARY 2023

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REPORT OVERVIEW

This report summarizes the constraints and opportunities for the Transit-Related Growth Area (TRG) project that have been identified in Stage 1 study to date. (Full-length analyses of the site, market, traffic, utilities and storm water are included as attachments. See appendix)

The report also considers the project's previously defined set of goals, relative to the Phase II data collection process. The project goals are further developed and elucidated given the knowledge gathered in Stage 1 and 2.

This report is informed by extensive research and analysis, both qualitative and quantitative. The process has included: site walks; economic data analysis; traffic data analysis and modelling; site mapping and analysis; stakeholder meetings, surveys and charrettes; and meetings with Town political and staff officials. As part of this Stage 2 data gathering process, the following groups and individuals have been involved:

Town Stakeholder Engagement
Mayor and Town Council
Town Planning Commission
TRG Advisory Committee
Architectural Review Board
Town Planning and Public Works Staff

Additionally, public stakeholders have been directly involved in providing background information and feedback through surveys (both online and in print) and in a series of public meetings. Those meetings solicited feedback from: 1.) TRG nearby residents; 2.) TRG property owners and; 3.) the general public. The public will continue to be involved in the next stages of the project.

PROJECT DELIVERABLES SUMMARY

Stage 1 | Information Gathering

- Stakeholder Engagement
- Inception Report
- Project Website

Stage 2 | Exploration & Analysis

- Site Analysis
- Market Opportunities Report
- Utilities & Storm Water Report
- Traffic Modelling and Analysis
- Constraints & Opportunities
- Goals & Directions

Stage 3 | Visioning

- Draft Urban Design Scenarios
- Fiscal Impact Analysis
- Water and Density Scenarios
- Traffic Modelling Scenarios
- Final Urban Design Scenarios

Stage 4 | Finalization

- Master Plan Report Outline
- Draft Master Plan
- Appendices and Fiscal Analysis
- Final Master Plan

Stage 5 | Review, Finalization, Adoption

- Final Small Area Plan - For Town Adoption

I. CONSTRAINTS & OPPORTUNITIES

Having conducted an extensive analysis of the existing conditions and potential for the TRG area, this report seeks to clearly identify the potential constraints and opportunities the site and its context provide. These items will inform the Phase III Visioning process. Below, our prior work is summarized, and the key takeaways are identified.

Overall, the site presents more opportunities than it does constraints. The viewpoint of the design team is that features that could be perceived as “constraints” can oftentimes be recast as “opportunities” themselves. The exercise of identifying these opportunities and constraints will shape the way in which the TRG is re-imagined, and help maximize its potential.

The TRG site lies in the southeast quadrant of the Town of Herndon within a short drive or ride along the W&OD Regional Trail to the Reston Town Center and an easy walk to downtown Herndon and the Herndon Metrorail Station. It consists mostly of office, light industrial, and other commercial uses and is surrounded by similar uses, but also adjacent to single family neighborhoods to the north and west

SITE FEATURES

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.

Wind, 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 new roads and paths through the TRG will be important to improve multi-modal connectivity and accessibility.

CONSTRAINTS & OPPORTUNITIES

Property Ownership Patterns:

Note:

The Fairbrook property has been entitled for mixed-use re-development, and therefore the Small Area Plan (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 could pose a challenge when trying to reach consensus. 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.

Fig. 1: Dominion Easement

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 electricity 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.

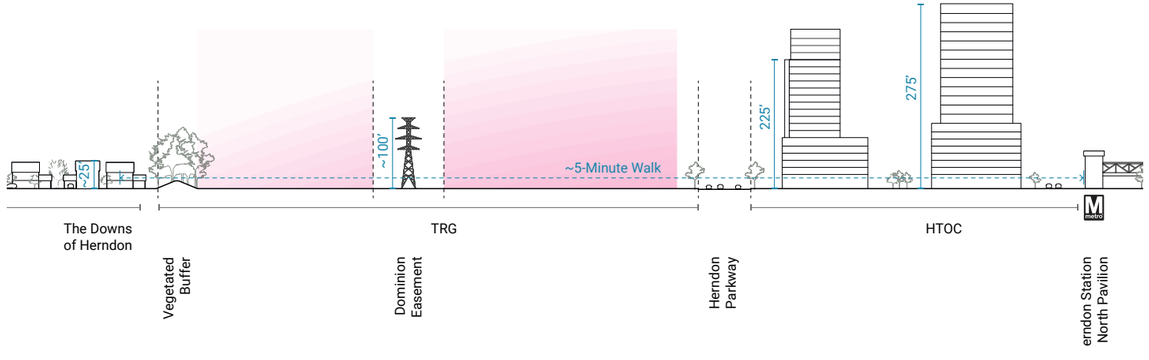


Fig. 2: Site Transect

Transitional Space, Frontages and Buffers

The TRG site is rich in opportunities for character diversity that can both reinforce a town aesthetic while introducing unique spaces.

The SAP could help establish street frontage characteristics specific for the Herndon Parkway in coordination with the streetscape design planned for Herndon Parkway with the TRG, the HTOC, and along the Fairbrook redevelopment project.

Thoughtfully designed buffers areas between the TRG and abutting neighborhoods present an opportunity for green spaces with possible passive recreational options.

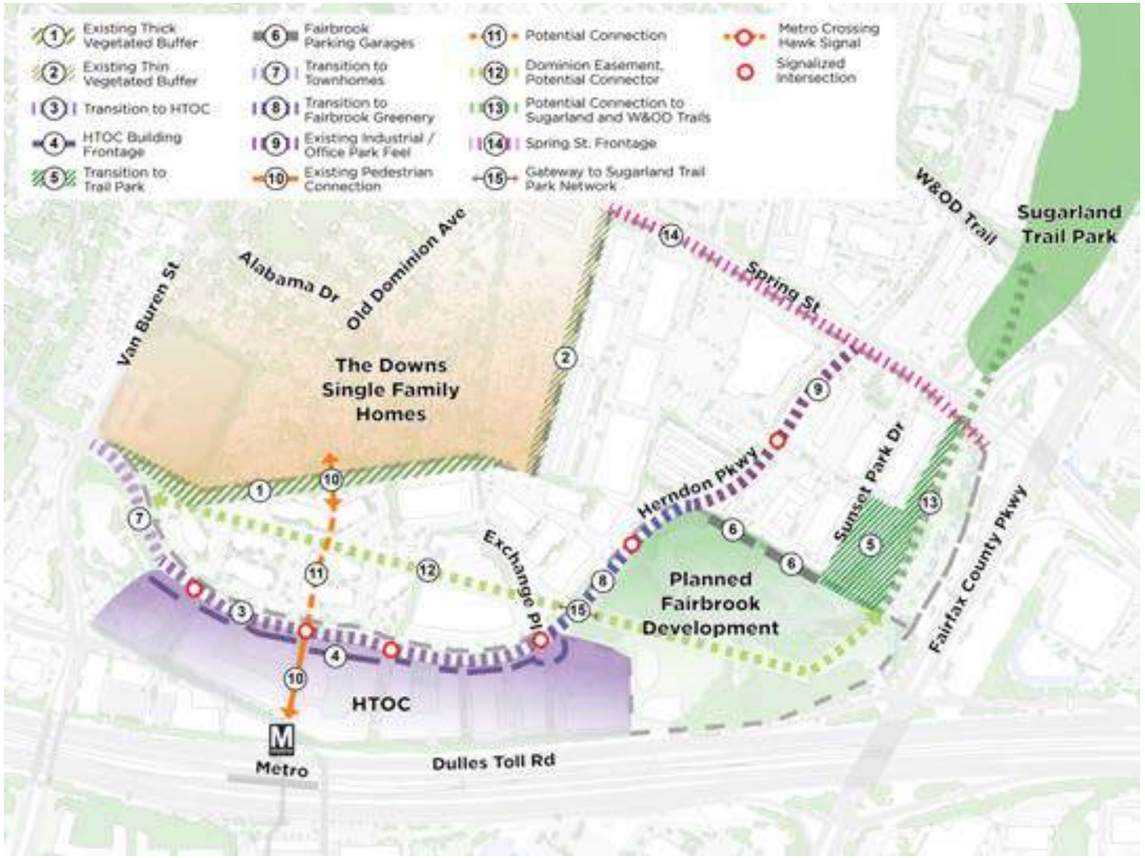


Fig. 3: Transitional Spaces, Frontages & Buffers

In order to understand current market conditions and the potential for future private development within the TRG, an extensive study was conducted. The analysis included an overview of regional and site-level economic conditions by sector. Then, the market conditions for various land uses were considered individually. These uses included: for-sale residential, rental apartment, office, hotel, retail and self-storage. This research provided the basis for a summary of market opportunities within the TRG.

Regional Overview

Washington, D.C., is a strong market that continues to experience significant growth. Given the presence of the federal government, the regional economy of Washington, D.C., is generally more resistant to economic downturns than the regional economies of other major metropolitan areas. However, most recent job growth is occurring in the private sector, in industries like Professional & Business Services and Education & Health Services. More recently, technology has emerged as a major driver in the local market, in part due to the presence of the Central Intelligence Agency, the Defense Department, and other federal agencies that award contracts for cybersecurity and cloud computing. Fifty-five of the world's 500 fastest-growing cybersecurity companies are based in the region, and Amazon is in the process of constructing its second headquarters at National Landing.

While the Washington, D.C., metropolitan area lost 199,000 jobs in 2020 as the local and national economies shut down during the COVID-19 pandemic, an economic recovery is well underway. The region added 59,000 jobs during 2021, and Moody's Analytics expects it to surpass pre-pandemic levels of employment during 2023.

Having said all of the above, the RCLCO Base Case (60% probability) assumes that increases in Federal Reserve's Funds Rate—coupled with elevated energy prices, lingering supply chain disruptions, and weaker global growth—will negatively impact the U.S. economy. U.S. GDP growth is likely to slow (0% to 2%) during 2022 and 2023 with a high likelihood of a shallow recession during that timeframe. However, it is important to note that redevelopment in the TRG is likely to occur over the long term, and not just the near term. Even in the case of immediate opportunities in the TRG, the markets for several favored asset classes (e.g., rental apartments, self- storage) are expected to remain relatively stable, and supportive of new development.

Submarket Context

Historically, many of the new technology and cybersecurity jobs in the region have concentrated along the Dulles Toll Road, resulting in rapid residential and commercial growth. Today, Fairfax County and adjacent Loudoun County are among the five wealthiest counties in the nation, highlighting their appeal to residents and employers. Along with the introduction of rapid transit via the Silver Line, growth along the Dulles Toll Road has spurred a significant amount of real estate development in this part of the region, which has transitioned from largely suburban in character to increasingly dynamic and mixed-use. Located near the TRG, Reston Town Center has historically served as one of the primary hubs for mixed-use development in Northern Virginia.

However, several other projects have emerged in recent years, attracting companies that have sought to locate in environments in which their employees can live, work, and play. Recent examples of these developments include One Loudoun in Ashburn, The Mosaic District in Fairfax, and The Boro in Tysons, which have provided a growing number of destinations for residents of Northern Virginia to congregate.

More recently, a number of similar projects have been planned or proposed along the Dulles Corridor, with the planned presense and now realization of the Silver Line extension. At this time, other multi-phase, mixed-use, and/or transit-oriented development projects include RTC Next, Reston Row, Halley Rise, Rivana, Loudoun Station, Innovation Station, and Waterside, all of which highlight the continued urbanization of the corridor. Although these projects are likely to make the submarket more attractive to users by adding to its amenity base, they also point to a competitive market environment.

Site Introduction

Home to 1980s and 1990s commercial properties, the TRG is an attractive location for redevelopment, considering the many changes in the surrounding market and the recent opening of the Herndon Metrorail station. The size of the TRG is another reason for its appeal; at approximately 120 acres, the TRG has the potential to emerge as a well-segmented and thoughtfully-designed neighborhood of its own, complementing—rather than competing with—others like Historic Downtown Herndon and Reston Town Center. Many different property owners exist in the TRG, and careful planning is necessary to ensure a common vision for growth in the area.

Such planning is also vital to focus efforts on markets that present opportunities in the TRG, which is likely to be especially important due to the changes happening in this part of Herndon at present time, notably redevlopment within the HTOC. Additional information on the opportunities and markets by land use is shown on the following pages.

Summary of Opportunity By Land Use

<u>Rental Housing</u>

Competition is increasing, but the TRG is very well-located for rental apartments, and this use is likely to act synergistically with others. While not widely present today, rental townhomes could be a similarly attractive use, which could mitigate some of the risk associated with apartments alone.

<u>For-Sale Housing</u>

There is growing demand for a range of housing options, and the TRG is likely to be an attractive location for households that value proximity to employment, transit, and other walkable neighborhood amenities.

<u>Office</u>

Demand is moderating, as the Washington market continues to mature, and as its office spaces grow more efficient. There is also a robust pipeline, and the TRG is not as well-located as other site to compete for corporate users, though there may be opportunities for smaller and/or creative ones.

Hotel

The Dulles Corridor is a large, but slow-growing hotel market. Although the COVID-19 pandemic hit the submarket hard, the TRG is likely to present attractive opportunities for additional hotel development when redevelopment begins to take place, and as the amenity base continues to grow.

Retail

The Dulles Corridor is home to a large and competitive retail market, and careful planning is necessary to ensure that development takes place in a way that is complementary of – rather than competitive with – Reston Town Center, Downtown Herndon, and other existing and future retail destinations.

Self Storage

The Dulles Corridor is an attractive location for self-storage, which is likely to see continued demand. However, the use should be limited to select sites that will not interfere with the creation of a streetscape, so as not to adversely impact opportunities for other uses.

Market Constraints and Opportunities

Overall, market demand within the TRG is expected to be strong. This is particularly true for residential and retail uses. While there is projected demand for office and full service hotel uses, that demand is likely to be less strong.

Table 1: Summary of Market Opportunities

		CUMULATIVE DEMAND IN TRG		LEVEL OF OPPORTUNITY IN TRG				
	DESCRIPTION	BY 2025	BY 2035	BY 2045	LOCATION APPEAL	CONCEPT FIT	LIKELY LAND ECONOMICS	SUPPLY / DEMAND BALANCE	MARKET OPPORTUNITY
RENTAL HOUSING		**610 Units**	**2,500 Units**	**4,540 Units**	STRONG	STRONG	STRONG	MODERATE	STRONG
Mid-Rise Apartments	Five to seven story community, with structured parking in a podium or wrap configuration	570 Units	2,280 Units	4,100 Units	MODERATE	STRONG	WEAK	MODERATE	MODERATE
High-Rise Apartments	10 or more story community, with underground and/or structured parking								
Rental Townhomes	Three-story rental townhomes, with one- or two-car attached garages	40 Units	220 Units	440 Units	STRONG	STRONG	MODERATE	STRONG	STRONG
FOR-SALE HOUSING		**260 Units**	**1,010 Units**	**1,640 Units**					
Townhomes	Three-story for-sale townhomes, with two-car attached garages	70 Units	290 Units	480 Units	STRONG	STRONG	STRONG	STRONG	STRONG
Two-Over-Twos	Two-story condos in four-story townhome structures, with one attached garage parking space	100 Units	370 Units	590 Units	STRONG	STRONG	STRONG	MODERATE	STRONG
Flats	Four- or five-story community, with attached parking on the ground level	90 Units	350 Units	570 Units	MODERATE	STRONG	MODERATE	STRONG	MODERATE / STRONG
HOSPITALITY		**310 Keys**	**320 Keys**	**340 Keys**					
Limited-Service Hotel	Four- to five-story hotel, likely upper midscale or upscale flag	310 Keys	320 Keys	340 Keys	STRONG	STRONG	MODERATE	MODERATE	MODERATE / STRONG
Full-Service Hotel	Five to 10 story hotel, with hotel restaurant, conferencing facilities, etc., upper upscale or luxury flag				WEAK	STRONG	WEAK	MODERATE	MODERATE / WEAK
OFFICE		**120,000 SF**	**811,000 SF**	**1,326,000 SF**					
Corporate Office	Office space suitable for a wide variety of financial, technology, or government users	91,000 SF	613,000 SF	1,002,000 SF	MODERATE	STRONG	MODERATE	WEAK	MODERATE
Creative Office	Space designed for smaller service-offering firms in industries such as architecture, design, etc.	29,000 SF	198,000 SF	324,000 SF	STRONG	STRONG	MODERATE	MODERATE	MODERATE / STRONG
RETAIL		**203,000 SF**	**267,000 SF**	**293,000 SF**					
Grocery & Drug	Boutique grocer, or a traditional one if a tenant can be attracted; potential for pharmacy as well	29,000 SF	51,000 SF	60,000 SF	STRONG	STRONG	MODERATE	MODERATE	MODERATE / STRONG
Restaurant	Mix of fast casual and sit-down restaurant concepts	83,000 SF	97,000 SF	105,000 SF	STRONG	STRONG	STRONG	STRONG	STRONG
Entertainment & Fitness	Mix of fitness concepts, as well as small-scale entertainment (e.g., breweries)	43,000 SF	51,000 SF	56,000 SF	MODERATE	STRONG	STRONG	STRONG	STRONG
Services	Basic household services, such as nail salons, barbershops, banks, etc.	31,000 SF	43,000 SF	47,000 SF	STRONG	STRONG	STRONG	STRONG	STRONG
Hard & Soft Goods	Primarily local boutique tenants, with a focus on locally crafted goods	22,000 SF	25,000 SF	25,000 SF	MODERATE	STRONG	STRONG	WEAK	MODERATE
OTHER		**N/A**	**29,000 SF**	**52,000 SF**					
Self-Storage	Facility offering a variety of storage unit sizes in a climate controlled environment	N/A	29,000 SF	52,000 SF	STRONG	WEAK	MODERATE	MODERATE	MODERATE

In order to establish a baseline understanding of existing utilities and storm water infrastructure, GIS data was used to map and study current conditions. When future development scenarios are proposed, computer modelling will be conducted to evaluate any necessary infrastructure changes or upgrades.

Water Distribution

The current water distribution system within the TRG consists of a watermains along Herndon Parkway tying into other mains along Spring St. and Van Buren St., which branches off of Herndon Pkwy to serve each individual parcel within the TRG.

The watermains along Herndon Pkwy, Spring St, and Van Buren St. shall remain as such, as long as future demands lie within existing service capacity. If future demands prove to be above capacity, then these water mains may need to be upsized. During the Visioning Stages, the various design scenarios will be evaluated to determine potential impacts to the water distribution system.

Water distribution networks within each parcel will likely need to be removed entirely and re-laid, depending on future layouts. For example, if a current industrial site with a large parking lot is redeveloped into a multifamily building with a garage, then a new waterline network will need to be designed to avoid conflicts with structures and other constraints.

Current per parcel density in the TRG is quite low. Redevelopment to higher densities, such as multifamily, will cause a significant increase in demands.

Ultimate development will also depend on the capacity of the existing system, which will need to be coordinated with the Town. There may be a need for system capacity increases to handle future development

Once future development scenarios are established during the Visioning phase, accurate water demands will be inputted into the Town's water model. These analyses will determine which watermains will needrequire upsizing. They will also determine sizing of branches lines serving each parcel.

Sanitary Sewer

The existing sewer system consists of a collection mains that cross Herndon Pkwy. and Spring St. These sewers drain offsite residential areas as well as parcels within the TRG.

Due to currently proposed redevelopment in the HTOC and on the Fairbrook site, the sanitary sewer trunk line in the Herndon Parkway needs to be upgraded. The final TRG SAP will provide additional density calculations that will indicate what the ultimate size of the trunk line should be.

As current uses within the TRG have low densities overall, redevelopment to higher density uses, such as multifamily, would cause a significant increase in sewage flows. Onsite local collector sewers on each parcel will need to be realigned to work with the future development layout.

Ultimate development will also depend on the capacity of the existing system, which will need to be coordinated with the Town. Potential for system capacity increases to handle future development may be available.

Once future development scenarios are finalized, accurate sewage demands will be entered into the Town's sewer system model. These analyses will determine which sewer mains will need upsizing and the ultimate size of the trunk line. The sewer model will also determine sizing of branches serving each parcel

Storm Sewer

The existing storm sewer system consists of each parcel within the TRG collecting stormwater and discharging directly into the floodplain or larger storm sewers within the TRG and ultimately discharging into the floodplain around Sugarland run. There may be a few small runs of storm sewer that also drain offsite parcels, but on a much smaller scale compared to how current water and sewer systems are serving offsite parcels.

Since the parcels within the TRG are mainly nonresidential, they are already mostly impervious. This means that future development will not have to worry as much about impacts on downstream capacity. Redevelopment from industrial or commercial sites to multifamily or mixed-use development does not usually result in an increase in impervious area and thus stormwater runoff. Any redevelopment should strive to provide an increase in pervious areas or small LID measures to avoid an increase in runoff.

As with the water distribution and sanitary sewer systems, onsite storm sewer systems will likely have to be removed and redesigned to align with the future development. Some of the larger collection storm drains can potentially remain as is.

Due to proximity to the major floodplain around Sugarland run, there will likely not be a need to detain stormwater. Adequate outfall may be achievable without any new stormwater management facilities.

Stormwater quality improvements however will be required as a best management practice, even if the overall impervious area does not increase. This shall be coordinated with the Town of Herndon. Any stormwater quality measures shall be included within each parcel, (green infrastructure incorporated into buildings, storm filters, tree box filters, hydrodynamic separators, urban bioretention basins, etc...). Water quality credit purchase, which is discouraged by the Town, is also an option, and shall be coordinated with the Town.

Constraints & Opportunities

For each of these three systems - water distribution, sanitary sewer and storm water sewer - much of the large scale infrastructure will likely be able to stay in place, depending on future densities, but onsite infrastructure will need to be replaced in the event of future development.

In order to plan for any proposed redevelopment, a study of existing traffic conditions in and around the TRG was conducted and input into a computer model. Using a microscopic simulation model (VISSIM), future traffic conditions were simulated under a “no-build” scenario for the year 2045. During the design phase, three possible redevelopment schemes will be considered. Each of these scenarios will be modeled and evaluated against the “no-build” 2045 baseline in order to inform design decision-making.

Baseline Traffic Data

Eleven intersections in and around the TRG were studied to form the basis for existing and future modeling. These intersections were studied at both morning and evening traffic peaks. Rather than using the most current 2022 traffic count data, data from an earlier 2017 TRG traffic study were used. This was done to avoid data aberrations caused by the COVID-19 pandemic. Signal timing and phasing from 2022, however, were assumed in order to more accurately model future conditions. For the “no-build” scenario, the full redevelopment of the HTOC is assumed as well as a 1% annual background growth rate.

Existing Traffic Conditions

A microsimulation traffic model was utilized to estimate the operating conditions of the existing transportation system. Existing conditions traffic were found to operate acceptably. Traffic performance was measured using Level of Service (LOS) metrics, which measure the adequacy of intersection performance given traffic volumes. Levels of service range from A (free-flow) to F (forced traffic flow). In Herndon and the greater Northern Virginia area, LOS D is common and generally considered acceptable during the peak hours. Fairfax County’s adopted LOS standard for some roadway classifications in the Tyson Corner Urban Center Plan is LOS E. This standard has been adopted to balance walkability, cycling, transit and other alternative modes of transportation with motor vehicles.

At the studied intersections, the traffic model estimates that all signalized intersections operate at LOS D or better. While the Van Buren Street / Alabama Drive all-way stop-control intersection operates at LOS E during the PM peak, a traffic signal is under construction at this intersection and is expected to facilitate flow.

As seen in the traffic model results, the transportation system is able to accommodate the current traffic demand and facilitate vehicular movement throughout the Town. Additionally, roadway improvement projects are under construction or planned in the near future at Van Buren Street / Alabama Drive, Van Buren Street / Herndon Parkway, and Spring Street / Herndon Parkway. These projects will help improve conditions at the areas with the highest levels of congestion in existing conditions.

No-Build 2045 Traffic Conditions

As described above, the “no-build” 2045 scenario assumes the full allowable development of the HTOC and an annual 1% traffic volume growth rate. The model combines 2017 traffic count data with 2022 traffic signal timing and phasing. The model also accounts for the Metro Square development, which was constructed after the 2017 data was collected. Ongoing and approved roadway network improvements which are expected to affect the TRG are assumed to be active (for a full list of projects, refer to attached report).

In No Build 2045 conditions, with significantly higher traffic volumes but also improved roadway configurations, the transportation network within the study area will likely be able to adequately accommodate the increased demand. All study intersections are projected to operate at LOS D or better in both peak hours, except for the Spring Street / Herndon Parkway and Herdon Parkway / Van Buren intersections, which are anticipated to operate at LOS E in the PM peak hour. While LOS E does represent increased delay, many intersections in the Northern Virginia area operate at this condition during a peak hour.

The Herndon Parkway corridor is anticipated to accommodate the projected 2045 volume demand (without TRG redevelopment) and the system appears to have surplus capacity to handle additional demand, whether from TRG redevelopment or elsewhere. The most constrained locations within the study area system are at the two ends of Herndon Parkway – Van Buren Street and Spring Street. In the modeled No Build condition, the Worldgate Drive extension offers the only additional access to the corridor beyond these two “bookend” intersections.

Constraints & Opportunities

While the existing road network is predicted to have surplus capacity under the “no build” scenario, modelling of each of the TRG design proposals will be required to confirm acceptable performance.

KEY CONSTRAINTS

Site

- Multiple property ownership across the site, particularly at the lots controlled by condos, will likely require complex stakeholder consensus building.
- The lack of a circulation network or mobility grid connecting the parcels, as well as the existing grade changes and other man-made features which prevent cross-parcel connectivity
- The Dominion power easement bisects the 5-minute Metro walk zone, which constrains urban block design as well as building placement and orientation.
- The low density, low height residential neighborhood to one side of the TRG, and the high-rise, high density development planned on the other characterize the clearly defined, and contrasting boundaries of the site. The TRG development should strive to reconcile both conditions

Market Conditions

- Long-term demand for corporate office space, which currently occupies a significant portion of the TRG, is likely to be moderate.
- Demand for full service hotels is likely to be moderate / weak.

Utilities & Storm Water

- Likely all onsite utilities (excluding those on the main trunk) will need to be replaced to accomodate future development. Offsite upgrades may be needed depending on the changes in densities.

Traffic Conditions

- The two “bookend” intersections in the TRG (Herndon Pkwy. / Spring St. & Herndon Pkwy. / Van Buren St.) likely pose the biggest constraints in addition to excessive queuing conditions along Van Buren Street.
- While the existing road network is predicted to have surplus capacity under the “no build” scenario, modelling of TRG design proposals will be required to confirm acceptable performance.

KEY OPPORTUNITIES

Site

- Many buildings are dated and due for refurbishment or redevelopment
- There is the opportunity to enhance Sunset Business Park: while the myriad of businesses, shops and restaurants in this area are an asset to the TRG and a local destination, the complex currently lacks a holistic sense of place
- Approximately half of the TRG (excluding the Fairbrook parcels) is a 5 to 10-min walk from Metro and has only four owners, as compared to 90 owners throughout the rest of the site.
- The SAP controls both sides of the Herndon Parkway from the edge of the Fairbrook site to Spring Street, bringing the opportunity of designing the street character at that segment of the Parkway.

Market Conditions

- Overall, there is strong market opportunity for the following uses: rental residential; for-sale residential; creative / smaller office; and retail, particularly services

Utilities & Storm Water

- The main “trunk” utility lines are well located and can likely remain in place, although the sanitary trunk line is slated to be unsized. (Future study and evaluation of proposed scenarios will need to be conducted to verify whether or not additional service upgrades will be required.)

Traffic Conditions

- Because the existing roadway network is likely sufficient to accommodate future development, there is the opportunity to add density within the TRG. (Further study is required to confirm this)
- Additional roads and improved route options could improve traffic conditions for all users.

II. PROJECT GOALS

When the TRG study began, a set of seven goals were described. These goals were set forth as merely a starting point to trigger ideas at the upcoming goal setting work sessions with the Town and Advisory Committee during the Visioning stage.

Using the knowledge that has been accumulated to date - the community engagement, meetings with Town officials, and the site, market, traffic and utilities analyses - we have developed and elucidated those original goals.

This work will inform progress in the upcoming meetings and the work in all future phases.

1. Define a Vision that is regionally complementary and differentiated

Herndon lies next to Reston, but it is not Reston – this is a common and emphasized sentiment heard during the data gathering phase. Residents are proud of their small town feel, and although they would like to see a mix of uses and amenities, they would rather not see Herndon become another Reston. Perhaps Reston could remain as the regional retail destination that it presently is, whereas Herndon could grow more in a neighborhood-serving way, complimentary to its surrounding assets.

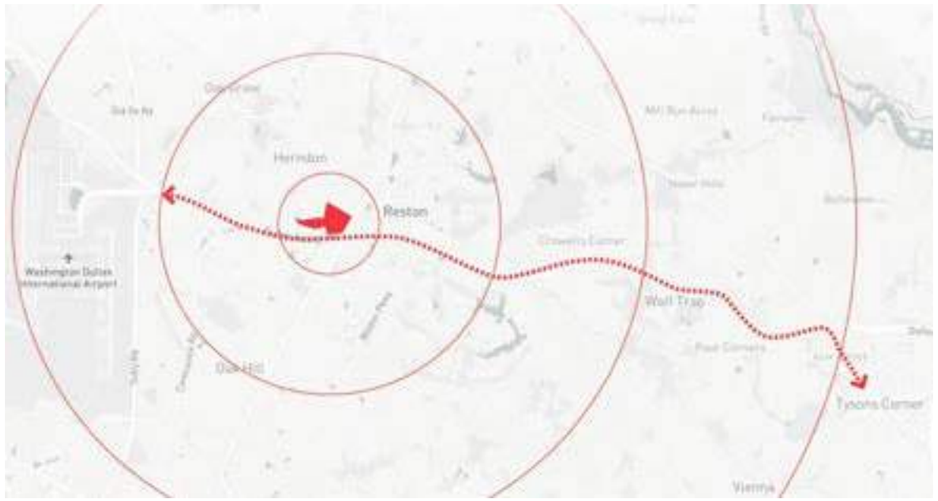


Fig. 4: Site Context

2. Plan for the right density, in the right places

The TRG has the opportunity for a varied range of uses, density and character throughout the site. The 5-10-min. Metro walk zone frontage is right across the street from the planned HTOC high-rise developments, whereas the site's northern edge borders a low density single family home neighborhood. About a third of the TRG site lies beyond the 10-min. Metro walk zone. The only natural resource and potential parklike amenity follows the Sugarland Run and borders Sunset Business Park and Fairbrook. All these diverse features call for different types of density, in the right places.

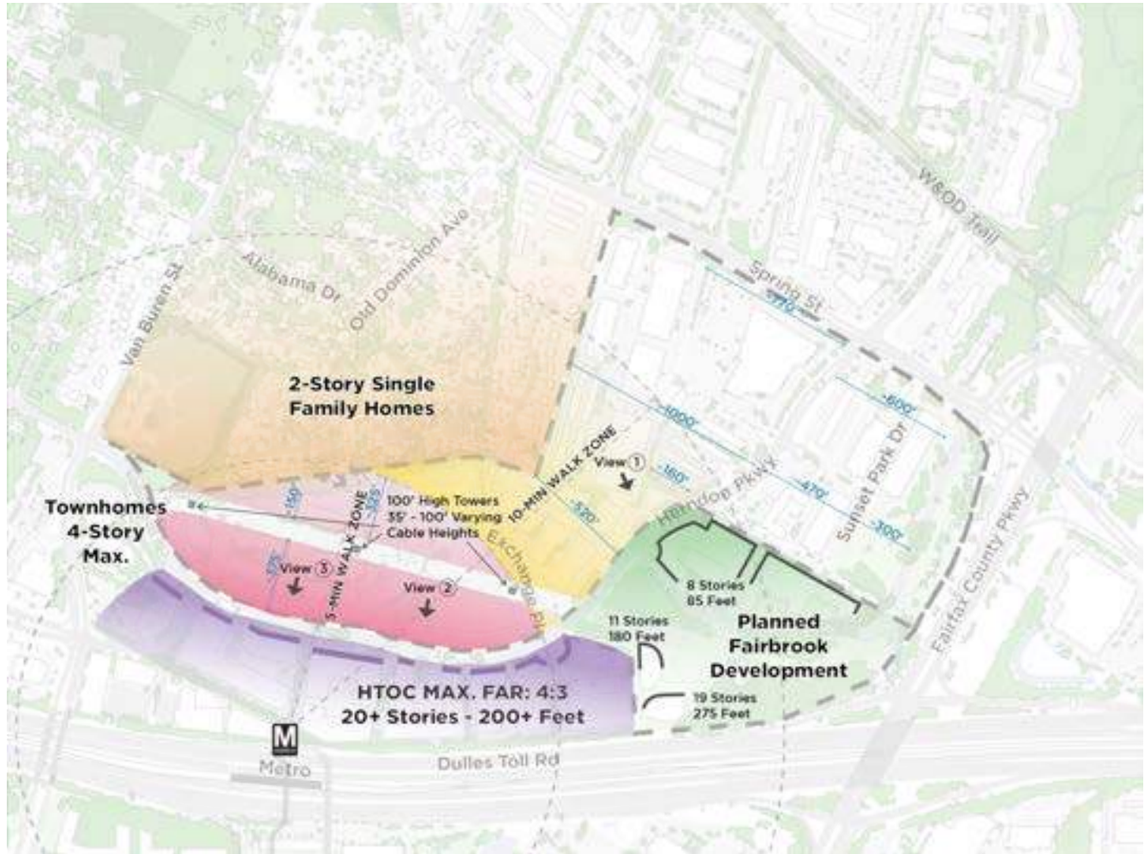


Fig. 5: The Opportunity

3. Define a character that is unique to Herndon

What will be the character of the TRG? Will it emulate other "small town" areas of Herndon? Will it feel vibrant with a mix of new local destinations? Will it be green and airy? Like density, character will likely vary throughout the TRG. Possibilities will be studied during the Visioning session, while focusing on:

- Exploring the right scale to implement future density
- Complementing and enhancing Herndon's small-town character
- Establishing transitions to the HTOC, adjacent neighborhoods, and central Herndon
- Setting character expectations that can be communicated to developers

4. Grow a live-work-ride-play community

The SAP could aim to study and organize the varying density and character features throughout the TRG into sub-areas with differentiated predominant uses and densities, like neighborhoods within the larger TRG, resulting in a self-sustaining community where residents meet all, or most of their needs, within a short distance. Towards this end, the SAP should study:

- Embracing a mixed-use future, anchored with multi-family housing with a wide range of affordability
- Planning for the lifestyles of future residents
- The role of destination unique uses, like some of the Sunset Park businesses
- Activating the community by centering neighborhood-serving retail

5. Connect redevelopment through interstitial mobility

The TRG site lacks existing cross-parcel connectivity, purposely done as individual property owners followed their own business interests in the absence of a master plan. Many of these parcels have barriers consisting of grade separation or landscaped buffers that prevent cross-parcel mobility. The SAP should seek to revert this, and create a plan with some type of unified element of mobility, that fosters pedestrian, bicycle and auto connectivity throughout the TRG, rather than concentrating all circulation and access on the Herndon Parkway. This will be a challenge due to the individual property ownerships, but should nonetheless be explored, striving for an outcome that will benefit the owners as much as the community. Some strategies to be explored include:

- Augmenting existing investments in trails, cycle tracks, and the vehicular network
- Integrating connections to Metro, Sugarland Run Trail Park and the W&OD Trail
- Creating a porous development that encourages walking and next-gen personalized mobility
- Establishing an appropriate relationship with surrounding residential neighborhoods

6. Leverage landscape as a driver of identity

Greenery, open space and parkland is a major characteristic of the Town of Herndon. The TRG site area is largely impervious surface, and the added density will need additional stormwater management, which presents an opportunity to revert paved areas to greenery, double-acting as utility and amenity. Some strategies to explore are:

- Integrating and elevating Sugarland Run as a placemaking asset
- Drawing inspiration from the only natural resource on the TRG, Sugarland Run, to grow a network of naturally-connected open spaces
- Imagining redevelopment that is green and environmentally performative
- Affirming a commitment to sustainability as an expectation for developers

7. Create a catalyst for transformational change over time

The TRG has immense potential for transformation, while capitalizing on its current assets. Another resonant comment from the public is the need for change on the TRG: from parking lots to vibrant places, from office buildings to mix of uses, from car-centric to pedestrian-friendly. We also heard about the love for Sunset Park businesses, however, more so for the businesses themselves than for the place they sit on. The SAP should study and explore:

- Transforming areas and "making places" integrating existing assets, and complementing them with new uses or amenities
- Ways in which major constraints could present catalytic opportunities (like turning an easements into a connecting park
- Phasing where the initial development is positioned to eagerly trigger subsequent phases.

III. APPENDIX

i. Inception Report

ii. Site Conditions Analysis Report

iii. Market Report

iv. Transportation Report

v. Utilities & Storm Water Analysis Report

TRG
TRANSIT - RELATED GROWTH AREA

TOWN OF Herndon

SOM

PHASE I INCEPTION & ENGAGEMENT SUMMARY REPORT

TOWN OF HERNDON TRANSIT-RELATED SMALL AREA PLAN
SEPTEMBER 2022

TOWN OF HERNDON TRANSIT RELATED SMALL AREA PLAN

PHASE I INCEPTION & ENGAGEMENT SUMMARY REPORT

SECTION 1

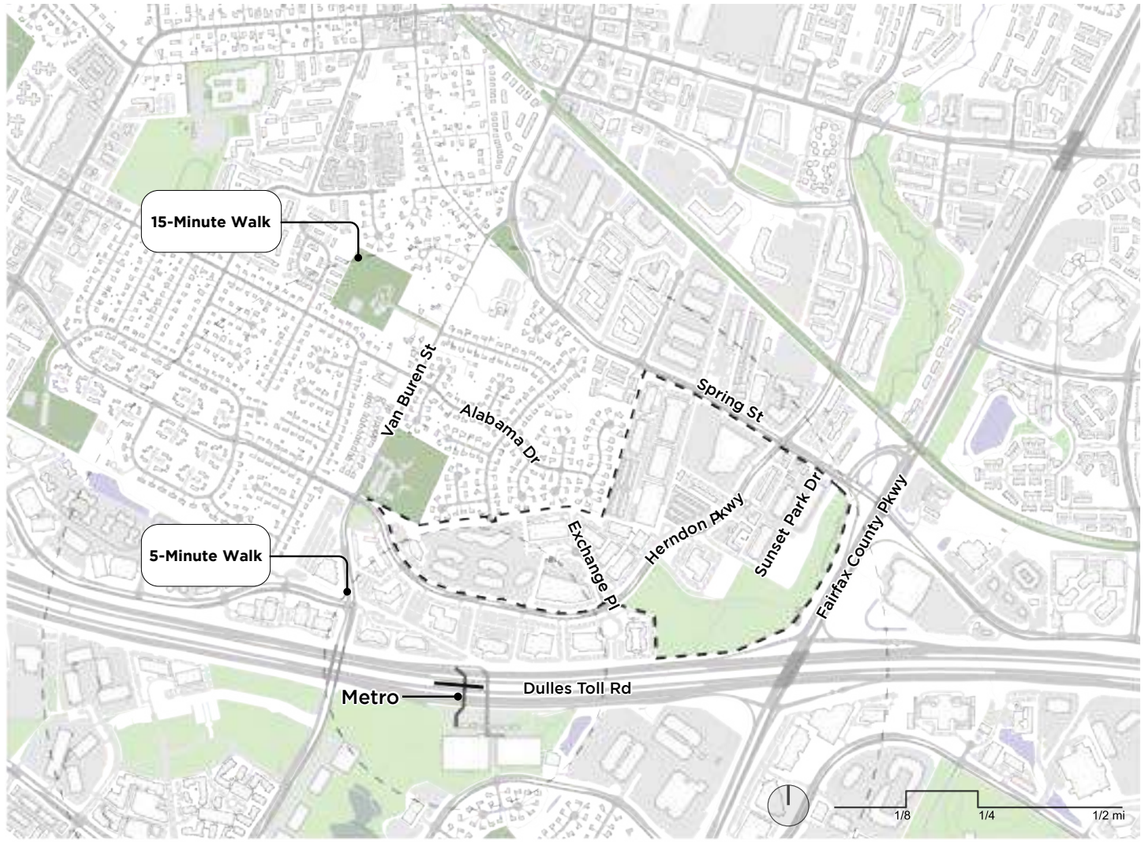
PROJECT OVERVIEW

INTRODUCTION

Skidmore, Owings & Merrill (SOM) was retained as the lead consultant by the Town of Herndon to assist them with the development of a Small Area Plan to guide redevelopment of approximately 94 acres of land in the Transit-Related Growth Area (TRG).

This Phase I Inception and Engagement Summary Report summarizes SOM's understanding of the project, including team structure and project approach. We have identified key subconsultant staff by phase and deliverable. Further, the report summarizes early perceptions and findings from background research and engagement with project stakeholders.

PROJECT UNDERSTANDING



The Silver Line extension is expected to arrive at Herndon Station in 2022. The arrival of metro and the transformation of currently low-density parcels within the Herndon Transit-Oriented Core (HTOC) and the TRG is expected to establish a new 15-minute city surrounding the Metro station. The TRG consists of 25 parcels of privately owned land immediately between Herndon Parkway, the Dulles Toll Road, Fairfax County Parkway, Spring Street, and adjacent residential neighborhoods.

The Small Area Plan will expand transit-oriented development and recognition of the Herndon Metrorail Station as an important gateway and element within the town.

The redevelopment of the TRG will be essential to realizing the 15-minute city around the Metro Station, and achieving a vision of interconnected urbanism linking Metro, central Herndon, and Reston Town Center. The Plan is focused on envisioning a new well-designed, viable, and vibrant mixed-use district which provides housing, goods and services, and office uses.

The Plan will address future land use, transportation and connectivity, open spaces, social, economic, and environmental sustainability, building character, and implementation, & is intended to guide public & private investment within the plan area.

Execution of the Small Area Plan is expected to take approximately 18 months.

PROJECT UNDERSTANDING

As the Lead Consultant, SOM will lead the project and our expertise will be supplemented by RCLCO, Urban, VHB, and Dharam as sub-consultants.

In order to engage the community, develop a vision, build political support, and establish an approved redevelopment process, this planning process will:

- Create a detailed framework plan for the streets, blocks, parcels, and open spaces within the TRG
- Address critical issues whose integrated resolution will shape the plan framework: its land uses, transportation, open spaces, and its infrastructure, including specific hot-button issues such as infrastructure and transportation capacity
- Engage myriad stakeholders, including the Advisory Committee, property owners, the general public, the Technical Committee, and the Town of Herndon Planning Commission and Town Council
- Establish goals related to Placemaking, Connectivity + Infrastructure, Density + Land Use, and Housing
- Develop a market-derived strategy for land use and density
- Explore three concept options for the vision, leading to the winnowing and advancement of a preferred direction as the basis for the area plan
- Define the overall look and feel of the place, including its building character and design aesthetic
- Establish a timeline and process to facilitate the transfer of privately-developed office and flex space parcels to new uses consistent with the vision
- Create a guide for public and private investment within the area
- Produce materials that make the case for the new vision, and encourage redevelopment and public support

PROJECT UNDERSTANDING

In order, to successfully complete this planning process, we will work in four stages:

1. Information Gathering
2. Exploration and Analysis
3. Visioning
4. Development of the Preferred Concept and Finalization

These stages will include other analysis and studies like the market study, site conditions analysis, infrastructure analysis and development and charretting of three urban design alternatives before finalizing a preferred option.

As of September 14, 2022, there are no proposed changes to the agreed proposal related to team structure, project approach, and objectives.
Project understanding by all sub-consultants as well as tasks they will be undertaking has been presented in the following section.

CONSULTANT SCOPE - VHB

Stage 1: Information Gathering

5.2(a) Background Information and Introduction
The Consultant will submit an Inception and Background Report to the Staff. The report will confirm and/or propose the following:
Confirmation of the RK&K existing condition analysis for intersections described under 5.3(b) Exploration and Analysis, Task 2 Traffic Analysis, and preparation of SYNCHRO and VISSIM models to test potential future scenarios.

VHB has reviewed the 2017 existing conditions traffic model performed by RK&K and has confirmed sufficiency to serve as the base model for the TRG modeling. VHB will update any signal timings that have been modified since 2017 as well as incorporate traffic volumes from the 2-over-2 units in the HTOC.

5.3 Exploration and Analysis Phase

5.3(c) Infrastructure Capacity
Task 1 Future Condition Transportation Modeling
Employing the peak hour traffic counts obtained by RK&K in May 2017, to avoid COVID related diminution of peak hour traffic, the Consultant will conduct traffic modeling and analyses (VISSIM and SYNCHRO) of potential development scenarios to assess potential impacts of land use and transportation improvements at intersections, as well as segments along the Herndon Parkway, Spring Street and Van Buren Street. The intersections to be studied are:

- Elden Street/Monroe Street
- Elden Street/Van Buren Street
- Van Buren Street/Spring Street
- Van Buren/Herndon Parkway with scheduled roadway improvements
- Van Buren Street/Alabama Drive with scheduled roadway improvements
- Van Buren Street/Worldgate Drive
- Herndon Parkway/Driveway (Future Worldgate Drive)
- Herndon Parkway/Exchange Place
- Herndon Parkway/Fairbrook Drive
- Spring Street/Herndon Parkway with scheduled roadway improvements
- Spring Street/Fairfax County Parkway ramps
- Potential future condition – Fairbrook extension and Spring Street/Fairfax Parkway
- Potential future condition – Worldgate Drive extension and Herndon Parkway.

VHB will conduct a VISSIM analysis for future-year development scenarios at the 14 study intersections listed above based on the following assumptions:

- Modeling will be conducted for a single horizon year and for two time periods (assumed to be AM peak and PM peak). As decided on a call with the Town on September 12, 2022, modeling will be conducted using a single horizon year of 2045.
- Scenarios to be modeled will include the following:
- Existing (2017 traffic volumes with 2022 signal timings)

CONSULTANT SCOPE - VHB

- VHB will utilize the most recently updated VISSIM model as the base model file. To VHB's current understanding, this is RK&K's 2017 VISSIM model from the original TRG modeling effort.
- VHB will use 2017 count data collected by RK&K; note that VDOT may not accept this data as valid (during any future review) given that it is more than three years old – this policy has been situationally relaxed due to the Covid-19 impacts on traffic volumes; however, VDOT's acceptance of the data in this situation is unknown since they are not a stakeholder and there is no VDOT pre-scoping meeting.
- VHB will verify that the base VISSIM model includes all RFP study intersections, and, if needed, expand the model to include any missing ones. VHB will verify that the model is error-free in the newer VISSIM software version utilized in this analysis. VHB will also verify/update the signal timings to match current field conditions.
- The Town of Herndon will provide VHB Synchro files and/or signal timing plans that reflect the current timings present in the field (if they have been updated since the 2017 modeling effort).
- Future Year No Build scenario (traffic volumes grown to horizon year + transportation projects that will be completed by the horizon year)
- VHB will work with SOM and Town staff to confirm acceptable background growth rates for both HTOC and non-HTOC projects. VHB will evaluate a 1% growth rate and compare to the future traffic volumes estimated by the MWCOG Model and will develop a recommendation for background growth.
- Three (3) Build scenarios without mitigation. VHB will workshop these scenarios with SOM and Town staff to include density levels, land use composition, density distribution across the TRG, and new roadways.
- VHB will work with the Town of Herndon to confirm the approach to trip generation, which will be developed using state of the practice methods and will be based on the ITE Trip Generation Manual (as decided on a call with the Town on September 12, 2022).
- The same three (3) Build scenarios, but with the addition of the Fairbrook Drive extension.
- VHB will model Fairbrook Road extension with a two-lane cross-section and no interchange with the Dulles Toll Road (as decided on a call with the Town on September 12, 2022). The modifications to the Fairfax County Parkway interchange at Spring Street likely will be included pending confirmation of timeline by the County.
- Three (3) Build Scenarios with transportation mitigation (infrastructure and/or policy). VHB will work with SOM and Town staff to determine which three (3) Build Scenarios to use for the mitigation scenario modeling, including whether any or all should include the Fairbrook Drive extension.
- One (1) subsequent iteration sequence for each of the three (3) mitigated Build scenarios as part of the reiterative process.

CONSULTANT SCOPE - VHB

The Consultant, with assistance from Staff, will determine appropriate background growth for future conditions to ensure that recent development and land use mixes within the HTOC and Fairbrook are accounted for, but that floor area is not duplicated through use of the MWCOG model. Simulation models will be established and used to understand the effect of various levels of development and its distribution on the surrounding road network and at the above listed intersections and key segments.

- As stated previously, VHB will work with SOM and Town staff to confirm acceptable background growth rates for both HTOC and non-HTOC projects. VHB will evaluate a 1% growth rate and compare to the future traffic volumes estimated by the MWCOG Model and will develop a recommendation for background growth. VHB will also work with the Town of Herndon to confirm the approach to trip generation, which will be developed using state of the practice methods and will be based on the ITE Trip Generation Manual
- In determining background growth for future conditions, VHB will seek to ensure the methodology is robust, defensible, and based on best practices; however, it may not be possible to isolate project-specific background volumes within the MWCOG or Fairfax County models as suggested in the RFP scope language above.

The work of the Consultant is to determine current conditions, and test potential future conditions based upon various levels of additional density within the TRG. The Consultant, with assistance from Staff, will identify measures to offset the effects of density and improve transportation efficiency and safety. Future scenarios should use best practices to ensure that the inclusion and safety of all transportation modes. While not included in the modeling, consideration to the future impact of driverless vehicles and droids should be considered and supplement the final report. A reiterative process is anticipated as scenarios and options are tested. Some aspects to be considered within the modeling and included within the findings are:

- Level of Service at intersections.
- Operations along segments.
- Future development scenarios with and without the Fairbrook extension to the Fairfax Parkway ramps.
- Potential roadway and block formations within the TRG.
- Alternative use mixes within the TRG.
- Distribution of future density across the TRG.
- Potential physical roadway alterations to address capacity concerns.
- Potential policy changes to address capacity concerns.

As discussed during the September 12, 2022, meeting with the Town, the Town does not intend to submit a VDOT Small Area Plan with a comprehensive Chapter 527 Traffic Study. As such, VHB does not intend to engage VDOT as a stakeholder in the study process and there will be no VDOT pre-scoping meeting. VHB will identify whether the proposed TRG development scenarios generate an additional 5,000 daily vehicle trips on state roadways (in comparison to the existing Comprehensive Plan). If this threshold is met, the Town will need to submit a Comprehensive Plan

CONSULTANT SCOPE - VHB

Amendment package to VDOT. Separately, if the TRG recommendations result in a need for the Town to update their Transportation Plan, then the Town will need to submit to VDOT per the Chapter 729 process. In either VDOT submittal scenario, VHB's traffic study would be attached to the package as a local impact assessment; however, VHB does not plan for any coordination activities with VDOT.

Meetings:

- The Consultant and Staff will meet (video conference) with a representative of RK&K to discuss past modeling efforts and delivery of data.
- The Consultant and Staff will meet (video conference) to discuss the draft memorandum and findings prior to finalization of the memorandum.
- The Staff will be available throughout the reiterative process as questions arise and findings are determined.

Deliverables:

- During the reiterative process, the Consultant will provide Staff with likely density and use scenarios for use by the town's water and wastewater consultant to assess water and sewer impacts.
- One (1) electronic copy of a draft memorandum prepared by the Consultant including data and findings, with a summary of potential successful density ranges and distribution and possible roadway improvement or policy changes to provide a transportation system able to facilitate redevelopment within the TRG.
- VHB will document transportation analysis findings in a technical memo that includes summary tables and simple graphics.
- One (1) electronic copy of the final memorandum prepared by the Consultant including data and findings, with a summary of potential successful density ranges and distribution and possible roadway improvement or policy changes to provide a transportation system able to facilitate redevelopment within the TRG.

5.3(d) Constraints and Opportunities Report

- VHB will provide mobility-related inputs – such as summary narrative, simple graphics, and summary tables – to the Constraints and Opportunities Report in coordination with SOM.

5.3(e) Directions and Goals

- VHB will attend and provide materials, such as simple graphics and summary tables, in support of one (1) meeting with the Advisory Committee and one (1) meeting with the Planning Commission & Town Council.

5.4 Visioning

- VHB will support SOM in ideation and refinement of mobility-related elements of the conceptual framework plans.

5.5 Final Report/Plan Document

- VHB will attend and provide materials, such as simple graphics and summary tables, in support of one (1) meeting with the Planning Commission and one (1) meeting with the Town Council.

CONSULTANT SCOPE - RCLCO

The primary goals of the Market Analysis will demonstrate the market opportunity for new real estate development in the TRG, identify the highest and best uses and likely density of development in the TRG, and prepare a fiscal impact analysis that highlights its collective revenues and costs to the Town of Herndon.

As outlined in the RFP, this analysis will focus on the following potential land uses:

- For-sale residential, including townhomes and condominiums;
- Rental residential, including multifamily apartments and build-for-rent ("BFR") townhomes;
- Office
- Retail;
- Hotel; and
- Self-storage

The analysis will be designed to respond to the following key questions:

- Who are the logical target market audiences for various residential and commercial land uses in the TRG?
- What is the potential depth of market demand for various potential residential and commercial land uses over the next 10 to 20 years?
- What impact will the introduction of transit and any other planned improvements have on the evolution of the submarket and the trajectory for each land use in the TRG?
- At a high level, what revenue assumptions (sales prices, rents, lease rates, etc) are achievable given supply/demand conditions?
- Based on the above, what development program and phasing represents the highest and best use of the site?
- What revenues will the above development program generate to the Town of Herndon, and what expenditures must the Town incur in order to serve it?

Scope of Work

The analytical tasks leading to the fulfillment of the above objectives are outlined below.

I - Market Analysis

1. Kick-Off Meeting: Conduct a video conference call with the client and relevant project team members to review and refine the assignment objectives and our approach and to obtain a complete debriefing from the client about the project and any relevant information from prior work completed relative to the assignment.
2. Regional Socioeconomic Analysis: Determine the regional economic development context influencing future development in the region, and in the TRG specifically. Describe future growth patterns in the area through an analysis of key socio-economic and demographic statistics pertaining to future demand for different product types. Comment on the reasonableness of available population and employment projections, and offer alternative projections if appropriate. This should include but not be limited to:
    - Employment trends;
    - Population and household growth trends;
    - Household distribution by age, income, and type;
    - Retail expenditures;
    - Land use (historical and projected) trends;
    - Tenure; and
    - Geographic distribution of the above within the environs, MSA, and region.

3. Competitive Supply Analysis. For each of the selected product types (as detailed in the Assignment Background and Objectives section), investigate existing, planned, and proposed properties that are likely to compete with the TRG, focusing on the most relevant properties to understand competitive market conditions.
    - Define the appropriate competitive market area(s) for each of the above product types at the subject property. Evaluate historical performance indicators of supply/demand in this area relative to the broader market.
    - Survey competitive properties for total square feet and/or units, year built, location, rents/prices, occupancy, and product type.
    - Identify potential future supply, including projects under construction, which would be likely to compete with the TRG in terms of location, timing, or positioning. Examine the impact of this new product on the local market and the opportunities in the TRG.

4. Demand Forecast and Market Outlook: Develop market forecasts for future demand by land use in the TRG over the next 10 to 15 years, in light of regional growth projections, the absorption history of recently built projects, and planned additions to the supply.
    - Define the appropriate primary market area ("PMA") for each of the selected product types in the TRG.
    - For each land use, construct a detailed statistical model to calculate the demand potential in the PMA using relevant economic, demographic, and preference/behavior data compared against recent absorption trends.
    - Compare and contrast the TRG's locational strengths versus existing and planned developments in the immediate region. Estimate the relationship and the magnitude of demand that the TRG might capture at various rent levels and price points.
    - For each of the residential product types, summarize demand in the TRG by rent level and/or price point, to demonstrate the socio-economic groups likely to be attracted to it.
    - Synthesize this information to inform a series of recommendations regarding the future market trajectory, and the depth of support for the selected product types in the TRG.

5. Summary of Market Opportunity: Incorporate the above information into a market opportunity matrix that provides the supportable scale of development

CONSULTANT SCOPE - RCLCO

(units/SF) for each land use in the TRG, and assess the relative supply, demand, and site opportunity for each product type. For each product type, the matrix will include:

- Rental Apartments / Rental Townhomes: Total units supported in the near-term, mid-term, and long-term; likely density or construction type during those time frames; and absorption pace
- For-Sale Condominiums / For-Sale Townhomes: Total units supported in the near-term, mid-term, and long-term; likely density or construction type during those time frames; and sales pace
- Office: Total square feet supported in the near-term, mid-term, and long-term; and projected absorption timeline
- Retail: Total square feet supported by concept (e.g., grocery, restaurants, hard goods, soft goods, etc.) in the near-term, mid-term, and long-term; and projected absorption timeline
- Hospitality: Supportable hotel keys in the near-term, mid-term, and long-term; and likely chain scale and/or level of service
- Self-Storage: Supportable square feet or mix of units in the near-term, mid-term, and long-term; and projected absorption timeline
- As part of this analysis, RCLCO will also consider how infrastructure needs are likely to impact the market opportunity and likelihood of redevelopment, and provide a high-level recommendation as to whether cost-sharing is feasible.

6. Program Recommendations and Phasing Timeline: Identify the most viable development concepts to pursue in the TRG, and prepare a development program that best responds to the site constraints and market opportunity based on the above opportunity matrix, including:
   - The appropriate types and mix of development products by square feet, density, and land area consumed;
   - Recommendations as to the target market audiences for each land use; and
   - An absorption and phasing timeline.

II - Fiscal Impact Analysis

1. Review Budget: Review the Adopted FY 2023 Budget, analyzing the tax structure for the Town of Herndon and examining the rates that pertain to the development program for the TRG.

2. Fiscal Impact Model: Develop a fiscal impact model to project the revenues that the TRG would generate to the Town of Herndon under the program and phasing timeline identified in the above Market Analysis, as well as the expenditures that would be required to support the above. Key steps include the following:
   - Estimate other assumptions that may be needed to project revenues and expenditures from development in the TRG.
   - Determine, on a year-by-year basis for the next 20 years, the town revenues

that would be generated by the development.
   - Estimate the town operating expenditures that would be required to support the development, based on analysis of the budget and RCLCO's fiscal impact experience.
   - Calculate the projected net fiscal impact of the development to the Town of Herndon annually over the next 20 years.

Deliverables and Meetings

1. Draft Memorandum: Prepare a brief, executive report that summarizes our key findings, conclusions, and recommendations. Additional supporting data and materials will be included in the form of an exhibit package.

2. Working Session: Conduct a working session via video conference call, at which time we will present our key findings, conclusions and recommendations. The goal of this work session will be to share these findings, and to gather feedback from the project team and/or Town staff on the recommended program and phasing timeline for the TRG.

3. Final Memorandum: Make any necessary edits to the Draft Memorandum, based on feedback gathered after its distribution or during the working session.

CONSULTANT SCOPE - URBAN

Through the 5.3.(c) Infrastructure Capacity analysis and more specifically Task 2 (Utilities), Urban shall work with the project team and the Town of Herndon to provide input on the written report for portions that relate to the water and sewer infrastructure components. Urban shall utilize utility data from the Town (pipe sizes, flows, etc.). The report will include exhibits and narratives identifying constraints and opportunities for the Town to consider, given the development scenarios. Urban shall prepare a draft and then a final report for the Town to review.

In conjunction with Task 2 (Utilities), Urban will also work on Task 3 (Stormwater) by analyzing the impact of the proposed development scenarios on water quality and quantity. Urban shall quantify, as reasonable, the increased quantity of runoff and pollutant loads. Existing conditions, facilities, floodplain, etc. shall be taken into account. The report shall include exhibits and narratives identifying constraints and opportunities for the Town to consider, given the development scenarios. Urban shall prepare a draft and then a final report for the Town to review.

In order to complete these tasks, the following activities will be undertaken:

Stage 2: Exploration and Analysis

1. Research & Information Gathering: Urban shall gather information referenced in section 5.2 of the RFP and fully review the material for an understanding of how it can be used and will apply to the Small Area Plan.
2. Site Constraints Analysis: Urban shall work with the Client's environmental consultant to assist in providing information and provide report input related to: grade, environmental features identified by the environmental consultant and overhead major transmission power lines. Urban shall provide GIS related mapping of the power transmission easement.
3. Infrastructure Capacity Analysis: Urban shall provide minimal input to assist the tra c consultant to provide some basic review of their report and input related to roadway improvements that they suggest. Urban will provide a conceptual review and analysis of SOM's density as it relates to the sanitary and water along with identifying where specific densities meet existing mains. Services will include providing densities to the Towns sewer consultant.
4. Constraints and Opportunities Report: Urban shall work with the team and town to provide input on the written report for portions that relate to the civil site components of stormwater, sanitary and waterline.
5. Meetings: Urban shall attend the full in-person/online kick-off meeting and additional meetings between both the consultant team and the town for Stakeholder engagement and listening during Stage 1. For stage two, Urban will attend all meetings related to site conditions and infrastructure capacity, the Direction and Goals presentation and other sta meetings related to drafting the report and reporting report conclusions.

Stage 3: Visioning

6. Conceptual Plans: Urban shall assist the architectural team by providing comments and feedback on the conceptual framework plans.
7. Meetings: Urban shall attend the meetings identified in the RFP for this phase along with additional meetings with the project team.

Stage 4: Finalization

8. Final Report Assistance: Urban shall assist the design team by providing comments and feedback on the final reporting and Document.
9. Meetings: Urban shall attend the meetings identified in the RFP for his phase along with an additional meetings with the project team.

CONSULTANT SCOPE - DHARAM

As the cost consultant, Dharam will analyze the three concept options at the Master Plan level and then refine the construction cost model for the preferred option. In order to complete these tasks, the following activities will be undertaken:

Stage 3: Visioning

1. Attend kick-off meeting with the design team to familiarize the Cost Team with the three (3) conceptual urban design framework plans.
2. For each Concept Option develop an order of magnitude Cost Model of forecast construction costs. The costs will be based on the Plans, sketches and narratives provided by the design team. The Cost Models will be in a format to be agreed with the Owner and broken down as appropriate to facilitate the required financial analysis.
3. Proposed building costs will be based on cost per SF based on benchmark data for buildings of comparable type and program and will consider site specific information where appropriate and available.
4. Green spaces will be costed based on cost per sf of soft and hard landscaping together with order of magnitude costs for associated amenities and equipment. Walkable trails between nodes will be similarly costed
5. Vehicular roads/streets will be costed on a cost per LF basis considering associated elements such as bicycle lanes, associated landscaping, lighting etc.
6. Utilities – where identified will be costed on a LF basis with appropriate allowances to ensure a complete cost picture where not specifically identified in the plans.
7. The Cost Models will incorporate identified/ recommended phasing of the development work to allow for exposure to forecast construction Cost escalation.
8. The Cost Models will be broken down based on indicated funding sources (Private vs Public).
9. Draft cost models will be submitted initially for review by the Town of Herndon and Project design team and will be subsequently revised to incorporate and reflect any comments received.
10. The final versions of the (3) Cost Models will then be presented to the Town of Herndon to ensure full understanding of the scope and character of costs included.
11. Provide final revisions of Cost Models as appropriate following presentation.

Stage 4: Finalization

12. Provide a cost model (1) following selection and development of a final framework plan.
13. This cost model will be commensurate with the level of detail as the previous option Cost models incorporating any enhanced information/details as appropriate.
14. A draft cost model will be submitted initially for review by the Owner and Design team and will be subsequently revised to incorporate and reflect any comments received.
15. The final version of the Cost Model will then be presented to the Owner to ensure full understanding of the scope and character of costs included.
16. Provide final revisions of Cost Models as appropriate following the presentation.

SECTION 2

REASSESSMENT AND IDENTIFICATION OF KEY CONSULTANT STAFF BY PHASE, ACTIVITY, AND DELIVERABLE.

ORGANIZATION + CAPACITY

As the lead consultant, SOM will coordinate the efforts of sub-consultants (RCLCO, VHB, Urban, and Dharam) to create a unified and compelling vision, and understand how that vision draws from and feeds into discipline-specific technical work.

SOM

PLANNING + PROJECT MANAGEMENT

Kristopher Takacs, AIA
Principal in Charge

Roger Weber, AICP, LEED AP
Lead Project Manager/Lead Planner

Susana Arisso, AICP
Assistant Project Manager/Planner

Jannat Nain
Urban Planner

Mark Meiklejohn
Urban Designer

Peter Glasson, AIA
Lead Architect

Keith O'Connor, AICP, LEED
Lead Open Space Strategist

ECONOMIC DEVELOPMENT

RCLCO
Jake Ross
Lead Economic Developer

TRANSPORTATION ENGINEERING

VHB
Kevin Keeley, AICP
Lead Transportation Planner

CIVIL ENGINEERING

Urban
Ryan David, PE, LEED AP
Lead Civil Engineer

COST ESTIMATING

Dharam
Simon Hough, FRICS, MACostE
Lead Cost Estimator

CONSULTANT INVOLVEMENT

Consultant	Stage 1: Information Gathering	Stage 2: Exploration and Analysis	Stage 3: Visioning	Stage 4: Development of the Preferred Concept	Stage 3: Finalization
SOM					
RCLCO					
VHB					
Dharam					
Urban					

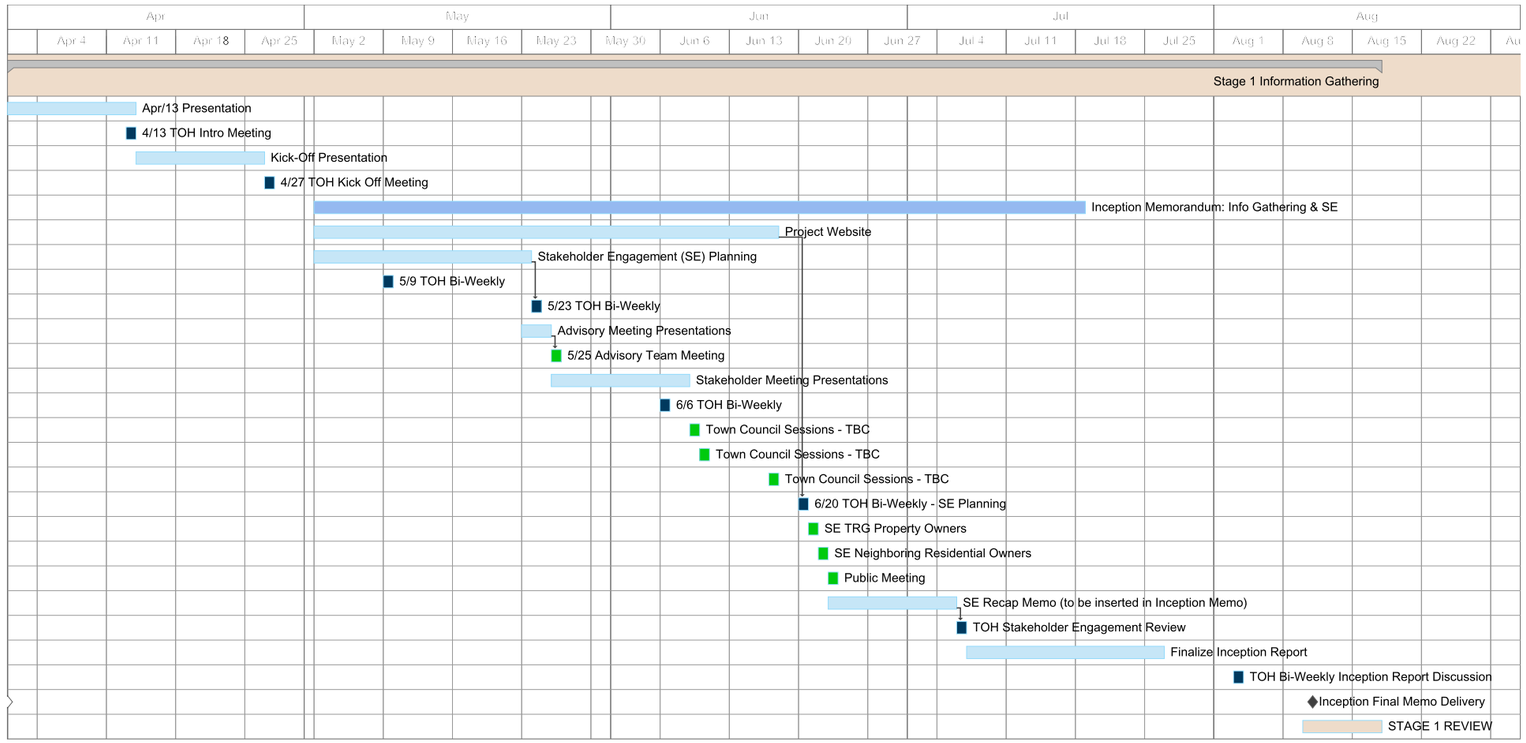
SOM has well-developed communications and project management practices in place which allow for the seamless coordination of work, ensuring each component is kept within approved scope and level of effort. These practices include: :

1. Leveraging our project manager as our primary point of contact.
2. Deploying our own staff and sub-consultant staff as appropriate to deliver work effectively through five phases of work.
3. Holding bi-weekly meetings as necessary to micro-plan week-on-week execution with the Town of Herndon staff.
4. Ensuring engagement plans and strategies are timed to align with the overall master plan process, ensuring feedback can be incorporated.
5. Lending facilitation and communication skills to the engagement process.
6. Delivering deliverables using an iterative process with opportunities for the Town of Herndon staff to review and edit.

The tentative schedule outlined in the following pages is designed to weave together the concurrent elements of the project plan that include highly technical development area planning and analysis, engagement across a disparate range of Town stakeholders as well as the interested public, visionary urban design thinking that looks beyond the present day toward a long-term future, and integration with market dynamics and on-the-ground real estate interests for private property owners.

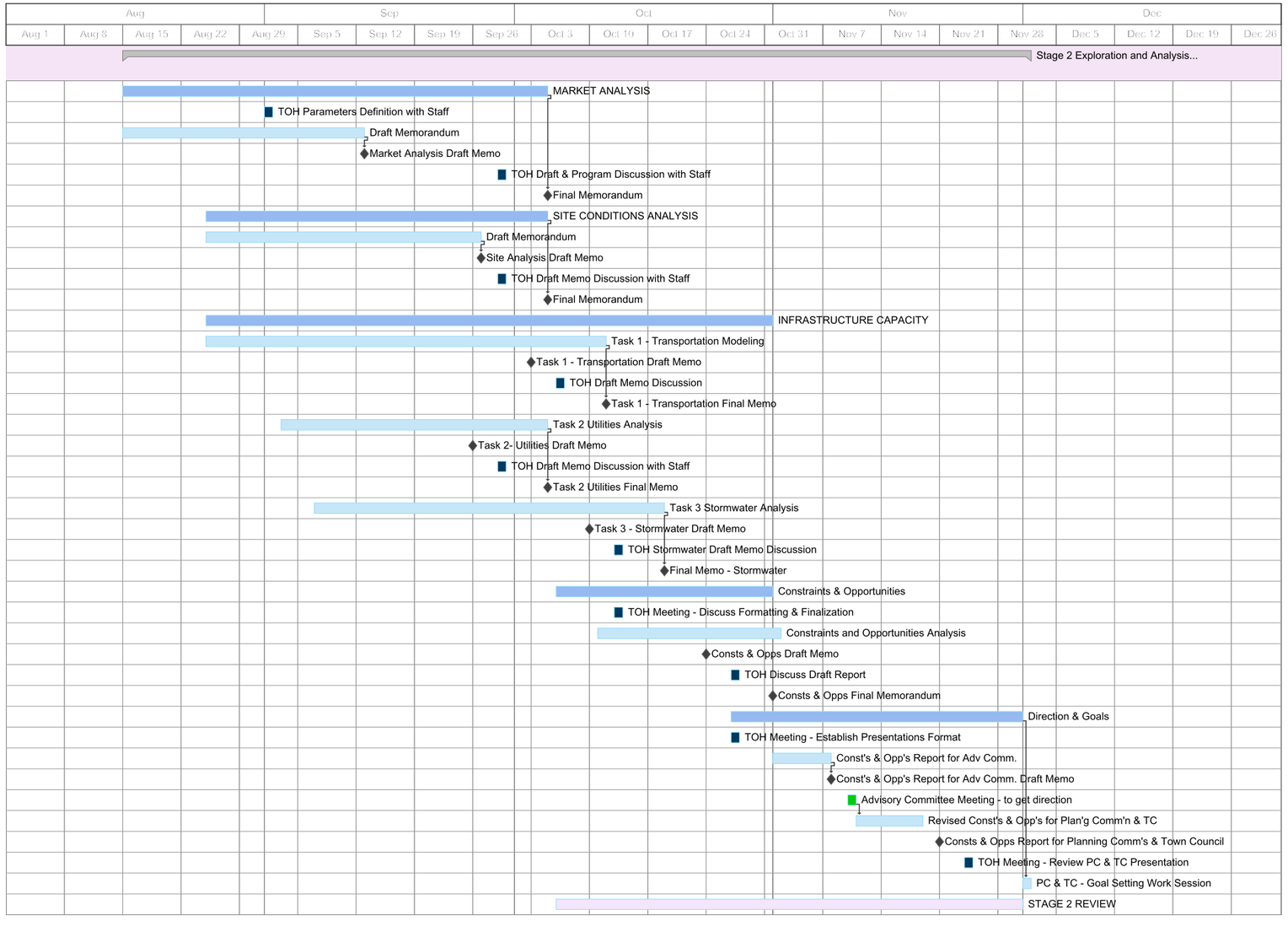
STAGE 1

- Participation in introductory meetings
- Collecting internal and external stakeholder input including engagement with the Advisory Committee, subject matter experts, and Town of Herndon staff and to align expectations for engagement with the Town Council, and community neighborhood groups
- Preparing stakeholder and public engagement plan
- Researching critical site and context issues
- Assessing the project budget and preliminary program goals
- Assessing relevant case studies and review precedents for the site
- Developing the project website
- Conducting stakeholder engagement interviews including meeting with the advisory committee, town council members
- Conducting three stakeholder engagement workshops
- Disseminating public engagement feedback
- Preparing Inception Report including the summary of engagement



STAGE 2

- Defining parameters of the market analysis, conduct research and prepare the market analysis memo with the findings including limitations and opportunities related to site conditions
- Discussing past modelling efforts and delivery of data with RK&K and VHB; Prepare a transporation memo for discussion
- Assessing water and sewer impacts and provide Town of Herndon staff with likely density and use scenarios for use; Prepare a stormwater memo for discussion
- Preparing a memo with a summary of potential successful density ranges, distribution and possible roadway improvements, and policy changes to provide a transportation system able to facilitate redevelopment within the TRG.
- Preparing and deliver the constraints and opportunities memo
- Facilitating a goal setting work session with the Town of Herndon Staff, Advisory Committee and Town Council members
- Developing project direction and goals for the visioning stage of the project



STAGE 3

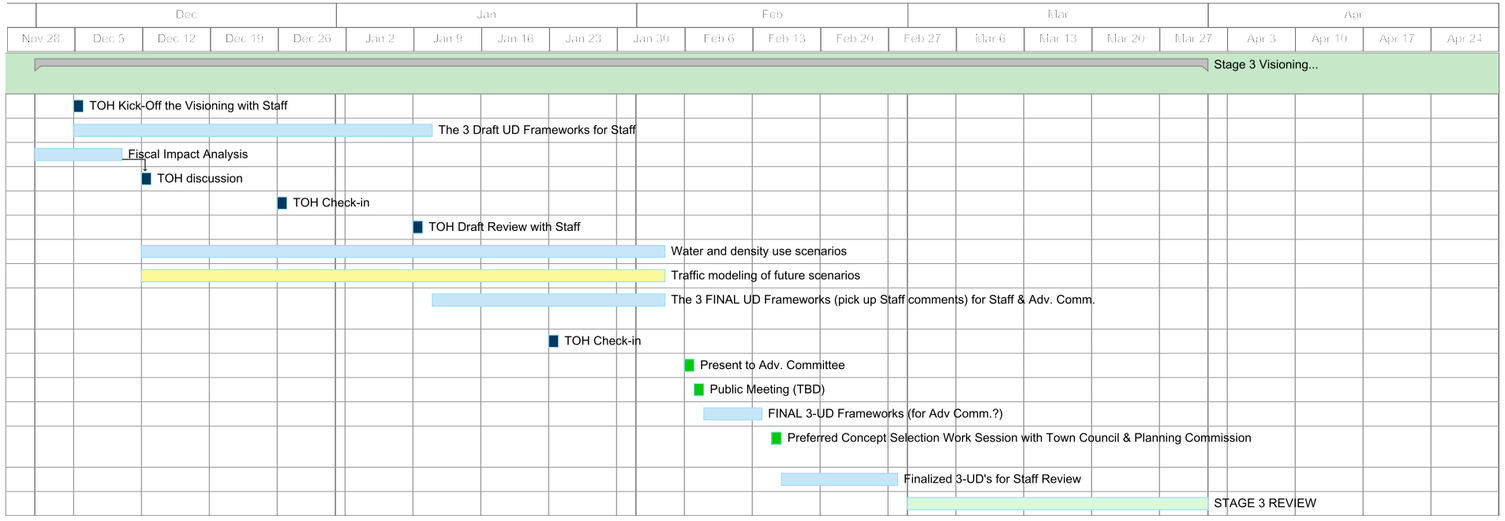
- Preparing a fiscal impact analysis
- Developing three (3) draft urban design frameworks with narratives for Staff review.
- Evaluating and iterating the urban design frameworks, both qualitatively and quantitatively. Illustrate vision alternatives to life through interactive media
- Presenting urban design concept options to the Town of Herndon Staff, Advisory Committee and Town Council members
- Selecting of a preferred concept option in coordination with project stakeholders

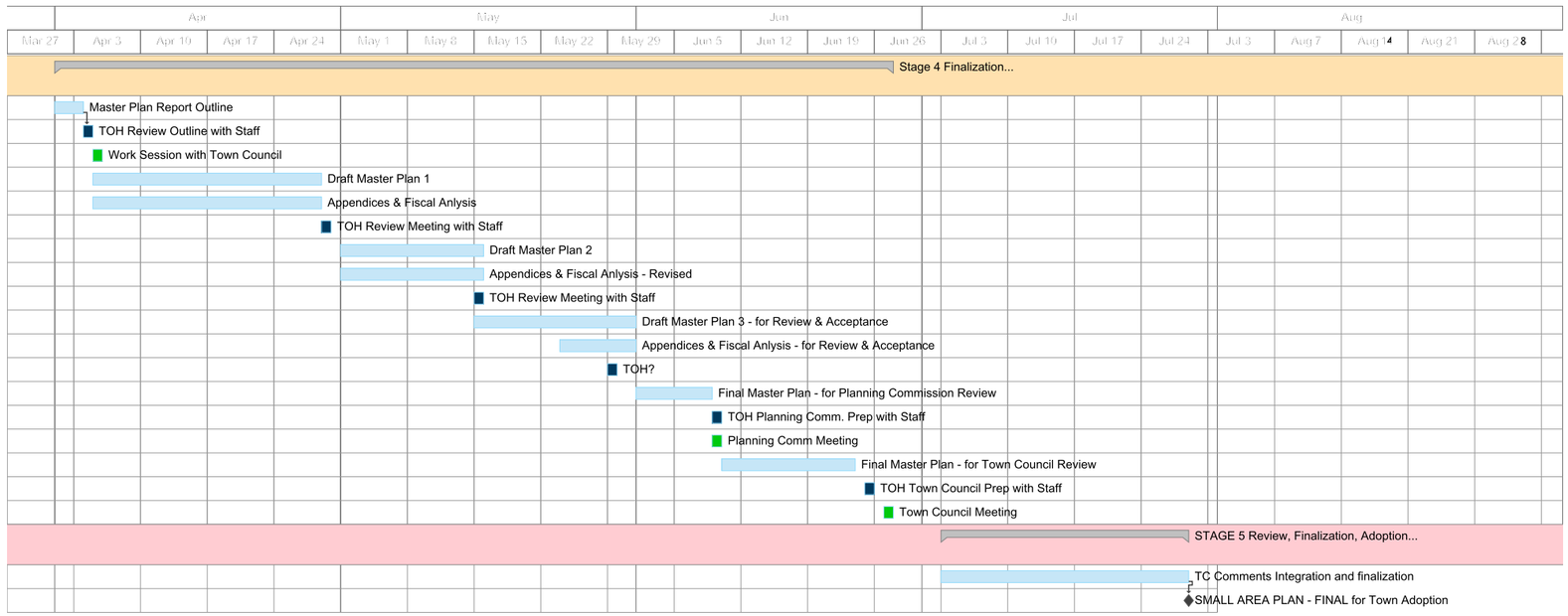
STAGE 4

- Preparing a Master Plan Report outline and review with staff
- Preparing the draft Master Plan including sketches, drawings, 2D and 3D concept imagery, vignettes, and study models
- Preparing appendices and revise financial analysis
- Presenting the draft Master Plan to the Town of Herndon Staff, Advisory Committee and Town Council members

STAGE 5

- Integrating feedback from project stakeholders
- Reviewing the draft Master Plan, appendices with fiscal analysis with Town of Herndon staff
- Finalizing and delivering the Master Plan





SECTION 3

COMMUNICATION AND COORDINATION STRATEGIES

COMMUNICATION AND COORDINATION STRATEGIES

Working together with the Town of Herndon and the co-consultant team, we have established a schedule for bi-weekly meetings with the Project Team to advance all aspects of the work. The official project kick-off meeting along with the advisory committee meetings will be held in person unless requested otherwise by the Town of Herndon. Written documentation of all bi-weekly meetings will be recorded and can be requested at any time by the Town of Herndon staff. One-on-one meetings with Town Council members and private property owners will also be organized in person or virtually.

A critical aspect of the planning process is our ability and commitment to listen well to the Town of Herndon, all project stakeholders, and to deliver a plan that creates a vision that can be sustained over time. We expect stakeholder engagement iteratively throughout all stages of the work. We will engage in three (3) formal community presentations and/or engagement sessions. This includes the first one to evaluate strengths, opportunities, aspirations, and results; a second to evaluate concept alternatives; and a third to present the preferred concept. SOM will lead the facilitation of community outreach.

Public outreach will be conducted by the Town of Herndon staff through social media channels and mailing out flyers. To ensure the engagement process is aligned with the needs of the Town of Herndon, SOM has already worked with the Town in Phase 1 to think beyond traditional community engagement, preparing the website, and other ways of engaging Herndon's diverse population. Over the course of the project, our team will help the community to be engaged. As we plan for community engagement, the presentation of materials will be focused on the TRG's goals and will be followed by questions, polling, and discussion where input is collected and utilized for refinement. Comments and questions gathered during the engagement session will be documented and presented to the Town of Herndon staff for review before publishing. All in-person meetings will be organized as per COVID-19 procedures. For dissemination of information gathered during the engagement sessions, all information will be posted on https://www.herndontrg.com. The website has been developed and will be maintained by SOM.

SECTION 4

DOCUMENT REVIEW, SITE MAPPING AND DATA COLLECTION

DOCUMENT REVIEW - OVERVIEW

Our understanding of the site and Town was informed by a variety of means, including an extensive review of available relevant documents. This review considered:

- Published planning documents prepared by the Town of Herndon
- Publicly available maps and GIS data describing the physical, environmental and infrastructural context of the TRG.
- Published documents related to ongoing development and capital improvement projects

TOWN OF HERNDON PLANNING DOCUMENTS

Key takeaways from the TOH planning documents are summarized below.

1. Town of Herndon Comprehensive Plan 2030

The Comprehensive Plan's stated goals are as follows:

"1. Provide for a regional scale mixed-use development environment.
2. Create an attractive environment that encourages companies and businesses to locate and remain within the town limits.
3. Generate positive economic benefits for the town in terms of employment, retail sales and tax revenues.
4. Provide appropriate site design and excellent pedestrian facilities to support mobility among the mix of uses within the Regional Corridor Mixed-Use and connectivity to other areas of the town."

The CP highlights the Town's potential for residendenial and employment growth, especially with the expected arrival of Metro. As the report indicates, the towns residential population had doubled between 1980-2008, but that growth had recently slowed due the lack of housing supply. This suggests demand for residential development.

The Plan also highlights the fact that much of the Town is at "full build-out" except for the Dulles Corner area (present day HTOC & TRG) where there was understood to be the opportunity for several million square feet of commercial / mixed-use development potential.

This background motivated the ideas of what would become the HTOC and TRG. The HTOC plan is officially incorporated into the Comprehensive Plan, while the TRG is presented as an idea for future consideration.

While the CP is proposing major development in what will become the HTOC and TRG, it also clearly emphasizes the need to preserve single-family housing, and maintain Herndon's small-town feel. Along these lines, the Plan also encourages regulations to prevent overcrowding and promote home and lawn maintenance, etc.

The Plan additionally emphasizes the need to prioritize development and maintenance of affordable and senior housing.

2. The Herndon Metro Station Area Study

This study outlines the future HTOC, It would be later incorporated into the Comprehensive Plan. The study area includes the nine parcels nearest the new Metro station. It proposes a maximum FAR of 4.3 nearest the station and toll road, which would taper down to a FAR of 3.8 at the areas further from station. The proposal suggests that only modest road imrpovements will be necessary given the new density proposed. It does, however, call for the extension of Worldgate Drive to connect more directly to the Herndon Parkway and for small internal streets within the district.

The study envisions a larger walkable district that would include not just the HTOC, but the TRG as well, which could be studied at a future date. The study suggested that the TRG should be a transitional zone between the HTOC and the rest of the city. The study calls for a maximum FAR of 2.5 to 3 for the TRG. And the

As part of the study, a financial analysis was conducted which suggested that no development was likely to occur in the TRG at FARs of less than 2.5 before 2035.

3. Urban Design and Architectural Guidelines for the Herndon Transit-Oriented Core

The Urban Design and Architectural Guidelines for the Herndon Transit-Oriented Core establish an urban deisgn framework for developers, architects and engineers to refer to for developments within the HTOC. The guidelines can be summarized as follows:

- Seeks to define a character for the neighborhood.
- Emphasizes "public spaces, active uses, pedestrian enhancements and inspirational architecture."
- The HTOC should create a "public realm that is inviting to all citizens, not a series of private buildings without a sense of community and place."
- Seeks to mediate between the new high-rise development with a more traditional small-town feel.
- Emphasizes

The guidelines further provide guidance for the development of individual buildings and parcels.

- Encourages podium-style buildings, with little-to-no setback.
- Ground floors reinforce the pedestrian experience.
- Ideally parking should be located behind 'liner' uses.
- Towers of up to 275' along toll road and up to 225' along Herndon Parkway.
- Towers should include interesting tops (slopes, parapets, crowns, etc.) in order to differentiate from other development occuring in towns along the Dulles Toll Road.
- High-quality materials are encouraged. For podium buildings, brick is especially encouraged. Other favored materials include stone, ceramic tile, stucco, wood, and heavy-guage metal panel. The use of EIFS is explicitly discouraged.

4. Town of Herndon Streetscape Guidelines

The Town of Herndon Streetscape Guidelines provide guidance for designing the town's streetscapes to promote traffic flows, pedestrian safety and town character. Overall, the plan prioritizes the following goals and strategies:

- Walkability
- Accesibility
- Connectivity
- Bike facilities
- Bio-retention
- Traffic calming

In addition to the stardard town streetscape, the guidelines define four zones which will each recieve distinctive streetscape treatments:

- "HTOC Streetscape
- Parkway Streetscape
- Gateway Streetscape (six primary entrances into Herndon between town boundary and downtown)
- Downtown Streetscape."

For each of these zones recommendations are provided for special paving materials, street furniture, signage, steet sections, street lighting and planting plans.

The HTOC Streetscape zone provides to street types for the Herndon Parkway: one to be used within the HTOC / TRG, and the other for all other street segments. For the section of the Herndon Parkway within the HTOC / TRG area, heavier pedestrian and other traffic is anticipated. In this zone, the guidelines call for a number of streetscape features including a substantial green space buffer, a two-way cycle track, and strong significant amenities for multi-modal transportation in order to support the new Metro stop.

(The HTOC Streetscape designs were still under development as of the publication of the guidelines.)

5. Town of Herndon Capitol Improvements Program FY2021-2026

Prepared both before and during early stages of Covid-19 pandemic, under extremely uncertain circumstances for the town: findings were to be considered aspirational.

Potentially relevant projects include:

Pedestrian / Bike Infrastructure
- Trails to Herndon Metro
- Metrorail Station Promenade
- Bicycle Facilities & Accommodations
- Sidewalks and Minor Trails

Public Transportation
- Vehicular/Pedestrian Access to Metrorail (Bus Bays)

Street Improvements
- Spring Street, (Herndon Pkwy to Fairfax Co. Pkwy)
- Van Buren Street (Herndon Pkwy north to old Spring St)

- Dev. Worldgate Drive Extension
- Herndon Parkway/ Van Buren Street Intersection

MAP / DATA REVIEW

In addition to the written plans described above, SOM reviewed the following maps to develop an understanding of the physical context of the TRG. These maps present both opportunities and constraints for development at the site. (In addition to this review of published maps, we prepared our own analytical maps from GIS data. These are described in the following section - "Site Mapping and Data Collection.") Reviewed maps include:

1. Herndon Soil Survey Map
2. The Fairfax County soils map and contour map.
3. FEMA floodplain map.
4. Chesapeake Bay Preservation Overlay District Map.
5. The location of the Dominion Energy transmission lines and associated easement language and allowances
6. Current TRG parcel sizes, ownership patterns, existing uses, building square footages, and FAR
7. Publically available GIS data from Fairfax County

ONGOING PROJECTS

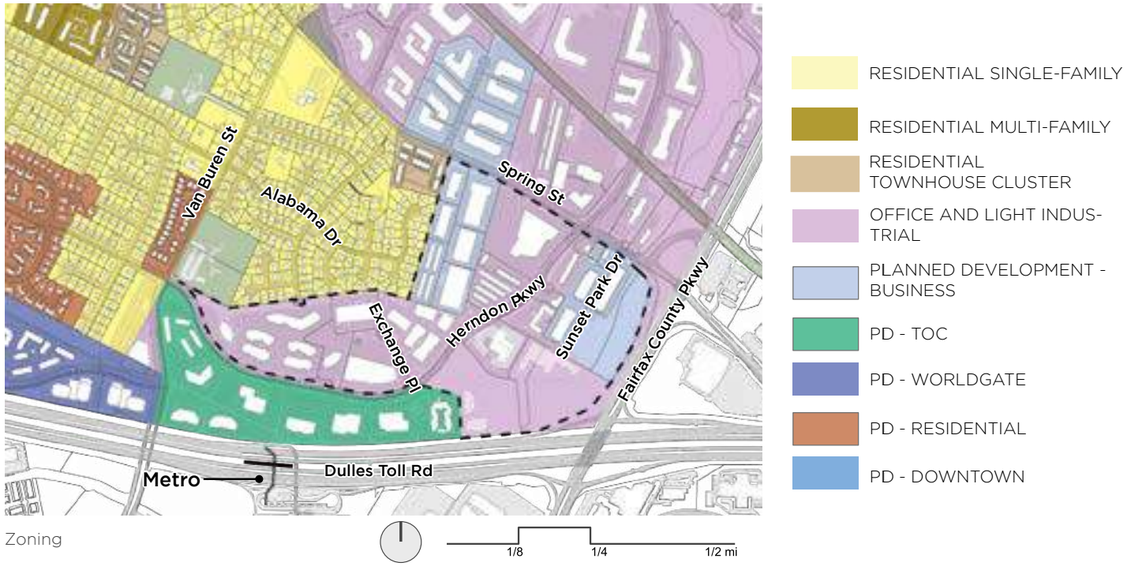
In addition to a study of the existing context, it is critical to understand the likely future reality. While current planning documents, such as the Comprehensive Plan or the Herndon Metro Area Study, give us an idea of what the future HTOC might be like, we also referred to more concrete, approved development plans. (With the understanding that none of these approved plans are guaranteed to be realized).

1. Development Plans for 555 Herndon Parkway
2. Development Plans for Fairbrook Park.
3. Other relevant proffers and conditions for existing and approved development within the TRG – Active Land Use & Development Cases
4. Roadway improvement plans for:
   - Van Buren Complete Street
   - Herndon Parkway / Van Buren Street Intersection
   - Spring Street Improvements

SITE MAPPING AND DATA COLLECTION

Based on our review, SOM has learned that the Site area is zoned for office and light industrial uses along with some planned development for business.

There has been ongoing development in the vicinity of the TRG. This includes Herndon Station West, Parkview at Herndon Metro, 555 Herndon Parkway, and Fairbrook to the south and Springpark Place to the north.



Zoning

As SOM worked towards defining a vision for the TRG that is regionally complementary and differentiated within Herndon, SOM looked towards aspirational case studies that planned for the right density in the right places. To define a character that is unique to Herndon, SOM explored the right scale to implement future density as well as complement and enhance Herndon's small-town character. Through research and conversations with members of the advisory committee, it was established that an appropriate transitions to the HTOC adjacent neighborhoods, and central Herndon should be maintained and these character expectations will need to be communicated to developers in the future.

In order to foster a live-work-ride-play community, SOM studied the potential of positioning sub-areas with differentiated predominant uses and densities and embracing a mixed-use future, anchored with affordable multi-family housing. The Plan requires careful planning for the lifestyles of future residents and exploring the role of destination out-of-the-box uses. SOM also looked into ideas for activating the community by centering neighborhood-serving retail and incorporating the Fairbrook Development into the larger community vision.

SITE MAPPING AND DATA COLLECTION

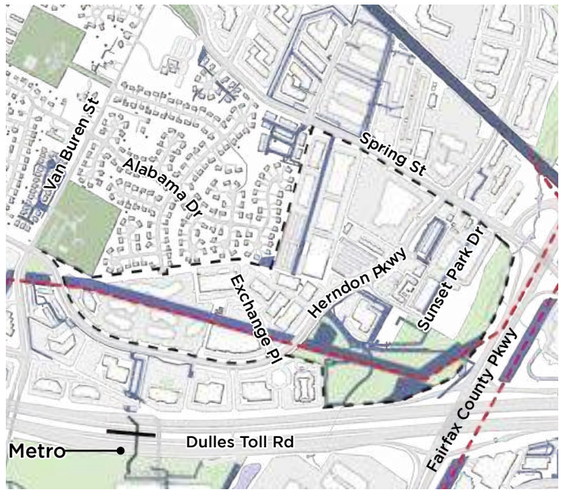
Mobility is a large part of the vision for the TRG. A successful future would augument existing investments in trails, cycle tracks, and the vehicular network and integrate connections to Metro and to the W&OD trail.

There is also the potential to rethink Herndon Parkway as a multi-modal Parkway and create a porous development that encourages walking and next-gen personalized mobility. The goal for mobility in the TRG is to establish an appropriate relationship with surrounding residential neighborhoods.

Currently, the TRG landscape is dominated by surface parking, lowrise buildings, and other impervious surfaces. The poses environmental and other challenges. This condition could be improved by adding green space to the area. Landscape could play a big role as the driver of identity. Some initial ideas include integrating and elevating Sugar Land Run, and the existing green space around it, as a placemaking asset.

Ongoing Development

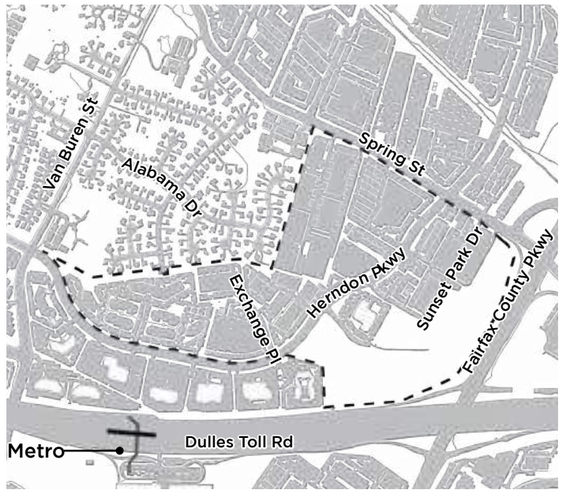
SITE MAPPING AND DATA COLLECTION



Major Utilities & Easements

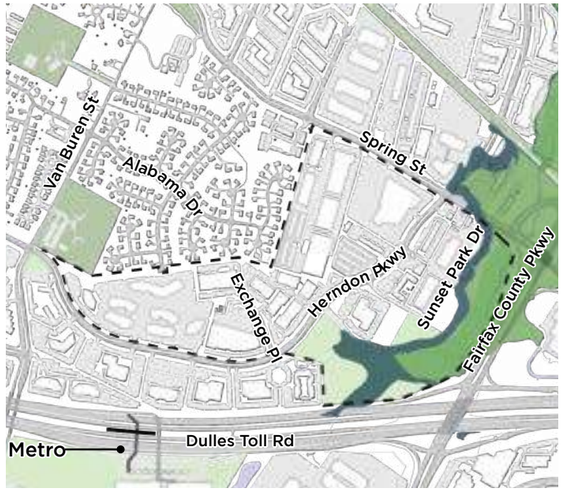
Easements

Major Utilities



Impervious Surfaces

Impervious Surface



FEMA Flood Plains

100-Year Flood Plain

500-Year Flood Plain

Soil Foundation Support

Poor

Marginal

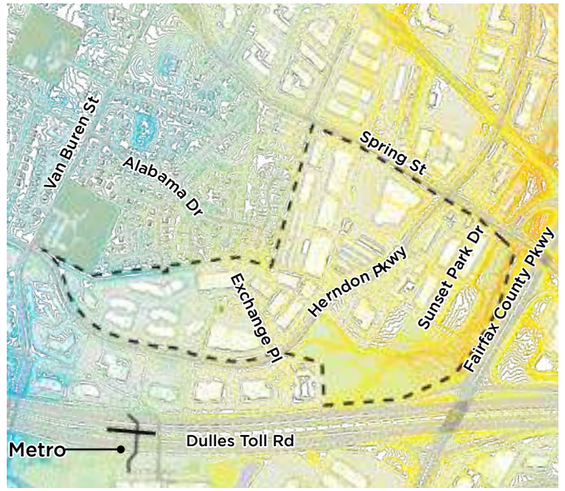
Fair

Good

SITE MAPPING AND DATA COLLECTION

SOM has also conducted preliminary review of other physical elements that define the TRG landscape. The most visible of these include the major overhead utilities that bisect the TRG in the east-west direction. These utilities, and their corresponding easements, naturally form an open space corridor which could potentially be leveraged to create a compelling public space.

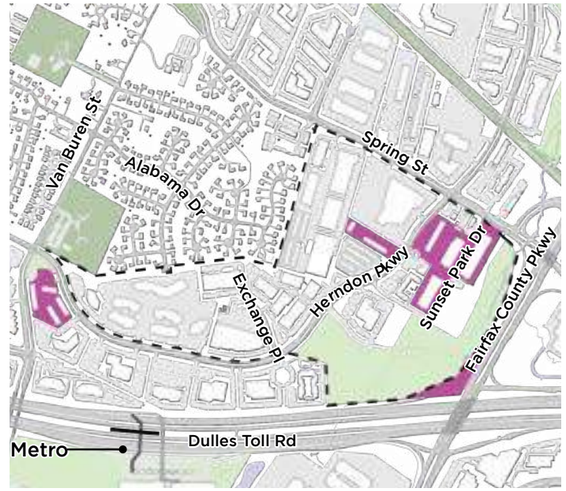
In addition to this, there is the possibility of creating new public green space in the area around Sugar Land Run. There are a number of potential physical limitations to new development in this area. These include poor soil for foundation support, FEMA floodplain designation and steep topography. These challenges to development in this location may provide an opportunity for the town to partner with ownership to create a new landscape identity for the town.



Topography (1' Contours)

280'

480'



Common Areas (Associated with Condo Parcels)

Common Areas

SECTION 5

STAKEHOLDER ENGAGEMENT

Stakeholder Engagement Overview

Stakeholder engagement provided critical data to project team. Two groups of stakeholders were engaged, Town officials and staff, and the broader public. Engagement with town officials and staff included one-on-one sessions with the Mayor, Vice-Mayor and individual Town Council members. Public engagement came in the form of three meetings with different interest groups: TRG property owners, nearby residents and the general public.

Throughout this engagement process valuable information was obtained. Of course, many stakeholders' interests were at odds with another, but there were also clear common priorities that could be identified across a broad swath of stakeholders.

Meetings with Town Officials

Through the first three months of the information gathering stage, the project team engaged regularly with the planning staff at the Town of Herndon and members of the Advisory Committee. The project team also had one-on-one meetings with the Mayor, Vice-Mayor, and Town Council members to understand needs and priorities for the TRG.

Through these focused interviews, we gathered that, much like the Town of Herndon, the future identity of the TRG will be defined by a population that is diverse in ethnicity, age, socioeconomic status and opinions. A balance between celebrating the changing culture(s) of Herndon and maintaining the historic feel of the town is required.

The interviews also highlighted an interest in making the TRG an attractive destination while avoiding any unintended consequences, particularly overcrowding. An increase in density was widely accepted however, with mixed-use zoning being strongly preferred for the TRG. All members of the council agreed that workforce housing and affordable housing for service workers is important. For there to be a successful delivery of residential units in the TRG, financial returns of developers and condominium owners must be considered.

There was disagreement among these stakeholders about the proper balance of scales for future development, and whether the existing small-town/downtown density should be prioritized, or instead newer, higher density be given priority. This challenge of balancing those two apparently opposing priorities will likely be a significant factor in any design going forward.

All members of the Town Council agree that Herndon needs more green spaces and open spaces, including sidewalks with placemaking opportunities as well as trees and other shading elements that make the pedestrian experience pleasant. Nature parks & areas for festivals and community organization, with intentional identity-creating spaces were also mentioned.

Even though office spaces are currently not in high demand, Town Council members emphasized the importance of Commercial/ Retail & Office Space uses and the need to reflect market demand and needs for those types of spaces, while avoiding vacancies. Commercial spaces are necessary to boost revenue, and should be located strategically to maximize use and profits.

Traffic and parking was the primary issue highlighted by most Town Council members. Most of the traffic in the TRG may be commuter traffic, and is therefore likely inevitable. There is some consensus that personal vehicles are needed for many of the residents due to their jobs, or to drop their kids off at school. However, improved

STAKEHOLDER ENGAGEMENT SUMMARY & ANALYSIS

walkability, bikeability, safety, connectivity and continuity of the active transportation network may help discourage car use and reduce traffic congestion. Additionally, we heard that parking maximums/restrictions may help improve safety by preventing visual blockages in streets and neighborhoods, while disincentivizing car use.

Public Meetings

In-person engagement workshops were also held on June 21, 22, and 23, 2022 for property owners of the TRG, neighboring property owners, and the general public respectively. Each meeting included a project overview presentation by SOM, followed by a Q&A period in which both SOM and the Town of Herndon fielded questions. After the presentation, participants were encouraged to engage with five stations with a series of boards and maps that solicited their feedback. The boards asked about general attitudes towards the Metro and future development, TRG must-haves, aesthetic preferences, and the stakeholder's relationship to the TRG. There was a station that provided the opportunity for stakeholders to present their own ideas for the future of the TRG by drawing and writing on maps.

Meetings with TRG Property Owners

As a group, the property owners were divided over how much change they would like to see in the TRG. Some owners were clearly content with their investements and were adverse to change. On the other hand, there were a substantial number of owners who think redevelopment associated with the TRG plan is an unique opportunity to add value to their property investments.

Owners were also divided over the role of the new Metro station in the TRG. Some believe the recent trend towards remote work will decrease the number of commuters using Metro, both inbound and outbound. Because of this, they see little demand for office space on their properties even with the arrival of Metro. These owners believe that quality-of-life uses -- nature paths, outdoor performance spaces, landscape elements, etc -- are best suited for the TRG. For these owners Metro trips in both directions should be associated primarily with recreation and leisure rather than employment. Other owners, however, are not convinced of this.

In addition to meetings open to all TRG property owners, individual owners requested one-on-one meetings. Though the feedback from those meetings was often more specific to individual parcels, overall themes could be identified. Takeaways from meetings from different individual owners are summarized below.

- There is significant development interest throughout the Dulles Toll Road corridor, and specifically within the TRG boundary.
- Certain owners are interested in starting redelevopment relatively quickly (within the next 2-3 years)
- There is interest in podium style construction with community-facing retail below and office above.
- There is significant demand for data center facilities, which could prove lucrative for owners.
- Owners are aware of future HTOC development and are wary of competing with the higher densities allowed in that area.

Meetings with Residents, Neighbors and the General Public

There was a good participant turnout for all three engagement events where people expressed their needs and ideas for the future of the TRG. There was not always

STAKEHOLDER ENGAGEMENT SUMMARY & ANALYSIS

consensus on priorities for the TRG, and in some cases stakeholders' ideas were in direct contradiction with one another. However, there were several areas of broad consensus. This included the idea that the TRG should change a lot and that the Metro and TRG are net positives for the community.

Overall, the community emphasized the following priorities:

1. Addressing and mitigating traffic and congestion
2. Creating a place that's friendly to bikers and pedestrians
3. Attracting the right mix of uses, including amenities and services, to the area
4. Adding housing options
5. Maintaining the small-town feel and historic character of Herndon

Existing assets described by the community members included the Sugarland Run (although Sugarland Run Trail ends just before it enters the TRG, at Spring Street), office spaces as business incubators and the Sunset Business Park and its diverse mix of small-scale businesses. Community members also highlighted weaknesses of the TRG which predominantly focused on mobility. This included issues with safety, the hostile environment for pedestrians and bicyclists, lack of connections to surrounding neighborhoods and too many large parking lots. Community members also brought forward the issue of lack of attractions in the area.

When envisioning future land uses, participants of the workshops believed there is a need for more housing, including townhouses, condos, and mixed-use development where housing affordability and accessibility is prioritized. A small number of community members indicated a preference to "maintain the small town feel," avoid overcrowding, and avoid high-rise structures to avoid blocking sunlight. There is demand for additional small businesses, especially restaurants, cafes and, bars. There is also a strong affinity for the Sunset Business Park, and specifically its diverse mix of small-scale businesses. There was broad consensus among workshop participants that there should be less office space and fewer office parks in the TRG. One submission, however, pointed out that the current offices serve as business incubators. There is general interest in adding small-scale parks to the TRG, including pocket parks and playgrounds.

Many community members suggested that the Sugarland Run Trail could be extended across Spring St. into the TRG and connect to the Metro via a yet-to-be-determined path.

As we discussed transportation and mobility with workshop participants, most community members are excited about the arrival of Metro to Herndon and expect to ride the Metro sometimes but not daily. Therefore, creating easy access to the Metro is important. Multi-modal accessibility should be considered. The TRG is currently unsafe for pedestrians and bicyclists. Community members believed there should be bike and pedestrian connections from the TRG to the surrounding neighborhoods. There are some concerns that added development will cause increased traffic and congestion.

As for specific interventions, ideas and other feedback, the engagement summary report has been added in the following pages.

APPENDIX 1

ENGAGEMENT SUMMARY REPORT JULY 2022

YOUR INTEREST IN THE TRG

Why does the TRG matter to YOU?

Easier commute, improved connectivity, less congestion and traffic

Managing foot traffic & overcrowding

Maintaining existing neighborhood characteristics while improving amenities

Safety: Surroundings, walkability, bikeability

Financial effects & maintaining the lucrative Sunset Business Park

Potential cave systems under the site

SMALL AREA PLAN
Transit-Related Growth Area

YOUR INTEREST IN THE TRG

How do you interact with the TRG Today?

Use the following pins to denote where you do the following activities:

- Place a MAGENTA pin where you own/lease property
- Place a YELLOW pin where you live
- Place a BLUE pin where you work
- Place a RED pin where you dine/shop
- Place a BLACK pin where you get stuck in traffic!
- Place a GREEN pin where you or your kids have school/activities/recreation

In terms of Herndon Parkway...

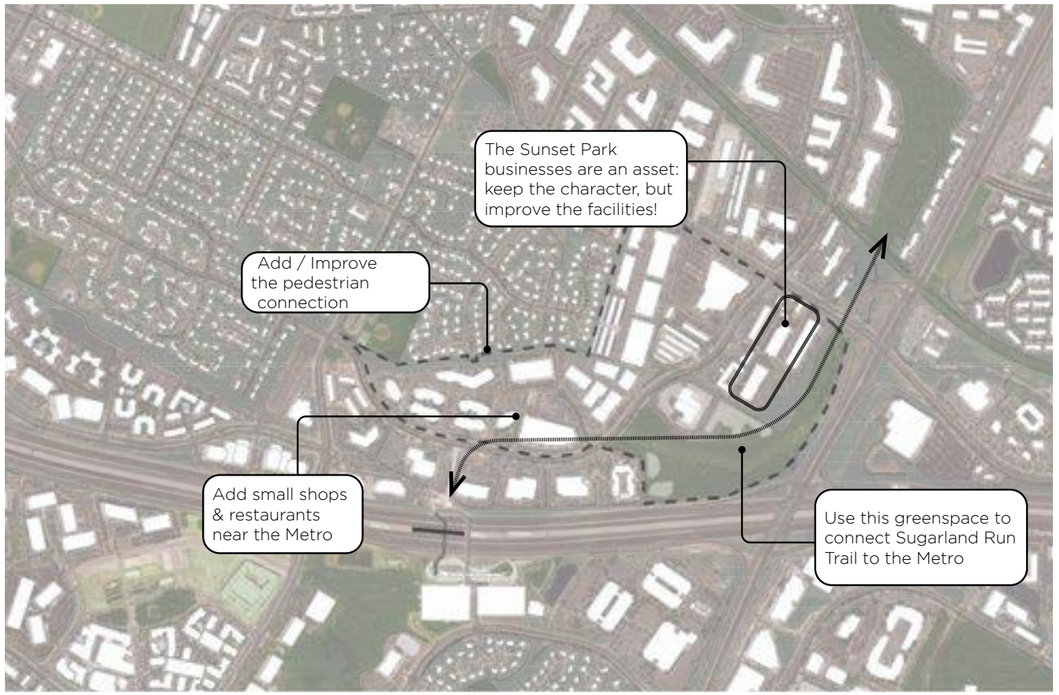
I NEVER drive on Herndon Parkway

I mostly use it as a cut-through

I use it to access uses/activities within the TRG

ANNOTATED MAPS

Common Themes



For induvidualized maps, please refer to the Appendix (p. 19)

SMALL AREA PLAN
Transit-Related Growth Area
TRG TRANSIT - RELATED GROWTH AREA

YOUR INTEREST IN THE TRG

How will YOU engage with the Metro in the future?

How do you feel about the arrival of Metro in Herndon?

I'm mostly excited about it — I'm mostly worried about it

Increased access could mean more traffic & safety issues

How often do you think you'll ride Metro once it's here?

Every day — Never

What are the biggest benefits of Metro you're looking forward to?

- Easier & cheaper access to DC & Dulles
- Reduced car dependency & increased walkability
- Easier commute & better connectivity
- Improved lifestyle & environment

What are the things you're most concerned about when it comes to the arrival of Metro?

- Low ridership due to lack of need & convenience
- Reduction of open space & green cover; wind tunneling
- Pedestrian, bike & general safety; increased traffic
- Losing Herndon's character

How much do you think the TRG should change now that METRO is coming?

It should change a LOT — It should stay mostly the same

ISSUES, STRENGTHS, AND WEAKNESSES

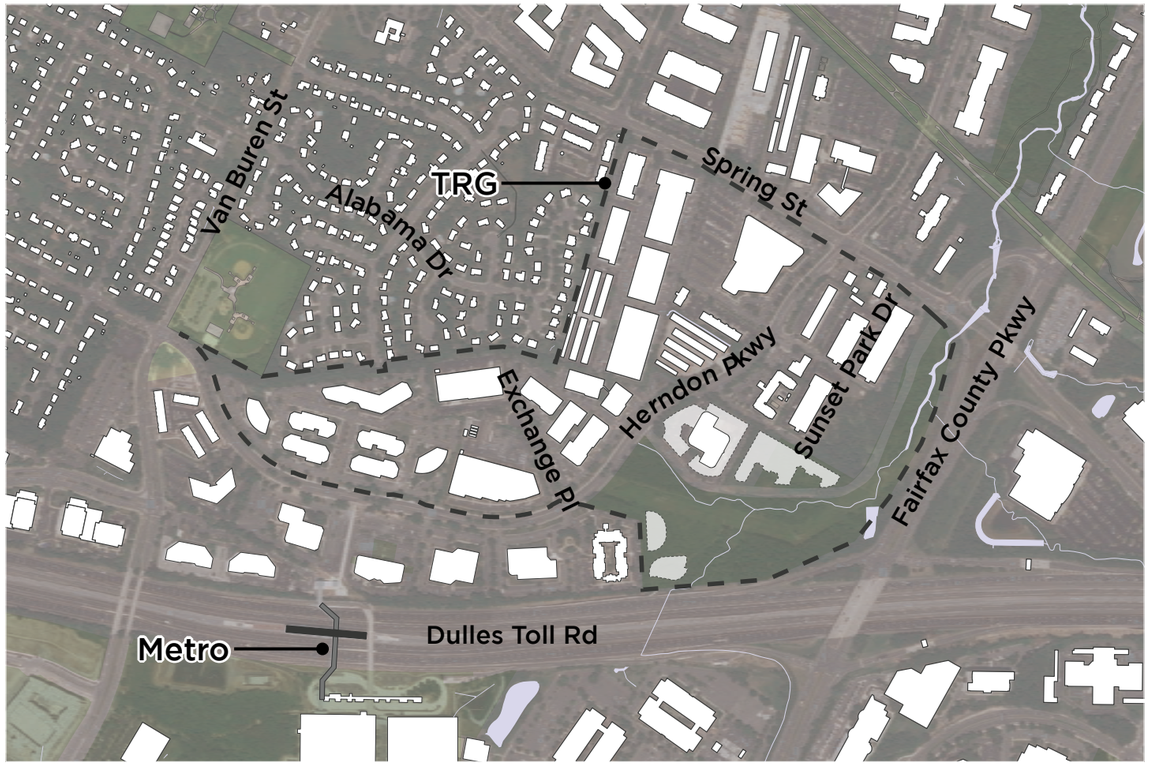
What works WELL about the TRG today? What are the TRG's greatest strengths and assets?

- A gathering space that bolsters a sense of community & has a small-town feel
- Easy access to retail spaces, eateries and cafes
- Herndon Parkway's current traffic flow & speed limit (35 mph or lower)
- Sugarland Run
- Sunset Park's office spaces serve as an incubator for businesses

ISSUES, STRENGTHS, AND WEAKNESSES

What DOESN'T work well about the TRG today? What are the biggest areas that need to change?

- Existing accessibility measures & signage
- Lack of identity &attractions, open spaces, commercial spaces, and parking spaces
- Too many businesses and storefronts hidden by large parking lots
- Wind tunneling
- Not safe or easy for pedestrians and cyclists; traffic congestion
- Lack of inclusion of surrounding neighborhoods in the plan



ISSUES, STRENGTHS, AND WEAKNESSES

Which issues should be critical priorities in planning and development of the TRG?

Addressing / mitigating traffic and congestion

Designing for greater intensity of development close to the Metro station

Creating a place that's friendly to bikers and pedestrians

Attracting the right mix of uses, including amenities and services, to the area

Family-friendly, small pocket parks, space for childcare + playgrounds

Being a good neighbor to surrounding residential neighborhoods

Accommodating housing for a diverse mix of people

Creating new parks, open spaces, and recreational amenities

Expanding access to Metro within the Town

Preserving the businesses and buildings that are in the TRG today

Creating a place that competes with Reston for tourists and visitors

Creating a new gateway to the Town

Ensuring the right look, feel, and quality of new development

Add your own topics here...

- Increased security (e.g. safety patrols)
- Attention to the future of existing buildings such as condos
- Minimising light pollution
- Low rise structures to avoid blocking sunlight from other residences
- Large trees for privacy and preventing wind tunneling

SMALL AREA PLAN
Transit-Related Growth Area

ASPIRATIONS AND CHARACTER

What's your favorite thing about the Town of Herndon?

- Sense of community
- Walkable (contiguous walkways), bikeable (well-lit streets) and not too crowded
- Small town feel, antique stores, historic downtown
- Low rise structures to avoid blocking sunlight from other residences
- Diversity (in both age & race)

How do you see the Town changing in the future?

- Improved walkability, especially to eateries & cafes
- Maintaining the historic feel of downtown Herndon
- More family friendly with room for generational growth in the future
- Fewer and smaller cars
- More amenities (e.g. Planned Parenthood Clinic)

How could changes within the TRG benefit the Town?

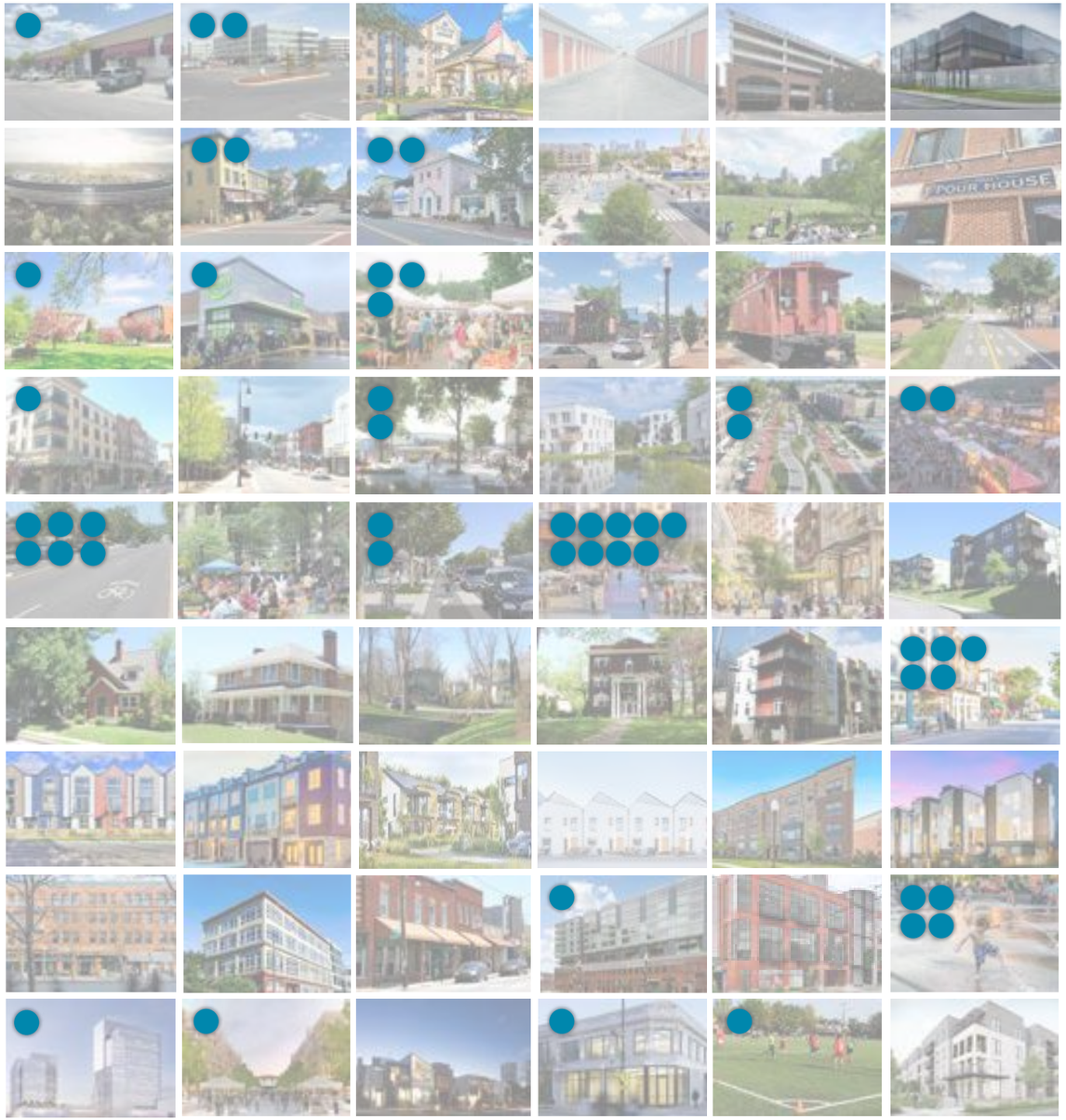
- Access to other parts of Virginia & DC
- Lower speed limits & safer biking options to the Metro
- Social committee to manage large events & festivals
- Large sidewalks with seating, family-friendly eateries (outdoor dining)
- Affordable housing & more attractions

What words should describe the TRG in the future?

- Walkable and car-free
- Attractive, spacious and high-quality placemaking
- Vibrant and unique spaces
- Well-connected
- Outdoor gathering spaces

ASPIRATIONS AND CHARACTER

What should the TRG most look like in the future?



ASPIRATIONS AND CHARACTER

Describe your vision for the future character of the TRG area...

What kinds of land uses (e.g. residential, office, retail, etc.) does the Town need more of that could be accommodated within the TRG?

- Reduced office spaces
- More small businesses & restaurants
- Space for the Herndon Festival
- More recreational & retail spaces
- Accessible housing

What kinds of businesses make sense here?

- Small, diverse local businesses
- Office spaces
- Dining & retail
- Community centers & magnets
- Larger-scale retail spaces

What kinds of housing make the most sense here?

- Multi- or single- family townhouses
- Condos (including high-rise)
- Mixed-use dense housing
- Affordable for youth
- Fewer parking requirements

What should Herndon Parkway look and feel like in the future?

- No trucks / speeding cars, more walking & bikes
- Fewer office spaces / business parks
- Safe, large sidewalks with grass buffers
- Road diet with better intersections

What should our parks and open spaces look and feel like?

- Natural & well-shaded with native species
- Accessible for all
- Multi-use options
- Extend Sugarland run
- Ample public seating

What should the relationship of the TRG be to historic downtown Herndon, to Reston, and to surrounding neighborhoods?

- Maintaining the small town feel
- Modern, upgraded buildings/ interiors
- Enhance without stripping identity
- Easy to access
- Avoid becoming an overcrowded city

ASPIRATIONS AND CHARACTER

In terms of the TRG's relationship with surrounding neighborhoods...

Overall, the arrival of Metro and new development in the TRG are net positives to surrounding neighborhoods

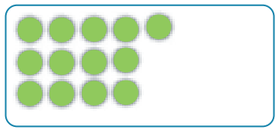
Overall, the arrival of Metro and new development in the TRG are net negatives to surrounding neighborhoods

Where possible, pedestrian / bicycle paths and/ or roadway connections should be considered between the TRG and surrounding neighborhoods

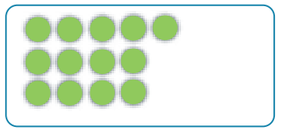
Surrounding neighborhoods should exist independently from the TRG with landscape buffers in between

Which topics should be top-of-mind in planning for the TRG when it comes to the relationship with surrounding neighborhoods?

Ensuring easy and direct access to Metro for those living in surrounding neighborhoods

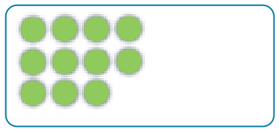


Ensuring neighborhing areas are protected from traffic impacts / congestion

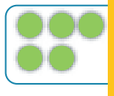


Adding amenities and/or recreation spaces within the TRG that are accessible to surrounding communities

Protecting surrounding areas from visual and/ or noise impacts of new development



Re-imagining the TRG as a vibrant place that is a destination for residents of Herndon



Vibrant, but not noisy. Peaceful atmosphere should be maintained.

Accommodating a wider range of jobs, retail, restaurants, that are accessible to the Town

Accommodating housing demand / adding affordable housing options closer to Metro

Ensuring the right scale / intensity of new development is appropriate for the Town of Herndon

Other...

- Affordable rent for businesses
- Increased space for childcare
- Increased penalities for noisy & speeding cars
- Include more surrounding neighbor-hoods
- Avoid assuming 1 household = 1 car

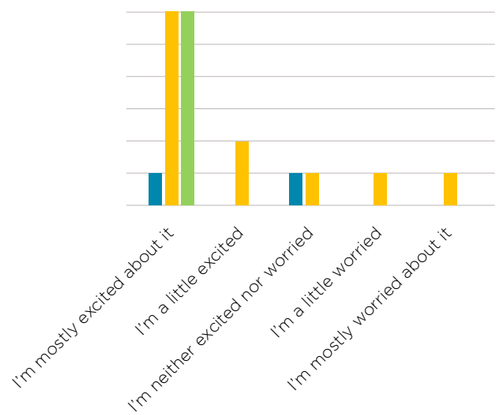
SMALL AREA PLAN
Transit-Related Growth Area

THOUGHTS

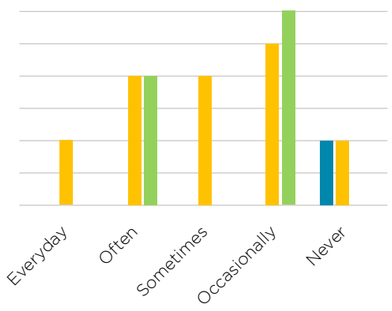
- Paid parking
- Positive financial changes are welcome
- Decentralization of activities & attractions
- Safe & accessible bike trail to the Metro
- Relaxing & recreational open spaces that are free to access
- Family-friendly & alcohol-free spaces such as tea houes
- Revenue growth without losing the small-town feel
- Avoiding making Herndon tourist-y & overcrowded
- South TRG could have been upzoned
- Avoid overloading public infrastructure
- Bird-friendly glass construction
- Refrain from becoming similar to Reston Town Center
- Do what is right, not what's easy
- Don't destroy our smaller town feel to try and become urbanized.
- I love a good waterfall/ fountain.

AGGREGATE DATA CHARTS

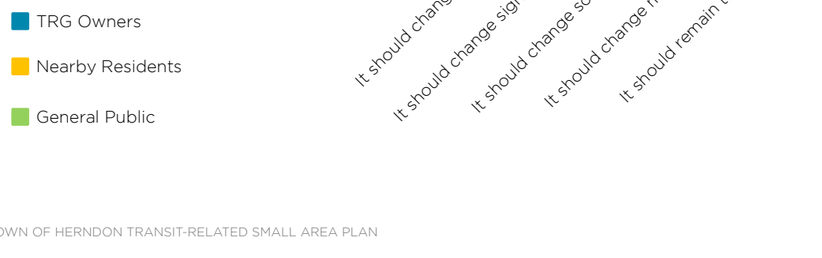
How do you feel about the arrival of Metro in Herndon?



How often do you think you'll ride Metro once it's here?



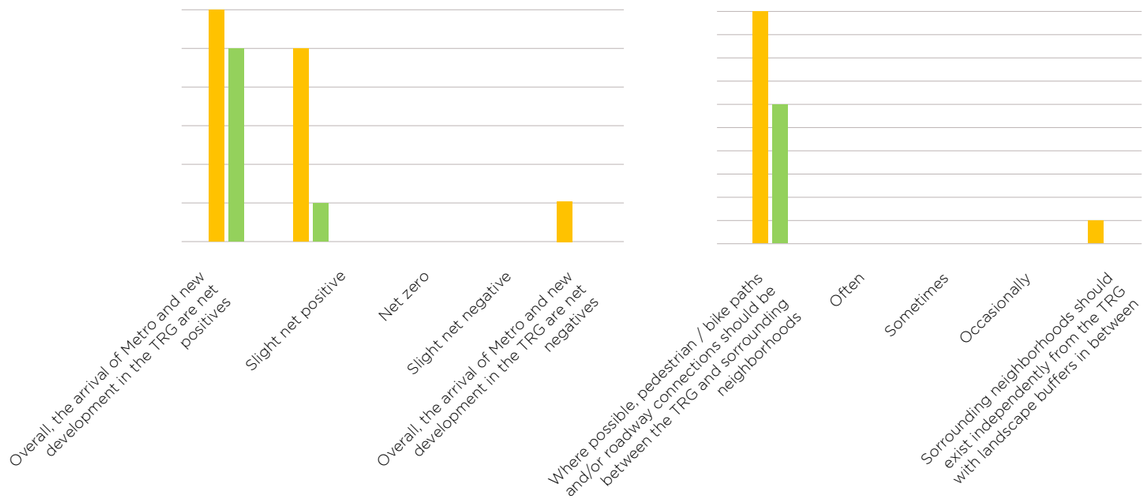
How much do you think the TRG is going to change now that Metro is coming?



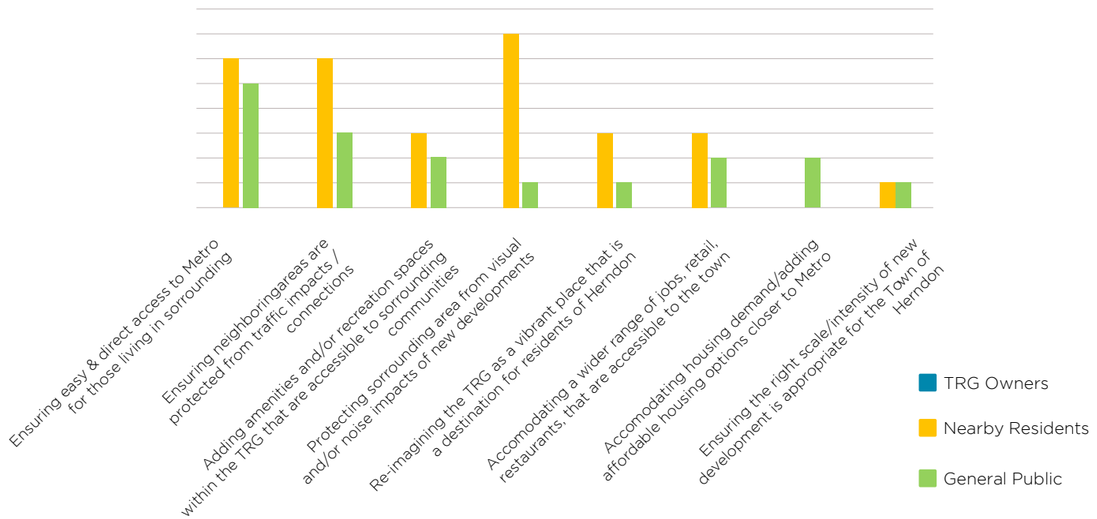
SMALL AREA PLAN
Transit-Related Growth Area

AGGREGATE DATA CHARTS

In terms of the TRG's relationship with the surrounding neighborhoods...

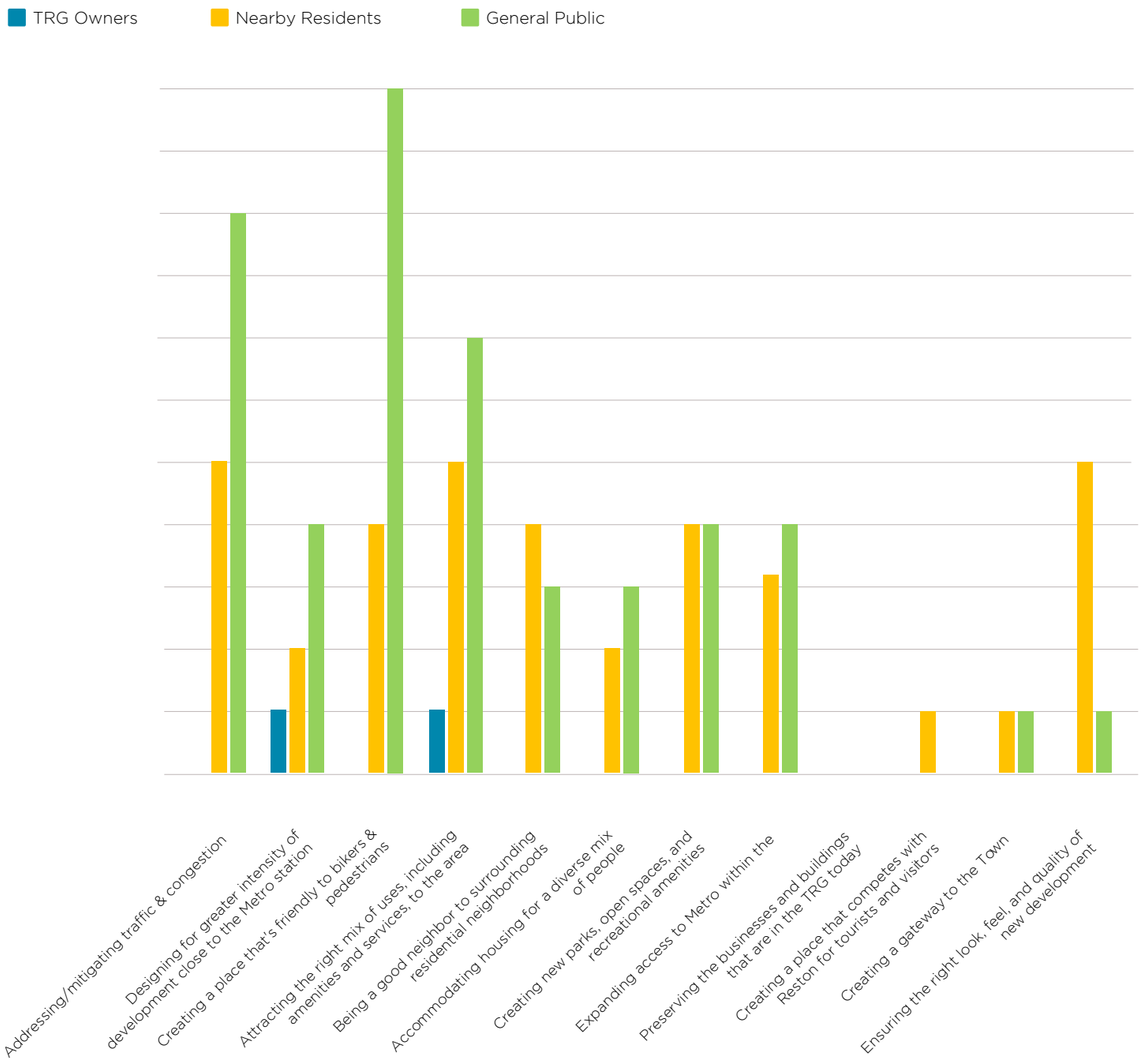


Which topics should be top-of-mind in planning for the TRG when it comes to the relationship with surrounding neighborhoods?



AGGREGATE DATA CHARTS

Which issues should be critical priorities in planning & development of the TRG?



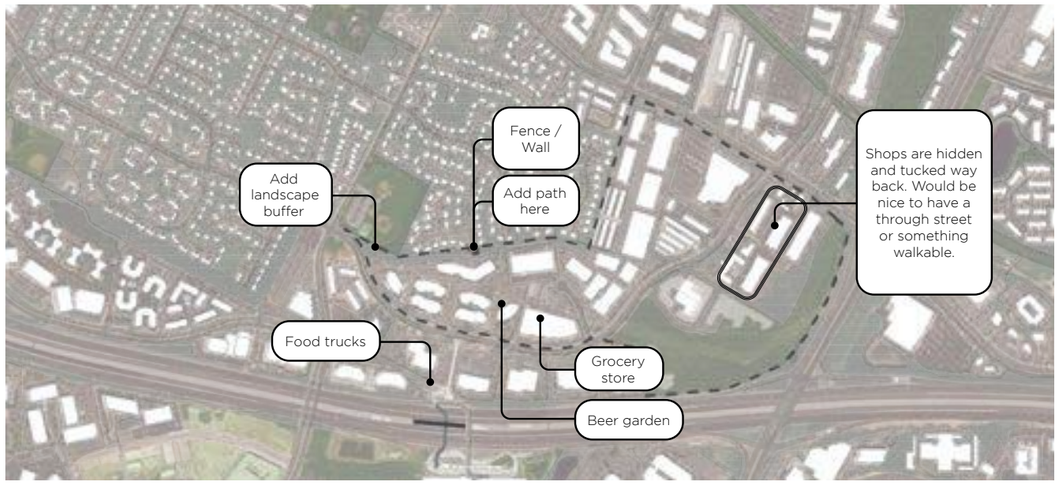
ANNOTATED MAPS

TRG Property Owners

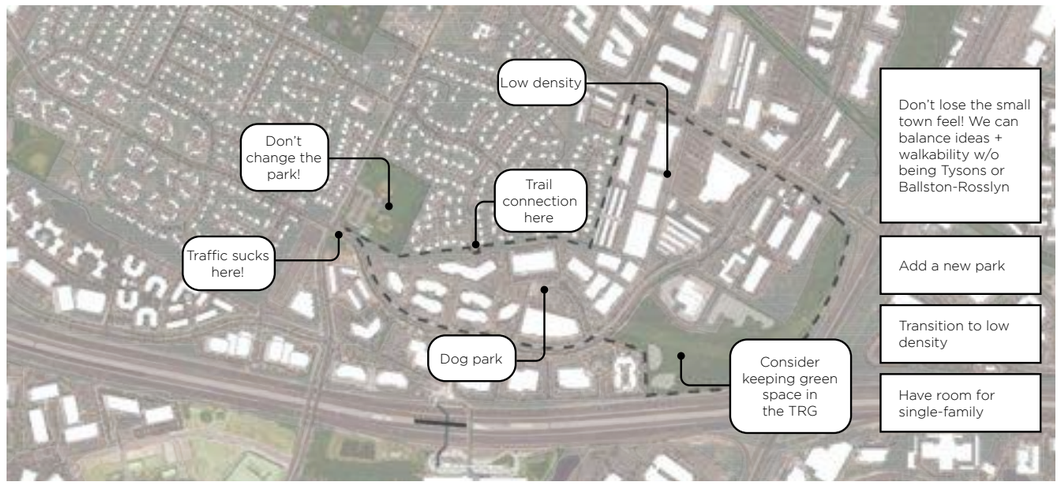
TRG Property Owners

SMALL AREA PLAN
Transit-Related Growth Area
ANNOTATED MAPS

TRG Nearby Residents



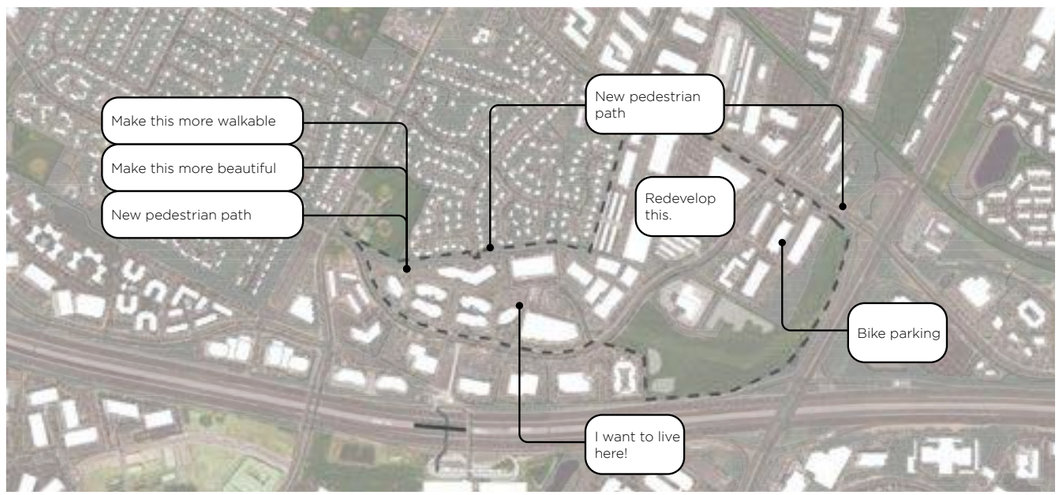
TRG Nearby Residents



SMALL AREA PLAN
Transit-Related Growth Area
ANNOTATED MAPS

TRG Public Meeting

TRG Public Meeting



APPENDIX 2

TRANSPORTATION ANALYSIS: CLARIFICATIONS AND ASSUMPTIONS

TRANSPORTATION ANALYSIS: EXCLUSIONS

The scope of work being undertaken by VHB assumes the following services are excluded:

- New traffic data collection, including volumes, queue observations, travel times, or any other data that might be used to calibrate the model.
- VISSIM model expansion beyond the RFP study intersections.
- Comprehensive VISSIM model recalibration.
- Videos of traffic simulation.
- Measures of Effectiveness (MOEs) reported from Synchro.
- Formal VDOT processes or reporting (e.g., SJR, IAR, OSAR, VDOT 527, VDOT 729).
- Formal documentation of a signal warrant analysis.
- Conceptual engineering.
- New signal coordination plan or providing signal timings for any study intersections
- Please note that VHB is fully capable of providing services excluded from this scope of work, including but not limited to:
- Transportation data collection.
- Formal signal warrant analysis and documentation.
- Coordination with VDOT, including engagement in and reporting required under processes such as SJR, IAR, OSAR, 527, and 729

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

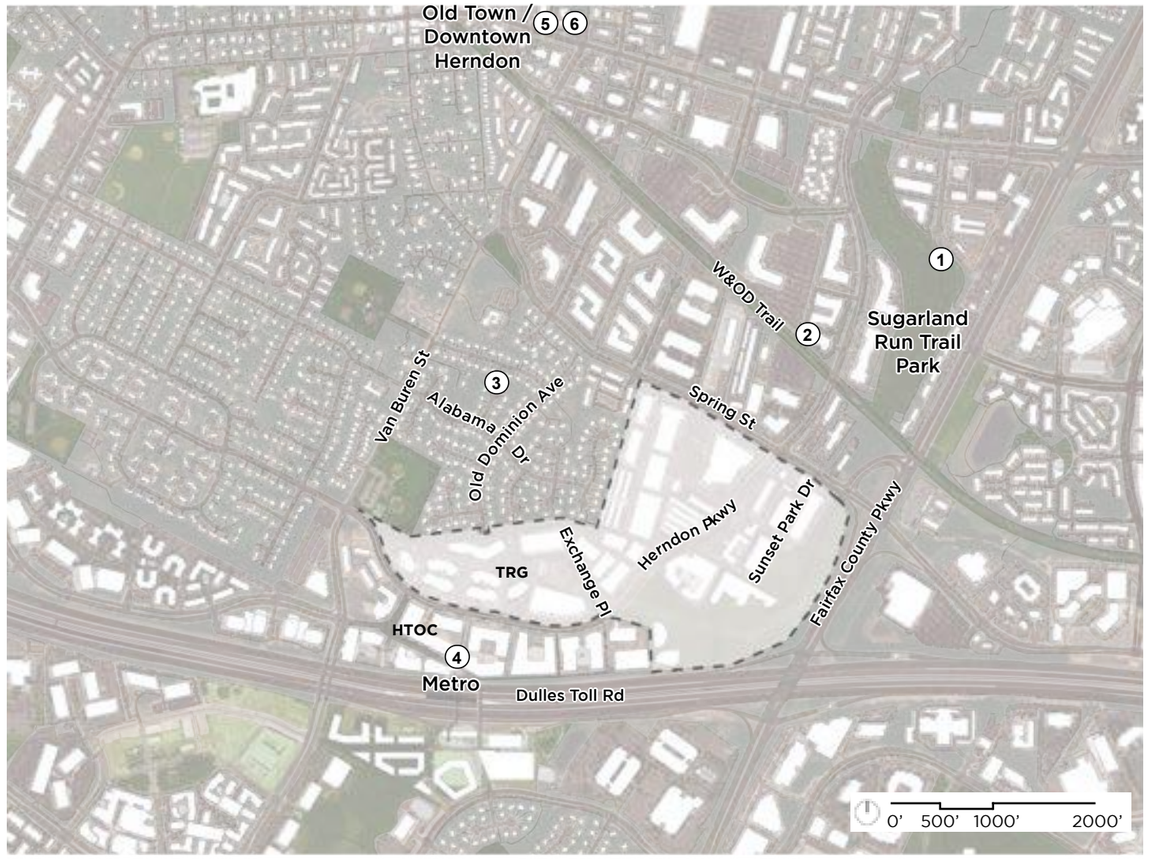
INTRODUCTION

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

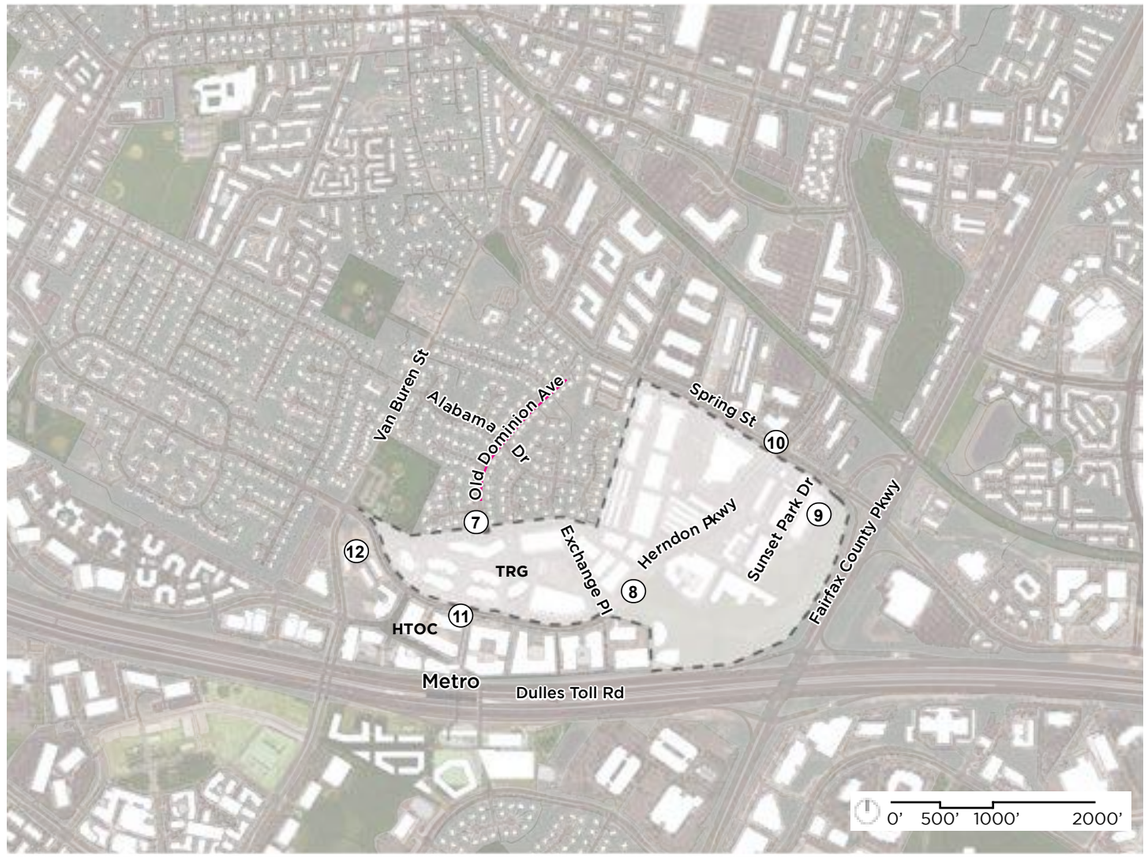
3 The Downs of Herndon

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.

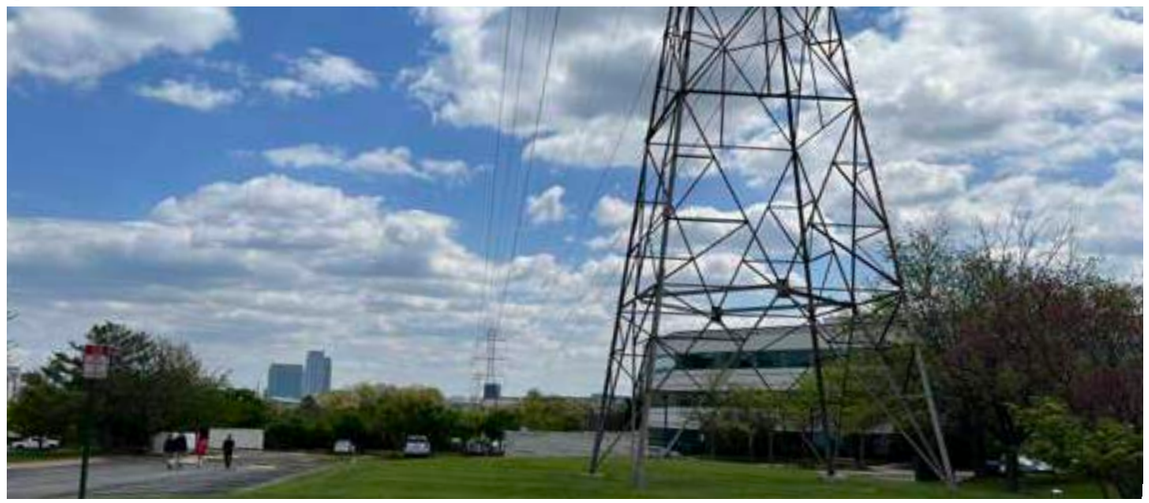
While the Dominion easement has the benefit of framing view corridors, the pylons and wires themselves could be considered eyesores. In the Visioning stage, design strategies can be employed to highlight the view corridor, and simultaneously obscure the electricity pylons. Careful placement and orientation 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

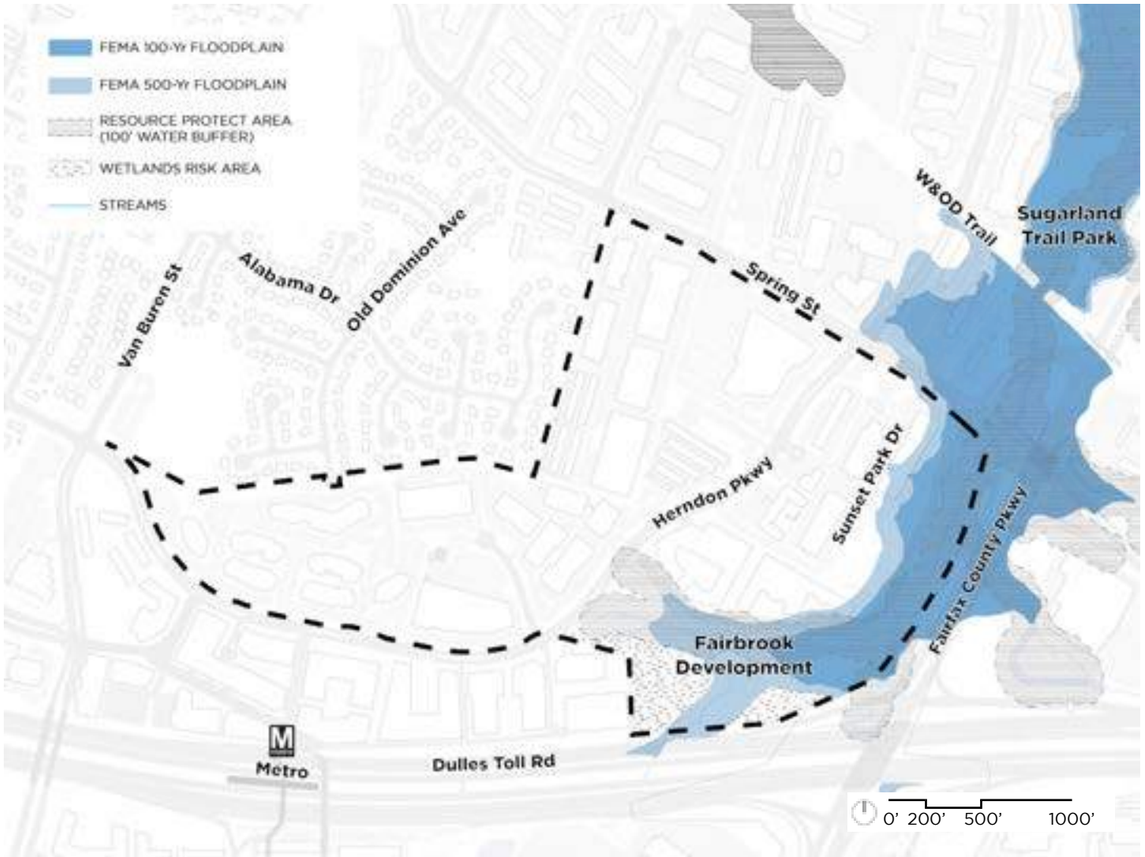
⑮ Potential Sugarland Run stream and trail gateway

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



⑰ View of the new Reston Gateway skyline from the TRG

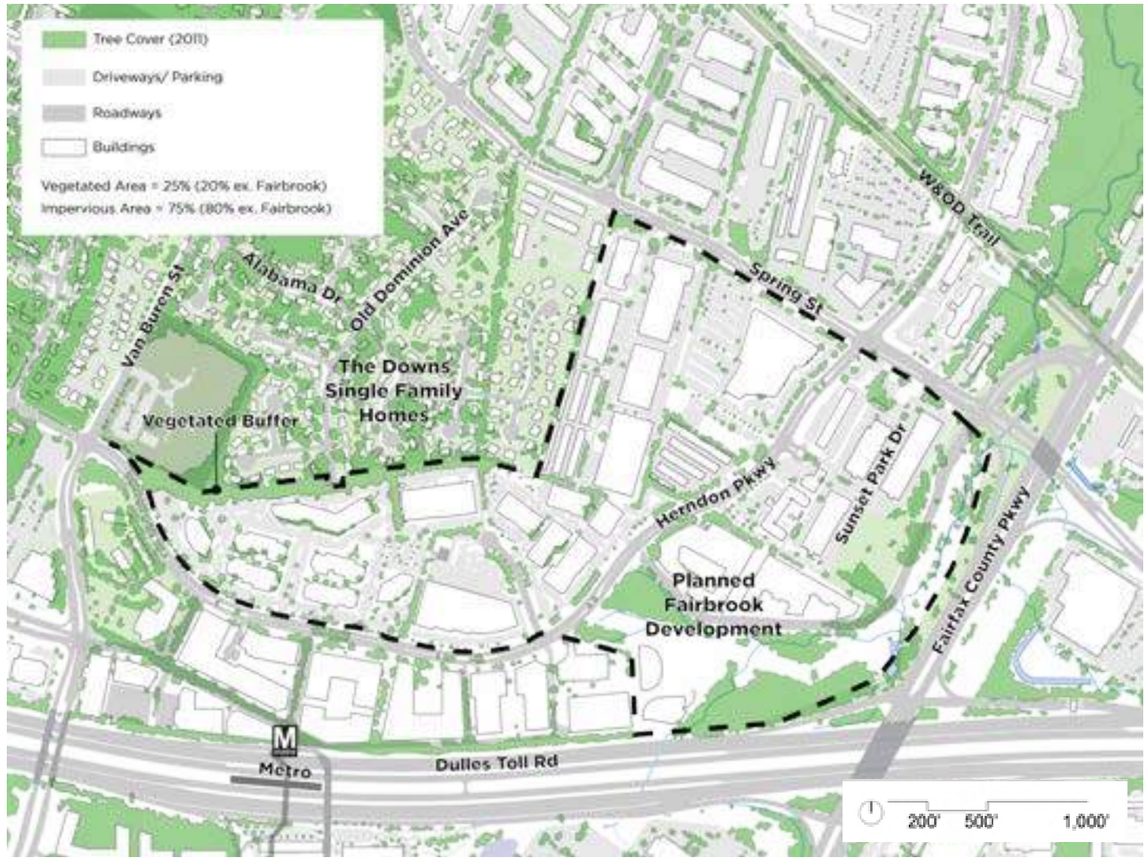
Site Features | **Natural Resources**



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

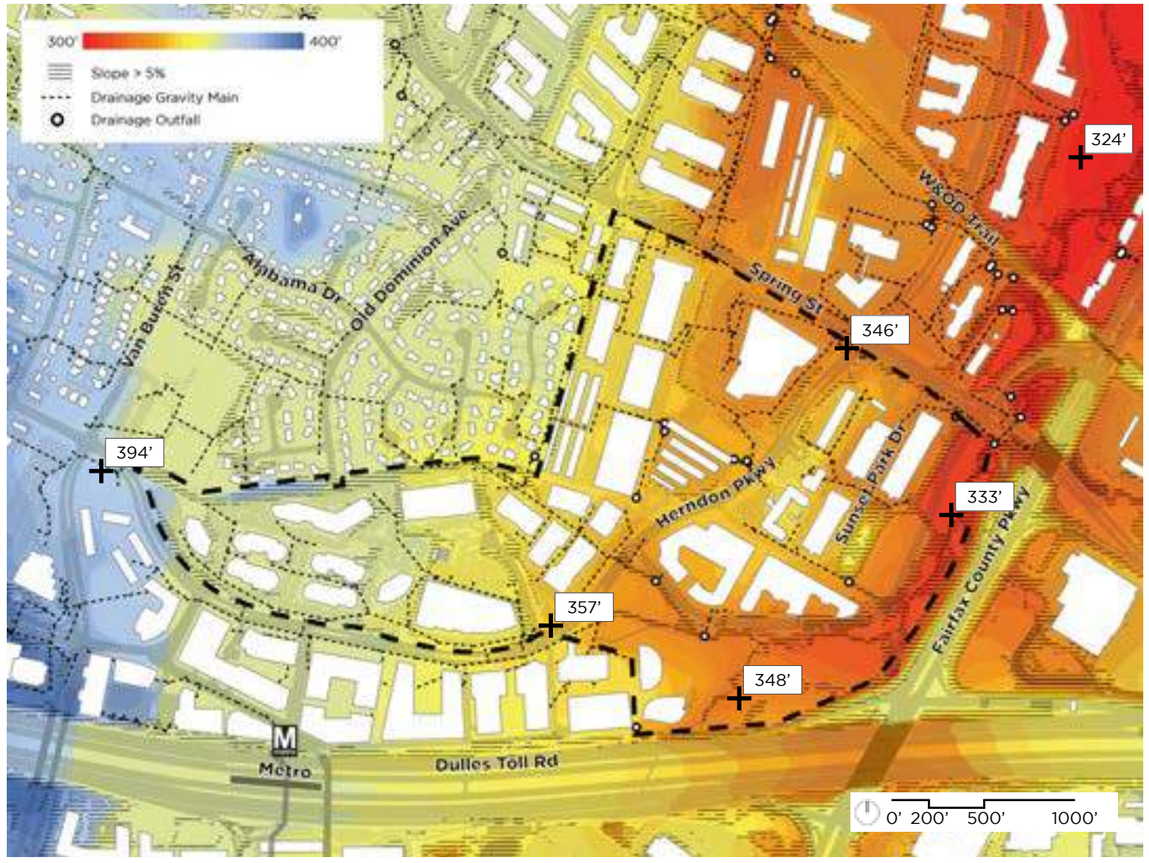
Site Features | **Tree Cover**



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.

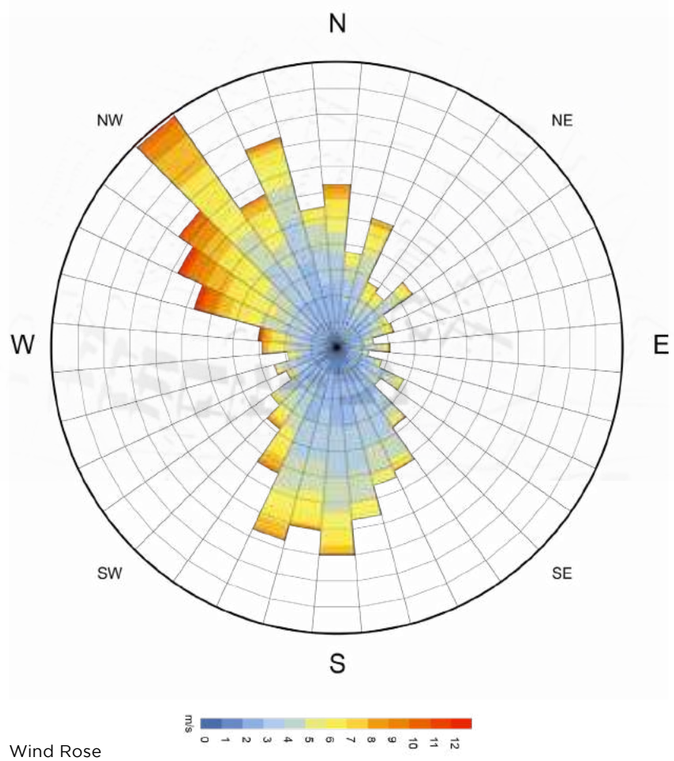
Within the TRG, there are steeply sloped areas: the banks of Sugarland Run; the embankments of the Fairfax County Parkway and the Dulles Toll Road; and the vegetated buffer separating the TRG from the Downs. These areas more or less fixed, but should have minimal impact on any redevelopment within the 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.

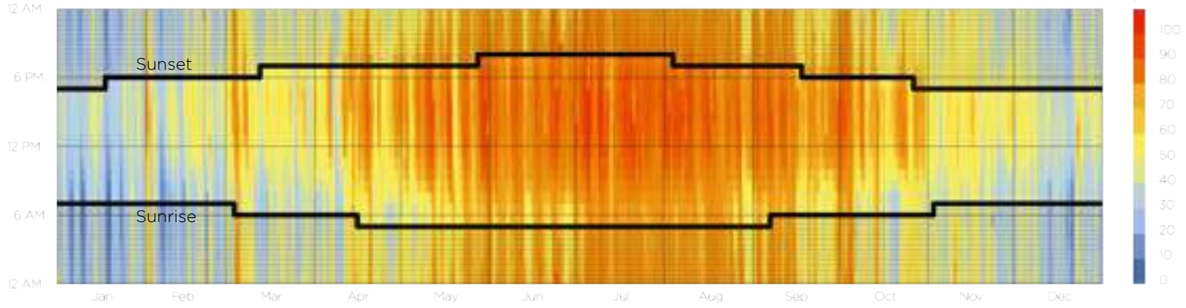
Site Features | **Climate & Wind Patterns**

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.



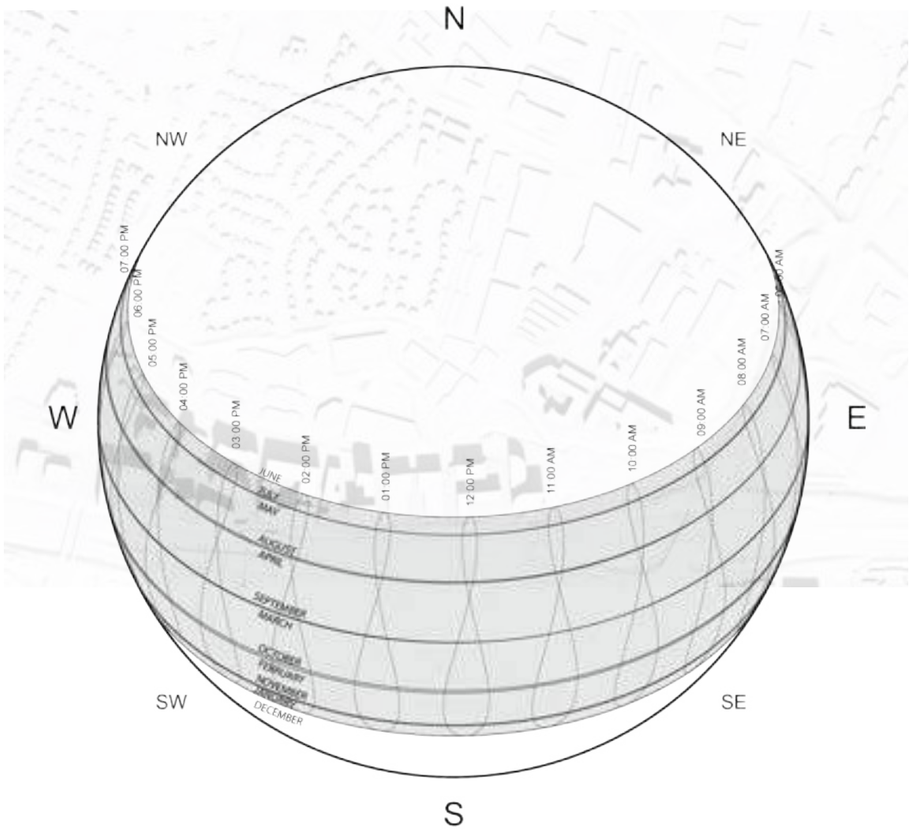
Hourly Dry Bulb Temperature (30-yr average)

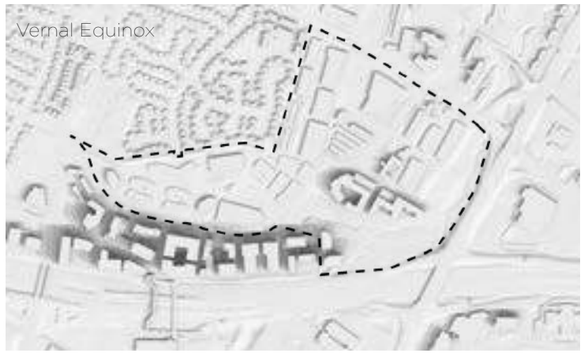
Site Features | **Sun Orientation & Shading**

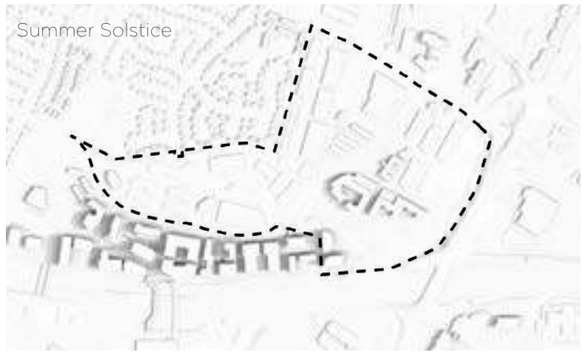
With the anticipated development of the HTOC a study was conducted to evaluate what, if any, shading impacts should be expected within the TRG boundaries. In order to approximate future HTOC development, the general building masses illustrated in the original HTOC report were used. Where available, approximate 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.

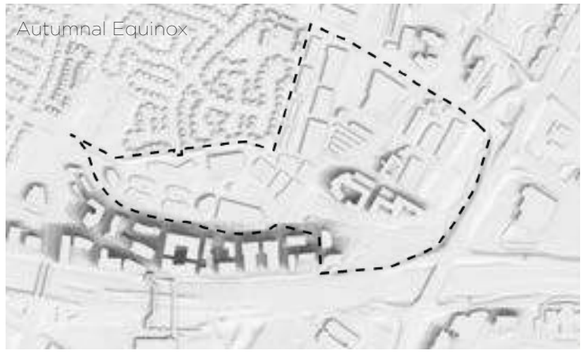
However, the stretch of the Herndon Parkway immediately adjacent to the HTOC would be shaded at least some part of the day throughout the year. In the weeks surrounding the winter solstice, some shading should be expected to cross the Parkway and impact the TRG for ~200 feet at the ground plane.

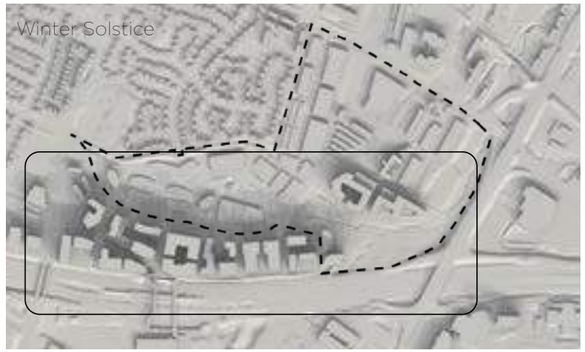
In the Visioning Phase, consideration to sun orientation and shading should be prioritized, especially when it comes to building mass orientation.



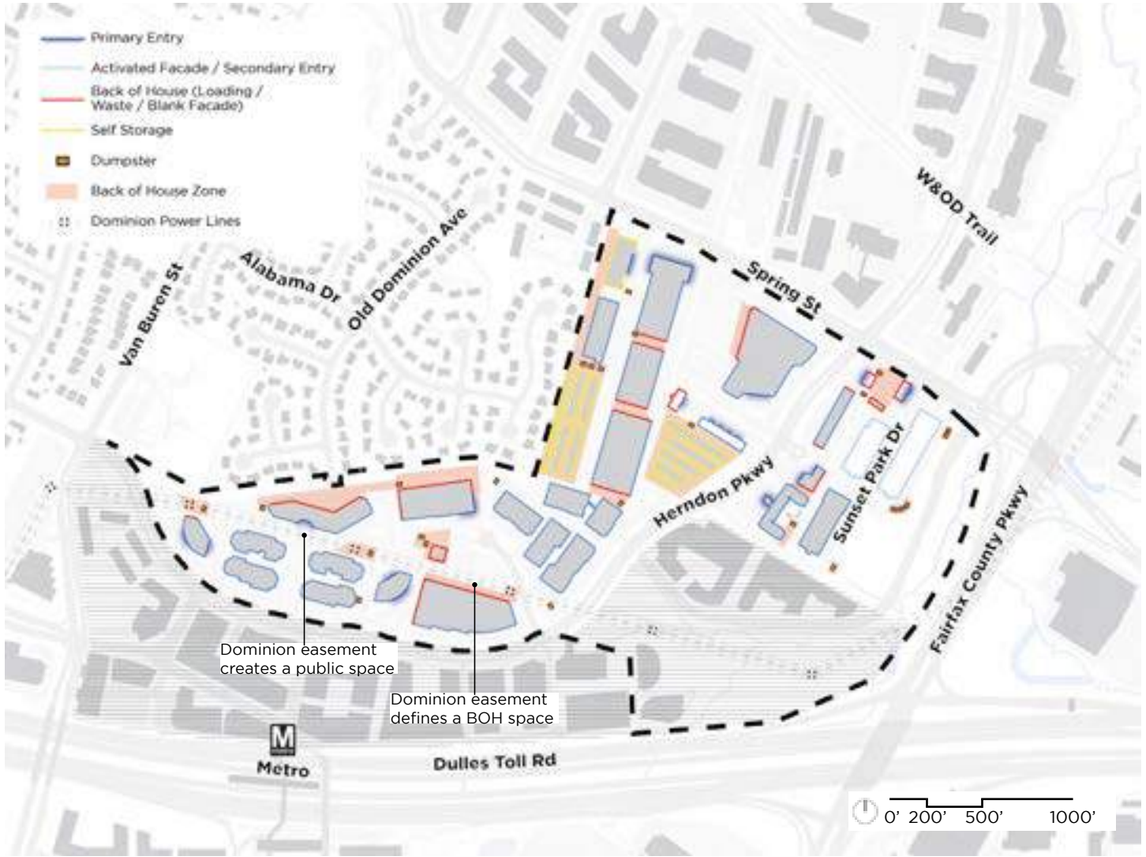








Site Features | **Building Orientation**

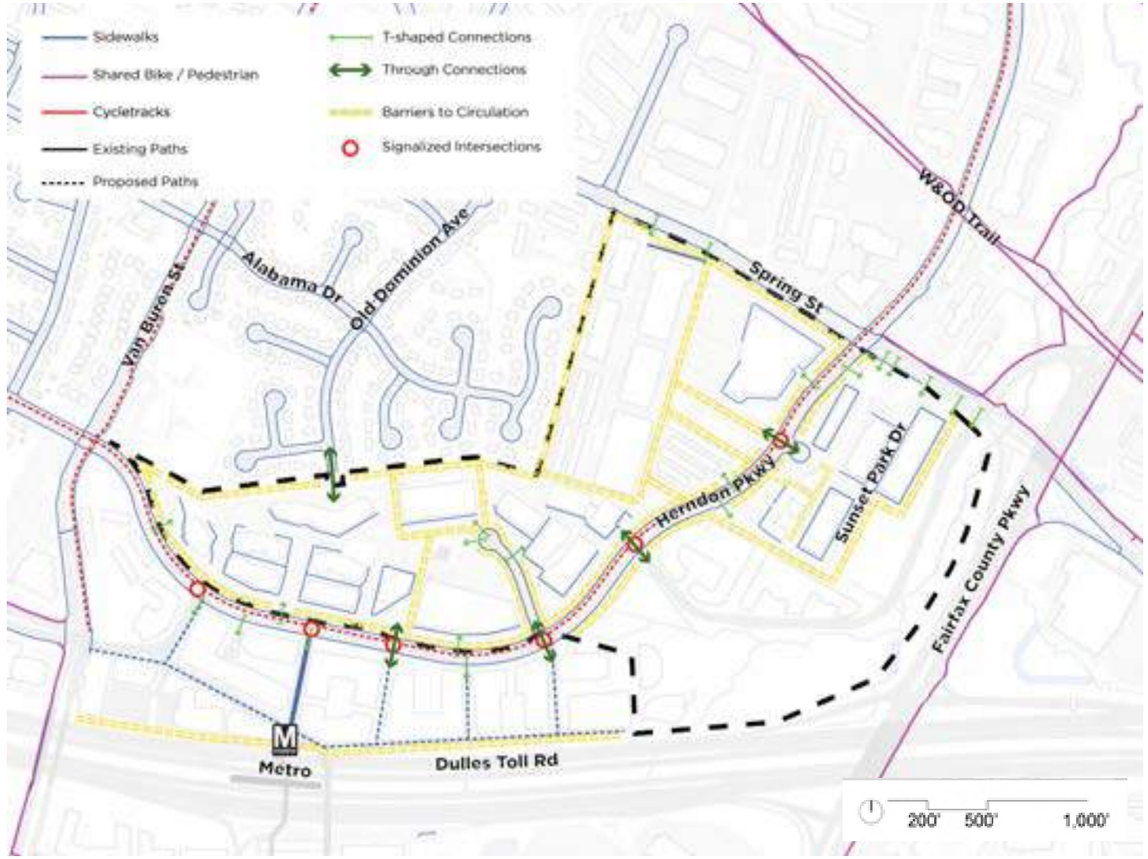


The map above illustrates the existing building orientations within the TRG, and the way in which front of house (FOH) vs back of house (BOH) spaces are organized. In its current configuration, there is little differentiation in the way in which FOH and BOH zones are distributed throughout site. In some 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.)

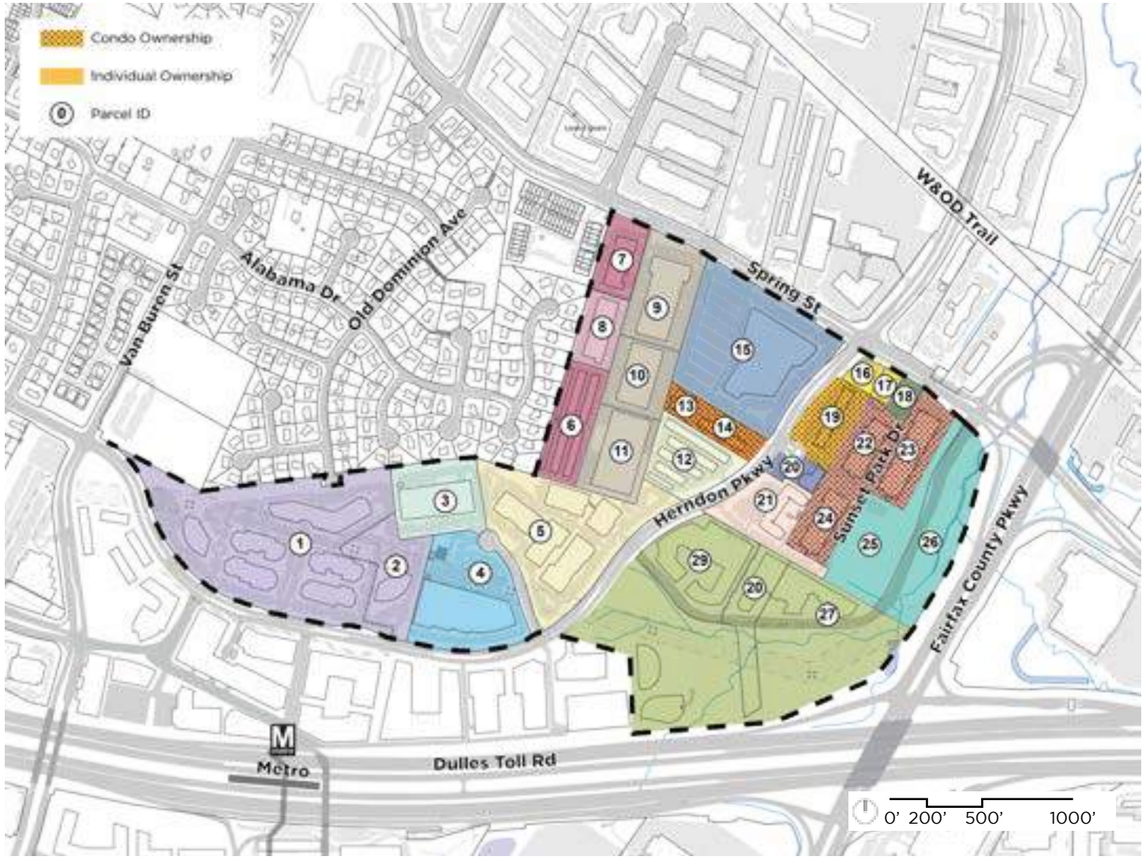
This lack of spatial organization can also be seen in the existing circulation patterns. Generally, buildings within the TRG are laid

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.

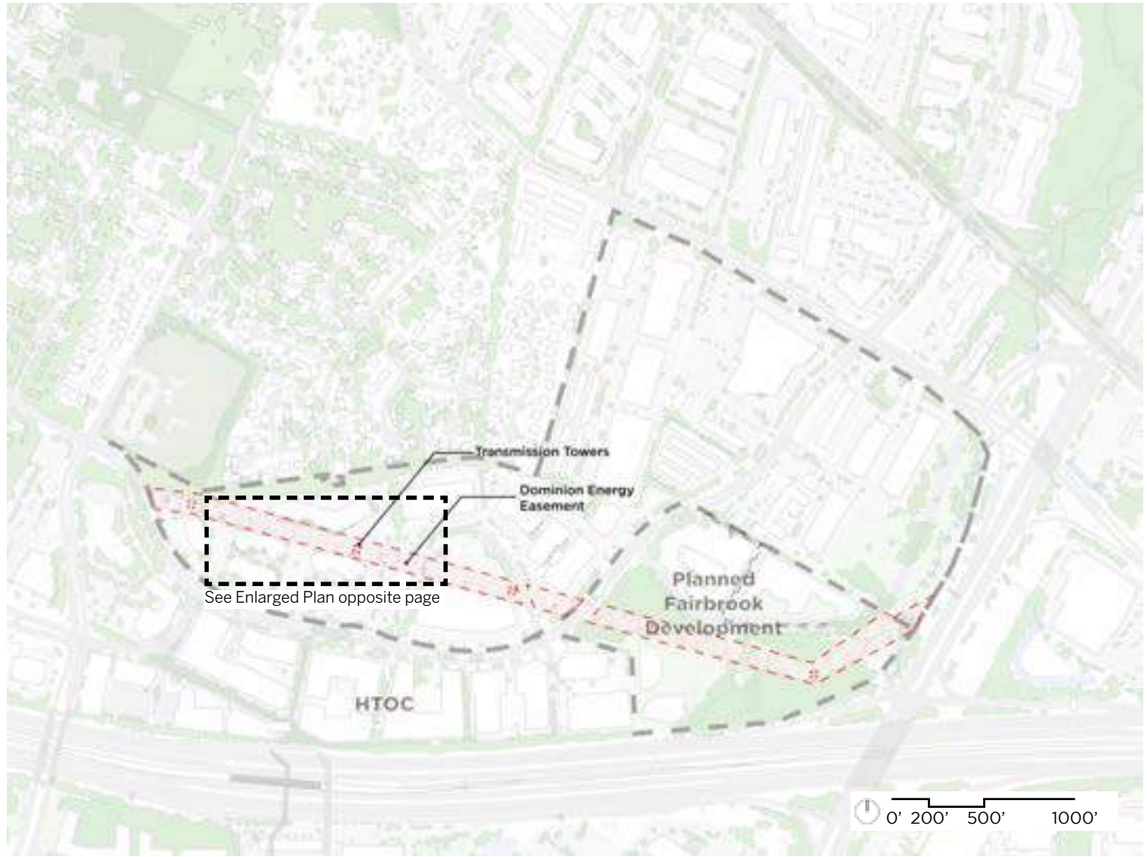
One prevalent opportunity throughout the TRG is building age: most of the buildings date back to the 1980's and 1990's, which puts them at the end of their useful lifespan or are likely in need of will need major renovation in the near future.

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

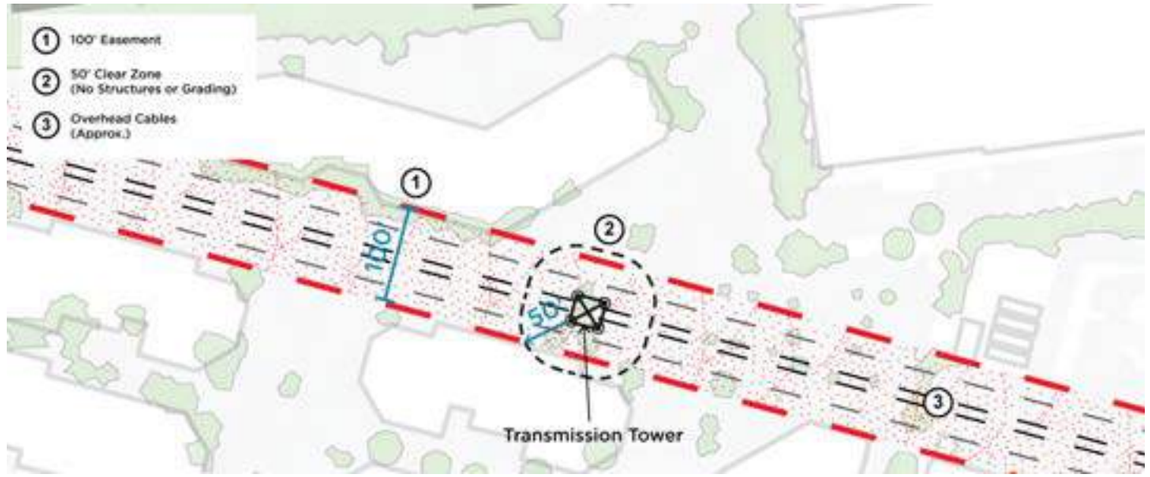


The Dominion Easement bisects the western portion of the TRG site, the area within a 5-minute walk from the Metro and across the Herndon Parkway from the planned HTOC development.

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

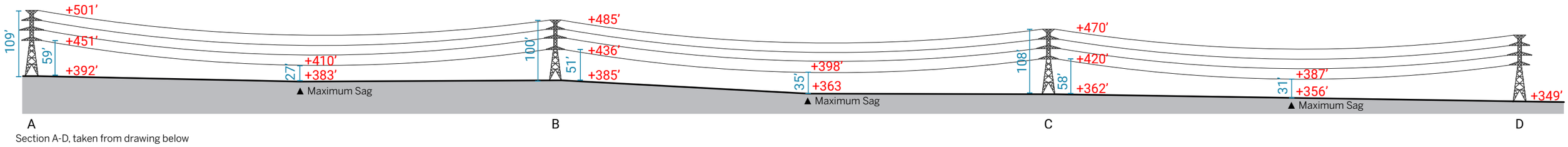
General Requirements:

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"

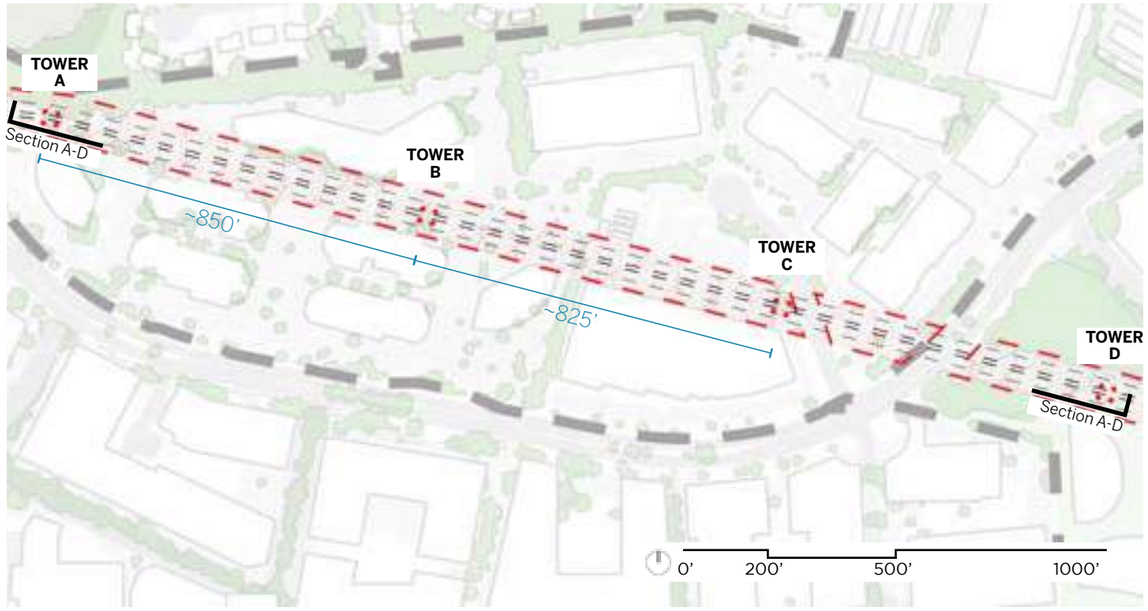
Note that final requirements are determined by an agreement with Dominion.

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)

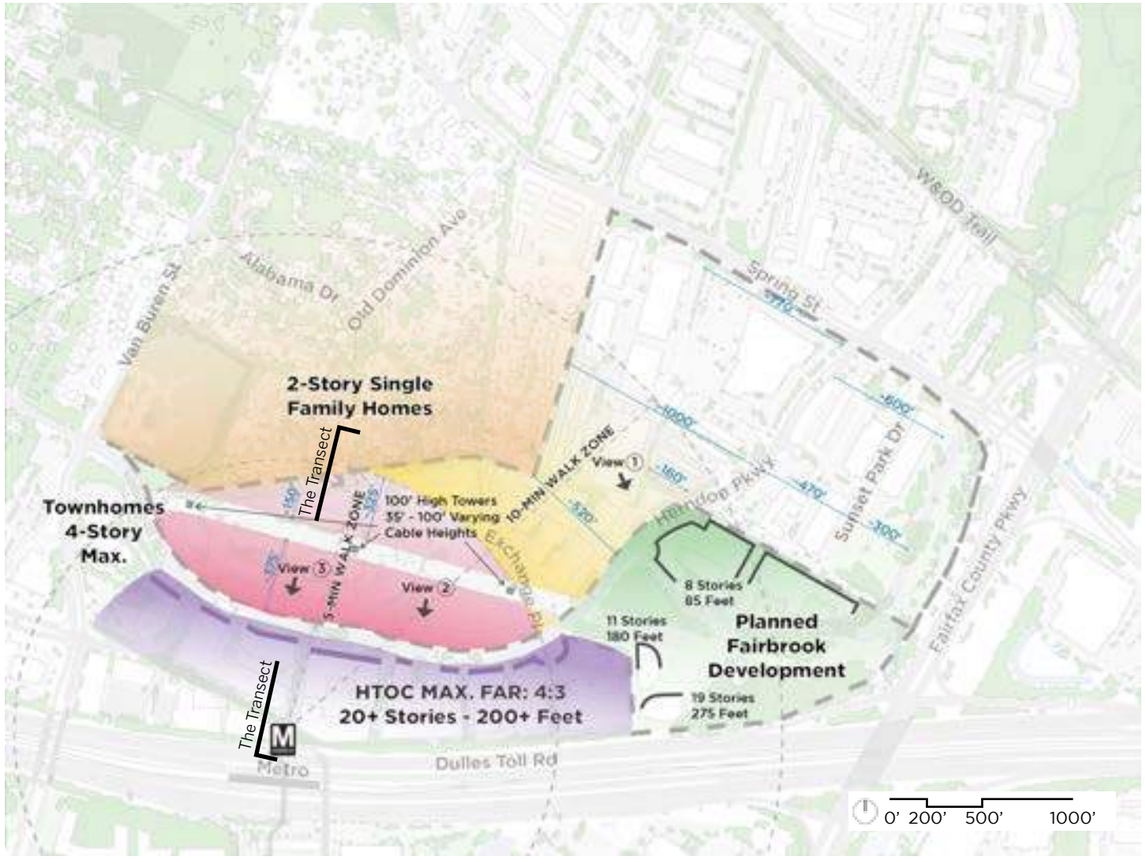
There are three transmission towers on the contiguous western portion of the TRG bounded by Herndon Parkway. Those towers are approximately 825 to 850 feet apart, roughly the distance of two large city blocks. The towers are at least twice as tall as the buildings around them, as seen in the photo on 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

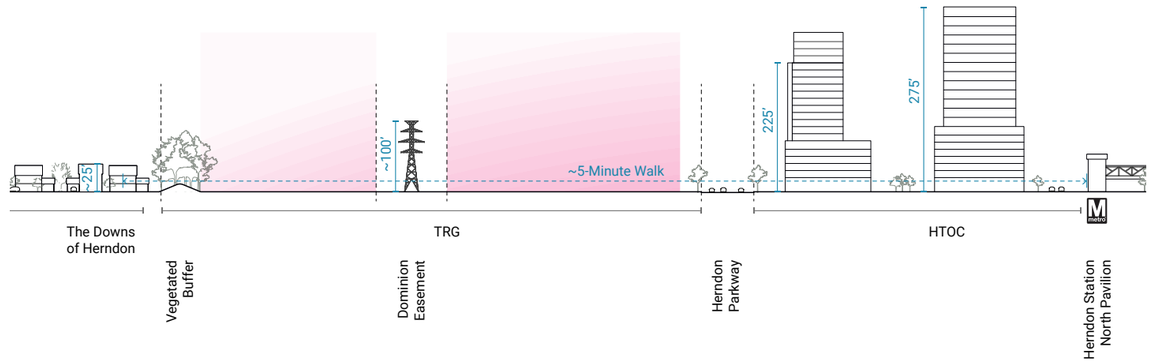


The TRG Small Area Plan will null current zoning height limitations in favor of new ones, to be attune with transit-oriented densities given the opening of the Herndon Metro Station.

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



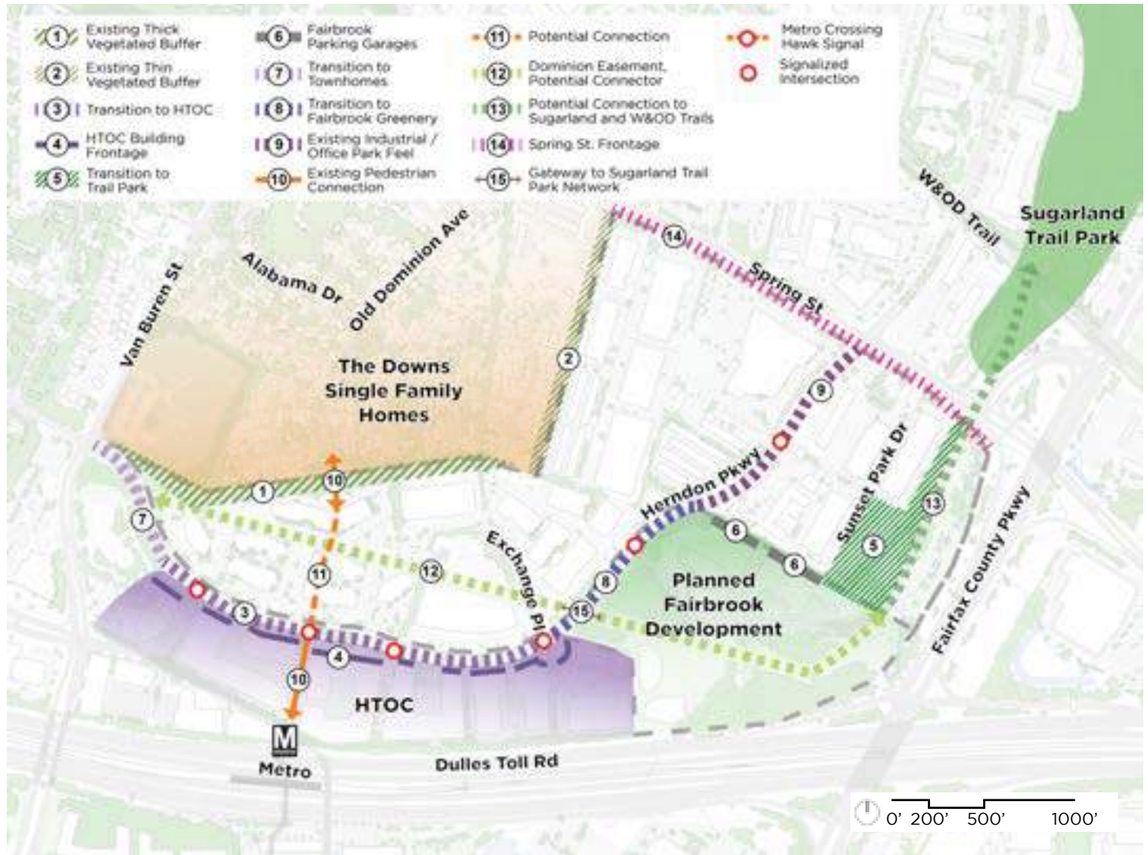
Ongoing Developments Across the Herndon Parkway

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.

RCLCO
REAL ESTATE CONSULTING

STRATEGIC MARKET ANALYSIS FOR FUTURE DEVELOPMENT

TRANSIT-RELATED GROWTH AREA

HERNDON, VA

Prepared for Skidmore, Owings & Merrill
October 6, 2022

ABOUT RCLCO

Since 1967, RCLCO has been the "first call" for real estate developers, investors, the public sector, and non-real estate companies and organizations seeking strategic and tactical advice regarding property investment, planning, and development.

RCLCO leverages quantitative analytics and a strategic planning framework to provide end-to-end business planning and implementation solutions at an entity, portfolio, or project level. With the insights and experience gained over 50 years and thousands of projects–touching over $5B of real estate activity each year–RCLCO brings success to all product types across the United States and around the world.

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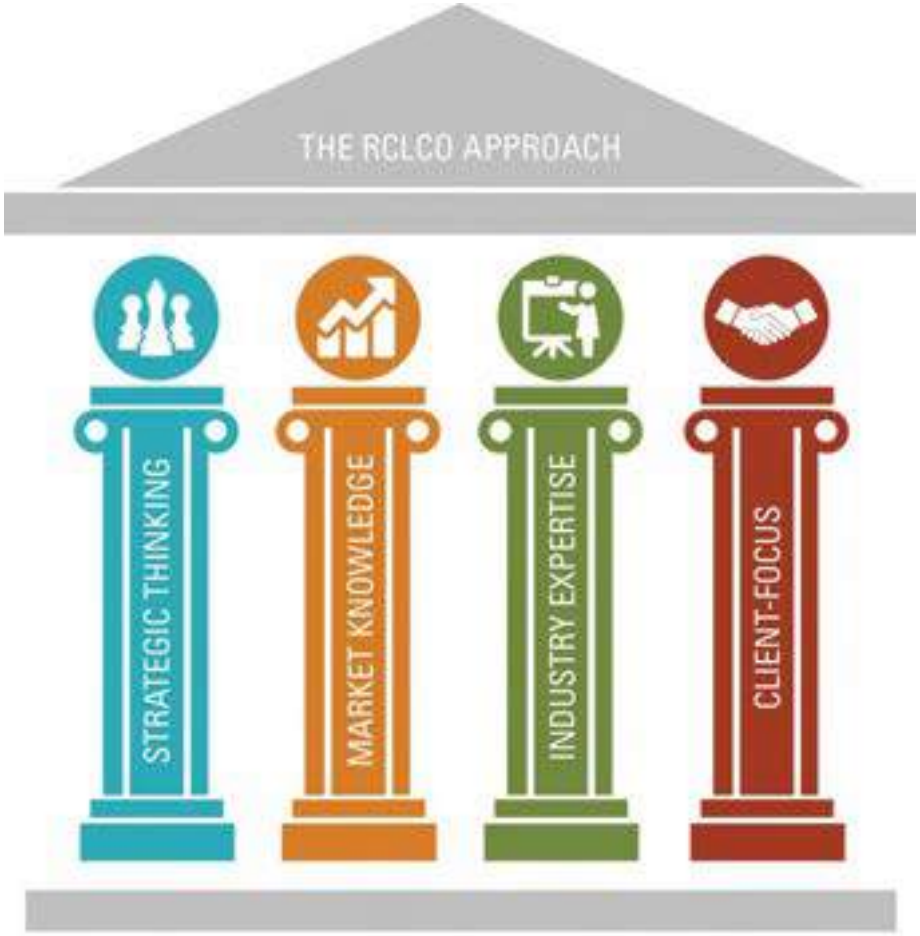

CONTENTS

RCLCO REAL ESTATE CONSULTING

OBJECTIVES & KEY FINDINGS

OBJECTIVES

Skidmore, Owings & Merrill ("SOM") is working with the Town of Herndon to create a transit-related small area plan, which would guide the development of approximately 25 privately owned parcels—collectively referred to as the Transit-Related Growth Area ("TRG")—near the future Herndon Metrorail Station. As they do so, SOM and the Town of Herndon are considering the extent to which sites in the TRG might support a number of potential land uses, including rental housing, for-sale housing, office, retail, hotel, and self-storage.

With this background in mind, SOM brought RCLCO onto the consultant team for this effort. RCLCO is a national real estate advisory firm, with more than 50 years of experience serving as the "first call" for real estate developers, investors, the public sector, and non-real estate companies and organizations seeking strategic and tactical advice regarding property investment, planning, and development.

One objective of RCLCO's work on the consultant team is to provide an independent market analysis, outlining the various real estate opportunities that are available to the TRG, and providing program direction for those opportunities. Specifically, this market analysis is intended to respond to the following key questions:

- Who are the logical market audiences for various residential and commercial land uses at the subject site?
- What is the potential depth of market demand for those various residential and commercial land uses over the next 20 to 25 years?
- What impact will the introduction of transit and any other planned improvements have on the evolution of the submarket and the trajectory for each land use in the TRG?
- At a high level, what revenue assumptions (sales price, rents, lease rates, etc.) are achievable given supply/demand conditions?
- Based on the above, what development program represents the highest and best use of the TRG?

Map of Transit-Related Growth Area
Herndon, VA; September 2022

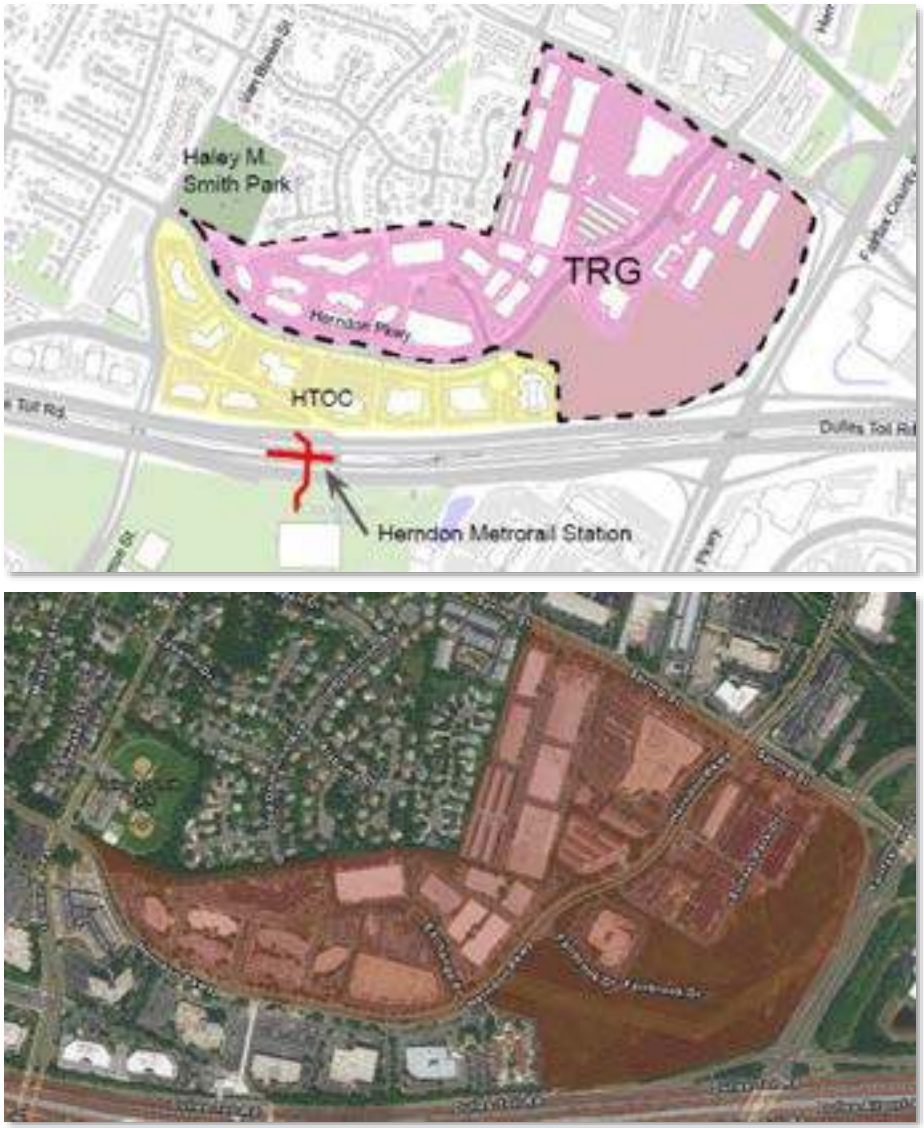

Image Source: Town of Herndon, Esri

KEY FINDINGS

RCLCO REAL ESTATE CONSULTING

REGIONAL OVERVIEW

Washington, D.C., is a strong market that continues to experience significant growth. Given the presence of the federal government, the regional economy of Washington, D.C., is generally more resistant to economic downturns that the regional economies of other major metropolitan areas. However, most recent job growth is occurring in the private sector, in industries like Professional & Business Services and Education & Health Services. More recently, technology has emerged as a major driver in the local market, in part due to the presence of the Central Intelligence Agency, the Defense Department, and other federal agencies that award contracts for cybersecurity and cloud computing. 55 of the world's 500 fastest-growing cybersecurity companies are based in the region, and Amazon is in the process of constructing its second headquarters at National Landing.

While the Washington, D.C., metropolitan area lost 199,000 jobs in 2020 as the local and national economies shut down during the COVID-19 pandemic, an economic recovery is well underway. The region added 59,000 jobs during 2021, and Moody's Analytics expects it to surpass pre-pandemic levels of employment during 2023.

Having said all of the above, the RCLCO Base Case (60% probability) assumes that increases in Federal Reserve's Funds Rate—coupled with elevated energy prices, lingering supply chain disruptions, and weaker global growth—will negatively impact the U.S. economy. U.S. GDP growth is likely to slow (0% to 2%) during 2022 and 2023 with a high likelihood of a shallow recession during that timeframe. However, it is important to note that redevelopment in the TRG is likely to occur over the long term, and not just the near term. Even in the case of immediate opportunities in the TRG, the markets for several favored asset classes (e.g., rental apartments, self-storage) are expected to remain relatively stable, and to remain supportive of new development. Please see Pages 10-11 for more information.

SUBMARKET CONTEXT

Historically, many of the new technology and cybersecurity jobs in the region have concentrated along the Dulles Toll Road, resulting in rapid residential and commercial growth. Today, Fairfax County and adjacent Loudoun County are among the five wealthiest counties in the nation, highlighting their appeal to residents and employers.

Along with the introduction of light rail via the Silver Line, growth along the Dulles Toll Road has spurred a significant amount of real estate development in this part of the region, which has transitioned from largely suburban in character to increasingly dynamic and mixed-use. Located near the TRG, Reston Town Center has historically severed as one of the primary hubs for mixed-use development in Northern Virginia.

However, several other projects have emerged in recent years, attracting companies that have sought to locate in environments in which their employees can live, work, and play. Recent examples of these developments include One Loudoun in Ashburn, The Mosaic District in Fairfax, and The Boro in Tysons, which have provided a growing number of destinations for residents of Northern Virginia to congregate.

More recently, a number of similar projects have been planned or proposed along the Dulles Corridor, especially following the announcement of the Silver Line. At this time, other multi-phase, mixed-use, and/or transit-oriented development projects include RTC Next, Reston Row, Halley Rise, Kincora, Loudoun Station, Innovation Station, and Waterside, all of which highlight the continued urbanization of the corridor. Although these projects are likely to make the submarket more attractive to users by adding to its amenity base, they also point to a competitive market environment.

SITE INTRODUCTION

Largely home to 1980s and 1990s commercial properties, the TRG is an attractive location for redevelopment, considering the many changes in the surrounding market and the upcoming delivery of the Herndon Metrorail station. The size of the TRG is another reason for its appeal; at approximately 120 acres, the TRG has the potential to emerge as a well-segmented and thoughtfully-designed neighborhood of its own, complementing—rather than competing with—others like Downtown Herndon and Reston Town Center. Many different property owners exist in the TRG, and careful planning is necessary to ensure a common vision for growth in the area.

Such planning is also vital to focus efforts on markets that present opportunities in the TRG, which is likely to be especially important due to the changes happening in this part of Herndon at present time. Additional information on the opportunities and markets by land use is shown on the following pages.

KEY FINDINGS

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SUMMARY OF OPPORTUNITY BY LAND USE

Rental Housing: Competition is increasing, but the TRG is very well-located for rental apartments, and this use is likely to act synergistically with others. While not widely present today, rental townhomes could be a similarly attractive use, which could mitigate some of the risk associated with apartments alone.

The Dulles Corridor (please see Page 23 for a submarket map) saw a sharp uptick in rental apartment development in the years leading up to the COVID-19 pandemic, though the balance between supply and demand remained reasonably healthy. From 2015 to 2019, approximately 4,700 units delivered in the Dulles Corridor, though the submarket managed to absorb the vast majority of this supply (87%). These trends point to competitive but generally healthy market conditions in the Dulles Corridor.

More recently, the COVID-19 pandemic placed downward pressure on occupancies and rents during 2020, though conditions have improved considerably. Even as the Dulles Corridor delivered more than 1,400 units during 2021, net absorption exceeded new development, and rents rebounded by an impressive 14.6%. Thus far in 2022, the pace of development has slowed, and vacancies have fallen as new deliveries have stabilized. These trends suggest that the apartment market has fully recovered from the COVID-19 pandemic, and that there is once again appetite for new product.

Along with the introduction of the Silver Line, the presence of large development sites in the Dulles Corridor has attracted considerable developer interest in recent years, leading to a robust pipeline that totals almost 16,000 units. Although this pipeline represents more supply than the Dulles Corridor is likely able to absorb within the next 10 to 15 years, it is important to note than many of these units are part of multi-phase development projects that are still speculative and/or unlikely to deliver all at once. As such, the pipeline points to increased, but still healthy, levels of competition.

Despite increased competition in the rental apartment market, the TRG is very well-located from the perspective of this use, as on-site housing is likely to benefit from the delivery of transit within a short walk, and to complement higher-density commercial uses in the nearby HTOC. A significant concentration of units is also likely to enhance appeal to commercial users, as office users will value the ability of their employees to live nearby, and retail tenants will benefit from a built-in pool of consumers.

Although not widely present in the market today, build-for-rent ("BFR") townhomes present many of the same benefits as rental apartments, without the risks associated with the development pipeline. Demographic trends are also broadly supportive of this use, given the size of the Millennial generation; as members of this generation age, many are poised to look for larger homes, which is likely to become increasingly challenging to accomplish via the for-sale housing market due to rising prices.

For-Sale Housing: There is growing demand for a range of housing options, and the TRG is likely to be an attractive location for households that value proximity to employment, transit, and other walkable neighborhood amenities.

Housing prices in the Dulles Corridor have increased significantly in recent years. In 2021, 60% of home sales and resales took place at price points above $500,000, up from just 40% five years earlier. At the same time, various forms of high-density housing—including townhomes, two-over-two condominiums, and condominium flats—have grown increasingly prevalent, together representing nearly two-thirds (65%) of transaction activity in the Dulles Corridor today. This shift stems from the infill nature of the submarket, as well as the fact that higher-density housing serves as an important lifestyle and value alternative to traditional detached homes—particularly considering rising prices.

In the very near term, rising interest rates are likely to weigh on affordability, and this trend may place a lid on transaction activity over the next one to three years. However, demand is expected to rebound quickly, and—even in the meantime—there is likely to be continued appetite for more attainably priced options like the ones that are delivering in the Dulles Corridor today. The pipeline is sizable but likely insufficient to keep up with demand in the mid to long term, pointing to opportunities in the TRG.

The TRG is well-located for a range of for-sale housing options, including entry-level townhomes and two-over-two condominiums oriented towards professionals in the area, as well as condominium flats and higher-end townhomes serving empty nesters who may be downsizing from larger homes nearby. Similar to rental apartments and BFR townhomes, these homes are likely to generate synergies with others in the TRG and nearby HTOC, including office and retail in particular.

KEY FINDINGS

RCLCO REAL ESTATE CONSULTING

Office: Demand is moderating, as the Washington market continues to mature, and as its office spaces grow more efficient. There is also a robust pipeline, and the TRG is not as well-located as other sites to compete for corporate users, though there may be opportunities for smaller and/or creative ones.

In the years prior to the COVID-19 pandemic, the Washington region experienced moderating demand for office, in part due to the mature nature of its job market, but also due to more efficient space usage for its white collar workforce. From 2010 to 2019, the Washington metropolitan area absorbed an average of just 3.4 million net new square feet of space annually, far less than the previous decade. Fortunately, there was relatively limited new construction, and vacancies did not grow to more than 13% to 14%, though they have since risen during the COVID-19 pandemic.

Home to 56.1 million square feet of space, the Dulles Corridor demonstrated stronger fundamentals relative to the region, with net absorption exceeding new development from 2010 to 2019 as there was relatively little construction. However, net absorption over the decade averaged just 464,000 square feet per year, and the last two years have shown net negative absorption totaling 888,000 square feet. Vacancies have been highest at older buildings, and newer buildings—in comparison—are generally well-occupied and quick to lease. While this dynamic points to a "flight to quality," it is important to note that the rents at the newest buildings are nearly double submarket averages, and there is likely to be a finite number of users who will be willing or able to make such a transition in the long term.

Of particular concern, there is a robust pipeline of under construction and planned office space, after a decade of almost no new development. This space is likely to result in very challenging market conditions, particularly for locations like the TRG. Relative to the HTOC and other sites in the pipeline, the TRG does not offer as direct of access to transit, and it is also somewhat removed from the critical mass of existing technology and cybersecurity companies. As a result, there is likely to be a finite amount of new demand from corporate office users in the TRG.

Nevertheless, there are likely opportunities to better-serve existing office users in the TRG, who currently occupy an estimated 776,000 square feet of space. As seen elsewhere in the market, space needs tend to decline when users move into new buildings, usually by an average of 20% to 30%. However, a large portion of these users are likely unable to pay the rents associated with the new buildings that are delivering elsewhere in the Dulles Corridor. Along with smaller creative businesses (e.g., architecture, design, etc.), these businesses present opportunities for the TRG, likely requiring smaller and lower-cost spaces than their corporate counterparts.

Hotel: The Dulles Corridor is a large but slow-growing hotel market. Although the COVID-19 pandemic hit the submarket hard, the TRG is likely to present attractive opportunities for additional hotel development when redevelopment begins to take place, and as the amenity base continues to grow.

The Dulles Corridor is home to a sizable but slow-growing hospitality market, which is largely comprised of limited- and select-service hotels that serve airport visitors and surrounding companies, including government contractors. A handful of full-service hotels—which tend to be larger and offer such amenities as hotel restaurants, conference centers, and catering services—also exist in the Dulles Corridor, though most are older. While limited new hospitality development has occurred in the submarket in recent years, fundamentals were healthy prior to the COVID-19 pandemic. Average daily rates ("ADRs") experienced steady growth, and occupancy rates averaged approximately 75%, exceeding the thresholds of 65% to 70% that many market experts consider to be "healthy."

Of course, the COVID-19 pandemic led to challenging conditions in the local and national hospitality markets, with occupancies falling to 35% in the Dulles Corridor during 2020. Conditions have since improved, in part because increases in pricing have offset a slower rebound in occupancies. However, the submarket may take another year or two to fully recover, given its reliance on business travel. Relative to leisure travel, this segment of the market has been somewhat slower to rebound, likely explaining lower occupancy rates of 64% thus far during 2022.

Relative to other hotels along the Dulles Corridor, hotels in the TRG have historically seen lower occupancy rates but higher ADRs, resulting in similar levels of revenue per available room ("RevPAR"). This comparison indicates that, although the hotels in the TRG are older, they are still performing well. While the pipeline is sizable, it is fairly speculative, and there is likely to be demand for one or two additional hotels in the TRG over the long term. Opportunities are likely to grow as redevelopment begins to occur, and as the surrounding amenity base starts to grow.

KEY FINDINGS

Retail: The Dulles Corridor is home to a large and competitive retail market, and careful planning is necessary to ensure that development takes place in a way that is complimentary of—rather than competitive with—Reston Town Center, Downtown Herndon, and other existing and future retail destinations.

Apart from office, retail is perhaps the most competitive real estate market in the Dulles Corridor. As outlined on Page 32, a growing amount of mixed-use development is taking place in the Dulles Corridor and elsewhere in Northern Virginia, and retail is often a key element of the programs for these projects. Nearly 2.1 million square feet of retail has delivered in the Dulles Corridor since 2010, and—while occupancies have remained healthy—the COVID-19 pandemic has led to some headwinds. The combination of these dynamics points to growing competition for the users who are necessary to support retail.

Near the TRG, Reston Town Center is already an established shopping destination in the region, and Downtown Herndon offers a smaller-scale and more "local-serving" atmosphere. Along with the delivery of other nearby development projects (e.g., RTC West, Halley Rise, etc.), the existing retail landscape reinforces the need for an appropriately sized and segmented retail program in the TRG.

In general, "experiential" forms of retail are likely to yield the strongest opportunities in the TRG, helping to complement—rather than compete with—nearby Reston Town Center. Restaurants, fitness, and entertainment are likely to be key components of this retail program, with opportunities for configurations that provide gathering places for local residents, such as breweries, a food hall, and/or a food truck gathering place.

There is also demand for a grocery store and other neighborhood services, and the likelihood that the TRG will attract one of these anchor tenants is poised to grow over time. While the TRG may be able to attract a boutique or specialty grocer in the near term, demand is likely to increase to a level that could support a more traditionally sized grocer in the mid to long term, once multiple residential deliveries have started to occur. Location is a key consideration for grocery users, most of which would prefer sites with strong accessibility and visibility near the intersection of Herndon Parkway and Spring Street. Hard and soft goods are likely to prove more challenging, given trends toward e-commerce and competition from nearby Reston Town Center.

Self-Storage: The Dulles Corridor is an attractive location for self-storage, which is likely to see continued demand. However, the use should be limited to select sites that will not interfere with the creation of a streetscape, so as not to adversely impact opportunities for other uses.

The Dulles Corridor is an attractive submarket for self-storage, the developers of which tend to prioritize locations with high household densities and home values. In addition, the submarket has seen a large amount of multifamily and townhome development, with many occupants of these housing units fueling support for nearby storage. Perhaps a result of this appeal, the Dulles Corridor has more than its "fair share" of self-storage relative to the state and nation, based on the number of households.

While the sheer amount of self-storage suggests that undersupply is unlikely at present time, the TRG presents selective opportunities for this use. In particular, there are likely to be opportunities for replacement self-storage, in which new spaces replace existing spaces, either to swap the sites on which they are located, and/or to provide a newer and higher-quality facility. In addition, demand is poised to grow over time, as additional residential development takes place within the TRG. These two drivers of demand suggest that near-term opportunities are likely to involve the replacement of existing facilities, while long-term opportunities may enable the creation of net new ones.

From a planning perspective, self-storage and other low-density commercial uses should be limited to sites that will not interfere with the creation of an attractive or vibrant streetscape in the TRG. Perhaps most relevant to this goal, the site on which *Public Storage* is now located is likely to be underutilized, should the facility continue to operate at the site over the long term. However, the facility is among one of the best performing in the immediate surrounding area, suggesting that incentives may be necessary to ensure that redevelopment takes place. Otherwise, redevelopment is unlikely to occur until surrounding values increase such that it is more profitable than continued maintenance, which may not occur for many years.

SUMMARY OF OPPORTUNITY IN THE TRG

RCLCO REAL ESTATE CONSULTING

The TRG presents market opportunities for a range of product types. The following summary matrix outlines likely criteria for development projects and cumulative demand for new space in the TRG, as well as the general level of market opportunity for each product type. The below summary matrix presents this information for residential product types, while the one on the following page presents the same information for commercial product types.

In general, product types that present "strong" market opportunities are likely to deliver in the TRG following the completion of this plan, with little to minimal guidance. Product types that present "moderate / strong" market opportunities are somewhat likely to do so, but may not be the first options that most landowners consider. Finally, product types that present "moderate" (or worse) market opportunities are less likely to be supportable and/or desirable, in most cases. Additional detail is outlined on Exhibit I-1.

Although not market-driven product types, institutional land uses could also play roles in the TRG. If located in the TRG, these product types would have the benefit of generating additional foot traffic within the area, and—in some cases—creating desirable neighborhood amenities (e.g., public library) or employment opportunities (e.g., educational campus). Such uses tend to rely on institutional needs, rather than market forces such as supply and demand. The Town of Herndon is therefore likely to play a key role in determining needs.

Summary Matrix for Residential Uses

Transit-Related Growth Area; September 2022

		LIKELY PROJECT CRITERIA				CUMULATIVE DEMAND IN TRG			LEVEL OF OPPORTUNITY IN TRG				
	DESCRIPTION	ACHIEVABLE PRICING	AVG. UNIT SIZE	DENSITY PER NET ACRE	TYPICAL PROJECT SCALE	BY 2025	BY 2035	BY 2045	LOCATION APPEAL	CONCEPT FIT	LIKELY LAND ECONOMICS	SUPPLY / DEMAND BALANCE	MARKET OPPORTUNITY
RENTAL HOUSING						**610 Units**	**2,500 Units**	**4,540 Units**					
Mid-Rise Apartments	Five to seven story community, with structured parking in a podium or wrap configuration	$2.85 / SF $2,425 / Month	850 SF	70 Units / Acre	300 Units	570 Units	2,280 Units	4,100 Units	**STRONG**	**STRONG**	**STRONG**	**MODERATE**	**STRONG**
High-Rise Apartments	10 or more story community, with underground and/or structured parking	$3.00 / SF $2,850 / Month	950 SF	150 Units / Acre	350 Units				**MODERATE**	**STRONG**	**WEAK**	**MODERATE**	**MODERATE**
Rental Townhomes	Three-story rental townhomes, with one- or two-car attached garages	$2.50 / SF $3,750 / Month	1,500 SF	18 Units / Acre	50 Units	40 Units	220 Units	440 Units	**STRONG**	**STRONG**	**MODERATE**	**STRONG**	**STRONG**
FOR-SALE HOUSING						**260 Units**	**1,010 Units**	**1,640 Units**					
Townhomes	Three-story for-sale townhomes, with two-car attached garages	$356 / SF $800,000	2,250 SF	16 Units / Acre	60 Units	70 Units	290 Units	480 Units	**STRONG**	**STRONG**	**STRONG**	**STRONG**	**STRONG**
Two-Over-Twos	Two-story condos in four-story townhome structures, with one attached garage parking space	$325 / SF $650,000	2,000 SF	25 Units / Acre	60 Units	100 Units	370 Units	590 Units	**STRONG**	**STRONG**	**STRONG**	**MODERATE**	**STRONG**
Flats	Four- or five-story community, with attached parking on the ground level	$383 / SF $575,000	1,500 SF	40 Units / Acre	50 Units	90 Units	350 Units	570 Units	**MODERATE**	**STRONG**	**MODERATE**	**STRONG**	**MODERATE / STRONG**

Note: The above demand projections reflect market-driven demand for rental and for-sale housing; demand for affordable housing is likely to be additive to these totals. In general, RCLCO expects there to be strong support for affordable housing of any kind, given considerable needs both locally and nationally.

SUMMARY OF OPPORTUNITY IN THE TRG

RCLCO REAL ESTATE CONSULTING

Summary Matrix for Commercial Uses
Transit-Related Growth Area; September 2022

		LIKELY PROJECT CRITERIA				CUMULATIVE DEMAND IN TRG			LEVEL OF OPPORTUNITY IN TRG				
	DESCRIPTION	ACHIEVABLE PRICING	AVG. UNIT SIZE	DENSITY PER NET ACRE	TYPICAL PROJECT SCALE	BY 2025	BY 2035	BY 2045	LOCATION APPEAL	CONCEPT FIT	LIKELY LAND ECONOMICS	SUPPLY / DEMAND BALANCE	MARKET OPPORTUNITY
HOSPITALITY						**310 Keys**	**320 Keys**	**340 Keys**					
Limited-Service Hotel	Four- to five-story hotel; likely upper midscale or upscale flag	$150 ADR	400 SF	125 Keys / Acre	125 Keys	310 Keys	320 Keys	340 Keys	STRONG	STRONG	MODERATE	MODERATE	MODERATE / STRONG
Full-Service Hotel	Five to 10 story hotel, with hotel restaurant, conferencing facilities, etc.; upper upscale or luxury flag	$200 ADR	600 SF	150 Keys / Acre	200 Keys				WEAK	STRONG	WEAK	MODERATE	MODERATE / WEAK
OFFICE						**120,000 SF**	**811,000 SF**	**1,326,000 SF**					
Corporate Office	Office space suitable for a wide variety of financial, technology, or government users.	$45 FS	N/A	5.0 FAR	250,000 SF	91,000 SF	613,000 SF	1,002,000 SF	MODERATE	STRONG	MODERATE	WEAK	MODERATE
Creative Office	Space designed for smaller service-offering firms in industries such as architecture, design, etc.	$40 FS	N/A	2.0 FAR	75,000 SF	29,000 SF	198,000 SF	324,000 SF	STRONG	STRONG	MODERATE	MODERATE	MODERATE / STRONG
RETAIL						**208,000 SF**	**267,000 SF**	**293,000 SF**					
Grocery & Drug	Boutique grocer, or a traditional one if a tenant can be attracted; potential for pharmacy as well	$20 to $25 NNN	N/A	0.30 FAR	N/A	29,000 SF	51,000 SF	60,000 SF	STRONG	STRONG	MODERATE	MODERATE	MODERATE / STRONG
Restaurant	Mix of fast casual and sit-down restaurant concepts	$30 to $40 NNN	N/A	0.30 FAR	N/A	83,000 SF	97,000 SF	105,000 SF	STRONG	STRONG	STRONG	STRONG	STRONG
Entertainment & Fitness	Mix of fitness concepts, as well as small-scale entertainment (e.g., breweries)	$25 to $30 NNN	N/A	0.30 FAR	N/A	43,000 SF	51,000 SF	56,000 SF	MODERATE	STRONG	STRONG	STRONG	STRONG
Services	Basic household services, such as nail salons, barbershops, banks, etc.	$25 to $30 NNN	N/A	0.30 FAR	N/A	31,000 SF	43,000 SF	47,000 SF	STRONG	STRONG	STRONG	STRONG	STRONG
Hard & Soft Goods	Primarily local boutique tenants, with a focus on locally crafted goods	$25 to $30 NNN	N/A	0.30 FAR	N/A	22,000 SF	25,000 SF	25,000 SF	MODERATE	STRONG	STRONG	WEAK	MODERATE
OTHER						**N/A**	**29,000 SF**	**52,000 SF**					
Self-Storage	Facility offering a variety of storage unit sizes in a climate controlled environment	$2.00 / SF	N/A	0.70 FAR	75,000 SF	N/A	29,000 SF	52,000 SF	STRONG	WEAK	MODERATE	MODERATE	MODERATE

Note: "Cumulative Site Demand" reflects the cumulative amount of demand for new space in the TRG, independent of any supply or land constraints. Any replacement space serving existing tenants is likely to be additive to the totals shown above, though office users are likely to take smaller (20% to 30%) footprints when moving into new spaces.

MARKET-DRIVEN PROGRAM

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As part of the market analysis, RCLCO developed a sample program for the TRG, assuming full redevelopment. This program is based on the amount of demand that RCLCO projected over a 20- to 25-year period, meaning it reflects one the market may build on its own. Importantly, there is more demand for real estate—and housing, in particular—in the TRG than it is physically able to accommodate. RCLCO therefore adjusted its recommendations to reflect what it is likely realistic, considering the size of the site and the densities at which development would likely take place.

Please note that this program is for the TRG as a whole (approximately 121 acres), including the Fairbrook site (approximately 28 acres). Any approvals at the Fairbrook site would therefore count towards the totals shown in the table to the right. The program also assumes that 10% to 15% of space in the existing TRG parcels would be reserved for open space and circulation, including new roads, paths, and parks.

In general, the sample program maximizes the amount of commercial space for which there is demand in the TRG, and it incorporates a well-segmented mix of residential uses for the remainder. This program is intended to serve as an illustrative example of what the market could support in the TRG, recognizing that actual development will be based on a number of factors, including market support, Town goals, etc. Other considerations for specific uses include the following:

- **Office**: The total in the table reflects the amount of demand for new space. There may be potential for the TRG to support a greater amount of space than what is shown, through the retention of its existing tenants. However, the ability to retail these tenants following redevelopment would likely vary from one user to the next, based on the space that it requires and the price point it is able to pay. In general, office development that serves existing tenants is likely to take place at a lower density than that which is shown on the previous page.
- **Hospitality**: Likewise, the total in the table assumes redevelopment of the *Hyatt House* in the TRG, as well as the addition of approximately 300 net new keys.
- **Self-Storage**: If the Town of Herndon were to strive for newer or multi-level self-storage in the TRG, the total in the table reflects roughly the same amount of space that exists today, but at higher densities. This strategy would enable the Town to free up sites which may be better-suited for other forms of development, while still maintaining some self-storage in the TRG—should it choose to do so.
- **For-Sale Housing**: Demand for for-sale housing is likely to exceed the totals in the program, which includes a conservative figure to reflect that for-sale housing may not be the highest-and-best use for parts of the TRG. These totals could be increased, should the Town of Herndon need to "fill in" portions of the site, or to replace other uses in the sample development program (e.g., self-storage).

While RCLCO acknowledges complete redevelopment may be unlikely over a 20- to 25-year period, this program is intended to reflect a potential outcome should it occur.

Sample Development Program
TRG; September 2022

USE	NUMBER OF UNITS / NET SQUARE FEET	GROSS SQUARE FEET
RENTAL HOUSING	**3,400 Units**	**3,660,000 SF**
Mid-Rise Apartments	3,300 Units	3,510,000 SF
Rental Townhomes	100 Units	150,000 SF
FOR-SALE HOUSING	**600 Units**	**1,180,000 SF**
Townhomes	200 Units	450,000 SF
Two-Over-Twos	250 Units	500,000 SF
Flats	150 Units	230,000 SF
HOSPITALITY	**400 Rooms**	**250,000 SF**
Limited-Service Hotel	400 Rooms	250,000 SF
OFFICE	**1,250,000 SF**	**1,320,000 SF**
Corporate Office	950,000 SF	1,000,000 SF
Creative Office	300,000 SF	320,000 SF
RETAIL	**275,000 SF**	**290,000 SF**
Grocery & Drug	50,000 SF	50,000 SF
Restaurant	100,000 SF	100,000 SF
Entertainment & Fitness	55,000 SF	60,000 SF
Services	45,000 SF	50,000 SF
Hard & Soft Goods	25,000 SF	30,000 SF
SELF STORAGE	**150,000 SF**	**160,000 SF**
Self-Storage	150,000 SF	160,000 SF
Acres for Above Uses		107 Acres
OPEN SPACE & CIRCULATION		**13 Acres**
ACRES CONSUMED		**121 Acres**

SITE CONSIDERATIONS

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NORTH	EAST
Mix of for-sale housing and self-storage, if not redeveloped into other uses	**Potential for mix of uses, including creative office, destination retail, and multifamily**
Existing self-storage is ripe for repositioning, but redevelopment into another use is unlikely without intervention. Should the Town decide to target other uses for this portion of the TRG, redevelopment would ideally involve uses that create synergies with the surrounding mixed-use environment, and this portion of the site is particularly well-located for housing (two-over-twos, townhomes, etc). However, the self-storage market is performing well, and there could be opportunities for newer or renovated facilities.	Solid performance and local appreciation of existing businesses in the Sunset Business Park shows the potential for retail and other commercial uses in this area. Creative office, priced at a discount to planned Class A product in the HTOC and other portions of the Dulles Corridor, could complement destination retail (e.g., a food hall, breweries, etc.). Sites near the intersection of Spring Street and Herndon Parkway are also likely to be the strongest for grocery, given their accessibility and visibility.
WEST	**SOUTH**
Range of housing options, with synergistic neighborhood-serving retail	**Planned office and residential towers with ground-floor retail**
Legacy office in parcels 11 and 15 are likely to remain in the near-term, but remaining parcels are well-located for various forms of housing, with multifamily development likely concentrating along Herndon Parkway, and with two-over-twos and townhomes potentially buffering surrounding residential neighborhoods. Household growth is likely to create opportunities for neighborhood-serving retail, including restaurants, services, and potentially a grocer (though users are likely to prefer sites in the "east" portion of the TRG).	Parcels 20, 21, and 22 comprise the planned Fairbrook development, which includes 600,000 of Class A high-rise office, two eight-story residential towers and up to 10,000 square feet of ground floor retail. Class A office suits this area given its frontage on the Dulles Toll Road and its proximity to the HTOC.

Map of TRG Parcels and Mixed-Use Concept Rendering
TRG; September 2022

Source: Town of Herndon; RCLCO

SAMPLE DEVELOPMENT TYPOLOGIES

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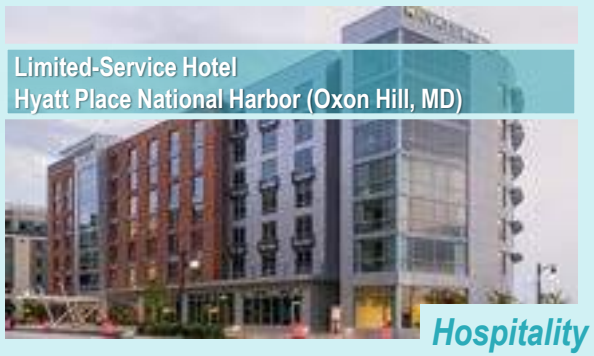
Rental Housing

For-Sale Housing



Hospitality

Office

Self-Storage

Retail

Image Source: Apartments.com; Lerner Residential; Self Storage Plus; Compass; Hyatt; Reston Station; The Boro; InsideNoVa

REGIONAL & SITE OVERVIEW

REGIONAL ECONOMIC GROWTH

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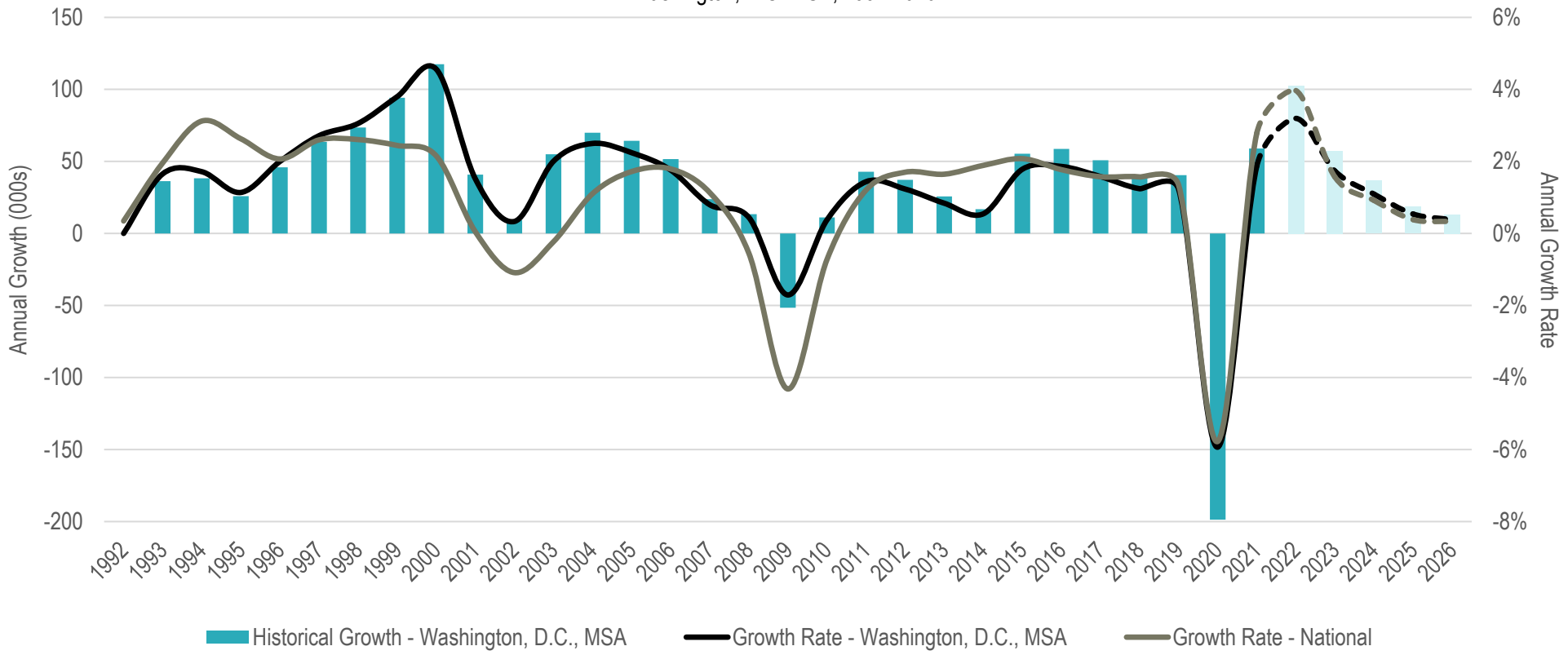
THE REGIONAL ECONOMY OF WASHINGTON, D.C., IS GENERALLY MORE RESISTANT TO DOWNTURNS THAN THE REGIONAL ECONOMIES OF OTHER MAJOR METROPOLITAN AREAS, IN LARGE PART DUE TO THE FEDERAL GOVERNMENT

- The Washington, D.C., MSA has access to almost 707,000 government jobs, which are typically less impacted by broader macroeconomic conditions than jobs in other economic sectors. As a result, the MSA has fared better than other major metropolitan areas during economic downturns, including the Gulf War Recession (1990 to 1991), the Dot-Com Crash (2001 to 2002), the Great Recession (2007 to 2009), and—most recently—the COVID-19 Recession (2020).
- Although the Washington, D.C., MSA lost approximately 199,000 jobs in 2020 during the COVID-19 pandemic, it added an estimated 59,000 jobs in 2021. As of August 2022, Moody's Analytics projects the region to add 101,000 jobs in 2022 followed by another 48,000 jobs in 2023, by which time it is expected to have surpassed pre-pandemic levels of employment.

Historical and Projected Employment
Washington, D.C. MSA; 1992-2026



Note: "Top 10 MSAs" include New York, Los Angeles, Chicago, Dallas, Houston, Philadelphia, Miami, Atlanta, Boston, and Washington, D.C.

Source: Moody's Analytics; RCLCO

ECONOMIC EXPANSION BY SECTOR

RCLCO REAL ESTATE CONSULTING

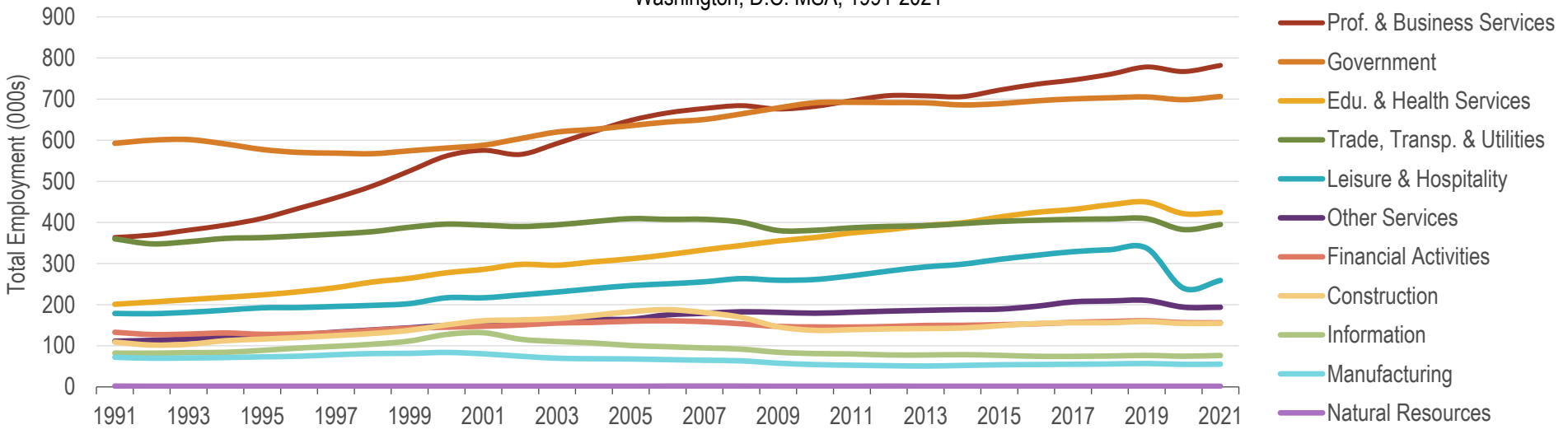
IN RECENT YEARS, THE PROFESSIONAL & BUSINESS SERVICES SECTOR HAS EMERGED AS A MAJOR DRIVER OF THE REGIONAL ECONOMY

- **Government** jobs buffer the regional economy of Washington, D.C., though the economic makeup is rapidly diversifying, and most growth is occurring in the private sector. Between 2010 and 2019, only 4% of the 365,000 new jobs in the Washington, D.C., MSA were in Government, while half were in Professional & Business Services (26%) and Education & Health Services (24%).
- The **Professional & Business Services** sector, meanwhile, has reinforced its importance to the region, surpassing pre-pandemic levels of employment well before other industries. In 2021, the sector added 15,000 jobs, more than making up the 11,100 it lost during 2020.
- **Technology** has also continued to be a major driver in the local market. In 2020, CBRE ranked the Washington, D.C., metropolitan area second for top tech talent, ahead of other markets like Boston, Seattle, and New York City. Today, 55 of the world's 500 fastest-growing cybersecurity companies are based in the Washington, D.C., region, and Amazon is currently in the process of establishing its second headquarters in Northern Virginia, at National Landing.

Comparison of Job Growth by Industry
Washington, D.C. MSA; 2010-2019

CATEGORY	TOTAL GROWTH #	TOTAL GROWTH %	AVG. ANNUAL #	AVG. ANNUAL %
Prof. & Business Services	95,851	14.0%	10,650	1.5%
Edu. & Health Services	86,342	23.8%	9,594	2.4%
Leisure & Hospitality	75,920	29.1%	8,436	2.9%
Other Services	31,040	17.3%	3,449	1.8%
Trade, Transp. & Utilities	28,182	7.4%	3,131	0.8%
Construction	21,285	15.5%	2,365	1.6%
Financial Activities	14,954	10.3%	1,662	1.1%
Government	14,039	2.0%	1,560	0.2%
Manufacturing	2,625	4.9%	292	0.5%
Natural Resources	-151	-9.9%	-17	-1.1%
Information	-4,591	-5.7%	-510	-0.6%
TOTAL	**365,496**	**12.3%**	**40,611**	**1.3%**

Historical Employment Growth by Sector
Washington, D.C. MSA; 1991-2021



Note: Above table excludes 2020 data to focus on growth prior to the COVID-19 pandemic.

Source: Cushman & Wakefield; Forbes; Moody's Analytics; RCLCO

NEARBY EMPLOYMENT CORES

RCLCO REAL ESTATE CONSULTING

THE TRG IS LOCATED ALONG THE DULLES CORRIDOR, WHICH IS A RAPIDLY GROWING AND CHANGING SUBMARKET

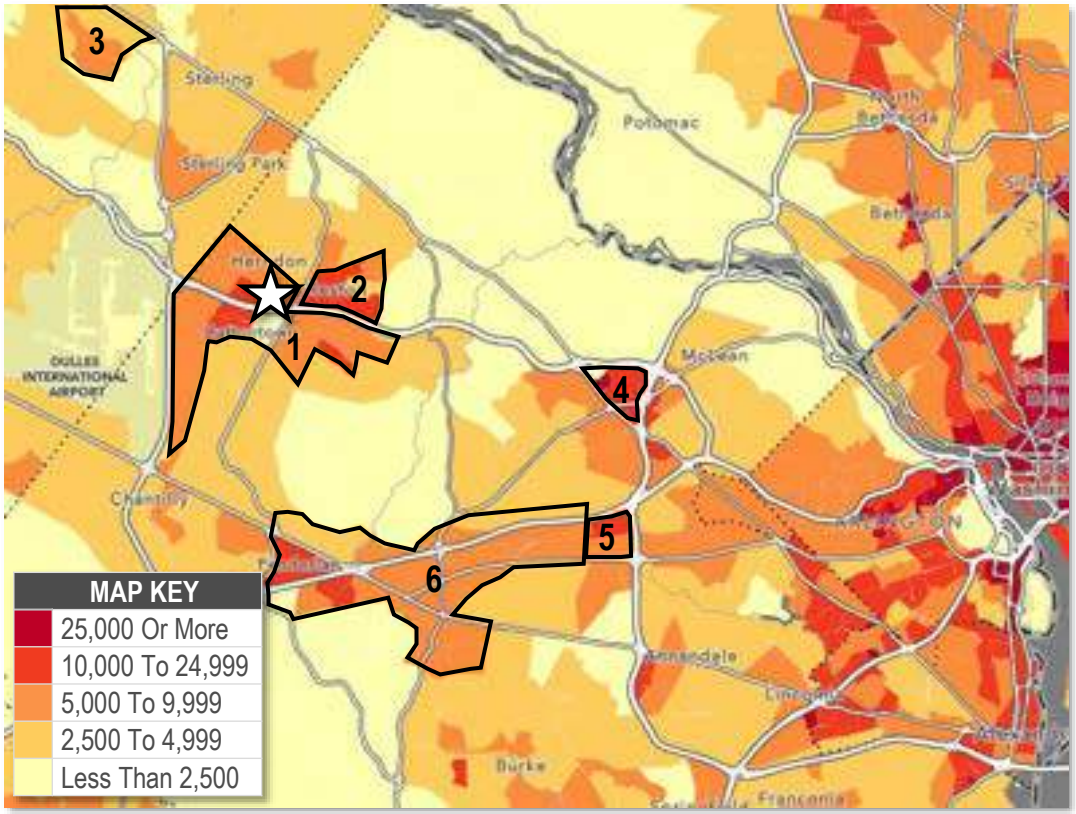
- Historically suburban in nature, the Dulles Corridor has seen a significant amount of commercial and mixed-use development in recent years. Founded in 1964, nearby Reston Town Center established the corridor as a location for suburban employment and retail. However, development has grown increasingly dense over time, particularly following the announcement of the Silver Line of the Washington Metro System. With six stations slated to open later this year, development along the corridor will soon offer stronger access throughout the region, with Metro providing direct access to other major job cores like the Roslyn-Ballston Corridor, Downtown Washington, and Capitol Hill.
  - The prospect of this transformation has attracted significant development interest, resulting in a deep pipeline of future rental apartment and office space, in particular.

Daytime Population Density Per Square Mile By Census Tract
Washington, D.C. MSA; 2021

1 Dulles Corridor
Historically suburban, but seeing uptick in transit-oriented, mixed-use development

2 Reston Town Center
Mixed-use town center, serving as a retail and commercial hub in Fairfax County

3 One Loudoun
New district that is beginning to emerge as the "urban core" of Loudoun County



4 Tysons
Major suburban employment core, which is seeing new urban-style development

5 Mosaic District
Mixed-use district along suburban employment corridor, with heavy retail focus

6 Broader Fairfax County
Significant concentration of suburban employment along major thoroughfares

Image Source: Bechtel; Best Reston Agent; H&R Retail; Fairfax County; Fairfax Realty
Source: Esri; RCLCO

WHILE A RECESSION IS LIKELY IN THE NEAR TERM, SEVERAL REAL ESTATE SECTORS ARE PREDICTED TO REMAIN STEADY

As of July 2022, the RCLCO "Base Case" (~60% probability) assumes the following:

MACROECONOMIC CONDITIONS

- In response to persistently high inflation and strong employment growth, the Federal Reserve ("Fed") has increased interest rates. This change—coupled with elevated energy prices, lingering supply chain disruptions, and weaker global growth—is likely to negatively impact the U.S. economy, and to lead to a shallow recession in the near-term.
- U.S. GDP growth is expected to slow (0% to 2%) during 2022 and 2023, with the likelihood of a shallow recession that timeframe. Depending on the direction of energy prices, supply chain issues, and Fed action, growth is expected to return to trend (2% to 3%) during 2024.
- Employment growth is likely to moderate, and the United States is likely to add between 0.0 and 2.0 million jobs annually during 2023 and 2024, as employers react to lower consumer demand and begin to slow hiring. Hiring freezes, furloughs, and layoffs—which started to occur in select sectors of the economy (e.g., tech, auto, financial service, crypto, etc.) during June—are likely to increase and spread to other sectors; however, RCLCO does not expect significant overall negative job growth, given the current mismatch between job openings and available/skilled employees.
- The yield on the 10-Year U.S. Treasury, which peaked at 3.5% during mid-June, dropped to 2.9% at the end of June and is likely to stay in the 3.0% to 3.5% range for the next several years.
- Real estate capital markets are likely to remain resilient. Equity dry powder from institutions has fallen, though non-traded REITS continue to expand. Yet, there is no evidence that institutional investors are wholesale sellers, and they continue to allocate capital to strategies with strong fundamentals and demand drivers.
- Higher borrowing rates have led to bid/ask spreads and modest price declines (5% to 10%) and will likely slow price appreciation, but large declines are not expected. Transaction volume is likely to be lower in 2023 and 2024.

REAL ESTATE OPPORTUNITIES

- Despite the likelihood of a shallow recession, several of the favored real estate asset classes should remain relatively steady with lower—but not negative—rent growth over next three years.
  - **Multifamily**: Together, low housing affordability and low unemployment are likely to fuel sustained demand for multifamily and single-family rental housing. However, rent growth is likely to moderate into the low single-digits (1.0% to 2.0%) for the next two years.
  - **Industrial**: Demand should remain steady as e-commerce penetration and just-in-case inventory practices continue, but rent growth is likely to moderate to 3.0% during 2023 and 1.0% during 2024.
  - **For-Sale**: The single-family for-sale sector is expected to continue to slow as high prices and mortgage rates weigh on affordability. However, these changes may be a welcome relief for some builders as they use this period of slower growth to catch up on closings and rebuild inventories for the renewed expansionary phase of the cycle.
  - **Niche Sectors**: Healthcare (e.g., medical office, life sciences, senior housing), data centers, and self storage have strong long-term demand drivers, but often require specialized investment and management expertise.
  - **Office & Retail**: Both office and retail continue to experience structural changes accelerated by the pandemic. High-quality office in compelling mixed-use and 24-hour environments is likely to outperform, as tenants exercise a flight to quality. Experiential and necessity retail in attractive, pedestrian-oriented mixed-use developments is similarly likely to outperform.
- The likely upcoming slowdown is likely to create investment opportunities, although widespread distress is not anticipated at this time.

SITE ANALYSIS

RCLCO
REAL ESTATE CONSULTING

Image Source: Google Maps; Google Images

SITE ANALYSIS

RCLCO REAL ESTATE CONSULTING

STRENGTHS

- **Potential Mixed-Use Environment**: The TRG offers a desirable location within the Town of Herndon, which lies along the Dulles Technology Corridor but also offers a unique historic downtown. Particularly following the introduction of transit via the Herndon Metro station, this location is favorable from the perspective of most forms of development, including rental housing, for-sale housing, office, retail, and hospitality. The combination of these land uses is likely to enhance the appeal of each one, creating a true, live-work-play environment.
- **Accessibility**: The TRG offers strong access to the Dulles Toll Road, a major thoroughfare that runs from Loudoun County to the west, to Tysons to the east. Given this proximity, the TRG is also within a 10- to 15-minute drive of both the I-495 Beltway and Washington Dulles International Airport ("IAD").
- **Proximity to Transit**: In addition to offering strong vehicular access, the TRG is also located near the future Herndon Metro station, which provides access to various locations across Northern Virginia and the District via the Silver Line. Already, the Silver Line connects to destinations like Farragut Square, Metro Center, Capitol Hill, and Tysons, and the extension to Washington Dulles International Airport—which includes the Herndon station — is slated to open later this year.
- **Proximity to Employment**: The Dulles Toll Road is a major employment corridor in the Washington region, offering a number of high-paying professional services and technology jobs. Major employers include SAIC, General Dynamics, Reston Town Center, and Google. Substantial employment is also located in Tysons, where Capital One, Hilton, DXC Technology, and Booz Allen Hamilton are all headquartered.
- **Proximity to Retail**: The TRG offers strong access to retail, in neighboring Reston, Downtown Herndon, and Sunset Business Park, which is within the TRG. Reston Town Center, which includes more than 300,000 square feet of retail and restaurants, is within a short drive, as are several grocery stores.
- **Neighborhood Prestige**: With a median home value of $550,000 and a median household income of $121,000, Herndon is an affluent suburb of Washington, D.C., with highly rated schools and a plethora of neighborhood amenities.
- **Access to Recreation**: The TRG is located near the Washington and Old Dominion Trail, a 45-mile trail that stretches from Arlington to Purcellville. Several parks, country clubs, and golf courses are nearby as well.

OPPORTUNITIES

- **Local Differentiators to Guide Mixed-Use Development**: The subject site is located west of Reston Town Center, an urban environment that has experienced rapid growth in recent years. While Herndon has not experienced the same pattern of development, the subject site can take advantage of key differentiators, such as existing beloved local businesses in the Sunset Business Park, which could in turn benefit from new residential development within the TRG.
- **Sense of Place**: The scale of the TRG allows for the creation of a well-designed, premier mixed-use community. Integration of a market-driven mixture of land uses with high-quality public spaces can create a live-work-play environment, which will differentiate the TRG from many existing suburban communities in the region.

CHALLENGES

- **Physical Integration with Remainder of Herndon**: While the TRG has its own locational advantages, it is located roughly one mile from Downtown Herndon. This location may limit direct integration between the TRG and Downtown Herndon, and the district should be planned as a separate node, complimentary to the adjacent HTOC.
- **Large Amount of Future Competition**: Several large-scale development projects are under construction or being planned in close proximity to the TRG. These projects suggest that, while the TRG may be highly differentiated relative to other mixed-use offerings along the Dulles Corridor today, the amount of competitive development may increase in the future.

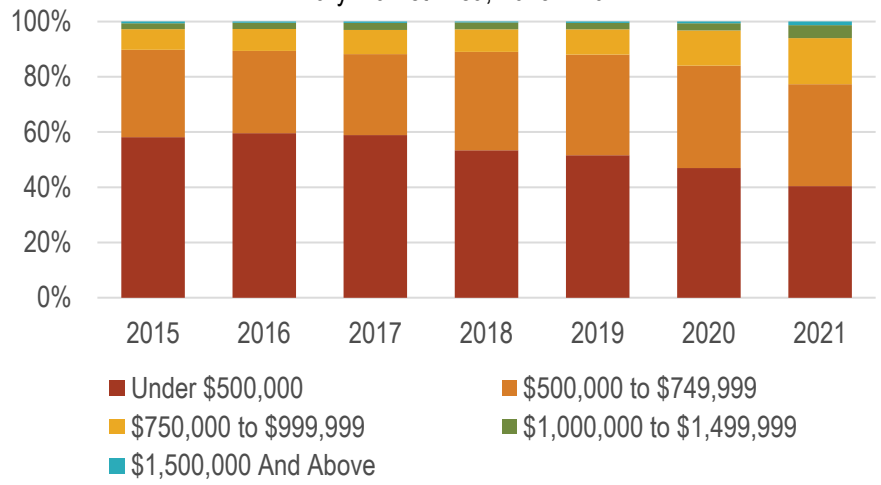
FOR-SALE MARKET ANALYSIS

THE FOR-SALE MARKET IN THE DULLES CORRIDOR HAS EVOLVED TO FAVOR DENSER PRODUCT AT HIGHER PRICE POINTS, REFLECTING STRONG OVERALL DEMAND

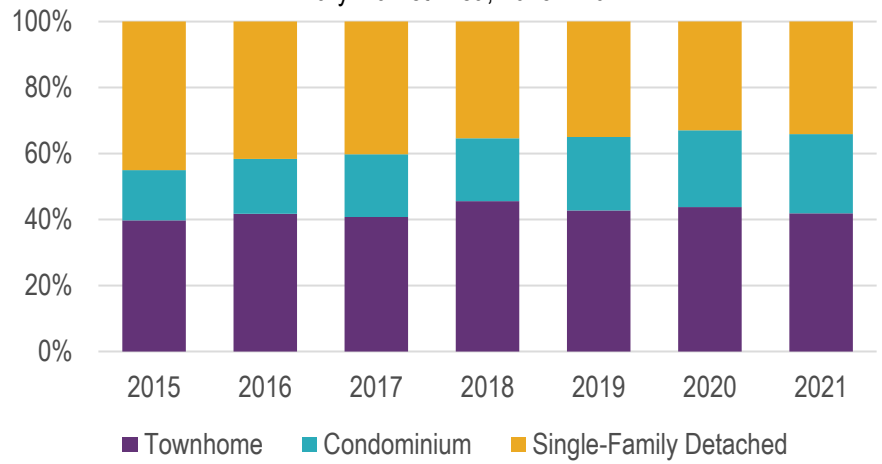
- RCLCO defined the Primary Market Area ("PMA"), or the area from which most residential demand in the TRG is likely to emanate, as the Dulles Corridor submarket, which spans from Sterling to the north, Reston to the east, Chantilly and Centreville to the south, and the residential communities adjacent to IAD to the west.
- The state of the for-sale market in the PMA reflects shifting product type preferences and significant price appreciation in recent years. Since 2015, the market gradually transitioned towards condominium and townhome product, and away from single-family detached product. Single-family detached homes accounted for 34% of total home sales in 2021, down from 45% in 2015. Last year, almost a quarter of homes sold in the PMA were condominiums, up from 15% in 2015. Even with this shift to smaller homes, home sales prices have increased significantly over the same timeframe. This trend is particularly true for townhome product; from 2015 to 2021, the percentage of townhomes that have sold at price points above $500,000 has increased from 20% to 71%.
- Overall, these trends reflect a mix of changing preferences among suburban homebuyers in the PMA, as well as a diminishing availability of land on which to develop larger detached homes. Increasingly, homebuyers have gravitated to townhome and condominium communities, as opposed to traditional single-family detached homes. This shift favors dense for-sale development as part of the mixed-use program for the TRG.

Map of Primary Market Area
Washington, D.C., Metropolitan Area

Distribution of Home Sales by Price
Primary Market Area; 2015 – 2021



Distribution of Home Sales by Product Type
Primary Market Area; 2015 – 2021



Source: RealQuest; RCLCO

COMPETITIVE SUPPLY

RCLCO REAL ESTATE CONSULTING

NEW FOR-SALE RODUCT IS PERFORMING WELL, WITH TRANSIT ADJACENCY DRIVING PRICING PREMIUMS

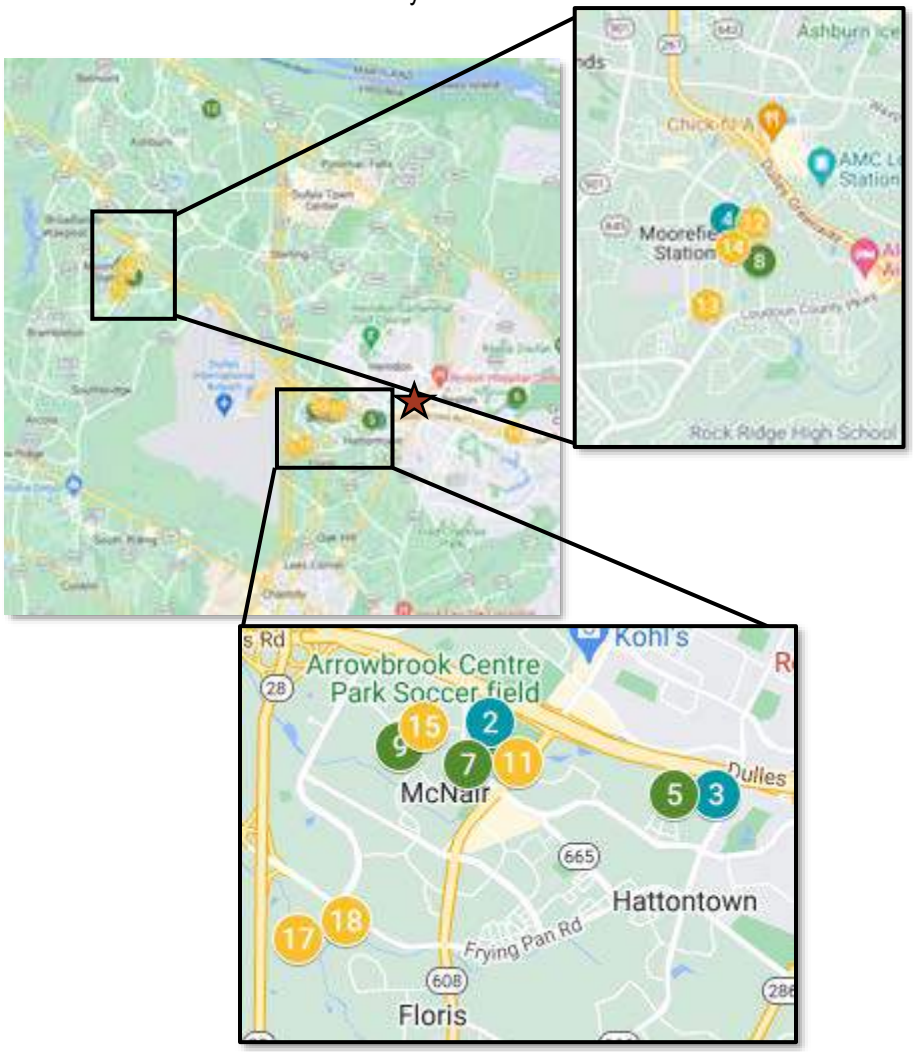
- In general, pricing at new for-sale housing communities varies based on neighborhood prestige, school quality, and accessibility. *Metro Walk at Moorefield Station* is earning top-of-market price due to its relative age and superior finishes, but would likely achieve higher prices if not for its distance from transit.
- There have been a few large-scale projects to deliver in recent years, such as *Flats at Woodland Park Station.* Lower absolute prices for stacked flats enable the homes to tap into additional market audiences.

Competitive Set Communities
Primary Market Area; September 2022

MAP KEY	PROPERTY	YEAR	UNIT #	AVG. PRICE	AVG. SIZE	AVG. $/SF
1	Tall Oaks	2021	70	$566,000	1,268	$446
2	MetroPark Arrowbrook	2021	128	$574,000	1,514	$379
3	Flats at Woodland Park Station	2019	48	$553,000	1,466	$377
4	Metro Walk at M'field Stn.	2021	84	$870,000	2,413	$361
5	Flats at Woodland Park Station	2022	90	$589,000	2,040	$289
6	Tall Oaks	2021	42	$692,000	2,166	$319
7	MetroPark Arrowbrook	2018	106	$573,000	1,950	$294
8	Metro Walk at M'field Stn.	2022	98	$666,000	1,979	$336
9	Liberty Park	2022	84	$620,000	1,967	$315
10	Ashbrook Place	2022	138	$640,000	1,968	$325
11	MetroPark Arrowbrook	2018	49	$703,000	2,312	$304
12	Metro Walk at M'field Stn. – Brownstones	2022	17	$1,129,000	3,311	$341
13	Metro Walk at M'field Stn. – Towns (Lennar)	2022	36	$855,000	3,336	$256
14	Metro Walk at M'field Stn. – Towns (Toll Bros.)	2022	122	$935,000	2,717	$344
15	Liberty Park	2022	81	$763,000	2,214	$345
16	The Townhomes at Reston Station	2021	115	$973,000	1,898	$513
17	Foster's Glen	2022	269	$720,000	1,937	$372

Flats
Two-Over-Twos
Townhomes

Map of Competitive Set Communities
Primary Market Area



Source: Redfin; Zillow; Community Websites; RCLCO

FUTURE DEVELOPMENT PIPELINE

THE PIPELINE OF NEW FOR-SALE PRODUCT IS DEEP, BUT DELIVERY DATES ARE UNCERTAIN AS THE MAJORITY OF PLANNED HOMES ARE PART OF LONG-TERM PROJECTS

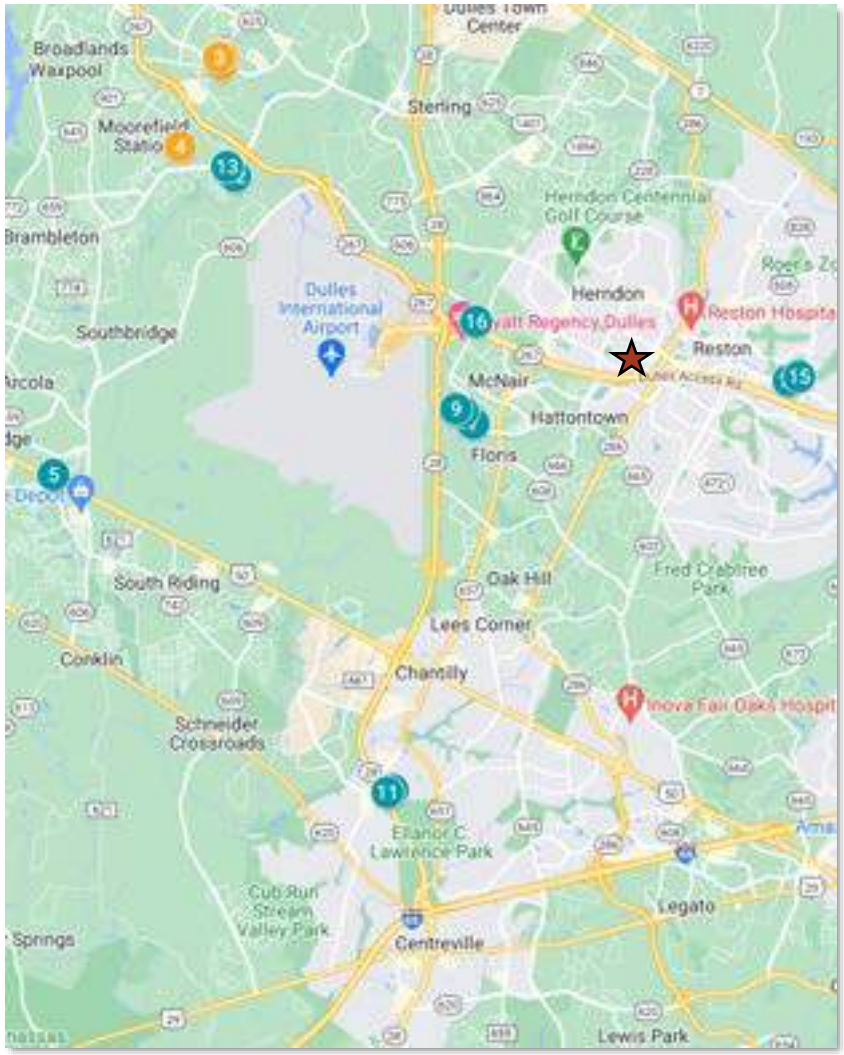
- Seizing on strong performance in nearby for-sale communities, over 3,000 homes are currently planned or under construction, the bulk of which will be included as part of mixed-use communities. Many of these communities (e.g. *Silver District West*) are long-term, multi-phased projects that may not fully deliver to market for 10-15 years. RCLCO estimates the TRG will compete with between 200 and 325 new townhomes, and approximately 100 new condominiums annually.
- Success of for-sale product in the TRG will be driven by key locational advantages. Projects in the pipeline may also be mixed-use, but not transit-oriented, and thus the TRG is poised to capture above its fair share of for-sale demand.

Communities Planned/Under Construction
Primary Market Area; September 2022

MAP KEY	PROJECT NAME	PRODUCT TYPE	EST. DELIVERY	UNITS	DEVELOPER
1	Waxpool Crossing – Flats	Flats	2023	72	K Hovanian Homes
2	Waxpool Crossing – Townhomes	Townhomes	2023	61	Dreamfinders Homes
3	Waxpool Crossing - Two-Over-Twos	Two-Over-Two	2023	42	Dreamfinders Homes
4	Metro Walk at Moorefield Station - The Lofts	Two-Over-Two	2023	176	Toll Brothers
5	Pinebrook Landing	Two-Over-Two	Unknown	499	Toll Brothers
6	Aurora Station at Dulles – Townhomes	Townhomes	Unknown	100	Pomeroy Companies
7	Aurora Station at Dulles – Flats	Flats	Unknown	320	Pomeroy Companies
8	One Sunrise Valley – Townhomes	Townhomes	Unknown	187	Pomeroy Companies
9	One Sunrise Valley - Two-Over-Twos	Two-Over-Two	Unknown	332	Pomeroy Companies
10	Boulevards at Westfields – Townhomes	Townhomes	Unknown	67	K Hovanian Homes
11	Boulevards at Westfields - Two-Over-Twos	Two-Over-Two	Unknown	120	K Hovanian Homes
12	Silver District West – Townhomes	Townhomes	Unknown	371	Soave Enterprises
13	Silver District West – Flats	Flats	Unknown	252	Soave Enterprises
14	Former Isaac Newton Square - Two-Over-Twos	Two-Over-Two	Unknown	130	Peter Lawrence Co.
15	Former Isaac Newton Square – Flats	Flats	Unknown	580	Peter Lawrence Co.
16	Rivana at Innovation Station	Flats	Unknown	N/A	Novais Partners

Under Construction
Planned

Map of Communities Planned/Under Construction
Primary Market Area; September 2022



Source: Community and Developer Websites; RCLCO

FOR-SALE DEMAND IN MARKET

RCLCO
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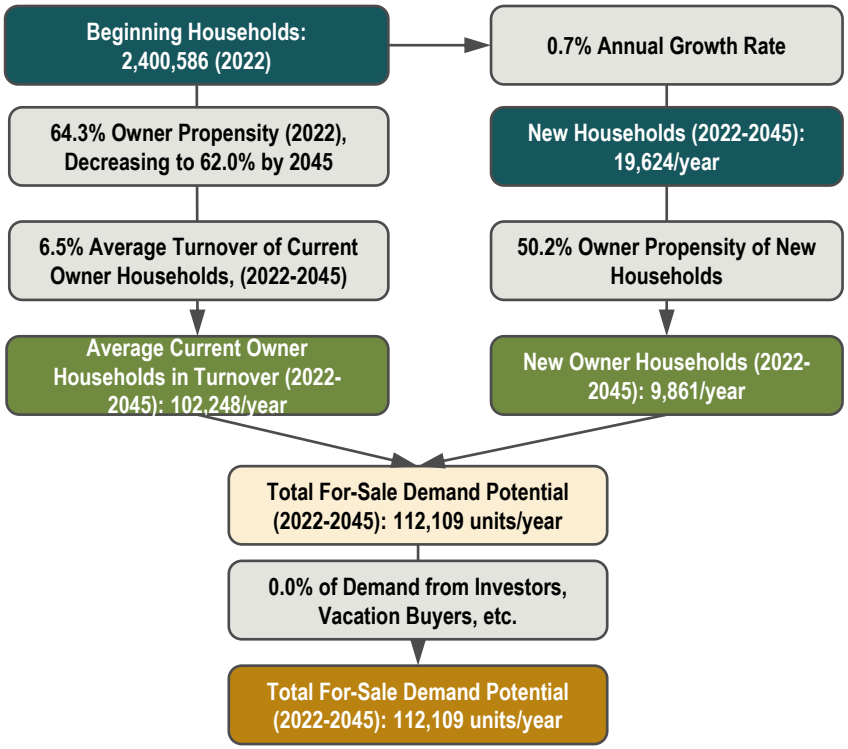
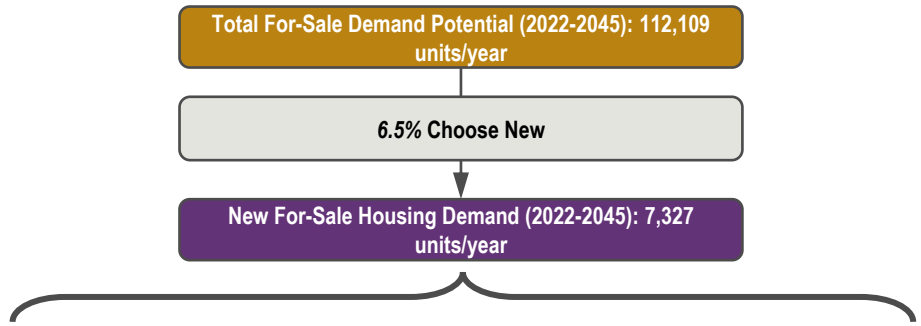
RCLCO PROJECTS AVERAGE ANNUAL DEMAND FOR APPROXIMATELY 7,300 NEW FOR-SALE HOMES IN THE MSA EACH YEAR, THOUGH THE BULK OF DEMAND IS CONCENTRATED AT PRICE POINTS BETWEEN $250,000 AND $750,000

- To project for-sale housing demand in the Dulles Corridor and the TRG, RCLCO started by examining household growth projections for the Washington, D.C., MSA. The reason for this starting point is that housing demand is derived at the regional level, with the decisions of individual households guiding the locations in which they then choose to live.
- Next, RCLCO compiled demographic data from the American Community Survey ("ACS") and analyzed recent and long-term housing trends to project the turnover, product preferences, and affordability levels of current and future households in the MSA. RCLCO then determined capture rates for the Dulles Corridor, and subsequently the TRG, based on historical trends and expected changes, such as increased housing costs as the submarket continues to mature.
- From 2022 to 2045, RCLCO projects demand for an average of 7,327 new for-sale homes in the Washington, D.C. MSA each year. The bulk of demand is likely to be for homes priced below $750,000, with demand for approximately 2,107 homes priced above this threshold each year.

Annual For-Sale Housing Demand in Washington, D.C. MSA (2022-2045)



Annual For-Sale Housing Demand in Washington, D.C. MSA (2022-2045)



Annual New For-Sale Demand by Product Type and Price Range

	SINGLE-FAMILY DETACHED	ATTACHED/ SMALL MULTIFAMILY	MULTIFAMILY (5+ UNITS)	TOTAL	DIST.
<$250k	211	52	6	268	*3.7%*
$250k-$500k	886	975	285	2,146	*29.3%*
$500k-$750k	1,505	999	302	2,806	*38.3%*
$750k-$1.0M	624	317	171	1,112	*15.2%*
$1.0M-$1.5M	278	124	83	485	*6.6%*
$1.5M-$2.0M	126	16	20	162	*2.2%*
$2.0M-$2.5M	102	1	10	113	*1.5%*
Over $2.5M	199	3	32	235	*3.2%*
TOTAL	**3,931**	**2,488**	**908**	**7,327**	

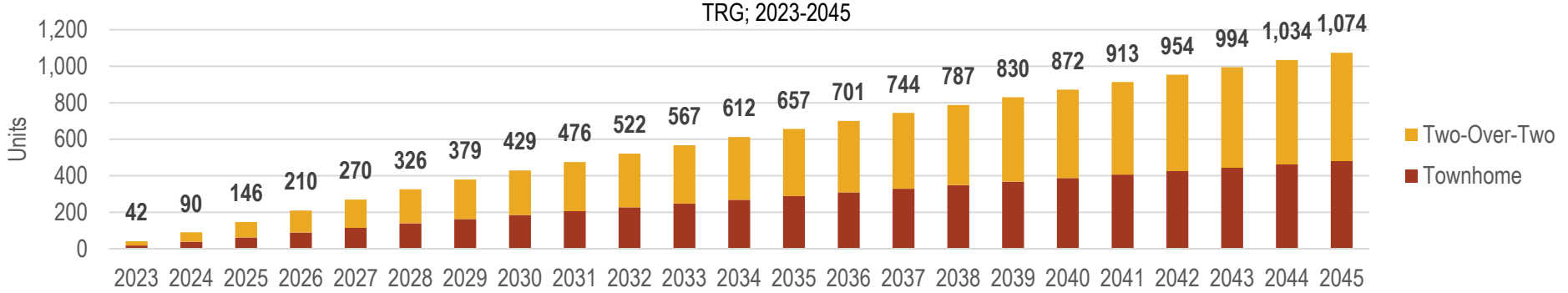
Source: Esri; American Community Survey PUMS; RCLCO

TOWNHOME DEMAND IN TRG

RCLCO PROJECTS SUPPORT FOR APPROXIMATELY 480 TOWNHOMES AND 590 TWO-OVER-TWOS IN THE TRG BY 2045

- This demand projection assumes that demand for units at price points above $750,000 will be realized as traditional townhomes, while demand for units at price points below $750,000 will be realized as two-over-two, townhome-style condominiums instead.

Cumulative Demand for Townhomes and Two-Over-Twos
TRG; 2023-2045



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
TOWNHOMES & TWO-OVER-TWOS																							
Annual Demand in MSA	2,040	2,401	2,765	3,134	3,011	2,884	2,755	2,624	2,492	2,479	2,466	2,452	2,437	2,423	2,408	2,392	2,376	2,360	2,344	2,327	2,310	2,293	2,275
PMA Capture	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Annual Demand in PMA	**191**	**225**	**258**	**292**	**276**	**260**	**245**	**230**	**214**	**212**	**210**	**208**	**205**	**203**	**201**	**198**	**196**	**193**	**191**	**189**	**186**	**184**	**181**
Priced Below $750k	110	129	149	168	158	147	137	127	117	116	114	113	112	110	109	107	106	105	103	102	100	99	97
Priced Above $750k	81	95	109	123	118	113	108	103	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84
TWO-OVER-TWOS																							
Annual Demand in PMA	110	129	149	168	158	147	137	127	117	116	114	113	112	110	109	107	106	105	103	102	100	99	97
TRG Capture	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%
Annual Demand in TRG	**24**	**28**	**32**	**37**	**34**	**32**	**30**	**27**	**25**	**25**	**25**	**24**	**24**	**24**	**24**	**23**	**23**	**23**	**22**	**22**	**22**	**21**	**21**
Cumulative Demand in TRG	**24**	**52**	**84**	**121**	**155**	**187**	**217**	**244**	**269**	**295**	**319**	**344**	**368**	**392**	**416**	**439**	**462**	**484**	**507**	**529**	**551**	**572**	**593**
TOWNHOMES																							
Annual Demand in PMA	81	95	109	123	118	113	108	103	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84
TRG Capture	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%
Annual Demand in TRG	**18**	**21**	**24**	**27**	**26**	**25**	**23**	**22**	**21**	**21**	**21**	**21**	**20**	**20**	**20**	**20**	**19**	**19**	**19**	**19**	**19**	**18**	**18**
Cumulative Demand in TRG	**18**	**38**	**62**	**89**	**115**	**139**	**163**	**185**	**206**	**227**	**248**	**268**	**289**	**309**	**329**	**348**	**368**	**387**	**406**	**425**	**444**	**462**	**480**

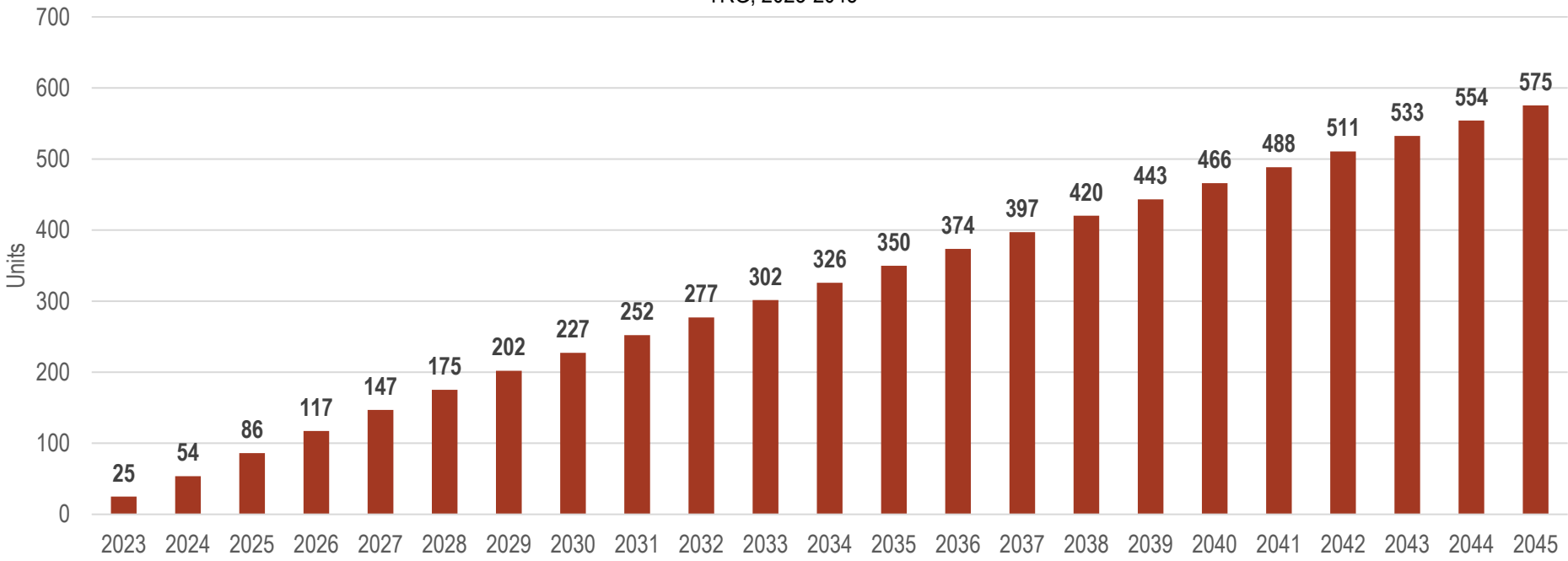
Source: Esri; American Community Survey PUMS; RCLCO

CONDOMINIUM DEMAND IN TRG

RCLCO PROJECTS SUPPORT FOR APPROXIMATELY 580 CONDOMINIUMS IN THE TRG BY 2045

- Please note that this total condominium demand is for "broad market appeal" homes, which target the market as a whole. Condominium product will suit a wide segment of the market at multiple lifestages.

Cumulative Demand for Condominiums
TRG; 2023-2045



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
CONDOMINIUMS																							
Annual Demand in MSA	876	1,009	1,143	1,098	1,052	1,005	957	909	905	900	894	889	884	878	873	867	861	855	849	843	836	830	823
PMA Capture	8.1%	8.2%	8.2%	8.2%	8.1%	8.1%	8.0%	8.0%	8.0%	7.9%	7.9%	7.9%	7.8%	7.8%	7.8%	7.7%	7.7%	7.7%	7.6%	7.6%	7.5%	7.5%	7.5%
Annual Demand in PMA	71	82	94	90	86	81	77	73	72	71	71	70	69	68	68	67	66	65	65	64	63	62	62
TRG Capture	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
Annual TRG Demand	**25**	**29**	**33**	**31**	**30**	**28**	**27**	**25**	**25**	**25**	**25**	**24**	**24**	**24**	**23**	**23**	**23**	**23**	**22**	**22**	**22**	**22**	**21**
Cumulative TRG Demand	**25**	**54**	**86**	**117**	**147**	**175**	**202**	**227**	**252**	**277**	**301**	**326**	**350**	**373**	**397**	**420**	**443**	**466**	**488**	**510**	**532**	**554**	**575**

Source: Esri; American Community Survey PUMS; RCLCO

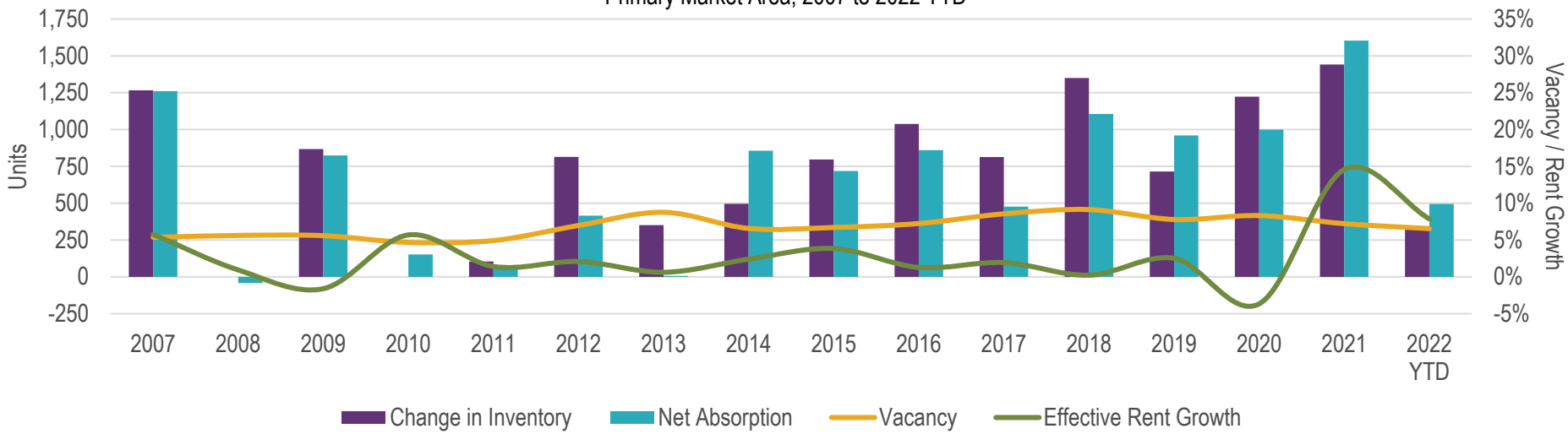
RENTAL MARKET ANALYSIS

ROBUST ABSORPTION AND RENT GROWTH FOLLOWING THE COVID-19 PANDEMIC POINT TO FAVORABLE MARKET FUNDAMENTALS IN THE PRIMARY MARKET AREA

- The Primary Market Area ("PMA"), or the area from which most rental demand in the TRG is likely to emanate, reflects the same geography that RCLCO examined for for-sale housing. In general, this geography encompasses the bulk of urban, urbanizing, and other commercial locations along Dulles Corridor.
- The graph below outlines historical deliveries, absorption, vacancies and rent growth in the PMA. After limited development in the years immediately following the Great Recession, the market experienced steady supply additions averaging 943 units annually from 2015 to 2019. During this time, the abundance of newly delivered product pushed vacancy above historical levels of 5.0% to 7.5%. Effective rents increased by an average of 2.0% per year, as new deliveries pushed the price ceiling in the market, but as the volume of development constrained overall rent growth.
- As seen in many markets and submarkets across the country, the COVID-19 pandemic placed downward pressure on rent growth and occupancy rates in the PMA, particularly during 2020. However, conditions have improved considerably. In 2021, effective rents increased by 14.6%, even as more than 1,400 units delivered in the PMA. At 1,600 units, net absorption also exceeded new deliveries, pointing to appetite for new housing. Steady absorption and rent growth have continued into 2022, providing further evidence of healthy underlying market fundamentals.

Map of Primary Market Area
Washington, D.C. Metropolitan Area

Completions, Absorption, Vacancy, and Rent Growth;
Primary Market Area; 2007 to 2022 YTD



Source: CoStar; RCLCO

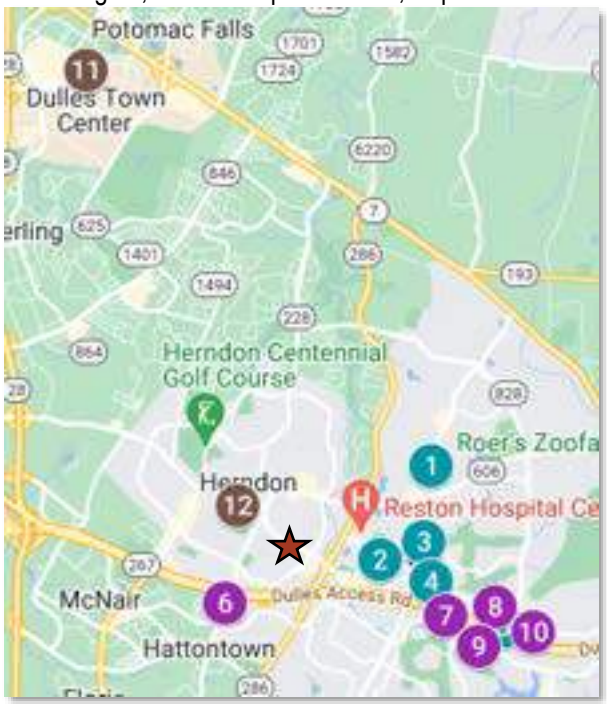
THE COMPETITIVE SET OF RENTAL PROPERTIES SHOWCASES A CLEAR PREMIUM FOR DENSITY AND ACCESSIBILITY

- RCLCO analyzed a competitive set of twelve rental apartment communities to better understand pricing and demand dynamics in the market. These communities are well-occupied, at an average rate of 97% among stabilized properties. The competitive set reveals a number of insights about the rental market along Dulles Corridor:
  - **High-Rise Premium**: With average rents of $3.12 per square foot, high-rise communities—several of which are located adjacent to Reston Town Center—are positioned far above their lower-density competitors, even though they are generally older. Given escalations in construction costs, new high-rise development is unlikely to be feasible at price points below this level, which is likely only achievable at prime, transit-oriented sites with a wide variety of jobs, services, and restaurants within walking distance. Once the TRG has developed an established sense of place with its own set of neighborhood amenities, these price points may be achievable by certain sites, specifically those along the southern edge that border the HTOC. However, rental apartment development in the TRG is otherwise likely to involve podium or wrap construction.
  - **Transit Orientation**: Most communities in the competitive set are located along the Dulles Toll Road, and properties in Reston are mostly located within walking distance of the Wiehle-Reston Metro station. This reveals that multifamily development along Dulles Corridor tends to cluster along the Silver Line, providing further support for rental development in the TRG.

Summary of Competitive Rental Properties
Washington, D.C. Metropolitan Area; September 2022

MAP KEY	COMMUNITY NAME	YEAR BUILT	LAST RENOV.	STORIES	UNITS	OCC. RATE	AVG. SIZE (SF)	AVG. RENT	AVG. ASK $/SF
1	Harrison at Reston Town Center	2015	N/A	14	360	98%	1,009	$3,229	$3.20
2	Avant At Reston Town Center	2013	N/A	15	351	98%	897	$2,851	$3.18
3	The Signature	2018	N/A	21	427	95%	1,030	$3,115	$3.03
4	Exo Reston	2018	N/A	16	457	94%	958	$2,803	$2.93
5	BLVD Reston Station	2016	N/A	21	458	95%	987	$3,254	$3.30
6	The Ian	2021	N/A	5	375	95%	838	$2,399	$2.86
7	The Point at Reston	2021	N/A	7	306	74%	928	$2,480	$2.67
8	The Aperture	2017	N/A	7	412	97%	853	$2,374	$2.78
9	Russell at Reston Station	2020	N/A	7	260	98%	884	$2,200	$2.49
10	Faraday Park	2021	N/A	7	407	60%	840	$2,306	$2.75
11	City Center Townes	2019	N/A	3	66	96%	1,493	$3,618	$2.42
12	The Townes At Herndon Center	2002	2014	3	216	100%	1,312	$2,551	$1.94
	AVERAGE	**2017**	**2014**	**11**	**341**	**97%**	**955**	**$2,736**	**$2.86**
	HIGH-RISE AVG	**2016**	**N/A**	**17**	**411**	**96%**	**978**	**$3,052**	**$3.12**
	PODIUM/WRAP AVG	**2020**	**N/A**	**7**	**352**	**98%**	**865**	**$2,356**	**$2.73**
	BUILD-FOR-RENT AVG	**2011**	**2014**	**3**	**141**	**99%**	**1,354**	**$2,801**	**$2.07**

Map of Competitive Rental Properties
Washington, D.C. Metropolitan Area; September 2022



[1] *Average occupancy excludes properties currently in lease-up*

Source: Leasing Agent Interviews; Property Websites; Axiometrics; CoStar; Apartments.com; Google; RCLCO

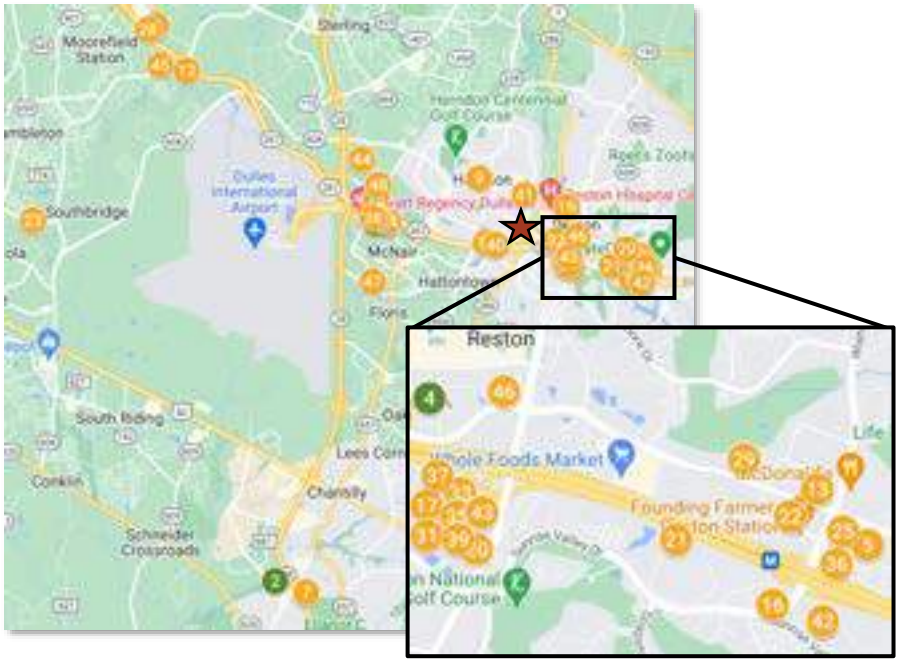
FUTURE DEVELOPMENT PIPELINE

RCLCO REAL ESTATE CONSULTING

THE DEVELOPMENT PIPELINE IS EXTENSIVE BUT HIGHLY SPECULATIVE, WITH RELATIVELY FEW PROJECTS IN THE NEAR TERM

- There are a substantial number of rental apartment communities that are planned or proposed in the PMA. In total, the pipeline includes 15,900 units; however, just 1,300 of these units are under construction, and the vast majority of remaining units are part of multi-phase and/or long-term development projects with uncertain delivery timelines. For these reasons, it is unlikely that even a sizable portion of units in the pipeline will come to fruition by the time multifamily units begin to deliver in the TRG. RCLCO expects approximately 1,000 to 1,500 units to deliver per year, but this number is likely to vary greatly from year to year, especially in the mid to long term.

Map of Pipeline Communities
Primary Market Area; September 2022



Source: Axiometrics; CoStar; RCLCO

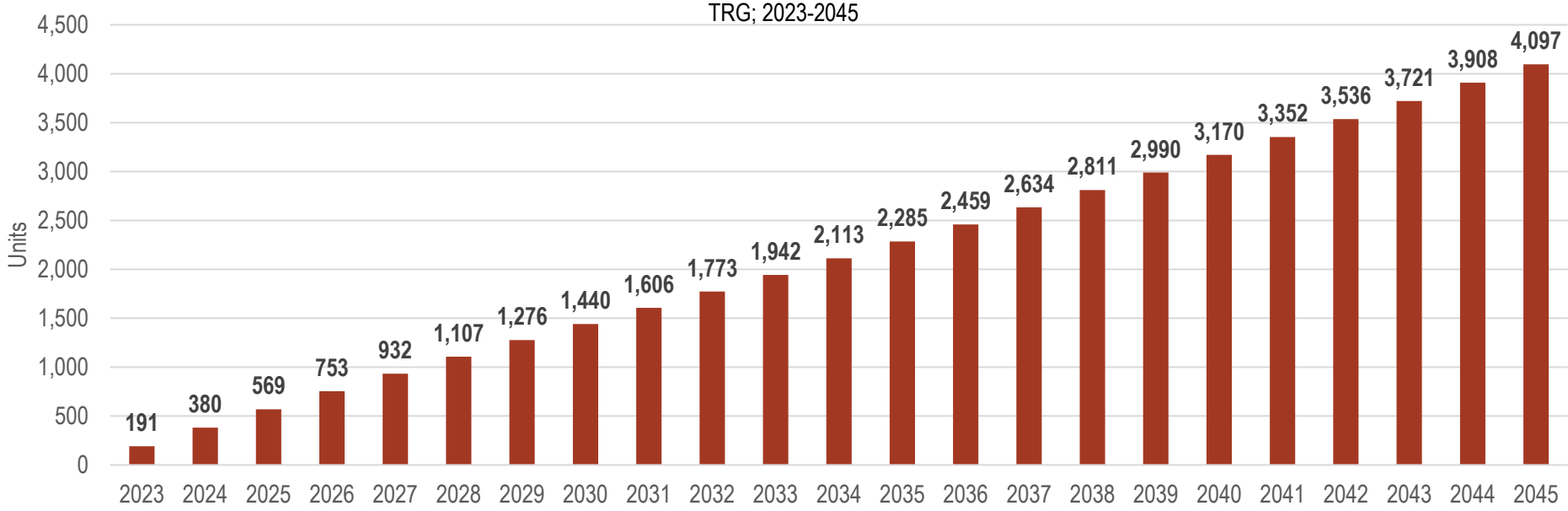
KEY	PROJECT	DEVELOPER	YEAR	UNITS
	UNDER CONSTRUCTION			
1	Makers Rise I	Crimson Partners	2023	356
2	Preserve at Westfields II	Northwood Ravin LLC	2023	338
3	Innovation Center South D1	Rocks Engineering Company	2023	125
4	RTC Next	Boston Properties	2025	508
	TOTAL			**1,327**
	PLANNED/PROPOSED			
5	Midline Block C	The Chevy Chase Land Company	2024	229
6	BLVD Gramercy West	Comstock Companies	2025	249
7	The Boulevards at Westfields	Zumot Real Estate Management	2025	130
8	Parkview Building B	Lerner	2026	300
9	BLVD Herndon	Comstock Companies	2026	273
10	Parkview Building C	Lerner	2026	250
11	Rivana at Innovation Station	Novais Partners	N/A	1,954
12	Silver District West	Soave Enterprises	N/A	1,000
13	Former Isaac Newton Square	Peter Lawrence Company	N/A	1,000
14	Makers Rise II	Crimson Partners	N/A	516
15	Campus Commons Building C	TF Cornerstone	N/A	479
16	Sunrise Valley Drive & Wiehle Avenue	Comstock Companies	N/A	469
17	Halley Rise Block H	Brookfield Properties	N/A	450
18	Innovation Avenue & Rock Hill Road	Greystar	N/A	415
19	Reston Town Center North	Foulger-Pratt	N/A	400
20	Halley Rise Block C	Brookfield Properties	N/A	366
21	Foulger-Pratt Development Block 7	Foulger-Pratt	N/A	360
22	Reston Row District at Reston Station	Comstock Companies	N/A	350
23	Soave Development II	Soave Enterprises	N/A	350
24	Innovation Center South B2	Rocks Engineering Company	N/A	345
25	Midline Block A	JBG Smith	N/A	325
26	Reston Crossing Building 3	Tishman Speyer	N/A	322
27	Innovation Center South A3	Rocks Engineering Company	N/A	321
28	Neon Lofts at Gramercy District	Bonaventure Inc.	N/A	300
29	Golf Course Overlook	Pineview Equity Group	N/A	300
30	RTC West I	JBG Smith	N/A	293
31	Halley Rise Block E	Brookfield Properties	N/A	291
32	RTC West II	JBG Smith	N/A	283
33	Reston Crossing Building 5	Tishman Speyer	N/A	261
34	Monroe Metro Plaza Building C	Penzance	N/A	255
35	Reston Crossing Building 6	Tishman Speyer	N/A	244
36	Midline Block B	JBG Smith	N/A	225
37	Reston Crossing Building 7	Tishman Speyer	N/A	222
38	Innovation Center South A4	Rocks Engineering Company	N/A	214
39	Halley Rise Block D	Not Available	N/A	200
40	Monroe Metro Plaza Building A	Penzance	N/A	200
41	Former Residence Inn	Elden Street Owner LLC	N/A	170
42	Campus Commons Building A	TF Cornerstone	N/A	150
43	Reston Crossing Building 2	Tishman Speyer	N/A	144
44-48	Long-Term Planned Developments	Various Developers	N/A	N/A
	TOTAL			**14,605**

RENTAL APARTMENT DEMAND IN TRG

RCLCO PROJECTS SUPPORT FOR OVER 4,000 RENTAL APARTMENT UNITS IN THE TRG BY 2045

- In order to project rental housing demand, RCLCO used a similar approach to the one that it used to project for-sale housing demand. After determining future rental housing demand at the regional level, RCLCO then projected the share that the Dulles Corridor and the TRG are likely to capture.
- These projections represent the total rental apartment demand. Individual renter groups may be inclined to rent certain types of multifamily product, differentiated by density, amenitization, and other characteristics.

Cumulative Demand for Rental Apartments
TRG; 2023-2045



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
RENTAL APARTMENTS																							
Annual Demand in MSA	12K	12K	13K	13K	13K	13K	13K	13K	13K	13K	13K	13K	13K	14K	14K	14K	14K	14K	14K	14K	14K	15K	15K
PMA Capture	7.4%	7.4%	7.4%	7.4%	7.5%	7.6%	7.6%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%
Annual Demand in PMA	864	903	943	952	960	969	977	984	995	1,004	1,014	1,024	1,033	1,043	1,053	1,062	1,072	1,082	1,092	1,102	1,112	1,122	1,132
TRG Capture	22%	21%	20%	19%	19%	18%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
Annual TRG Demand	**191**	**190**	**189**	**184**	**179**	**174**	**169**	**164**	**166**	**167**	**169**	**171**	**172**	**174**	**175**	**177**	**179**	**180**	**182**	**184**	**185**	**187**	**189**
Cumulative TRG Demand	**191**	**380**	**569**	**753**	**932**	**1,107**	**1,276**	**1,440**	**1,606**	**1,773**	**1,942**	**2,113**	**2,285**	**2,459**	**2,634**	**2,811**	**2,990**	**3,170**	**3,352**	**3,536**	**3,721**	**3,908**	**4,097**

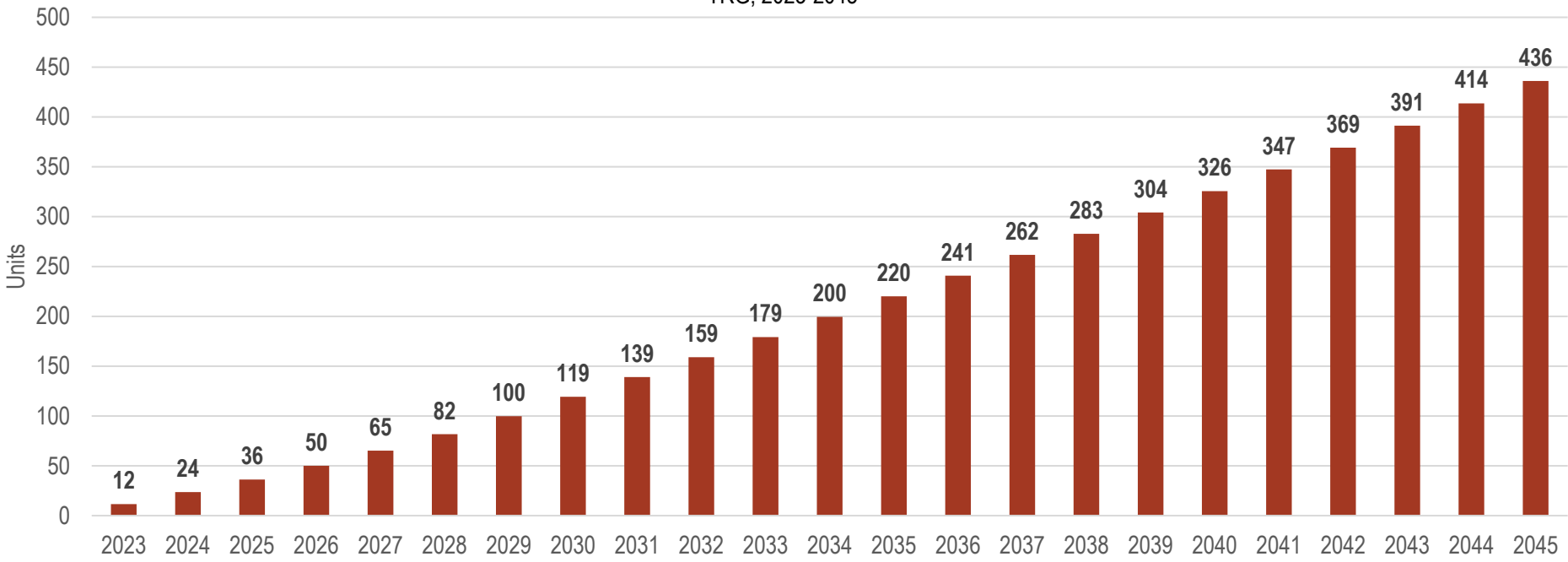
Source: Esri; American Community Survey PUMS; RCLCO

RENTAL TOWNHOME DEMAND IN TRG

RCLCO PROJECTS SUPPORT FOR MORE THAN 400 RENTAL TOWNHOMES IN THE TRG BY 2045

- Rental townhome demand assumes turnover and submarket capture rates observed in the local market, differentiated from rental apartment demand since this product type typically caters to a more mature subset of renter households and competes with shadow market rentals.

Cumulative Demand for Rental Townhomes
TRG; 2023-2045



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
RENTAL TOWNHOMES																							
Annual Demand in MSA	428	479	533	581	631	683	737	794	802	810	818	825	833	841	849	857	865	873	881	889	897	905	913
PMA Capture	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Annual Demand in PMA	67	75	84	92	101	110	120	130	131	133	134	135	137	138	139	140	142	143	144	146	147	148	150
TRG Capture	17%	16%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Annual TRG Demand	**12**	**12**	**13**	**14**	**15**	**17**	**18**	**20**	**20**	**20**	**20**	**20**	**21**	**21**	**21**	**21**	**21**	**22**	**22**	**22**	**22**	**22**	**23**
Cumulative TRG Demand	**12**	**24**	**36**	**50**	**65**	**82**	**100**	**119**	**139**	**159**	**179**	**200**	**220**	**241**	**262**	**283**	**304**	**326**	**347**	**369**	**391**	**414**	**436**

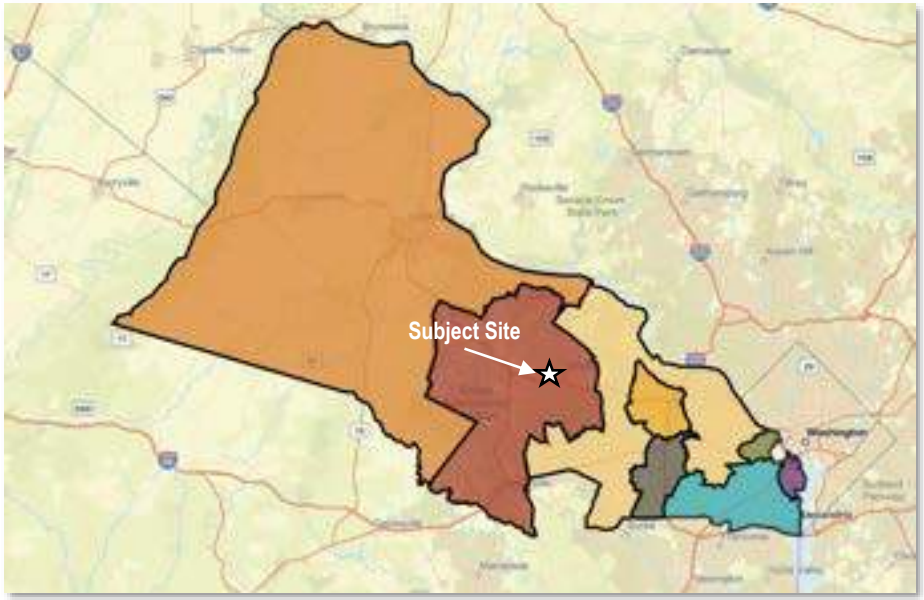
Source: Esri; American Community Survey PUMS; RCLCO

OFFICE MARKET ANALYSIS

THE DULLES CORRIDOR IS HOME TO A LARGE AND GROWING OFFICE MARKET, AND IT HAS ESTABLISHED ITSELF AS A HUB FOR TECHNOLOGY COMPANIES

- The Dulles Corridor, which covers the same geography as the residential PMA, is the largest office submarket in Northern Virginia in terms of total office supply, containing approximately 56.1 million square feet of space. Historically, companies have located in the submarket for proximity to Dulles International Airport, vehicular accessibility, and relatively lower rents.
- At $30.89, office rents along the Dulles Corridor fall below MSA averages ($39.23). However, new space is positioned at a significant premium, particularly amid current trends favoring new product as companies increasingly opt to consolidate operations to high-quality space. In addition, the premium stems from the fact that new buildings along the Dulles Corridor tend to offer more dynamic environments than older suburban office space in the submarket.
- In recent years, the Dulles Corridor has established itself as a hub for technology companies, attributable in large part to its proximity to the Central Intelligence Agency, Department of Defense, and other federal agencies that award contracts for cybersecurity and cloud computing. Even with these demand drivers, vacancy is currently above 18%, as employees continue to work remotely, and companies decide not to renew leases or shrink their footprint.

Map of Office Submarkets
Northern Virginia; September 2022



Summary of Office Submarket Trends
Northern Virginia; September 2022

	DULLES CORRIDOR	LEESBURG / ROUTE 7 CORRIDOR	TYSONS	GREATER FAIRFAX COUNTY	R-B CORRIDOR	ALEXANDRIA / I-395 AREA	NATIONAL LANDING	MERRIFIELD / MOSAIC DISTRICT
COLOR CODE								
Total Buildings	498	93	154	213	125	210	47	78
Existing RBA	56,128,328	6,304,136	29,719,151	16,846,299	27,420,446	23,143,389	13,065,414	9,933,810
Vacancy Rate (Overall)	18.3%	6.4%	18.4%	17.0%	20.8%	17.4%	23.1%	14.8%
Base Rent (Overall)	$30.89	$26.89	$36.31	$27.22	$40.73	$32.31	$37.56	$30.81
Avg. Annual Deliveries (2010-2019)	374,414	94,785	334,722	49,751	352,962	255,748	87,367	9,719
Avg. Annual Absorption (2010-2019)	388,738	151,800	206,684	-19,652	-7,078	111,686	10,483	37,156
Avg. Annual Rent Growth (2010-2019)	1.1%	0.3%	1.7%	0.6%	0.0%	0.4%	-0.5%	-1.2%

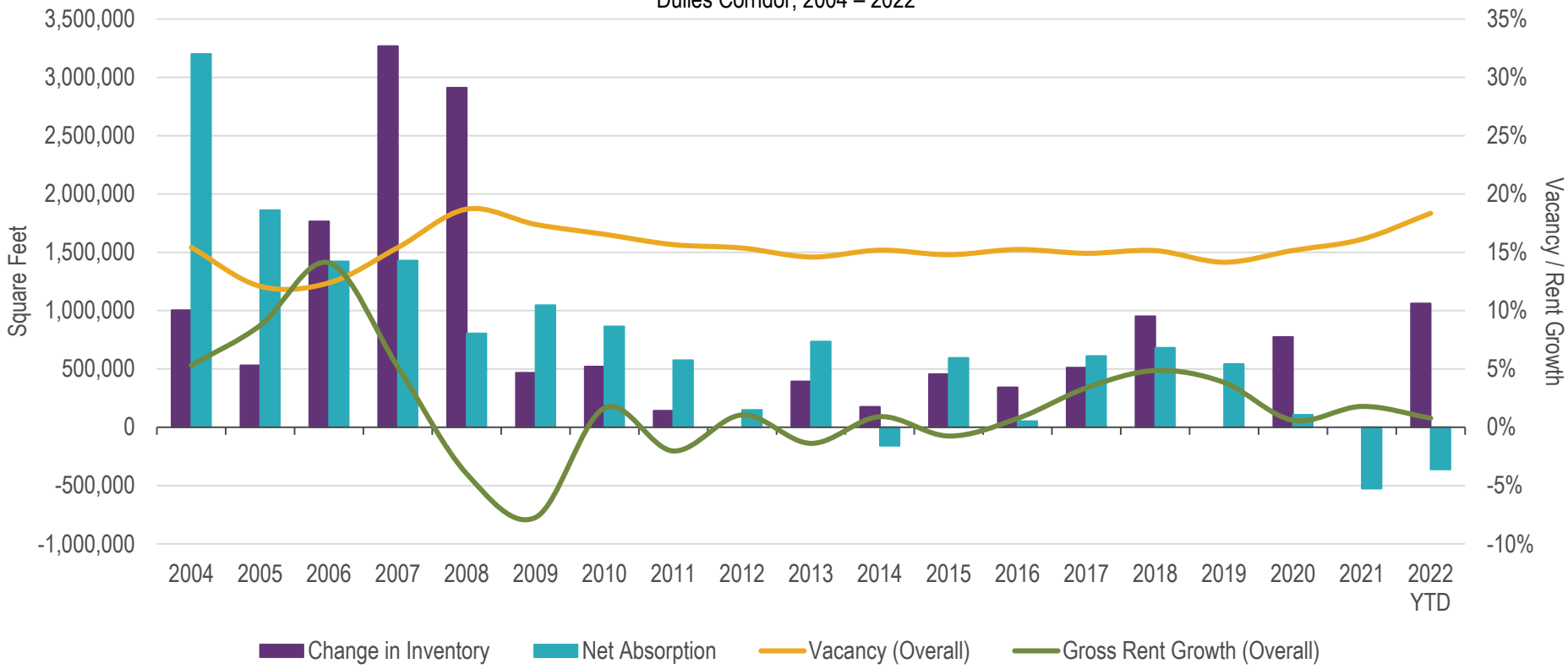
Note: Includes office properties over 25,000 square feet.

Source: CoStar; RCLCO

THE DULLES CORRIDOR HAS HISTORICALLY ABSORBED AN AVERAGE OF 500,000 SQUARE FEET OF OFFICE SPACE ANNUALLY, BUT RECENT TRENDS POINT TO A MODERATION IN DEMAND

- From 2010 to 2019, the Dulles Corridor added 350,000 square feet of office space and absorbed about 460,000 square feet each year on average. Although this mismatch suggests the submarket can accommodate increased development, it is important to note that the COVID-19 pandemic has led to headwinds in the local office market. Coupled with the pandemic, sizable deliveries in recent years—concentrated in Reston and along the Dulles Toll Road—have driven vacancy upwards.
- Moving forward, vacancies are likely to remain elevated in the near term, as companies reevaluate their space needs under work-from-home and hybrid work models. Indeed, newer properties are often better occupied than older ones, pointing to a flight to quality. However, lower levels of absorption may limit the ability of new office product to achieve viable rents in the coming years.

Completions, Absorption, Vacancy, and Rent Growth
Dulles Corridor; 2004 – 2022



Note: Includes office properties over 25,000 square feet.

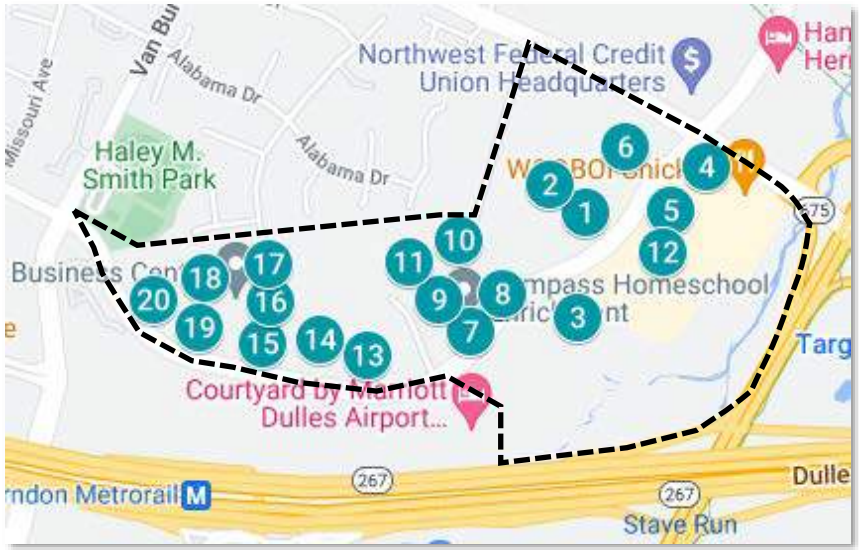
Source: CoStar; RCLCO

THE TRG IS HOME TO WELL-OCCUPIED LEGACY OFFICE PROPERTIES, THOUGH CURRENT OFFICE MARKET TRENDS CREATE POTENTIAL HEADWINDS FOR EXISTING SUPPLY

- With a weighted average vacancy of 8.2%, office properties in the TRG are currently outperforming the Dulles Corridor submarket in terms of occupancy (see Page 37). Given the vintage of existing office space in the TRG, average rents lag behind those seen elsewhere in the Dulles Corridor. TRG properties achieve average rents of $22.86, while Dulles Corridor boasts an average base rent of $30.89. This difference is attributable to the older vintage of TRG office space and the emergence of nearby Reston as a popular destination for new Class A office, which has pushed the ceiling on Dulles Corridor rents.
- Low base rents and near-zero rent growth over the past decade in the TRG have boosted retention of tenants, many of which are small businesses and non-profits seeking low-cost space; however, shifting work models that demand less space and changing technological needs have driven a flight to quality. Eventually, this trend may draw existing tenants elsewhere. While low rents appeal to a broad tenant base, countervailing post-pandemic trends may have a mediating effect on demand for older office product.

Summary and Map of Existing Office Properties
Transit-Related Growth Area; September 2022

MAP KEY	PROPERTY	RBA	YEAR BUILT	YEAR RENOV.	STORIES	VACANT %	RENT/ SF	RENT TYPE
1	Springwood (Bldgs A-D)	22,708	1988	N/A	2	0.0%	$21.00	FS
2	Springwood (Bldg E)	9,060	1988	N/A	2	3.3%	N/A	FS
3	Fairbrook 1	80,405	1985	N/A	2	0.0%	$25.00	NNN
4	NIGP Headquarters	9,600	1987	2018	3	0.0%	$24.00	FS
5	Pky Crossing Condos	37,500	2005	2010	2	0.0%	$22.00	FS
6	Parkway Square	205,074	1986	N/A	2	0.0%	N/A	FS
7	Van Buren Office Park 1	29,553	1985	N/A	1	0.0%	$24.00	FS
8	Van Buren Office Park 2	18,570	1985	N/A	1	0.0%	$19.50	FS
9	Van Buren Office Park 3	25,970	1985	N/A	1	0.0%	$19.50	FS
10	Van Buren Office Park 4	20,413	1985	N/A	1	11.1%	$23.00	FS
11	Van Buren Office Park 5	29,520	1985	N/A	1	0.0%	$23.00	FS
12	465 Herndon Pkwy	16,678	1988	N/A	2	0.0%	N/A	FS
13	Freddie Mac	136,603	1985	N/A	2	0.0%	N/A	N/A
14	560 Herndon Pkwy	52,528	1988	N/A	3	44.3%	$24.00	FS
15	570 Herndon Pkwy	21,512	1986	N/A	1	9.6%	$22.00	FS
16	580 Herndon Pkwy	23,772	1987	N/A	1	54.7%	$22.00	FS
17	590 Herndon Pkwy	47,775	1987	N/A	1	37.6%	$22.00	FS
18	600 Herndon Pkwy	23,772	1987	N/A	1	15.5%	$22.00	FS
19	610 Herndon Pkwy	21,436	1986	N/A	1	16.2%	$22.00	FS
20	620 Herndon Pkwy	53,598	1987	N/A	3	13.0%	$24.00	FS



Source: CoStar; RCLCO

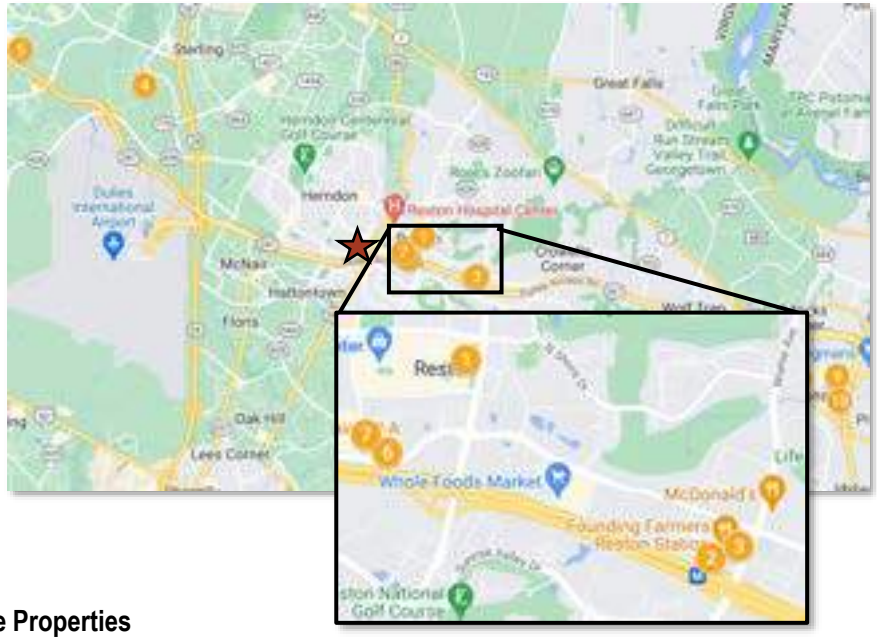
COMPETITIVE SUPPLY

RCLCO REAL ESTATE CONSULTING

NEW DELIVERIES ALONG THE DULLES CORRIDOR ARE PUSHING THE PRICE CEILING IN THE SUBMARKET

- Office properties close to Reston Town Center (e.g., *Reston Station*) are commanding rents of $51.00 to $53.00 for full-service leases, with upcoming deliveries (e.g., *RTC Next*) expected to achieve rents in excess of $60.00 for such leases. However, it is important to note that Reston Town Center benefits from its status as an established retail and employment hub, and that it is closer to the District than the other locations along the corridor in which new development is occurring.
  - Corporate office development in the TRG would likely achieve rents in line with new buildings along the Dulles Corridor with similar access to transit. The TRG is likely to be positioned at a discount to Reston, which is closer to the District and its workforce.
  - These rents are likely much higher than those that existing office tenants in the TRG are paying today. As such, existing tenants are likely to require different kinds of office spaces, should the Town of Herndon aim to retain them following redevelopment.
- Closer to the District, new office space in Tysons is commanding rents of $59.00 to $61.00, suggesting there is minimal room to push the existing top-of-market threshold along the Dulles Corridor given pricing dynamics in established employment cores.

Map of Relevant Office Properties
Dulles Corridor and Neighboring Submarkets; August 2022



Summary of Relevant Office Properties
Dulles Corridor and Neighboring Submarkets; September 2022

MAP KEY	PROPERTY	RBA	YEAR BUILT	YEAR RENOV.	STORIES	VACANCY	VACANT SPACE (SF)	RENT / SF	RENT TYPE
1	17Fifty	276,000	2020	N/A	18	0.0%	0	N/A	N/A
2	Reston Station - Phase II	212,957	2020	N/A	14	0.0%	0	N/A	FS
3	Reston Station - Phase I	365,000	2017	N/A	16	32.4%	118,270	$51.00 to $53.00	FS
4	Broderick One at Loudoun Gateway	99,450	2015	2020	4	23.3%	23,158	$30.00	FS
5	Loudon Station	103,000	2015	N/A	4	9.3%	9,573	$30.00 to 40.00	FS
6	RTC Next - Tower A	643,987	2022	N/A	28	1.2%	7,593	N/A	FS
7	RTC Next - Tower B	418,000	2022	N/A	20	5.1%	135,661	N/A	FS
8	Boro Tower	567,363	2019	N/A	20	23.2%	28,827	$59.00 to $61.00	FS
9	Tysons II	476,913	2016	N/A	18	0.0%	110,506	$51.00 to $62.00	FS
10	Tysons Tower	528,711	2014	N/A	22	0.0%	117,855	$62.00	FS

Source: CoStar; Loopnet; Property Websites; RCLCO

FUTURE DEVELOPMENT PIPELINE

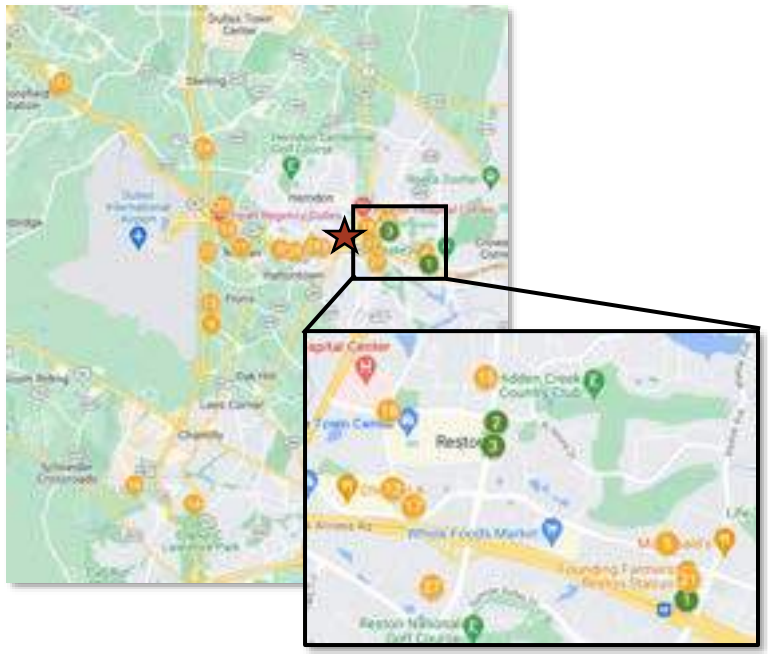
RCLCO REAL ESTATE CONSULTING

A SIGNIFICANT AMOUNT OF OFFICE DEVELOPMENT IS UNDER CONSTRUCTION OR PLANNED ALONG DULLES CORRIDOR

- The current development pipeline along the Dulles Corridor includes 760,000 square feet of space that is already under construction, as well as 12 million square feet of space that is planned or proposed. Much of the planned and proposed space remains speculative, but it is concentrated in multi-phase, mixed-use development projects that would compete with the TRG when and if they deliver, such as *Halley Rise*, *Kincora*, and *Loudoun Station*. The TRG is also likely to compete with the HTOC, which is closer to transit.
- These projects represent more than the total amount of supply the Dulles Corridor has delivered over the last 15 years. Although market conditions will likely shrink the amount of the pipeline that will come to fruition, this pipeline highlights the likelihood of future competition in the submarket, underscoring the limitations of the market opportunity for office development at the site—particularly space that is oriented towards larger corporate tenants.

MAP KEY	NAME	RBA	DEVELOPER	EST DELIVERY	STORIES
1	Reston Station - Phase III	221,000	Comstock Companies	2022	16
2	Reston Row - OB4	328,380	Comstock Companies	2024	13
3	1875 Reston Row Plz	210,487	Comstock Companies	2024	10
4	Lincoln Park III @ Dulles International Center	185,000	Lincoln Property Company	2024	5
5	Isaac Newton Square - Block E1	200,000	MRP Realty	2024	4
6	Loudoun Station - Building K	255,000	Comstock Companies	2025	13
7	Loudoun Station - One Gramercy	211,679	Comstock Companies	2025	12
8	Dulles 2000 - Building 1	225,000	The Tower Companies	2025	9
9	2288 Wood Oak Dr	117,941	Brandywine Realty Trust	N/A	6
10	Innovation	499,660	Rocks Engineering RE Developers	N/A	12
11	Dulles Executive Plaza III - Build to Suit	245,000	N/A	N/A	7
12	12050 Inspiration St	74,600	Boston Properties, Inc.	N/A	4
13	Dulles Gateway II	150,000	The Peter Lawrence Companies	N/A	6
14	ParkEast Corporate Center	91,244	Cambridge Property Group LLC	N/A	4
15	One Reston Town Center	420,000	Akridge	N/A	23
16	The Crossroads at Westfields II	150,000	Alter Asset Management	N/A	5
17	RTC West - Trophy Office	364,000	JBG SMITH Properties	N/A	21
18	RTC West - The Jewel	150,000	JBG SMITH Properties	N/A	8
19	Woodland Park II	250,000	The Pinkard Group	N/A	17
20	Woodland Park I	330,000	The Pinkard Group	N/A	15
21	Reston Row - OB5	252,106	Comstock Companies	N/A	9
22	Two Global View	217,003	N/A	N/A	9
23	Loudoun Station - Two Gramercy	262,000	Comstock Companies	N/A	8
24	Kincora	4,000,000	Tritec	N/A	7
25	Waterside	1,400,000	N/A	N/A	Varies
26	Halley Rise - Block G	400,000	Brookfield Properties	N/A	20
27	Halley Rise - Block H	748,972	Brookfield Properties	N/A	32
28	555 Herndon Pky	324,984	Penzance Management	N/A	24
29	Parkview Executive Center Redevelopment	400,000	Lerner Enterprises	N/A	16

Development Pipeline
Dulles Corridor; September 2022



MAP KEY	RBA
Under Construction	759,867
Planned	11,924,189
TOTAL	**12,684,056**

Source: CoStar; Loopnet; Cushman & Wakefield; Property Websites

OUTLOOK FOR OFFICE DEMAND

RCLCO REAL ESTATE CONSULTING

THE COVID-19 PANDEMIC HAS ACCELERATED TRENDS TOWARD TELEWORKING, POTENTIALLY ALTERING THE AMOUNT OF OFFICE SPACE NEEDED FOR EVERY NEW JOB MOVING FORWARD

- In order to project demand for office in the TRG, RCLCO started by analyzing employment growth projections from Moody's Analytics. When doing so, RCLCO observed that Moody's currently projects much lower employment growth for the Washington, D.C., MSA (0.4% annually from 2022 to 2045) than that which the region has experienced in the past (1.2% annually from 1990 to 2022). RCLCO therefore developed its own employment forecast, based on the historical pace of growth and projected changes at the industry level. Next, RCLCO determined the share of new jobs that are likely to require office space, followed by the amount of square feet that each new job is likely to require.
- To "sensitivity test" the impact of the COVID-19 pandemic on long-term office patterns, RCLCO developed three scenarios to consider when projecting future office demand in the market and in the TRG. These scenarios include the following:
  - **Base Case**: In this scenario, office users return to their previous behavior following the COVID-19 pandemic, with no changes to the amount of space companies require.
  - **Hybrid Work Model**: In this scenario, an increased number of office-using employees adopt "hybrid work models" in which they split their time between working from home and working in the office. This behavior allows companies to accept smaller office footprints as a result.
  - **Additional Work from Home**: In this scenario, the same share of employees adopt a hybrid work model, but an additional share of employees decide to permanently work from home as well, meaning that fewer employees will require office space, in addition to the fact that those employees who will require office space will require less of it.
- Assuming that the Dulles Corridor continues to capture approximately 20% of demand for office space in the broader Washington, D.C., MSA, these scenarios indicate demand for between 6.2 million and 13.6 million square feet of net new office space along the Dulles Corridor through the end of 2045.

Summary of Office Demand Trajectories
Washington, D.C., MSA; 2022-2045

	SCENARIO 1: BASE CASE		SCENARIO 2: HYBRID WORK MODEL		SCENARIO 3: ADD'L WORK FROM HOME	
Description	Office users return to their previous behavior following the COVID-19 pandemic		Growing number of office employees use "hybrid work models" in which they split their time between home and the office		Same as Scenario 2, but an additional share of employees decide to permanently work from home	
Avg. Annual Employment Growth	=	1% / Year Through 2045	=	1% / Year Through 2045	=	1% / Year Through 2045
% of Employees Using Office	=	30.9% of Employees	=	30.9% of Employees	↓	28.6% of Employees
SF per Office-Using Employee	=	272 SF / Employee	↓	224 SF / Employee	↓	224 SF / Employee
New Office Space Demanded in MSA Through 2045 From Growth	**69.8 Million SF**		**57.4 Million SF**		**31.7 Million SF**	
Dulles Corridor Capture	**20%** Along Dulles Corridor		**20%** Along Dulles Corridor		**20%** Along Dulles Corridor	
New Office Space Demanded Along Dulles Corridor Through 2045 From Growth	**13.6 Million SF**		**11.2 Million SF**		**6.2 Million SF**	

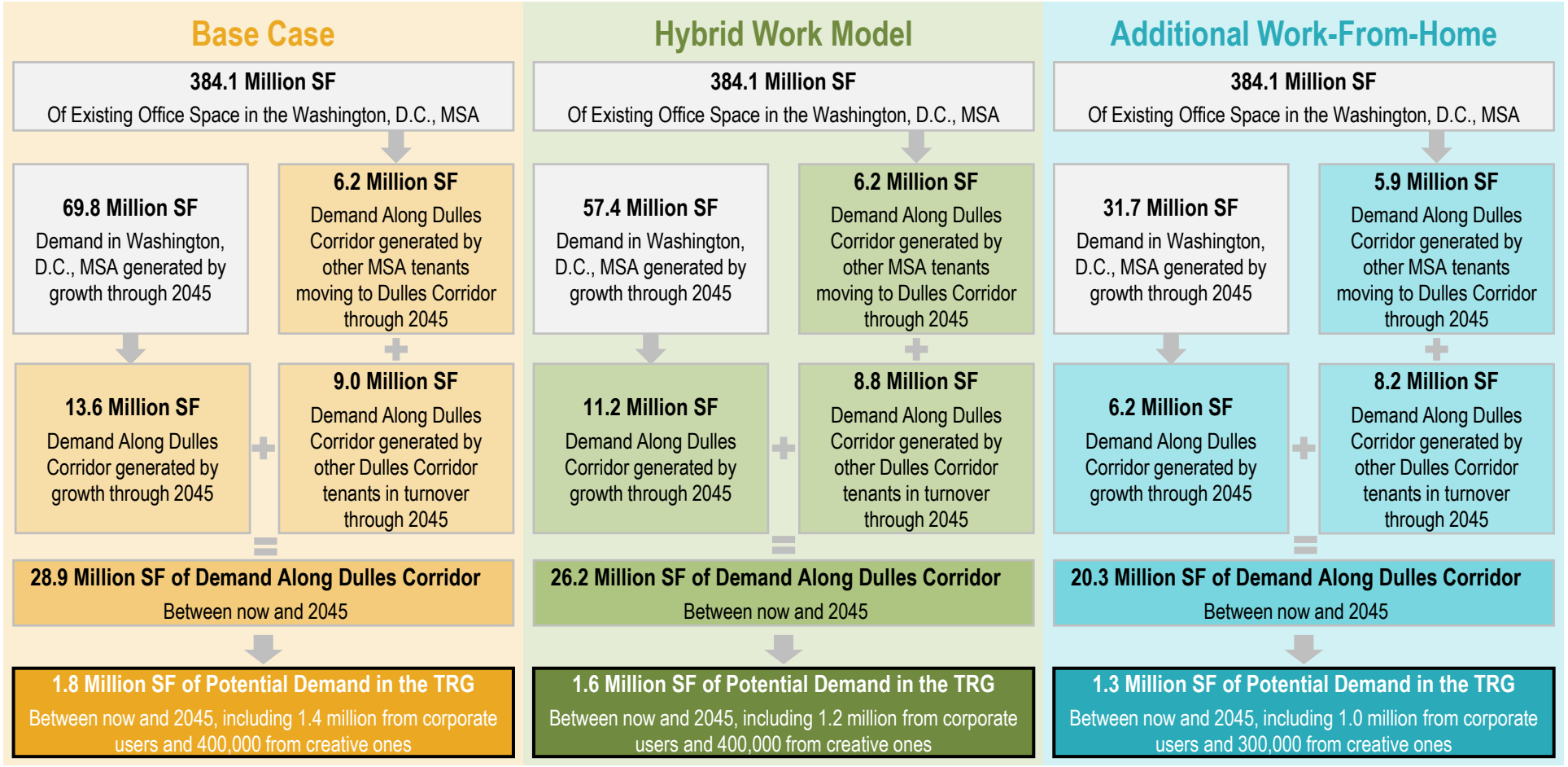
Source: Moody's Analytics; CoStar; RCLCO

OFFICE DEMAND AT SITE

RCLCO REAL ESTATE CONSULTING

RCLCO PROJECTS DEMAND FOR UP TO 438,000 SQUARE FEET OF OFFICE IN THE TRG BY THE END OF THE DECADE, WITH TOTAL SUPPORT GROWING TO SLIGHTLY LESS THAN 1.3 MILLION SQUARE FEET BY 2045

- This forecast includes demand from three sources: 1.) growth within the MSA, 2.) turnover of tenants that currently occupy space along Dulles Corridor, and 3.) turnover of tenants that currently occupy space elsewhere in the MSA but are moving to the Dulles Corridor. The average of these three forecasts translates to cumulative demand for up to 1,265,000 square feet of office development in the TRG through the end of 2045.
- Please note that these projections reflect demand for new space, and that any space created for existing tenants at lower price points could perhaps be additive to these totals.



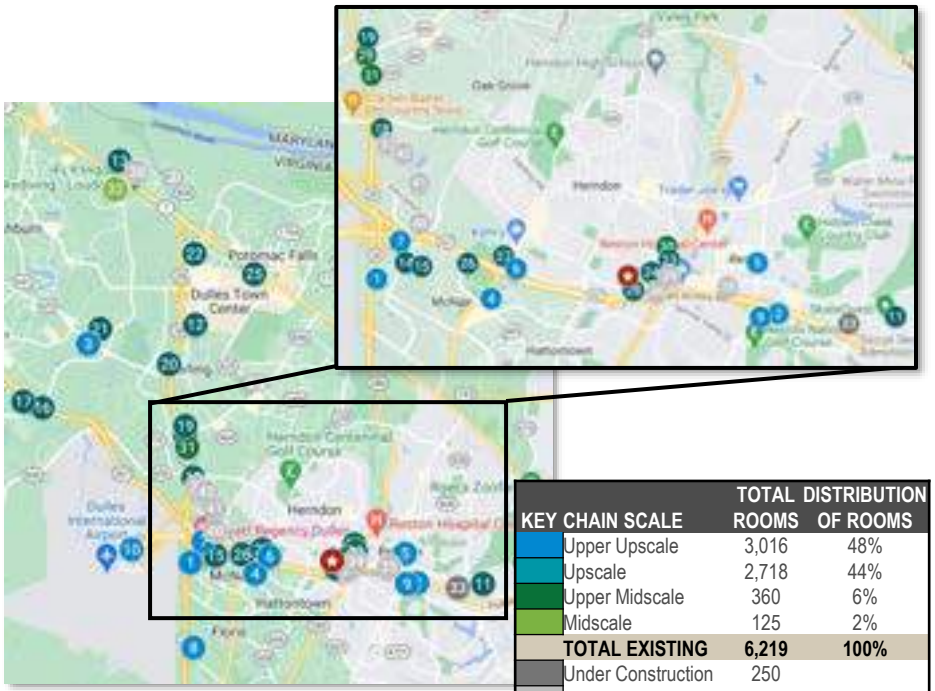
Source: Moody's Analytics; CoStar; RCLCO

HOTEL MARKET ANALYSIS

HOSPITALITY DEVELOPMENT IS CONCENTRATED IN RESTON AND NEAR WASHINGTON-DULLES AIRPORT

- RCLCO evaluated the performance of the following hotels, distinguishing a direct "competitive set" (in the HTOC, TRG, or very close by) from the submarket as a whole in order to understand its performance.
- Just one hotel in Dulles Corridor is under construction—a JW Marriott in Reston—which will add 250 rooms to the submarket. This delivery will be the first luxury product to deliver along Dulles Corridor.

Map of Hotel Competitive Set & Pipeline
Dulles Corridor; September 2022



KEY	CHAIN SCALE	TOTAL ROOMS	DISTRIBUTION OF ROOMS
	Upper Upscale	3,016	48%
	Upscale	2,718	44%
	Upper Midscale	360	6%
	Midscale	125	2%
	TOTAL EXISTING	**6,219**	**100%**
	Under Construction	250	
	Planned / Proposed	1,425	
	TOTAL PIPELINE	**1,675**	

Note: Pricing data from July 18, 2022 to October 14, 2022.
Source: Smith Travel Research; CoStar; Business Journals; RCLCO

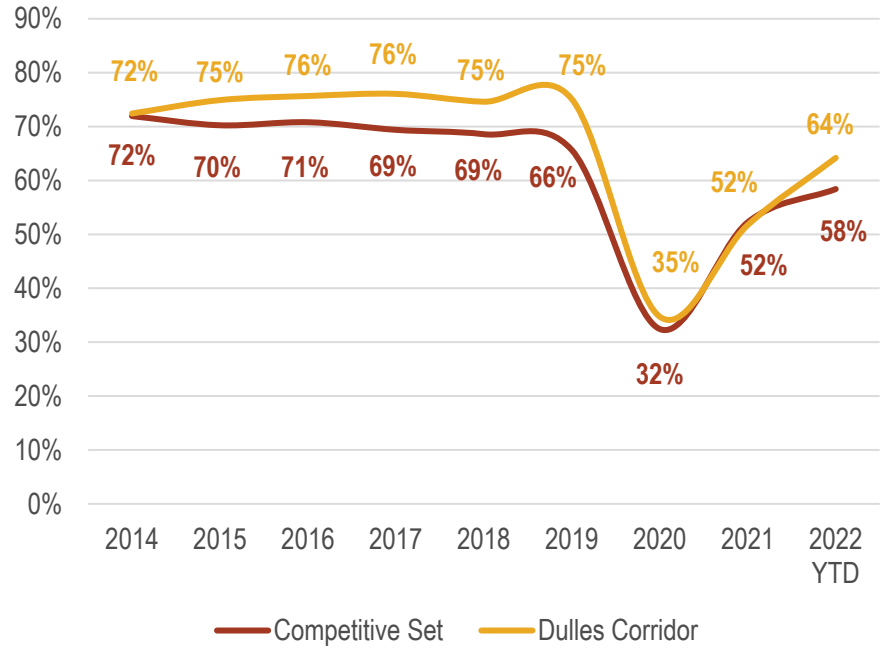
Hotel Competitive Set
Dulles Corridor; September 2022

MAP KEY	HOTEL	CLASS	COMPETITIVE SET	YEAR OPENED	ROOMS	RACK RATE
	EXISTING					
1	Westin Washington Dulles Airport	Upper Upscale	Dulles Corridor	2009	314	$173
2	Westin Reston Heights	Upper Upscale	Dulles Corridor	2008	191	$221
3	Embassy Suites by Hilton Dulles North Loudoun	Upper Upscale	Dulles Corridor	2005	154	$158
4	Embassy Suites by Hilton Dulles Airport	Upper Upscale	Dulles Corridor	1998	150	$172
5	Hyatt Regency Reston	Upper Upscale	Dulles Corridor	1990	518	$250
6	Washington Dulles Marriott Suites	Upper Upscale	Dulles Corridor	1990	254	$210
7	Hyatt Regency Dulles	Upper Upscale	Dulles Corridor	1989	316	$186
8	Hilton Washington Dulles Airport	Upper Upscale	Dulles Corridor	1985	449	$155
9	Sheraton Reston Hotel	Upper Upscale	Dulles Corridor	1973	302	$163
10	Marriott Washington Dulles Airport	Upper Upscale	Dulles Corridor	1970	368	$221
11	Homewood Suites by Hilton Reston	Upscale	Dulles Corridor	2020	135	$151
12	DoubleTree by Hilton Hotel Sterling Dulles Airport	Upscale	Dulles Corridor	2010	171	$127
13	SpringHill Suites Ashburn Dulles North	Upscale	Dulles Corridor	2009	132	$147
14	Courtyard Dulles Airport Herndon	Upscale	Dulles Corridor	2009	187	$144
15	Hyatt Place Herndon Dulles Airport East	Upscale	Dulles Corridor	2009	151	$123
16	Hilton Garden Inn Dulles North	Upscale	Dulles Corridor	2009	135	$139
17	aloft Hotel Dulles Airport North	Upscale	Dulles Corridor	2008	136	$138
18	Hyatt House Sterling Dulles Airport North	Upscale	Dulles Corridor	2007	162	$136
19	SpringHill Suites Dulles Airport	Upscale	Dulles Corridor	2007	158	$146
20	Residence Inn Dulles Airport @ Dulles 28 Center	Upscale	Dulles Corridor	2006	151	$272
21	Homewood Suites by Hilton Dulles North Loudoun	Upscale	Dulles Corridor	2005	90	$157
22	Courtyard Dulles Town Center	Upscale	Dulles Corridor	2001	157	$211
23	SpringHill Suites Herndon Reston	Upscale	Competitive Set	1999	136	$156
24	Hyatt House Herndon Reston	Upscale	Competitive Set	1999	104	$162
25	Hyatt Place Sterling Dulles Airport North	Upscale	Dulles Corridor	1999	134	$126
26	Homewood Suites by Hilton Dulles Int'l Airport	Upscale	Dulles Corridor	1998	109	$157
27	Crowne Plaza Dulles Airport	Upscale	Dulles Corridor	1987	324	$155
28	Courtyard Dulles Airport Herndon Reston	Upscale	Competitive Set	1987	146	$144
29	Hampton by Hilton Washington-Dulles International	Upper Midscale	Dulles Corridor	2007	170	$115
30	Hampton by Hilton Inn & Suites Herndon-Reston	Upper Midscale	Competitive Set	2007	96	$150
31	TownePlace Suites Dulles Airport	Upper Midscale	Dulles Corridor	1998	94	$154
32	Tru by Hilton Ashburn One Loudoun	Midscale	Dulles Corridor	2021	125	$183
	PIPELINE					
33	JW Reston Marriott	Luxury		2025	250	
34	AC Hotels by Marriott Reston Town Center	Upscale		2024	150	
35	Residence Inn By Marriott Reston	Upscale		2024	120	
36	Home2 Suites by Hilton Herndon	Upper Midscale		2026	108	
37	Home2 Suites by Hilton Dulles Airport	Upper Midscale		2026	124	
38	Home2 Suites by Hilton Ashburn, VA	Upper Midscale		2024	122	
39	Hilton Garden Inn	Upscale		2026	136	
40	Rivana at Innovation Station (Full-Service)	Upper Upscale		2028	265	
41	Waterside Resort	Upper Upscale		2030	250	
42	Waterside Hotel	Luxury		2035	150	

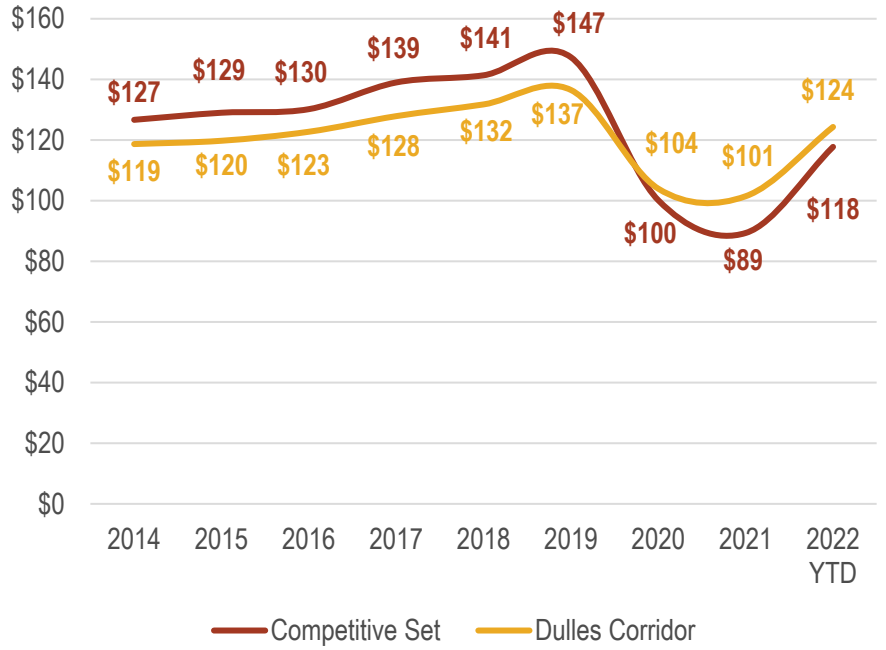
ALTHOUGH THE COVID-19 PANDEMIC PLACED DOWNWARD PRESSURE ON OCCUPANCY RATES AND AVERAGE DAILY RATES ALONG DULLES CORRIDOR, THE SUBMARKET HAS REBOUNDED QUICKLY

- Prior to the COVID-19 pandemic, hotels in the Dulles Corridor were very well-occupied and saw consistent ADR growth YOY.
  - From 2014 to 2019, the competitive set maintained an average occupancy rate of 69%, holding relatively constant. The submarket has outperformed the competitive set (unsurprising given the competitive set does not contain the upscale properties outside of Herndon, and the hotels in close proximity to Dulles Airport).
  - At the same time, ADRs in the competitive set have experienced steady growth, increasing from $127 in 2014 to $147 in 2019. The competitive set was outperforming the submarket in terms of ADRs until only recently, presumably because the hotels that are more dependent on business travel suffered most from the pandemic.
- The COVID-19 pandemic led to challenging market conditions, with occupancies and ADRs facing steep declines in 2020. However, the hospitality market has begun to rebound in 2022. ADRs have recovered approximately half of the decline from pre-pandemic levels, with rates averaging $118 thus far during 2022 in the competitive set. Continued recovery is dependent on the return of business travel, which this submarket is highly reliant on given its proximity to government contractors and the airport.

Historical Occupancy Rate Comparison
Dulles Corridor; 2014-2022



Historical ADR Comparison
Dulles Corridor; 2014-2022



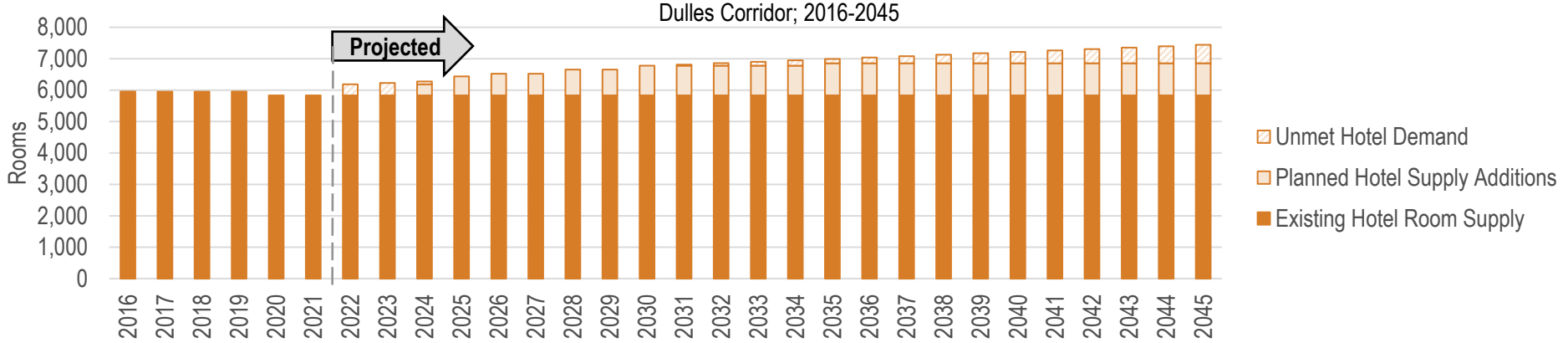
Source: Smith Travel Research; RCLCO

HOTEL DEMAND AT SITE

RCLCO PROJECTS SUFFICIENT SUPPORT FOR JUST OVER 300 ADDITIONAL HOTEL KEYS IN THE TRG OVER THE LONG TERM

- In order to estimate future hotel demand in the TRG, RCLCO projected the change in occupied room-nights along the Dulles Corridor. Moving forward, RCLCO expects the hospitality market to continue to recover through 2022, given the swift pace at which the submarket has already recovered thus far. Starting next year, RCLCO then projects growth of approximately 11,000 additional room-nights per year, in line with the historical pace at which demand has grown. Finally, RCLCO assumed a typical target occupancy rate of 70%, and then determined the number of additional hotel rooms that would be necessary for the submarket to maintain that rate over time.
- Moving forward, planned hotel deliveries may limit the ability of the TRG to capture sufficient demand to support more than 320 to 330 additional rooms over the long term. Demand is likely to be strongest in the very near term, before the planned hotels deliver, or in the long term, after they have done so. Meanwhile, there is possibility of increased competition during the latter half of this decade, should the speculated projects deliver.

Supply and Demand for Hotels
Dulles Corridor; 2016-2045



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
UNMET DEMAND																								
Demand at Target Occupancy (Nights)	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M
Unmet Demand (Nights)	90K	102K	23K	0	0	0	0	0	0	8K	20K	31K	43K	35K	47K	58K	70K	81K	93K	104K	116K	127K	139K	150K
Unmet Demand (Available Room Nights)	129K	145K	32K	0	0	0	0	0	0	12K	28K	44K	61K	50K	66K	83K	99K	116K	132K	149K	165K	182K	198K	214K
Unmet Demand (Rooms)	**354**	**399**	**88**	**0**	**0**	**0**	**0**	**0**	**0**	**32**	**77**	**122**	**167**	**137**	**182**	**227**	**272**	**317**	**362**	**407**	**452**	**497**	**542**	**587**
TRG CAPTURE OF DEMAND																								
Fair Share Capture	5.0%	5.0%	4.8%	4.6%	4.5%	4.5%	4.5%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
TRG Capture of Demand (Nights)	84K	85K	81K	79K	79K	80K	79K	80K	80K	81K	81K	82K	82K	82K	82K	83K	83K	84K	84K	85K	85K	86K	86K	87K
TRG Capture of Demand (Rooms)	231	233	222	218	217	218	217	219	219	221	222	224	225	224	225	227	228	230	231	232	234	235	236	238
Supported Room Supply	**330**	**332**	**317**	**311**	**309**	**311**	**311**	**313**	**313**	**315**	**317**	**319**	**321**	**320**	**322**	**324**	**326**	**328**	**330**	**332**	**334**	**336**	**338**	**340**

Note: Supported Room Supply represents the total potential for hospitality development including existing pipeline hotels (Home2Suites and Hilton Garden Inn; 36 & 39, respectively on Page 44).

Source: Smith Travel Research; RCLCO

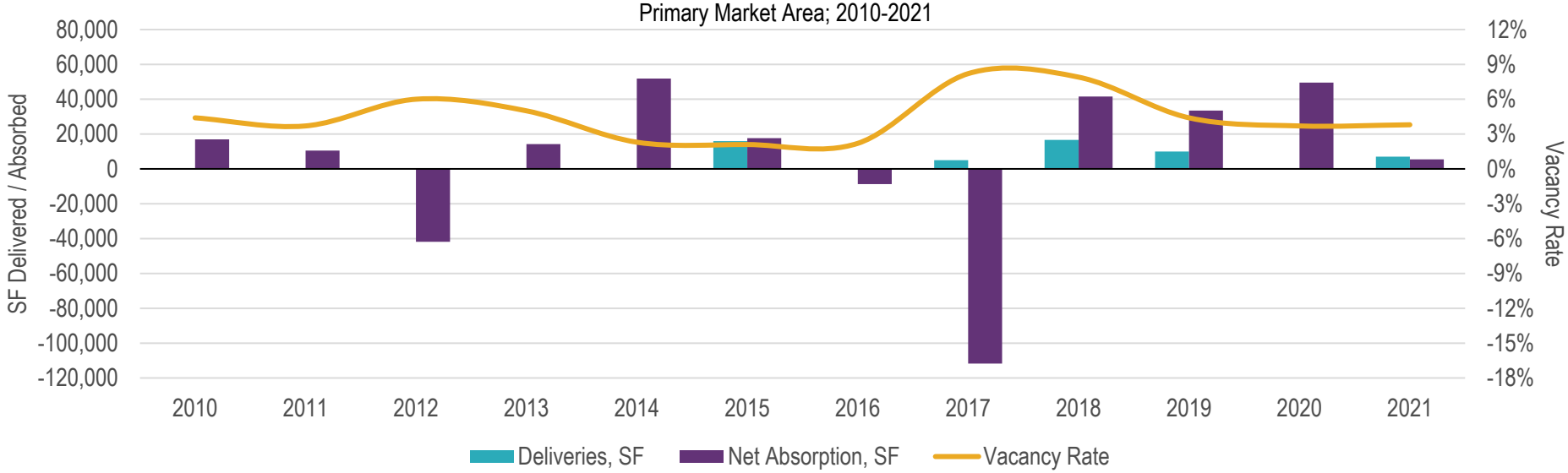
RETAIL MARKET ANALYSIS

THE LOCAL RETAIL MARKET IS GENERALLY STABLE, AND THE STOCK IS AGING AS LITTLE NEW PRODUCT HAS DELIVERED TO MARKET

- When determining retail demand, RCLCO defined the Primary Market Area ("PMA") as a subarea of the Dulles Corridor submarket, bordered by E Maple Ave and Wiehle Ave to the north, Fairfax County Pkwy to the south, McLearen Rd to the south, Sully Rd to the west. This PMA reflects the fact that residents, employees, and visitors along other areas of Dulles Corridor are less likely to visit and/or shop at the TRG given the range of retail options in other more urbanized areas (e.g. Reston Town Center), recognizing that users from a larger Secondary Market Area ("SMA"), defined as the broader "Dulles Corridor" are still likely to visit retail at the site from time to time as well.
- From 2010 to 2015, the PMA added just 16,000 square feet of retail, while absorbing nearly 70,000 square feet. Some small-scale development occurred between 2017 and 2021, but the submarket added just 39,000 square feet of retail during this period. Retail vacancy is currently 5.3%. This represents a slight increase from 2021, reflecting a likely rebalance in the square footage demanded by retailers in the aftermath of the COVID-19 Pandemic.
- The dramatic contraction in net absorption observed in 2017 is mostly attributable to the Kmart closing in Herndon Centre. The property has since been renovated and now includes a Sprouts and LA Fitness.

Map of Retail Primary Market Area
Herndon, VA; 2022

Retail Completions, Net Absorption, and Vacancy Rate
Primary Market Area; 2010-2021



Note: Above graph displays both direct and sublet net absorption, vacancies, etc. Data includes properties larger than 5,000 SF

Source: CoStar; RCLCO

COMPETITIVE SUPPLY

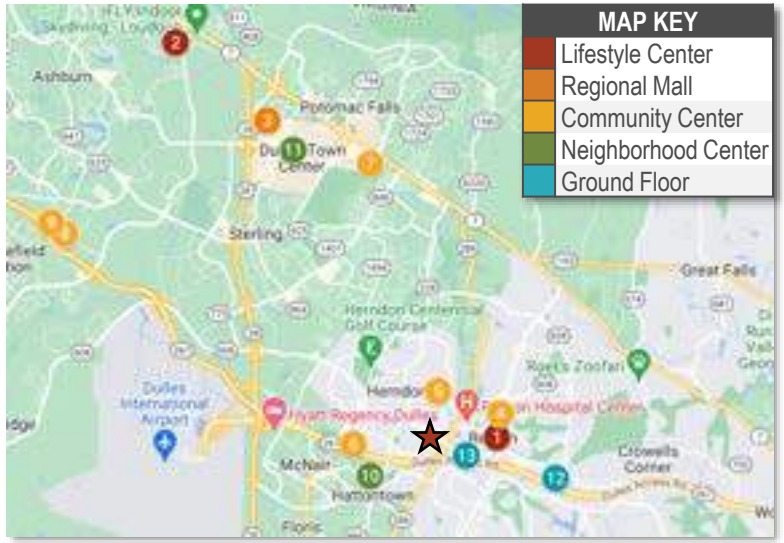
RETAIL PROPERTIES IN AND AROUND THE PRIMARY MARKET AREA VARY IN TERMS OF OVERALL PERFORMANCE, BUT THE QUALITY AND AMENITIZATION OF LOCATION APPEARS TO DRIVE SUCCESS

- Given its suburban context, the PMA and surrounding areas are home to a variety of different retail product, from strip malls and neighborhood centers to regional malls and urban town centers. The variety (and sheer quantity) of retail in the area reflects the affluence of the customer base.
- There is a large amount of older, but still well-maintained, neighborhood centers and community centers in Herndon. These well-located properties, including *Herndon Centre* and *Worldgate Centre*, are outperforming other drivable retail properties in the competitive set. Rents in Herndon and neighboring Reston can average $30 to $40 NNN and reach as high as $50 NNN for town center retail.
- Given the mixed-use environment expected for the TRG, RCLCO expects its retail to be more attractive to retailers and visitors than other retail spaces in its surrounding area, given the premium garnered by ground-floor and town center-oriented retail in the market already. Along with other planned development in the TRG and HTOC, this area has the potential to become a new retail node, complimentary to Downtown Herndon. Although much of the nearby retail was built before 2000, the depth of existing competitive supply may pose challenges, so timing of new deliveries will be important to ensure they are met with support from a local and growing customer base.
- RCLCO identified six known developments in the retail pipeline totaling 310,000 square feet (see Exhibit VI-11). Please note that this list is not exhaustive, as retail is likely to be a key component of many of the mixed-use development projects that are still being planned. RCLCO expects this market to remain competitive moving forward, underscoring the importance of a differentiated program in the TRG

Summary and Map of Comparable Retail Properties

Primary Market Area and Secondary Market Area; September 2022

MAP KEY	PROPERTY NAME	SIZE (SF)	YEAR BUILT	YEAR RENOVATED	VACANCY RATE	RENT - AVAILABLE SPACES (NNN)
1	Reston Town Center	425,000	1990	N/A	6.7%	$31-42
2	One Loudoun	309,908	2013	N/A	25.3%	$38-46
3	Dulles Town Center	1,400,000	1999	N/A	26.6%	$36-44
4	The Spectrum at Reston Town Center	279,627	1995	N/A	26.4%	$31-37
5	Herndon Centre	157,629	1985	1991	7.8%	$32-39
6	Worldgate Centre	62,289	1990	2001	13.9%	$29-36
7	Cascades Overlook	149,452	2016	N/A	8.9%	$45
8	Loudoun Station	119,618	2015	N/A	23.6%	$38-47
9	Shoppes at Ryan Park	93,218	2006	N/A	3.4%	$32-39
10	Woodland Park Crossing	112,534	2007	N/A	33.8%	$27-34
11	Nokes Plaza	61,500	2016	N/A	22.7%	$27-33
12	Reston Station	52,539	2017	N/A	0.0%	$43-53
13	RTC West	39,307	2017	N/A	6.8%	$31-38



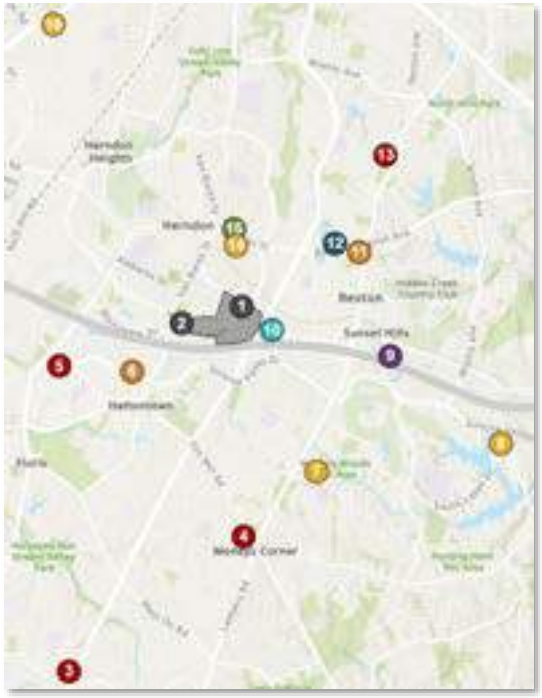
Source: CoStar; Loopnet; Property Websites; Broker Websites; RCLCO

GROCERY OPPORTUNITY

RCLCO REAL ESTATE CONSULTING

CERTAIN SITES IN THE TRG ARE WELL-LOCATED TO ATTRACT A GROCERY STORE, AND SURROUNDING REDEVELOPMENT IS LIKELY TO MAKE THEM EVEN MORE ATTRACTIVE IN THE MID TO LONG TERM

- In order to understand the grocery opportunity in the TRG, RCLCO examined select grocery stores in Herndon, Reston, and other nearby jurisdictions, focusing specifically on users that have been seen to locate within mixed-use developments. For each of these grocery stores, RCLCO examined various characteristics that users tend to consider when selecting sites, as well as the sizes and ages of the spaces in which they currently operate.
- Of the 14 grocery stores that RCLCO examined, all but one operate in spaces that are more than 20 years old, and half operate in spaces that are more than 30 years old. Moreover, many are situated in auto-oriented shopping centers, rather than the type of transit-oriented, mixed-use environment envisioned for the TRG.
- For illustrative purposes, RCLCO compared these grocery stores to two sites in the TRG: 1) The Shorenstein site near the western edge and 2) the Parkway Square site near the northern edge. This analysis suggests the TRG—and its northern edge, in particular—is well-located for a grocery store, particularly considering that redevelopment is likely to make the area even more attractive to these users. The strength of the opportunity is thus likely to grow over time, as the household base in and around the TRG grows.



Comparison of Select Grocery Stores

Herndon, Reston, and Surrounding Jurisdictions; September 2022

MAP KEY	NAME	SQUARE FEET	YEAR BUILT	TRAFFIC COUNT	10-MINUTE DRIVE TIME TOTAL HOUSEHOLDS	10-MINUTE DRIVE TIME MEDIAN HH INCOME	10-MINUTE DRIVE TIME % BACHELOR'S DEGREE
SELECT TRG SITES		**N/A**	**N/A**	**30,000**	**66,000**	**$142,000**	**68%**
1	Parkway Square	N/A	N/A	38,000	69,000	$144,000	68%
2	Shorenstein	N/A	N/A	22,000	63,000	$141,000	68%
SELECT GROCERS		**51,000**	**1990**	**36,000**	**53,000**	**$139,000**	**68%**
3	Giant	55,000	1986 (Ren. 1998)	51,000	49,000	$144,000	69%
4	Giant	50,000	1977	32,000	61,000	$142,000	70%
5	Giant	48,000	1991	31,000	61,000	$133,000	66%
6	Harris Teeter	49,000	2007	18,000	60,000	$141,000	69%
7	Safeway	55,000	1972 (Ren. 1998)	11,000	54,000	$148,000	72%
8	Safeway	52,000	1984	19,000	38,000	$143,000	73%
9	Whole Foods	25,000	1995	108,000	55,000	$138,000	70%
10	Target	135,000	1997	101,000	42,000	$130,000	68%
11	Harris Teeter	50,000	1995	28,000	64,000	$144,000	69%
12	Trader Joe's	10,000	2001	28,000	66,000	$144,000	69%
13	Giant	59,000	1993	15,000	49,000	$142,000	69%
14	Safeway	47,000	1990	19,000	61,000	$140,000	68%
15	Sprouts	31,000	1976 (Ren. 2019)	19,000	59,000	$138,000	67%
16	Safeway	44,000	1998 (Ren. 2017)	20,000	25,000	$124,000	49%

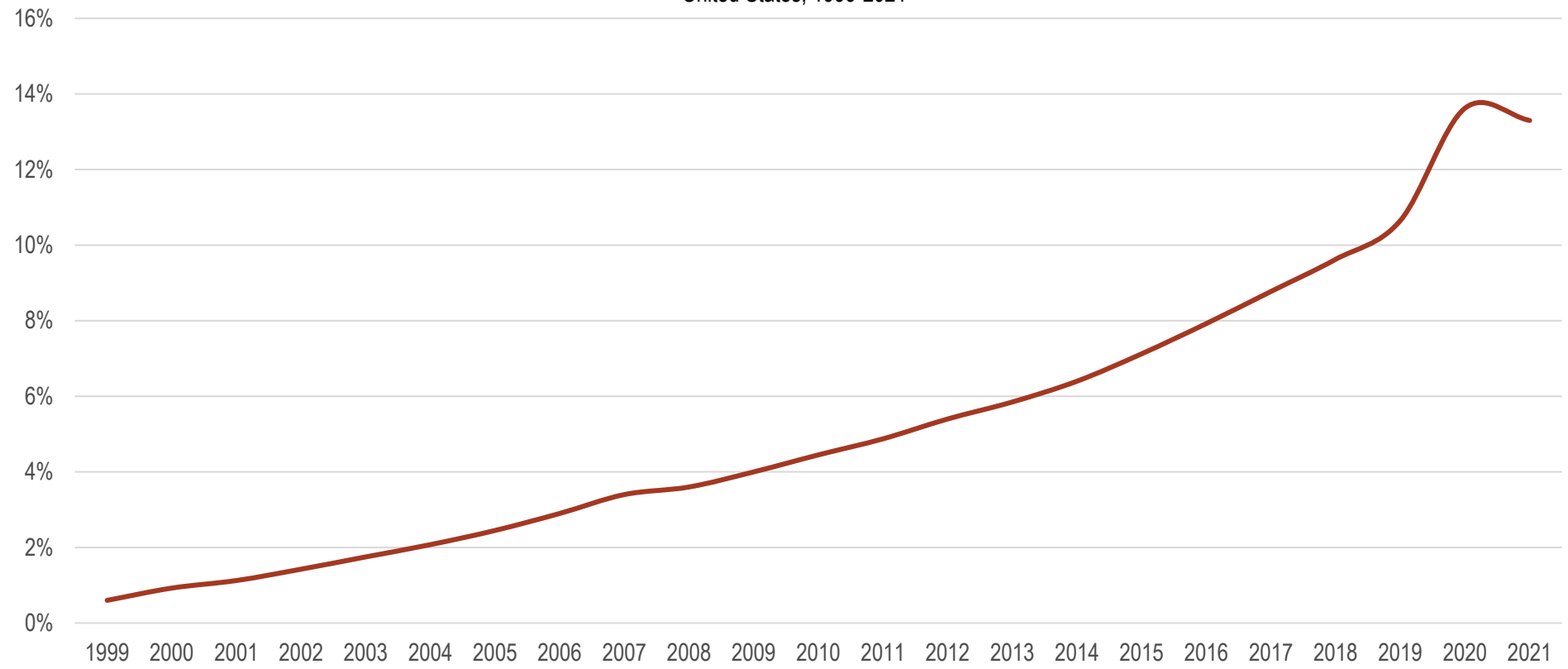
Source: Esri; RCLCO

ONLINE SPENDING PATTERNS

THE COVID-19 PANDEMIC HAS ACCELERATED LONGSTANDING TRENDS TOWARD E-COMMERCE

- Between 2010 and 2019, the volume of e-commerce sales in the United States more than tripled, from $165 billion in 2010 to $602 billion in 2019. By 2019, e-commerce sales accounted for 10.7% of all retail transactions in the United States.
- During the COVID-19 pandemic, e-commerce spending increased to $792 billion in 2020, when it accounted for 13.6% of all retail transactions. While the pandemic may have accelerated the shift toward e-commerce shopping, Americans have been transitioning toward a digital marketplace over the last two decades. In 2021, e-commerce spending moderated to 13.3%, as in-person activities increased throughout the year. However, this figure still represents a sizable increase from what it was in 2019, indicating that the same general trend toward e-commerce continued to endure. These trends represent disruptions to brick-and-mortar retail, including hard and soft goods in particular.

Annual E-Commerce Percent of Total Retail Sales
United States; 1999-2021



Source: U.S. Census Bureau; RCLCO

RETAIL DEMAND AT SITE

DEMAND IN THE TRG WILL LIKELY BE DRIVEN BY HOUSEHOLDS IN HERNDON AND ALONG THE DULLES CORRIDOR, WITH EMPLOYEES ALSO ACCOUNTING FOR A SIGNIFICANT SHARE OF FUTURE DEMAND

- RCLCO identified six target consumer groups when evaluating retail demand in the TRG. Prospective consumers who already exist in the market today range from people who live near, work at, and/or visit Herndon, to households that live in other parts of the region and could be attracted to the TRG for specific purposes. Additionally, development in the TRG will likely bolster this retail demand, generating additional households, employees, and visitors who will be more likely to shop in the TRG given their proximity to its retail.

Summary of Users Likely to Shop at Site
TRG; 2022-2045

	HOUSEHOLDS IN PMA	HOUSEHOLDS IN DULLES CORRIDOR	HOUSEHOLDS IN THE TRG	EMPLOYEES IN PMA	NEW EMPLOYEES IN THE TRG	HOTEL GUESTS
						
Summary of Consumer Group	Households that live in Herndon and nearby communities such as Hattontown; likely to visit the site for "daily needs" retail	Households outside of Herndon but who live along the Dulles Corridor; likely to visit for dining and other occasional needs	Households that will live in the TRG once housing is delivered; likely to visit the site for a range of retail needs	Employees in Herndon; likely to visit the site for lunch during work or for errands afterwards	Employees that will work in the TRG once new office is developed; likely to visit the site for lunch during work or errands afterwards	Hotel guests near and within the TRG; includes both business and leisure travelers
Annual Spending On- Site	**$37.7 Million as of 2022** ($1,435 / Household)	**$13.0 Million as of 2022** ($111 / Household)	**N/A**	**$13.5 Million as of 2022** ($239 / Employee)	**N/A**	**$6.8 Million as of 2022** ($3.75 / Visitor)
Supported Space	**92,800 SF in 2022, 114,400 SF by 2045**	**36,400 SF in 2022, 38,700 SF by 2045**	**0 SF in 2022, 56,000 SF by 2045**	**34,000 SF in 2022, 36,200 SF by 2045**	**0 SF in 2022, 21,000 SF By 2045**	**19,700 SF in 2022, 26,300 SF by 2045**
Primary Types of Retail	Restaurants, Entertainment & Fitness Grocery & Drug	Restaurants, Entertainment & Fitness	Grocery & Drug, Restaurants, Services	Restaurants, Entertainment & Fitness, Grocery & Drug	Restaurants, Grocery & Drug	Restaurants, Entertainment & Fitness

Image Source: Google Images
Source: Esri; Consumer Expenditure Survey; ICSC; RCLCO

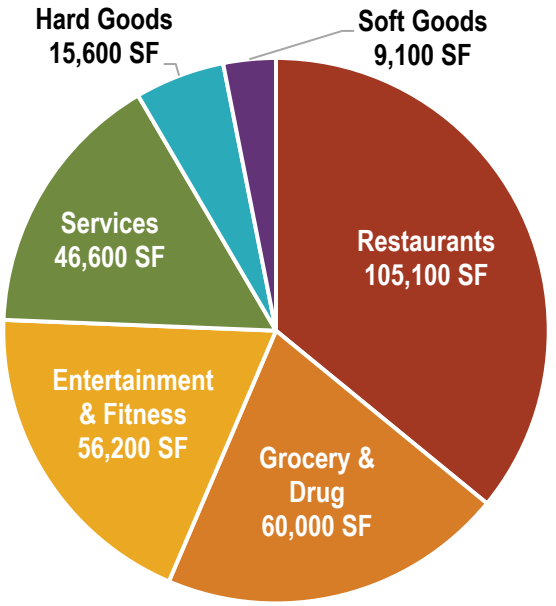
RETAIL DEMAND AT SITE

RCLCO REAL ESTATE CONSULTING

IN THE LONG TERM, THE TRG CAN SUPPORT UP TO 290,000 SQUARE FEET OF RETAIL, INCLUDING A MIX OF GROCERY, RESTAURANTS, AND ENTERTAINMENT/FITNESS

- The TRG is well-positioned to capture retail demand due to its proximity to the Dulles Toll Road and the soon-to-open Herndon Metro station. Other on-site uses (e.g., housing, office, etc.) are likely to drive additional demand as well. Excellent placemaking may allow retail in the TRG to outperform options elsewhere in the submarket, particularly if it allows the TRG to attract retail users from other parts of the Dulles Corridor submarket.
- RCLCO projected demand for different types of retail by examining retail spending patterns by store type for various groups of people, as well as the likelihood that those people will shop in the TRG. Using this approach, RCLCO estimates demand for 182,900 square feet of retail in the TRG today, with this total increasing to 292,600 square feet by 2045.
  - Restaurants represent approximately 36% of long-term projected demand in the TRG. Quality dining options are vital to creating a sense of place at the site and have a broad market appeal across consumer groups.
  - Grocery and drug concepts account for 21% of total demand, and would be appropriate in the TRG given the likelihood of residential development. Even so, RCLCO does not project sufficient market support for a large-format grocery store in the very near term, and additional household density is likely necessary to support one.
  - RCLCO recommends including fitness as part of the retail program. Upscale gyms and boutique fitness options are commonly found on the ground-floor of new residential buildings, and the TRG is likely to appeal to a young and active demographic who would utilize a fitness component.
  - RCLCO does not forecast significant market support for additional retailers selling hard and soft goods, given competition from other shopping destinations like Reston Town Center. Furthermore, this portion of the retail market is facing headwinds due to the rise of e-commerce, which could limit its ability to grow moving forward.

Retail Demand Potential
TRG; 2045



Cumulative Retail Demand Potential (SF)
TRG; 2022-2045

STORE TYPE	2022	2027	2030	2040	2045
Grocery & Drug	19,700	35,900	45,000	57,900	60,000
Restaurants	76,900	86,400	91,600	101,900	105,100
Hard Goods	12,300	13,900	14,700	15,900	15,600
Soft Goods	8,200	8,900	9,300	9,500	9,100
Entertainment & Fitness	39,600	45,800	48,800	54,100	56,200
Services	26,200	35,000	39,700	45,800	46,600
TOTAL	**182,900**	**225,900**	**249,100**	**285,100**	**292,600**

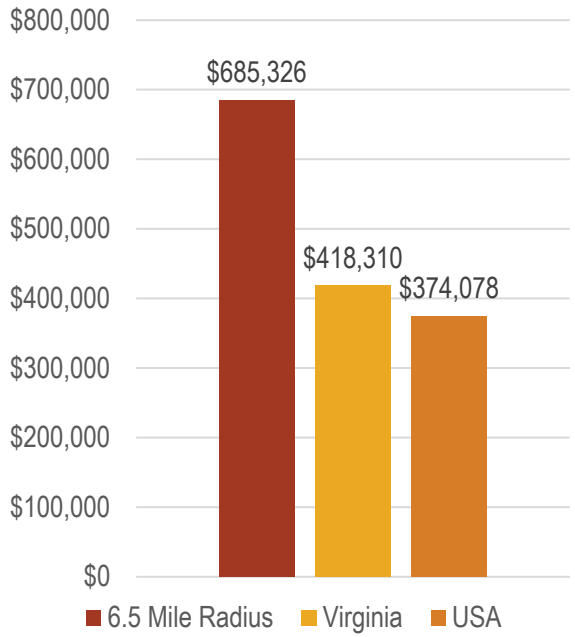
Source: Esri; Consumer Expenditure Survey; ICSC; RCLCO

SELF-STORAGE MARKET ANALYSIS

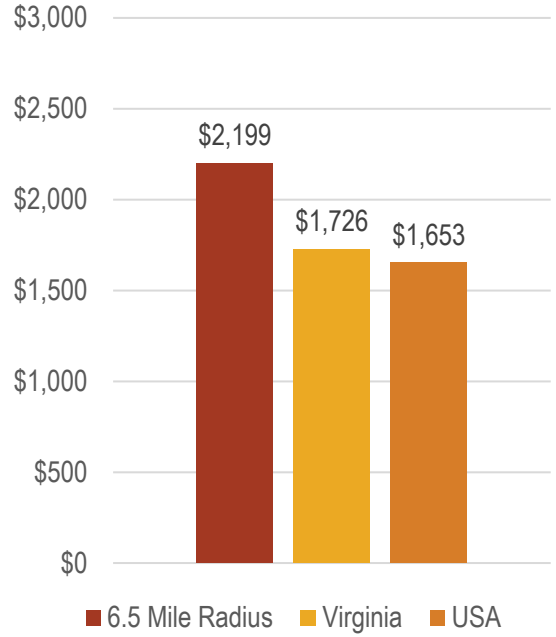
THE LOCAL SELF-STORAGE MARKET SHOWS HEALTHY FUNDAMENTALS, OWING TO STRONG HOUSEHOLD GROWTH AND HIGH HOUSEHOLD INCOMES, WHICH DRIVE STEEP RENTS RELATIVE TO THE STATE AND COUNTRY AS A WHOLE

- The self-storage market in Herndon and surrounding suburbs is performing well, as dramatic household growth and urbanization have driven demand for self-storage units among households in turnover and in need of extra space. The relative affluence of the current local customer base—with a median household income of nearly $150,000 within 6.5 miles of the TRG—has raised the ceiling on market rents, which has allowed the local area to significantly outperform Virginia and the United States as a whole. This outperformance extends to new units in the market as well, highlighting the compelling market opportunity for existing self-storage owners in the area to expand their properties and capture more of the growing demand.
- As the TRG urbanizes and the multifamily rental housing stock grows, it is possible that demand for self-storage will intensify, as density is a key demand driver for self-storage. Rental housing units are also more likely to experience turnover year-over-year, and the unique employment base of the local area (particularly the high proportion of government contractors and other short-term employees) is also a boon for the self-storage market.

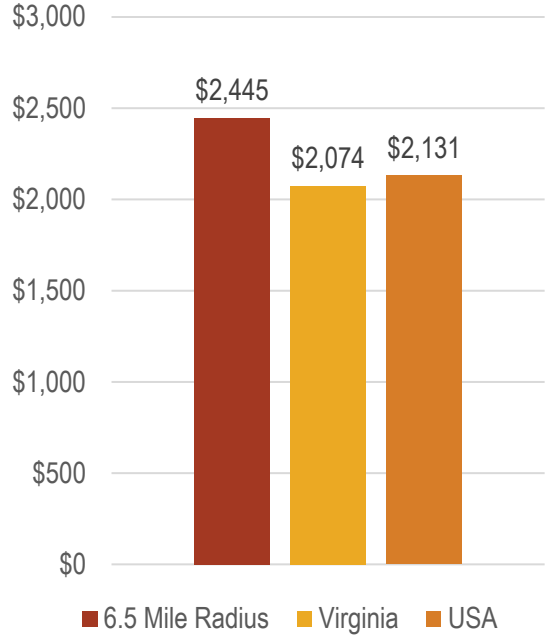
Average Property Value
6.5 Mile Radius, VA, and U.S.; 2022



Average Rental Costs (All Units)
6.5 Mile Radius, VA, and U.S.; 12-Month Trailing Avg.



Average Rental Costs (New Units)
6.5 Mile Radius, VA, and U.S.; 12-Month Trailing Avg.



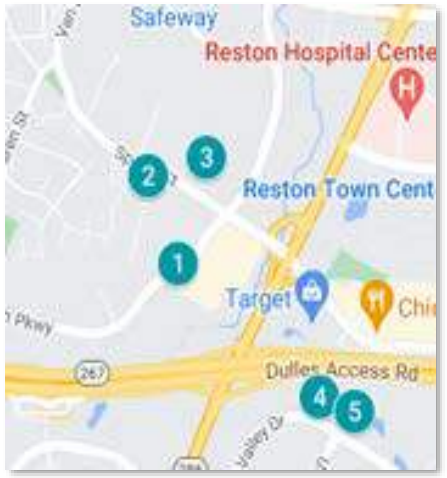
Source: StorTrack; CoStar; RCLCO

COMPETITIVE SUPPLY

THE CONCENTRATION OF ALMOST 400,000 RENTABLE SQUARE FEET OF SELF-STORAGE IN THE IMMEDIATE VICINITY OF THE TRG ILLUSTRATES HOW IT HAS BEEN AN ATTRACTIVE LOCATION FOR SELF-STORAGE

- Five self-storage properties are within one mile of center of the TRG, totaling 367,000 of rentable building area. Most of these properties were built over 20 years ago, reflecting the fact that the TRG has long been a popular location for low-traffic uses such as self-storage. High-earning households in Herndon and surrounding towns drive demand for storage units nearby.
- The competitive set offers customers a significant variety of unit sizes, from 5x5 units to designated RV storage space. On a price per square foot basis, the highest performing property is *Public Storage* on Herndon Parkway, within the boundaries of the TRG. *Public Storage* achieves rents of $4.32/square foot for their 5x5 units ($108/month total), and $7.60/square foot for their RV parking ($190/month total).
- The Town of Herndon has indicated that self-storage owner-operators within the TRG, including the owners of *Security Public Storage* on Spring St., have expressed interest in further developing their properties to serve the growing demand for high-quality, interior storage space that is expected in the coming years. RCLCO's analysis suggests that this strategy has market support at this time, though consideration should be given as to whether self-storage will remain the highest-and-best use over the long term.
- Given the appeal of the area and the performance of the market, self-storage is unlikely to redevelop on its own in the near to mid term. While market-driven redevelopment is possible once land values increase to a point that would encourage property owners to consider alternative uses, the Town of Herndon may need to incentivize redevelopment should it become a goal for the TRG—particularly in the near to mid term, but perhaps in the long term as well. The Town of Herndon could work with property owners to find alternative sites, in order to free up ones that are better-located for other forms of development.

Security Public Storage
Herndon, VA



Summary and Map of Local Self-Storage Properties
TRG and Surrounding Area; September 2022

MAP KEY	BUILDING NAME	BUILDING ADDRESS	CITY	RBA	OWNER	YEAR BUILT	MIN PRICE	MAX PRICE	12-MONTH TRAILING AVG. (EXCL. PARK)
1	Public Storage	466 Herndon Pkwy	Herndon	43,244	Public Storage	1985	$112	$619	$283
2	Security Public Storage – Herndon	385 Spring St	Herndon	46,550	Security Public Storage	2004	$47	$518	$170
3	Extra Space	250 Spring St	Herndon	82,773	Extra Space Storage	2000	$42	$480	$135
4	Extra Space	12260 Sunrise Valley Dr	Reston	109,396	Extra Space Storage	1981	$45	$690	$182
5	Public Storage	2055 Mercator Dr	Reston	85,104	Public Storage	2007	$50	$752	$271

Source: StorTrack; CoStar; Esri; Property websites; RCLCO

SELF-STORAGE DEMAND AT SITE

RCLCO PROJECTS DEMAND FOR AN ADDITIONAL 11,000 SQUARE FEET OF SELF-STORAGE EVERY FIVE YEARS, ASSUMING THAT THE TRG WILL CONTINUE TO CAPTURE AN OUTSIZED PORTION OF LOCAL DEMAND

- In order to forecast long-term demand for self-storage, RCLCO created a demand model that projected future demand based on population growth, household growth, and renter household growth, assuming that each of these groups would demand the same amount of square footage per capita as is currently present in the market.
- This analysis points to steady growth in demand for self-storage, as the TRG and surrounding neighborhoods continue to attract new residents. Importantly, these projections reflect demand for net new space, and any redeveloped self-storage (e.g., an older facility is redeveloped into a newer one) would not count towards total demand.

Summary of RCLCO Self-Storage Demand Analysis
TRG; 2022-2027

	POPULATION	HOUSEHOLDS	RENTER HOUSEHOLDS	AVERAGE
Weight	6.5 MILE RADIUS 20%	6.5 MILE RADIUS 60%	6.5 MILE RADIUS 20%	6.5 MILE RADIUS
EXISTING SELF STORAGE DENSITY (2022)				
Existing SF	2,593,330	2,593,330	2,593,330	2,593,330
Existing Basis (Population, HH, or Renter HH)	339,161	126,314	38,273	
SF per Capita	**7.65**	**20.53**	**67.76**	
GROWTH IN SELF-STORAGE DEMAND (2022-2027)				
Growth in Basis	7,960	2,420	1,072	
Implied Undersupply of Self Storage SF in 6.5-Mile Radius	**57,984**	**41,858**	**60,793**	**48,870**
TOTAL SELF-STORAGE DEMAND				
Building Square Feet in Pipeline	58,556	58,556	58,556	58,556
Est. Rentable Building Square Feet in Pipeline	52,700	52,700	52,700	52,700
Est. Chance of Delivery	50%	50%	50%	50%
Supported Supply Additions Above Existing Pipeline	**31,634**	**15,508**	**34,443**	**22,520**
TRG Capture				50%
Supported Supply Additions in the TRG				**11,260**

Source: StorTrack; CoStar; Esri; Property websites; RCLCO

DISCLAIMERS

CRITICAL ASSUMPTIONS

Our conclusions are based on our analysis of the information available from our own sources and from the client as of the date of this report. We assume that the information is correct, complete, and reliable.

We made certain assumptions about the future performance of the global, national, and local economy and real estate market, and on other factors similarly outside either our control or that of the client. We analyzed trends and the information available to us in drawing these conclusions. However, given the fluid and dynamic nature of the economy and real estate markets, as well as the uncertainty surrounding particularly the near-term future, it is critical to monitor the economy and markets continuously and to revisit the aforementioned conclusions periodically to ensure that they are reflective of changing market conditions.

We assume that the economy and real estate markets will experience a period of slower growth in the next 12 to 24 months, and then return to a stable and moderate rate in 2024 and beyond. However, stable and moderate growth patterns are historically not sustainable over extended periods of time, the economy is cyclical, and real estate markets are typically highly sensitive to business cycles. Further, it is very difficult to predict when inflection points in economic and real cycles will occur.

With the above in mind, we assume that the long-term average absorption rates and price changes will be as projected, realizing that most of the time performance will be either above or below said average rates.

Our analysis does not consider the potential impact of future economic shocks on the national and/or local economy, and does not consider the potential benefits from major "booms" that may occur. Similarly, the analysis does not reflect the residual impact on the real estate market and the competitive environment of such a shock or boom. Also, it is important to note that it is difficult to predict changing consumer and market psychology.

As such, we recommend the close monitoring of the economy and the marketplace, and updating this analysis as appropriate.

Further, the project and investment economics should be “stress tested” to ensure that potential fluctuations in revenue and cost assumptions resulting from alternative scenarios regarding the economy and real estate market conditions will not cause failure.

In addition, we assume that the following will occur in accordance with current expectations:

- Economic, employment, and household growth
- Other forecasts of trends and demographic and economic patterns, including consumer confidence levels
- The cost of development and construction
- Tax laws (i.e., property and income tax rates, deductibility of mortgage interest, and so forth)
- Availability and cost of capital and mortgage financing for real estate developers, owners and buyers
- Competitive projects will be developed as planned (active and future) and that a reasonable stream of supply offerings will satisfy real estate demand
- Major public works projects occur and are completed as planned

Should any of the above change, this analysis should be updated, with the conclusions reviewed accordingly (and possibly revised).

GENERAL LIMITING CONDITIONS

Reasonable efforts have been made to ensure that the data contained in this study reflect accurate and timely information and are believed to be reliable. This study is based on estimates, assumptions, and other information developed by RCLCO from its independent research effort, general knowledge of the industry, and consultations with the client and its representatives. No responsibility is assumed for inaccuracies in reporting by the client, its agent, and representatives or in any other data source used in preparing or presenting this study. This report is based on information that to our knowledge was current as of the date of this report, and RCLCO has not undertaken any update of its research effort since such date.

Our report may contain prospective financial information, estimates, or opinions that represent our view of reasonable expectations at a particular time, but such information, estimates, or opinions are not offered as predictions or assurances that a particular level of income or profit will be achieved, that particular events will occur, or that a particular price will be offered or accepted. Actual results achieved during the period covered by our prospective financial analysis may vary from those described in our report, and the variations may be material. Therefore, no warranty or representation is made by RCLCO that any of the projected values or results contained in this study will be achieved.

Possession of this study does not carry with it the right of publication thereof or to use the name of "Robert Charles Lesser & Co." or "RCLCO" in any manner without first obtaining the prior written consent of RCLCO. No abstracting, excerpting, or summarization of this study may be made without first obtaining the prior written consent of RCLCO. This report is not to be used in conjunction with any public or private offering of securities or other similar purpose where it may be relied upon to any degree by any person other than the client without first obtaining the prior written consent of RCLCO. This study may not be used for any purpose other than that for which it is prepared or for which prior written consent has first been obtained from RCLCO.

APPENDIX: SUPPORTING EXHIBITS

LIST OF EXHIBITS

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LIST OF EXHIBITS

I. SUMMARY OF FINDINGS

Exhibit I-1

Opportunity By Land Use
Transit-Related Growth Area
September 2022

	DESCRIPTION	ACHIEVABLE PRICING	AVG. UNIT SIZE	TYPICAL DENSITY PER NET ACRE	TYPICAL PROJECT SCALE	CUMULATIVE SITE DEMAND BY 2025	CUMULATIVE SITE DEMAND BY 2035	CUMULATIVE SITE DEMAND BY 2045	OPPORTUNITIES: LOCATION APPEAL	OPPORTUNITIES: CONCEPT FIT	OPPORTUNITIES: LIKELY LAND ECONOMICS	OPPORTUNITIES: SUPPLY / DEMAND BALANCE	MARKET OPPORTUNITY
RENTAL HOUSING						**610 Units**	**2,500 Units**	**4,540 Units**					
Mid-Rise Apartments	Five to seven story rental apartment community, with structured parking in a podium or wrap configuration	$2.85 / SF $2,425 / Month	850 SF	70 Units / Acre	300 Units	570 Units	2,280 Units	4,100 Units	**STRONG** Well-located relative to employment, and transit and auto accessibility is likely attractive	**STRONG** On-site household base likely to bolster commercial support, and to create 24/7 environment	**STRONG** Large amount of supply being built in nearby locations provides evidence of feasibility	**MODERATE** Large and growing demand pool, though market is likely to remain competitive as pipeline is robust	STRONG
High-Rise Apartments	10 or more story rental apartment community, with underground and/or structured parking	$3.00 / SF $2,850 / Month	950 SF	150 Units / Acre	350 Units				**MODERATE** Likely a better fit in the mid to long term, once redevelopment has started to occur nearby	**STRONG** On-site household base likely to bolster commercial support, and to create 24/7 environment	**WEAK** Requires top-of-market rents, and location is likely to be discounted to ones near transit/employment	**MODERATE** Large and growing demand pool, though market is likely to remain competitive as pipeline is robust	MODERATE
Rental Townhomes	Three-story rental townhomes, with one- or two-car attached garages	$2.50 / SF $3,750 / Month	1,500 SF	18 Units / Acre	50 Units	40 Units	220 Units	440 Units	**STRONG** Well-located relative to employment, and transit and auto accessibility is likely attractive	**STRONG** Could buffer surrounding housing, and on-site households likely to enhance commercial support	**MODERATE** Likely feasible, but unlikely to yield as high of a land value as rental apartments	**STRONG** Shallow pipeline, with clear demand for newer and nicer product than what exists now	STRONG
FOR-SALE HOUSING						**260 Units**	**1,010 Units**	**1,640 Units**					
Townhomes	Three-story for-sale townhomes, with two-car attached garages	$356 / SF $800,000	2,250 SF	16 Units / Acre	60 Units	70 Units	290 Units	480 Units	**STRONG** Likely to be attractive for buyers who want urban amenities in suburban location	**STRONG** Could buffer surrounding housing, and on-site households likely to enhance commercial support	**STRONG** Large amount of supply being built in nearby locations provides evidence of feasibility	**STRONG** Significant demand for new for-sale housing, with support from diverse households	STRONG
Two-Over-Twos	Two-story condominiums in four-story townhome structures, with one attached garage parking space	$325 / SF $650,000	2,000 SF	25 Units / Acre	60 Units	100 Units	370 Units	590 Units	**STRONG** Likely to be attractive for buyers who want urban amenities in suburban location	**STRONG** Could help buffer surrounding housing, and produce greater diversity of price points	**STRONG** Large amount of supply being built in nearby locations provides evidence of feasibility	**MODERATE** Significant demand, but development pipeline is robust, both nearby and across the region	STRONG
Flats	Four- or five-story for-sale condominium community, with attached parking on the ground level	$383 / SF $575,000	1,500 SF	40 Units / Acre	50 Units	90 Units	350 Units	570 Units	**MODERATE** Would benefit from access to more established retail and neighborhood amenities	**STRONG** On-site household base likely to bolster commercial support, and to create 24/7 environment	**MODERATE** Likely feasible, but unlikely to yield as high of a land value outside of prime sites with higher prices	**STRONG** Less common, and aging population likely to require lower-maintenance housing options	MODERATE / STRONG
HOSPITALITY						**310 Keys**	**320 Keys**	**340 Keys**					
Limited-Service Hotel	Four- to five-story hotel; likely upper midscale or upscale flag	$150 ADR	400 SF	125 Keys / Acre	125 Keys	310 Keys	320 Keys	340 Keys	**STRONG** Along with airport, nearby jobs are likely to fuel demand for business-related travel	**STRONG** Likely to increase appeal of other product types, and to create 24/7 environment	**MODERATE** Somewhat of a price ceiling, though pricing could be pushed as surroundings evolve	**MODERATE** Pandemic-related headwinds are fading, though market remains competitive	MODERATE / STRONG
Full-Service Hotel	Five to 10 story hotel, with hotel restaurant, conferencing facilities, etc.; likely upper upscale or luxury flag	$200 ADR	600 SF	150 Keys / Acre	200 Keys				**WEAK** Most users looking in this part of the market are likely to gravitate to nearby Reston	**STRONG** Likely to increase appeal of other product types, and to create 24/7 environment	**WEAK** Difference in pricing is unlikely sufficient to offset higher operating cost	**MODERATE** Pandemic-related headwinds are fading, though market remains competitive	MODERATE / WEAK
OFFICE						**120,000 SF**	**811,000 SF**	**1,326,000 SF**					
Corporate Office	Office space suitable for a wide variety of financial, technology, or government users.	$45 FS	N/A	5.0 FAR	250,000 SF	91,000 SF	613,000 SF	1,002,000 SF	**MODERATE** Certain areas may be somewhat well-located, but would benefit from more direct transit access	**STRONG** On-site employment is vital for live/work/play environment, and could boost appeal of other uses	**MODERATE** Cost of construction may limit economic feasibility, especially on sites that cannot charge premium	**WEAK** Market is facing headwinds, and there is a significant pipeline of long-term development projects	MODERATE
Creative Office	Space designed for smaller service-offering firms in industries such as architecture, design, etc	$40 FS	N/A	2.0 FAR	75,000 SF	29,000 SF	198,000 SF	324,000 SF	**STRONG** Convenient location and less expensive product is likely to be attractive to users	**STRONG** On-site employment is vital for live/work/play environment, and could boost appeal of other uses	**MODERATE** Less expensive to construct than corporate office, but also priced at a discount compared to it	**MODERATE** Pipeline is less robust than the one for corporate office, but the rise of work-from-home poses a threat	MODERATE / STRONG

Exhibit I-1

Opportunity By Land Use
Transit-Related Growth Area
September 2022

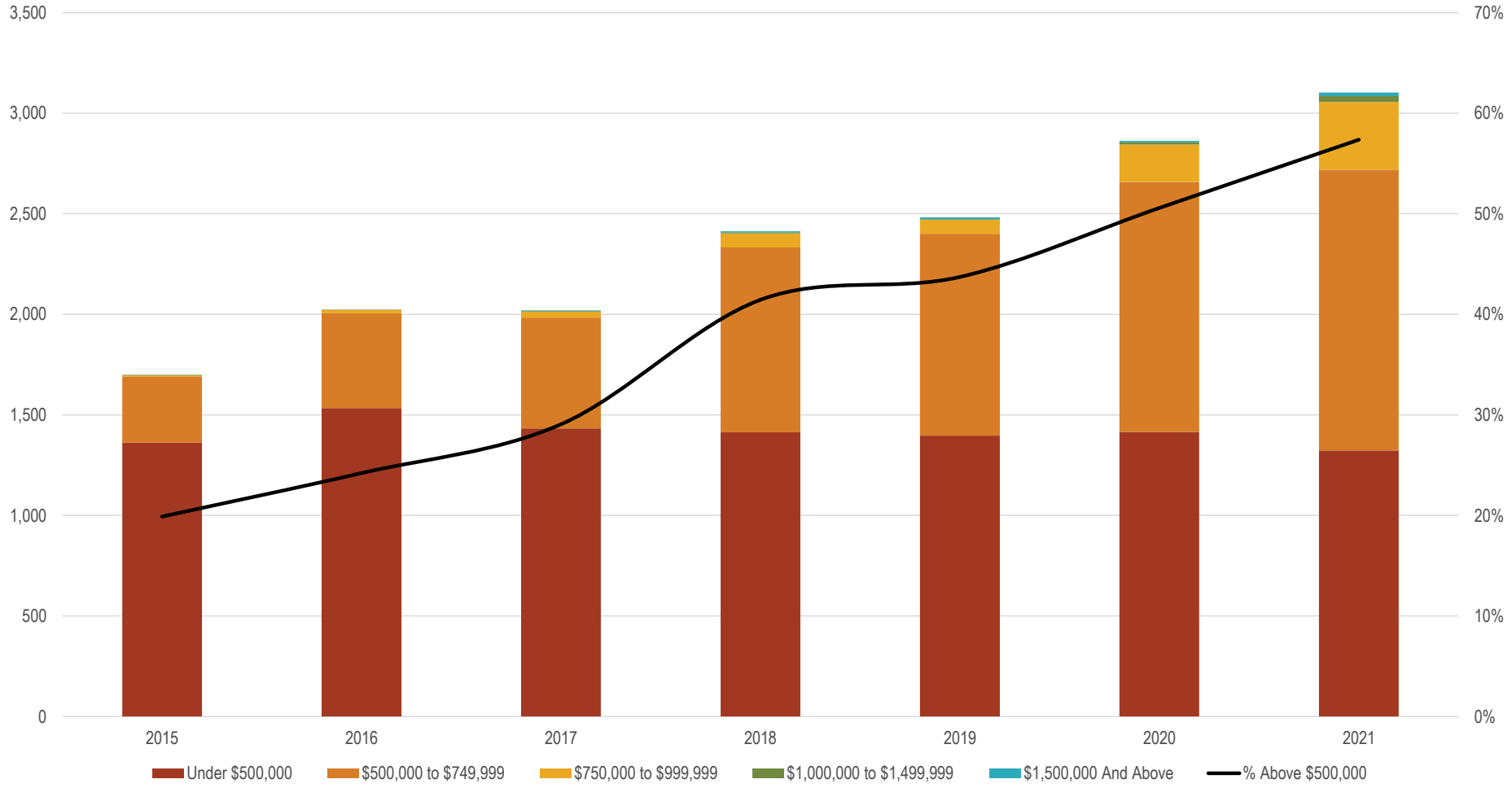
	DESCRIPTION	ACHIEVABLE PRICING	AVG. UNIT SIZE	TYPICAL DENSITY PER NET ACRE	TYPICAL PROJECT SCALE	CUMULATIVE SITE DEMAND BY 2025	CUMULATIVE SITE DEMAND BY 2035	CUMULATIVE SITE DEMAND BY 2045	OPPORTUNITIES: LOCATION APPEAL	OPPORTUNITIES: CONCEPT FIT	OPPORTUNITIES: LIKELY LAND ECONOMICS	OPPORTUNITIES: SUPPLY / DEMAND BALANCE	MARKET OPPORTUNITY
RETAIL						**208,000 SF**	**267,000 SF**	**293,000 SF**					
Grocery & Drug	Boutique grocer, or a traditional one if a tenant can be attracted; potential for pharmacy as well	$20 to $25 NNN	N/A	0.50 FAR	N/A	29,000 SF	51,000 SF	60,000 SF	**STRONG** Many options are located outside of Herndon today, and on-site uses likely to bolster support	**STRONG** Potential for use as an an anchor, helping to attract other retail users and concepts	**MODERATE** Potential for use as an an anchor, helping to diversify such users	**MODERATE** Reasonably strong demand, but most obvious tenants are spoken for	MODERATE / STRONG
Restaurant	Mix of fast casual and sit-down restaurant concepts	$30 to $40 NNN	N/A	0.50 FAR	N/A	83,000 SF	97,000 SF	105,000 SF	**STRONG** Attractive demographics, and any on-site uses are likely to enhance appeal to users	**STRONG** Likely to increase appeal of other product types, and to create 24/7 environment	**STRONG** Land economics are likely to be favorable, given lower cost of construction	**STRONG** Sizable market, with potential to better-serve existing households	STRONG
Entertainment & Fitness	Mix of fitness concepts, as well as small-scale entertainment (e.g., breweries)	$25 to $30 NNN	N/A	0.50 FAR	N/A	43,000 SF	51,000 SF	56,000 SF	**MODERATE** Attractive demographics, though larger users may require more regionally accessible sites	**STRONG** Likely to increase appeal of other product types, and to create 24/7 environment	**STRONG** Land economics are likely to be favorable, given lower cost of construction	**STRONG** Sizable market, with potential to better-serve existing households	STRONG
Services	Basic household services, such as nail salons, barbershops, banks, etc.	$25 to $30 NNN	N/A	0.50 FAR	N/A	31,000 SF	43,000 SF	47,000 SF	**STRONG** Attractive location due to size of household base and location near established retail	**STRONG** Likely to increase appeal of other product types, and to create 24/7 environment	**STRONG** Land economics are likely to be favorable, given lower cost of construction	**STRONG** Sizable market, with potential to better-serve existing households	STRONG
Hard & Soft Goods	Primarily local boutique tenants, with a focus on locally crafted goods	$25 to $30 NNN	N/A	0.50 FAR	N/A	22,000 SF	25,000 SF	25,000 SF	**MODERATE** Many users are likely to prefer locations closer to established shopping destinations	**STRONG** Likely to increase appeal of other product types, and to create 24/7 environment	**STRONG** Land economics are likely to be favorable, given lower cost of construction	**WEAK** Highly competitive market environment, with headwinds due to rise of e-commerce	MODERATE
OTHER						**N/A**	**29,000 SF**	**52,000 SF**					
Self-Storage	Facility offering a variety of storage unit sizes in a climate controlled environment	$2.00 / SF	N/A	0.70 FAR	75,000 SF	N/A	29,000 SF	52,000 SF	**STRONG** Sizable and affluent household base located nearby, and accessibility likely attractive	**WEAK** Unlikely to contribute to sense of place, and could perhaps even detract from it	**MODERATE** Existing facilities likely profitable, but new construction unlikely to be highest-and-best use	**MODERATE** Significant number of existing facilities nearby, pointing to competition in the local market	MODERATE

Source: RCLCO

II. FOR-SALE RESIDENTIAL

Exhibit II-1

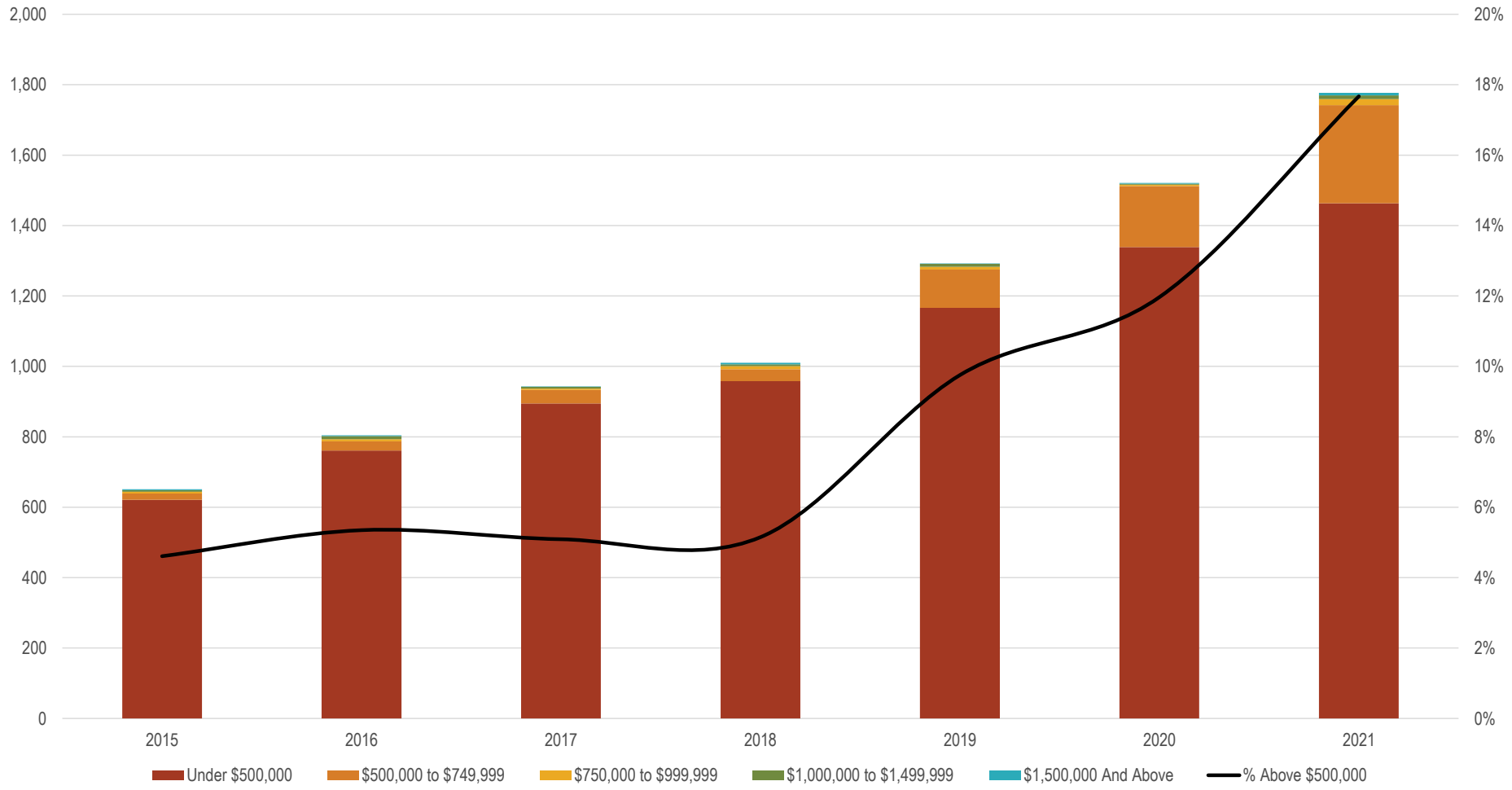
Volume and Price Distribution of Townhome Sales
Dulles Corridor
2015-2021



Source: RealQuest; RCLCO

Exhibit II-2

Volume and Price Distribution of Condominium Sales
Dulles Corridor
2015-2021



Source: RealQuest; RCLCO

Exhibit II-3

List of Competitive Set Communities
Dulles Corridor
August 2022

MAP KEY	PROPERTY	YEAR BUILT	PRODUCT TYPE	TOTAL UNITS	UNIT MIX	UNIT SIZE RANGE	AVG. SIZE	UNIT PRICE RANGE	AVG. PRICE	AVG. $/SF
1	**Tall Oaks (Flats)**	**2021**	**Flats**	**70**	**100%**	**813 - 1,471**	**1,268**	**$449,990 - $676,115**	**$566,000**	**$446**
	1636 Bandit Loop		2BR	66	94%	813 - 1,400	1,256	$449,990 - $615,400	$559,000	$445
	Reston, VA 20190		3BR	4	6%	1,471 - 1,471	1,471	$676,115 - $676,115	$676,000	$460
2	**MetroPark Arrowbrook (Flats)**	**2021**	**Flats**	**128**	**100%**	**1,275 - 1,658**	**1,514**	**$465,125 - $727,940**	**$574,000**	**$379**
	2324 Wind Charm St		2BR	48	38%	1,275 - 1,495	1,420	$465,125 - $603,165	$546,000	$384
	Herndon, VA 20171		2BR+	80	63%	1,451 - 1,658	1,571	$509,700 - $727,940	$591,000	$376
3	**Flats at Woodland Park Station (Flats)**	**2019**	**Flats**	**48**	**100%**	**1,331 - 1,559**	**1,466**	**$504,990 - $649,990**	**$553,000**	**$377**
	12875 Mosaic Park Way		2BR	16	33%	1,331 - 1,331	1,331	$504,990 - $504,990	$505,000	$379
	Herndon, VA 20171		2BR+	32	67%	1,496 - 1,559	1,534	$512,490 - $649,990	$577,000	$376
4	**Metro Walk at Moorefield Station (Flats)**	**2021**	**Flats**	**84**	**100%**	**2,232 - 2,775**	**2,413**	**$785,950 - $974,950**	**$870,000**	**$361**
	43447 Croson Ln		3BR+	56	67%	2,232 - 2,232	2,232	$785,950 - $966,950	$852,000	$382
	Ashburn, VA 20148		4BR	28	33%	2,775 - 2,775	2,775	$788,837 - $974,950	$905,000	$326
5	**Flats at Woodland Park Station (Two-Over-Two)**	**2022**	**Two-Over-Two**	**90**	**100%**	**1,522 - 2,501**	**2,040**	**$532,285 - $699,900**	**$589,000**	**$289**
	12924 Sunrise Ridge Aly		3BR	45	50%	1,522 - 1,634	1,620	$532,285 - $565,000	$544,000	$336
	Oak Hill, VA 20171		3BR+	45	50%	2,224 - 2,501	2,460	$533,360 - $699,900	$633,000	$257
6	**Tall Oaks (Two-Over-Two)**	**2021**	**Two-Over-Two**	**42**	**100%**	**1,600 - 2,776**	**2,166**	**$592,145 - $769,990**	**$692,000**	**$319**
	12040 N Shore Dr		2BR+	21	50%	1,600 - 1,608	1,606	$592,145 - $657,000	$620,000	$386
	Reston, VA 20190		3BR	21	50%	2,677 - 2,776	2,727	$756,100 - $769,990	$763,000	$280
7	**MetroPark Arrowbrook (Two-Over-Two)**	**2018**	**Two-Over-Two**	**106**	**100%**	**1,504 - 2,394**	**1,950**	**$509,900 - $675,000**	**$573,000**	**$294**
	13370 Sherwood Park Ln		3BR	53	50%	1,504 - 1,510	1,507	$509,900 - $541,000	$525,000	$348
	Herndon, VA 20171		3BR+	53	50%	2,393 - 2,394	2,394	$549,990 - $675,000	$620,000	$259
8	**Metro Walk at Moorefield Station (Two-Over-Two)**	**2022**	**Two-Over-Two**	**98**	**100%**	**1,500 - 2,450**	**1,979**	**$564,950 - $749,950**	**$666,000**	**$336**
	22336 Roanoke Rise Terrace		3BR	49	50%	1,500 - 1,525	1,519	$564,950 - $625,950	$612,000	$403
	Ashburn, VA 20148		3BR+	49	50%	2,400 - 2,450	2,440	$671,950 - $749,950	$719,000	$295
9	**Liberty Park (Two-Over-Two)**	**2022**	**Two-Over-Two**	**84**	**100%**	**1,573 - 2,345**	**1,967**	**$548,990 - $683,920**	**$620,000**	**$315**
	13551 Sayward Blvd		2BR+	42	50%	1,573 - 1,686	1,589	$548,990 - $609,990	$582,000	$366
	Herndon, VA 20171		3BR	42	50%	2,345 - 2,345	2,345	$620,830 - $683,920	$657,000	$280
10	**Ashbrook Place**	**2022**	**Two-Over-Two**	**138**	**100%**	**1,457 - 2,578**	**1,968**	**$557,930 - $756,990**	**$640,000**	**$325**
	20306 Newfoundland Square		2BR+	69	50%	1,457 - 1,580	1,564	$557,930 - $633,965	$593,000	$379
	Ashburn, VA 20147		3BR	69	50%	2,345 - 2,578	2,373	$634,990 - $756,990	$686,000	$289

Exhibit II-3

List of Competitive Set Communities
Dulles Corridor
August 2022

MAP KEY	PROPERTY	YEAR BUILT	PRODUCT TYPE	TOTAL UNITS	UNIT MIX	UNIT SIZE RANGE	AVG. SIZE	UNIT PRICE RANGE	AVG. PRICE	AVG. $/SF
11	**MetroPark Arrowbrook (Townhomes)**	**2018**	**Townhomes**	**49**	**100%**	**1,980 - 2,746**	**2,312**	**$665,000 - $745,000**	**$703,000**	**$304**
	13360 Sherwood Park Ln		3BR+	10	20%	2,294 - 2,294	2,294	$737,031 - $737,031	$737,000	$321
	Herndon, VA 20171		4BR	39	80%	1,980 - 2,746	2,316	$665,000 - $745,000	$694,000	$300
12	**Metro Walk at Moorefield Station - Brownstones**	**2022**	**Townhomes**	**17**	**100%**	**3,296 - 3,400**	**3,311**	**$1,009,215 - $1,310,689**	**$1,129,000**	**$341**
	22240 Rivana Shore Ter		3BR	6	35%	3,296 - 3,296	3,296	$1,009,215 - $1,054,950	$1,032,000	$313
	Ashburn, VA 20148		4BR	11	65%	3,296 - 3,400	3,319	$1,024,950 - $1,310,689	$1,182,000	$356
13	**Metro Walk at Moorefield Station - Towns by Lennar**	**2022**	**Townhomes**	**36**	**100%**	**3,251 - 3,354**	**3,336**	**$785,000 - $899,990**	**$855,000**	**$256**
	43371 Radford Divide Terrace		4BR	36	100%	3,251 - 3,354	3,336	$785,000 - $899,990	$855,000	$256
	Ashburn, VA 20148									
14	**Metro Walk at Moorefield Station - Towns by Toll Brothers**	**2022**	**Townhomes**	**122**	**100%**	**2,350 - 3,234**	**2,717**	**$799,950 - $1,121,385**	**$935,000**	**$344**
	22144 Penelope Heights Terrace		3BR+	86	70%	2,350 - 2,775	2,613	$799,950 - $1,074,185	$916,000	$351
	Ashburn, VA 20148		4BR	36	30%	2,900 - 3,234	2,967	$874,950 - $1,121,385	$982,000	$331
15	**Liberty Park (Townhome)**	**2022**	**Townhomes**	**81**	**100%**	**2,136 - 2,486**	**2,214**	**$719,990 - $825,395**	**$763,000**	**$345**
	2443 Liberty Loop		3BR+	51	63%	2,136 - 2,486	2,254	$725,290 - $825,395	$780,000	$346
	Herndon, VA 20171		4BR	30	37%	2,136 - 2,158	2,145	$719,990 - $745,535	$735,000	$343
16	**The Townhomes at Reston Station**	**2021**	**Townhomes**	**115**	**100%**	**1,632 - 2,570**	**1,898**	**$845,665 - $1,195,000**	**$973,000**	**$513**
	11301 Reston Station Blvd		3BR	65	57%	1,632 - 1,664	1,648	$845,665 - $874,977	$860,000	$522
	Reston, VA 20190		3BR+	42	37%	2,144 - 2,162	2,157	$1,083,713 - $1,151,374	$1,108,000	$514
			4BR	8	7%	2,570 - 2,570	2,570	$1,175,000 - $1,195,000	$1,185,000	$461
17	**Foster's Glen**	**2022**	**Townhomes**	**269**	**100%**	**1,548 - 2,625**	**1,937**	**$599,990 - $899,748**	**$720,000**	**$372**
	14011 Sunrise Valley Dr		2BR+	49	18%	1,548 - 2,000	1,687	$599,990 - $738,085	$654,000	$388
	Herndon, VA 20171		3BR	131	49%	1,741 - 1,940	1,841	$641,270 - $699,990	$671,000	$365
			3BR+	89	33%	2,000 - 2,625	2,216	$759,990 - $899,748	$828,000	$374

Source: Community websites; interviews with sales agents; Redfin; RCLCO

Exhibit II-4

Total New For-Sale Housing Demand for Attached/Small Multifamily Products
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Demand from Existing Owner Households	86,902	90,997	93,903	95,001	96,442	97,827	98,658	99,477	100,163	101,225	102,472	103,341	103,958	104,573	105,185	105,795	106,402	107,007	110,587
Change in Owner Households	17,334	14,187	12,088	11,777	11,076	10,385	10,238	10,092	10,080	9,664	9,019	8,733	8,697	8,661	8,625	8,589	8,553	8,517	8,301
Total Owner Demand	104,236	105,183	105,991	106,778	107,518	108,211	108,895	109,570	110,243	110,889	111,491	112,075	112,656	113,234	113,811	114,384	114,956	115,525	118,889
Attached/Small Multifamily Home Demand by Price Range																			
Distribution by Price Range																			
Home Price																			
Less than $250k	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%
$250k-$500k	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
$500k-$750k	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
$750k-$1.0M	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
$1.0M-$1.5M	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
$1.5M-$2.0M	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
$2.0M-$2.5M	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Over $2.5M	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Demand by Price Range																			
Home Price																			
Less than $250k	15,925	16,069	16,193	16,313	16,426	16,532	16,636	16,739	16,842	16,941	17,033	17,122	17,211	17,299	17,387	17,475	17,562	17,649	18,163
$250k-$500k	44,900	45,309	45,657	45,995	46,314	46,613	46,908	47,198	47,488	47,766	48,026	48,277	48,527	48,777	49,025	49,272	49,518	49,763	51,212
$500k-$750k	25,091	25,319	25,514	25,703	25,881	26,048	26,213	26,375	26,537	26,693	26,838	26,978	27,118	27,257	27,396	27,534	27,672	27,809	28,618
$750k-$1.0M	10,378	10,473	10,553	10,632	10,705	10,774	10,842	10,909	10,977	11,041	11,101	11,159	11,217	11,274	11,332	11,389	11,446	11,502	11,837
$1.0M-$1.5M	5,145	5,192	5,232	5,270	5,307	5,341	5,375	5,408	5,441	5,473	5,503	5,532	5,561	5,589	5,618	5,646	5,674	5,702	5,868
$1.5M-$2.0M	1,119	1,129	1,137	1,146	1,154	1,161	1,169	1,176	1,183	1,190	1,196	1,203	1,209	1,215	1,221	1,227	1,234	1,240	1,276
$2.0M-$2.5M	559	564	569	573	577	581	584	588	591	595	598	601	604	608	611	614	617	620	638
Over $2.5M	1,119	1,129	1,137	1,146	1,154	1,161	1,169	1,176	1,183	1,190	1,196	1,203	1,209	1,215	1,221	1,227	1,234	1,240	1,276
TOTAL SALES	**104,236**	**105,183**	**105,991**	**106,778**	**107,518**	**108,211**	**108,895**	**109,570**	**110,243**	**110,889**	**111,491**	**112,075**	**112,656**	**113,234**	**113,811**	**114,384**	**114,956**	**115,525**	**118,889**
Attached/Small Multifamily Propensity by Price Range																			
Home Price																			
Less than $250k	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%
$250k-$500k	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%	30.3%
$500k-$750k	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%
$750k-$1.0M	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%	24.3%
$1.0M-$1.5M	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%
$1.5M-$2.0M	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%
$2.0M-$2.5M	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%
Over $2.5M	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%
Attached/Small Multifamily Home Sales by Price Range																			
Home Price																			
Less than $250k	4,814	4,858	4,896	4,932	4,966	4,998	5,030	5,061	5,092	5,122	5,150	5,177	5,203	5,230	5,257	5,283	5,310	5,336	5,491
$250k-$500k	13,612	13,735	13,841	13,944	14,040	14,131	14,220	14,308	14,396	14,480	14,559	14,635	14,711	14,787	14,862	14,937	15,011	15,086	15,525
$500k-$750k	7,034	7,098	7,152	7,205	7,255	7,302	7,348	7,394	7,439	7,483	7,523	7,563	7,602	7,641	7,680	7,719	7,757	7,796	8,023
$750k-$1.0M	2,526	2,549	2,568	2,587	2,605	2,622	2,639	2,655	2,671	2,687	2,702	2,716	2,730	2,744	2,758	2,772	2,786	2,799	2,881
$1.0M-$1.5M	1,150	1,161	1,170	1,178	1,187	1,194	1,202	1,209	1,217	1,224	1,230	1,237	1,243	1,250	1,256	1,262	1,269	1,275	1,312
$1.5M-$2.0M	213	215	217	219	220	222	223	224	226	227	228	230	231	232	233	234	235	237	243
$2.0M-$2.5M	89	90	91	91	92	92	93	94	94	95	95	96	96	97	97	98	98	99	102
Over $2.5M	163	165	166	167	168	169	171	172	173	174	175	176	176	177	178	179	180	181	186
TOTAL ATTACHED/SMALL MULTIFAMILY HOME SALES	**29,602**	**29,871**	**30,100**	**30,324**	**30,534**	**30,731**	**30,925**	**31,117**	**31,308**	**31,491**	**31,662**	**31,828**	**31,993**	**32,157**	**32,321**	**32,484**	**32,646**	**32,808**	**33,763**

Exhibit II-4

Total New For-Sale Housing Demand for Attached/Small Multifamily Products
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
New Home Demand by Price Range																			
New Sales as a % of Total Sales																			
Home Price																			
Less than $250k	0.9%	1.0%	1.2%	1.3%	1.3%	1.2%	1.1%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%
$250k-$500k	5.9%	6.9%	7.8%	8.8%	8.4%	8.0%	7.6%	7.2%	6.8%	6.7%	6.6%	6.6%	6.5%	6.4%	6.3%	6.3%	6.2%	6.1%	5.7%
$500k-$750k	11.6%	13.6%	15.5%	17.5%	16.7%	15.9%	15.1%	14.3%	13.5%	13.3%	13.2%	13.0%	12.9%	12.7%	12.6%	12.4%	12.3%	12.2%	11.3%
$750k-$1.0M	10.3%	12.0%	13.7%	15.4%	14.7%	14.0%	13.3%	12.6%	11.9%	11.8%	11.6%	11.5%	11.4%	11.3%	11.1%	11.0%	10.9%	10.7%	10.0%
$1.0M-$1.5M	8.9%	10.3%	11.8%	13.3%	12.7%	12.1%	11.5%	10.8%	10.2%	10.1%	10.0%	9.9%	9.8%	9.7%	9.6%	9.5%	9.4%	9.2%	8.6%
$1.5M-$2.0M	6.3%	7.3%	8.3%	9.4%	8.9%	8.5%	8.1%	7.7%	7.2%	7.1%	7.1%	7.0%	6.9%	6.8%	6.8%	6.7%	6.6%	6.5%	6.1%
$2.0M-$2.5M	0.9%	1.0%	1.2%	1.3%	1.3%	1.2%	1.2%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%
Over $2.5M	1.7%	2.0%	2.3%	2.5%	2.4%	2.3%	2.2%	2.1%	2.0%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.6%
Total New Home Sales by Price Range																			
Home Price																			
Less than $250k	42	50	57	65	62	60	57	54	52	51	51	51	51	50	50	50	49	49	47
$250k-$500k	799	941	1,084	1,228	1,180	1,130	1,080	1,028	976	972	966	961	955	949	944	937	931	925	885
$500k-$750k	819	964	1,111	1,259	1,209	1,158	1,107	1,054	1,001	996	990	985	979	973	967	961	954	948	906
$750k-$1.0M	260	306	353	400	384	368	351	335	318	316	314	313	311	309	307	305	303	301	288
$1.0M-$1.5M	102	120	138	157	150	144	138	131	124	124	123	122	122	121	120	119	119	118	113
$1.5M-$2.0M	13	16	18	20	20	19	18	17	16	16	16	16	16	16	16	16	16	15	15
$2.0M-$2.5M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Over $2.5M	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3
TOTAL NEW HOME DEMAND	**2,040**	**2,401**	**2,765**	**3,134**	**3,011**	**2,884**	**2,755**	**2,624**	**2,492**	**2,479**	**2,466**	**2,452**	**2,437**	**2,423**	**2,408**	**2,392**	**2,376**	**2,360**	**2,257**
Submarket Capture																			
Dulles Corridor Capture Rate																			
Home Price																			
Less than $250k	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$250k-$500k	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%
$500k-$750k	12.6%	12.6%	12.6%	12.6%	12.3%	12.0%	11.6%	11.3%	11.0%	10.9%	10.9%	10.8%	10.7%	10.7%	10.6%	10.5%	10.5%	10.4%	10.0%
$750k-$1.0M	27.0%	27.0%	27.0%	27.0%	26.8%	26.6%	26.4%	26.2%	26.0%	25.9%	25.7%	25.6%	25.5%	25.3%	25.2%	25.1%	24.9%	24.8%	24.0%
$1.0M-$1.5M	10.9%	10.6%	10.3%	10.0%	10.4%	10.8%	11.2%	11.6%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
$1.5M-$2.0M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.6%	1.0%
$2.0M-$2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Over $2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dulles Corridor Sales by Price Range																			
Home Price																			
Less than $250k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$250k-$500k	7	8	9	10	9	9	8	7	7	7	7	7	6	6	6	6	6	6	5
$500k-$750k	103	121	140	159	148	138	129	119	110	109	108	106	105	104	102	101	100	99	91
$750k-$1.0M	70	83	95	108	103	98	93	88	83	82	81	80	79	78	77	76	76	75	69
$1.0M-$1.5M	11	13	14	16	16	16	15	15	15	15	15	15	15	15	14	14	14	14	14
$1.5M-$2.0M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2.0M-$2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over $2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL DULLES CORRIDOR NEW HOME DEMAND	**191**	**225**	**258**	**292**	**276**	**260**	**245**	**230**	**214**	**212**	**210**	**208**	**205**	**203**	**201**	**198**	**196**	**193**	**179**

Exhibit II-4

Total New For-Sale Housing Demand for Attached/Small Multifamily Products
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Subject Site Capture with Base Segmentation																			
Subject Site Capture Rate with Base Segmentation																			
Home Price																			
Less than $250k	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$250k-$500k	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%
$500k-$750k	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%
$750k-$1.0M	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%
$1.0M-$1.5M	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%
$1.5M-$2.0M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%
$2.0M-$2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Over $2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subject Site Sales with Base Segmentation																			
Home Price																			
Less than $250k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$250k-$500k	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
$500k-$750k	22	26	30	34	32	30	28	26	24	24	23	23	23	23	22	22	22	21	20
$750k-$1.0M	15	18	21	23	22	21	20	19	18	18	18	17	17	17	17	17	16	16	15
$1.0M-$1.5M	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
$1.5M-$2.0M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2.0M-$2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over $2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL SUBJECT SITE NEW HOME DEMAND	**42**	**49**	**56**	**63**	**60**	**56**	**53**	**50**	**47**	**46**	**46**	**45**	**45**	**44**	**44**	**43**	**42**	**42**	**39**

Source: RCLCO

Exhibit II-5

Total New For-Sale Housing Demand for Multifamily (5+ Units) Products
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Demand from Existing Owner Households	86,902	90,997	93,903	95,001	96,442	97,827	98,658	99,477	100,163	101,225	102,472	103,341	103,958	104,573	105,185	105,795	106,402	107,007	110,587
Change in Owner Households	17,334	14,187	12,088	11,777	11,076	10,385	10,238	10,092	10,080	9,664	9,019	8,733	8,697	8,661	8,625	8,589	8,553	8,517	8,301
Total Owner Demand	104,236	105,183	105,991	106,778	107,518	108,211	108,895	109,570	110,243	110,889	111,491	112,075	112,656	113,234	113,811	114,384	114,956	115,525	118,889
Multifamily (5+ Units) Home Demand by Price Range																			
Distribution by Price Range																			
Home Price																			
Less than $250k	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%
$250k-$500k	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
$500k-$750k	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
$750k-$1.0M	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
$1.0M-$1.5M	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
$1.5M-$2.0M	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
$2.0M-$2.5M	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Over $2.5M	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Demand by Price Range																			
Home Price																			
Less than $250k	15,925	16,069	16,193	16,313	16,426	16,532	16,636	16,739	16,842	16,941	17,033	17,122	17,211	17,299	17,387	17,475	17,562	17,649	18,163
$250k-$500k	44,900	45,309	45,657	45,995	46,314	46,613	46,908	47,198	47,488	47,766	48,026	48,277	48,527	48,777	49,025	49,272	49,518	49,763	51,212
$500k-$750k	25,091	25,319	25,514	25,703	25,881	26,048	26,213	26,375	26,537	26,693	26,838	26,978	27,118	27,257	27,396	27,534	27,672	27,809	28,618
$750k-$1.0M	10,378	10,473	10,553	10,632	10,705	10,774	10,842	10,909	10,977	11,041	11,101	11,159	11,217	11,274	11,332	11,389	11,446	11,502	11,837
$1.0M-$1.5M	5,145	5,192	5,232	5,270	5,307	5,341	5,375	5,408	5,441	5,473	5,503	5,532	5,561	5,589	5,618	5,646	5,674	5,702	5,868
$1.5M-$2.0M	1,119	1,129	1,137	1,146	1,154	1,161	1,169	1,176	1,183	1,190	1,196	1,203	1,209	1,215	1,221	1,227	1,234	1,240	1,276
$2.0M-$2.5M	559	564	569	573	577	581	584	588	591	595	598	601	604	608	611	614	617	620	638
Over $2.5M	1,119	1,129	1,137	1,146	1,154	1,161	1,169	1,176	1,183	1,190	1,196	1,203	1,209	1,215	1,221	1,227	1,234	1,240	1,276
TOTAL SALES	**104,236**	**105,183**	**105,991**	**106,778**	**107,518**	**108,211**	**108,895**	**109,570**	**110,243**	**110,889**	**111,491**	**112,075**	**112,656**	**113,234**	**113,811**	**114,384**	**114,956**	**115,525**	**118,889**
Multifamily (5+ Units) Propensity by Price Range																			
Home Price																			
Less than $250k	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%
$250k-$500k	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%
$500k-$750k	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%
$750k-$1.0M	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%
$1.0M-$1.5M	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%
$1.5M-$2.0M	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%	9.6%
$2.0M-$2.5M	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%	12.6%
Over $2.5M	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%
Multifamily (5+ Units) Home Sales by Price Range																			
Home Price																			
Less than $250k	3,267	3,297	3,322	3,347	3,370	3,392	3,413	3,434	3,455	3,476	3,495	3,513	3,531	3,549	3,567	3,585	3,603	3,621	3,726
$250k-$500k	6,426	6,485	6,535	6,583	6,629	6,672	6,714	6,755	6,797	6,837	6,874	6,910	6,946	6,981	7,017	7,052	7,087	7,122	7,330
$500k-$750k	2,349	2,370	2,388	2,406	2,423	2,438	2,454	2,469	2,484	2,498	2,512	2,525	2,538	2,551	2,564	2,577	2,590	2,603	2,679
$750k-$1.0M	837	845	851	857	863	869	874	880	885	890	895	900	905	909	914	919	923	928	955
$1.0M-$1.5M	437	441	444	447	450	453	456	459	462	465	467	470	472	474	477	479	482	484	498
$1.5M-$2.0M	107	108	109	109	110	111	112	112	113	114	114	115	116	116	117	117	118	118	122
$2.0M-$2.5M	71	71	72	72	73	73	74	74	75	75	76	76	76	77	77	78	78	78	81
Over $2.5M	158	160	161	162	163	164	166	167	168	169	169	170	171	172	173	174	175	176	181
TOTAL MULTIFAMILY (5+ UNITS) HOME SALES	**13,652**	**13,776**	**13,882**	**13,985**	**14,082**	**14,173**	**14,262**	**14,351**	**14,439**	**14,523**	**14,602**	**14,679**	**14,755**	**14,830**	**14,906**	**14,981**	**15,056**	**15,130**	**15,571**

Exhibit II-5

Total New For-Sale Housing Demand for Multifamily (5+ Units) Products
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
New Home Demand by Price Range																			
New Sales as a % of Total Sales																			
Home Price																			
Less than $250k	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%
$250k-$500k	3.6%	4.2%	4.8%	5.4%	5.2%	4.9%	4.7%	4.4%	4.2%	4.1%	4.1%	4.1%	4.0%	4.0%	3.9%	3.9%	3.8%	3.8%	3.5%
$500k-$750k	10.5%	12.3%	14.0%	15.8%	15.1%	14.3%	13.6%	12.9%	12.2%	12.0%	11.9%	11.8%	11.6%	11.5%	11.4%	11.3%	11.1%	11.0%	10.2%
$750k-$1.0M	16.7%	19.5%	22.3%	25.1%	24.0%	22.8%	21.7%	20.5%	19.3%	19.1%	18.9%	18.7%	18.5%	18.3%	18.1%	17.9%	17.7%	17.5%	16.2%
$1.0M-$1.5M	15.5%	18.1%	20.7%	23.3%	22.2%	21.2%	20.1%	19.0%	18.0%	17.8%	17.6%	17.4%	17.2%	17.0%	16.8%	16.6%	16.4%	16.2%	15.1%
$1.5M-$2.0M	15.2%	17.8%	20.3%	22.9%	21.8%	20.8%	19.7%	18.7%	17.6%	17.4%	17.2%	17.0%	16.8%	16.7%	16.5%	16.3%	16.1%	15.9%	14.8%
$2.0M-$2.5M	11.5%	13.5%	15.4%	17.3%	16.5%	15.7%	14.9%	14.1%	13.3%	13.2%	13.0%	12.9%	12.8%	12.6%	12.5%	12.3%	12.2%	12.0%	11.2%
Over $2.5M	16.5%	19.3%	22.0%	24.8%	23.6%	22.5%	21.4%	20.2%	19.1%	18.9%	18.7%	18.5%	18.3%	18.1%	17.9%	17.6%	17.4%	17.2%	16.0%
Total New Home Sales by Price Range																			
Home Price																			
Less than $250k	5	6	7	8	7	7	7	6	6	6	6	6	6	6	6	6	6	6	5
$250k-$500k	233	275	316	358	344	330	315	300	285	284	282	280	279	277	275	274	272	270	258
$500k-$750k	247	291	335	380	365	350	334	318	302	301	299	297	295	294	292	290	288	286	274
$750k-$1.0M	140	165	190	215	207	198	189	180	171	170	169	168	167	166	165	164	163	162	155
$1.0M-$1.5M	68	80	92	104	100	96	92	87	83	83	82	82	81	81	80	80	79	79	75
$1.5M-$2.0M	16	19	22	25	24	23	22	21	20	20	20	20	19	19	19	19	19	19	18
$2.0M-$2.5M	8	10	11	13	12	12	11	10	10	10	10	10	10	10	10	10	9	9	9
Over $2.5M	26	31	35	40	39	37	35	34	32	32	32	31	31	31	31	31	30	30	29
TOTAL NEW HOME DEMAND	**744**	**876**	**1,009**	**1,143**	**1,098**	**1,052**	**1,005**	**957**	**909**	**905**	**900**	**894**	**889**	**884**	**878**	**873**	**867**	**861**	**823**
Submarket Capture																			
Dulles Corridor Capture Rate																			
Home Price																			
Less than $250k	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$250k-$500k	4.1%	3.7%	3.4%	3.0%	2.8%	2.6%	2.4%	2.2%	2.0%	1.9%	1.9%	1.8%	1.7%	1.7%	1.6%	1.5%	1.5%	1.4%	1.0%
$500k-$750k	17.2%	17.2%	17.2%	17.2%	17.0%	16.7%	16.5%	16.2%	16.0%	15.9%	15.9%	15.8%	15.7%	15.7%	15.6%	15.5%	15.5%	15.4%	15.0%
$750k-$1.0M	5.6%	6.2%	6.9%	7.5%	8.0%	8.5%	9.0%	9.5%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
$1.0M-$1.5M	0.0%	0.5%	1.0%	1.5%	1.6%	1.7%	1.8%	1.9%	2.0%	2.1%	2.1%	2.2%	2.3%	2.3%	2.4%	2.5%	2.5%	2.6%	3.0%
$1.5M-$2.0M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.3%	0.3%	0.4%	0.5%	0.5%	0.6%	1.0%
$2.0M-$2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Over $2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dulles Corridor Sales by Price Range																			
Home Price																			
Less than $250k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$250k-$500k	9	10	11	11	10	9	8	7	6	5	5	5	5	5	4	4	4	4	3
$500k-$750k	43	50	58	65	62	58	55	52	48	48	47	47	46	46	46	45	45	44	41
$750k-$1.0M	8	10	13	16	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16
$1.0M-$1.5M	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
$1.5M-$2.0M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2.0M-$2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over $2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL DULLES CORRIDOR NEW HOME DEMAND	**60**	**71**	**82**	**94**	**90**	**86**	**81**	**77**	**73**	**72**	**71**	**71**	**70**	**69**	**68**	**68**	**67**	**66**	**62**

Exhibit II-5

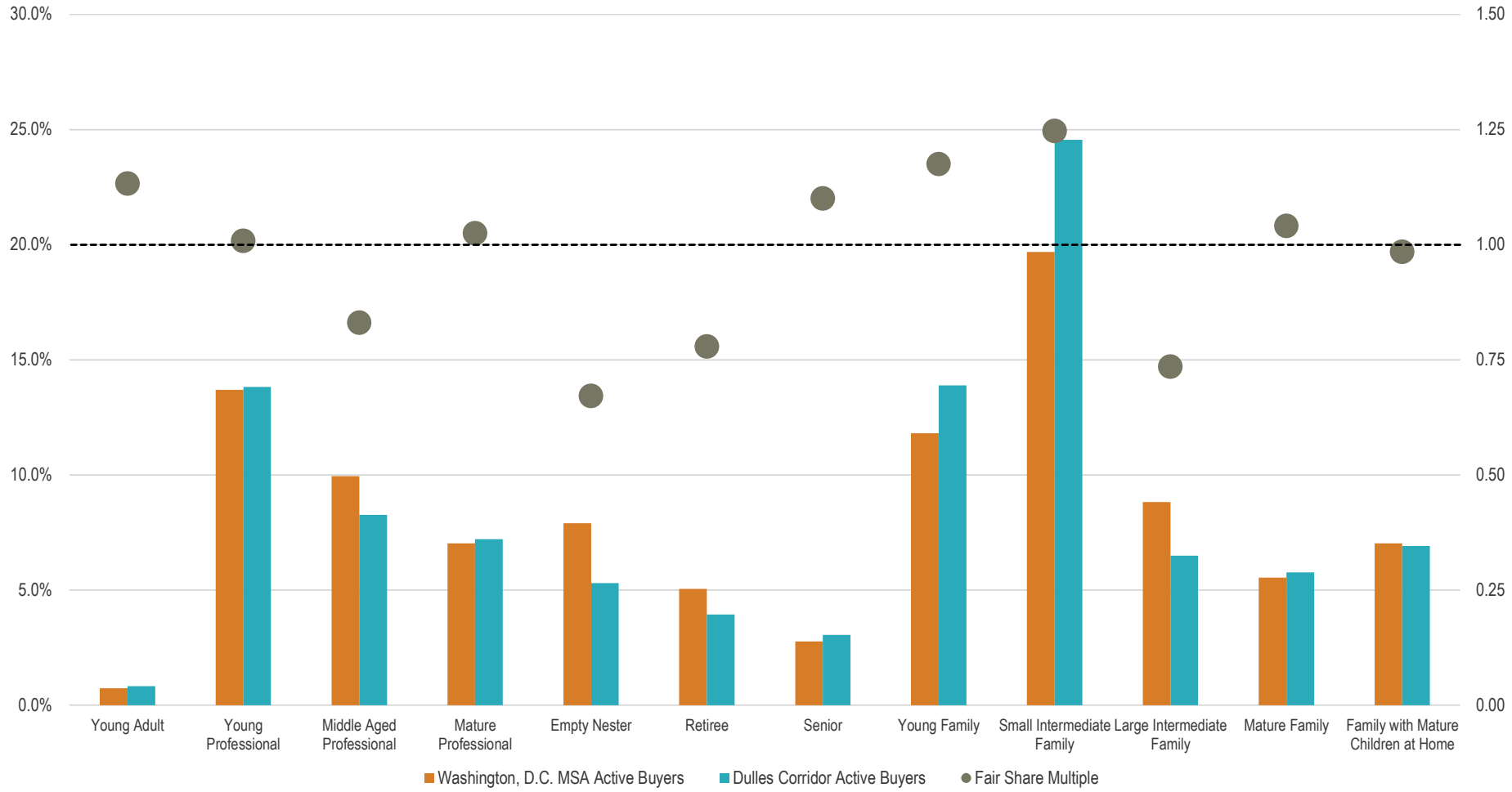
Total New For-Sale Housing Demand for Multifamily (5+ Units) Products
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Subject Site Capture																			
Subject Site Capture Rate																			
Home Price																			
Less than $250k	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$250k-$500k	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%
$500k-$750k	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%
$750k-$1.0M	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%
$1.0M-$1.5M	0.0%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%
$1.5M-$2.0M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%
$2.0M-$2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Over $2.5M	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subject Site Sales																			
Home Price																			
Less than $250k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$250k-$500k	3	4	4	4	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1
$500k-$750k	15	17	20	23	21	20	19	18	17	17	16	16	16	16	16	16	15	15	14
$750k-$1.0M	3	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
$1.0M-$1.5M	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$1.5M-$2.0M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2.0M-$2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over $2.5M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL SUBJECT SITE NEW HOME DEMAND	**21**	**25**	**29**	**33**	**31**	**30**	**28**	**27**	**25**	**25**	**25**	**25**	**24**	**24**	**24**	**23**	**23**	**23**	**21**

Source: RCLCO

Exhibit II-6

Distribution of Active Buyer Segments
Washington, D.C. MSA and Dulles Corridor
2022

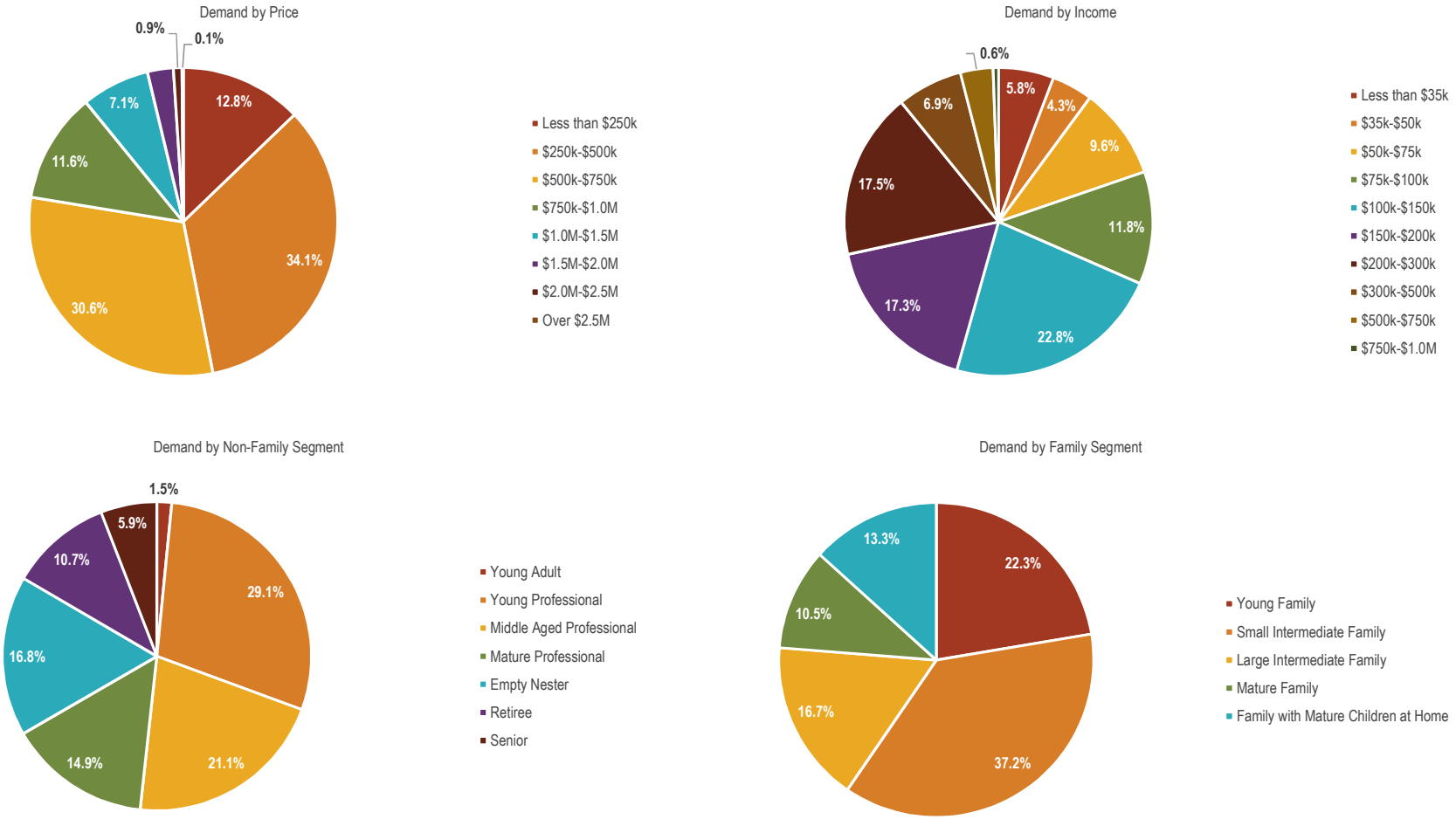


Note: Active Buyers are current owner households that have moved within a four year period.

Source: American Community Survey PUMS; RCLCO

Exhibit II-7

Distribution of Active Buyer Households
Washington, D.C. MSA
2022

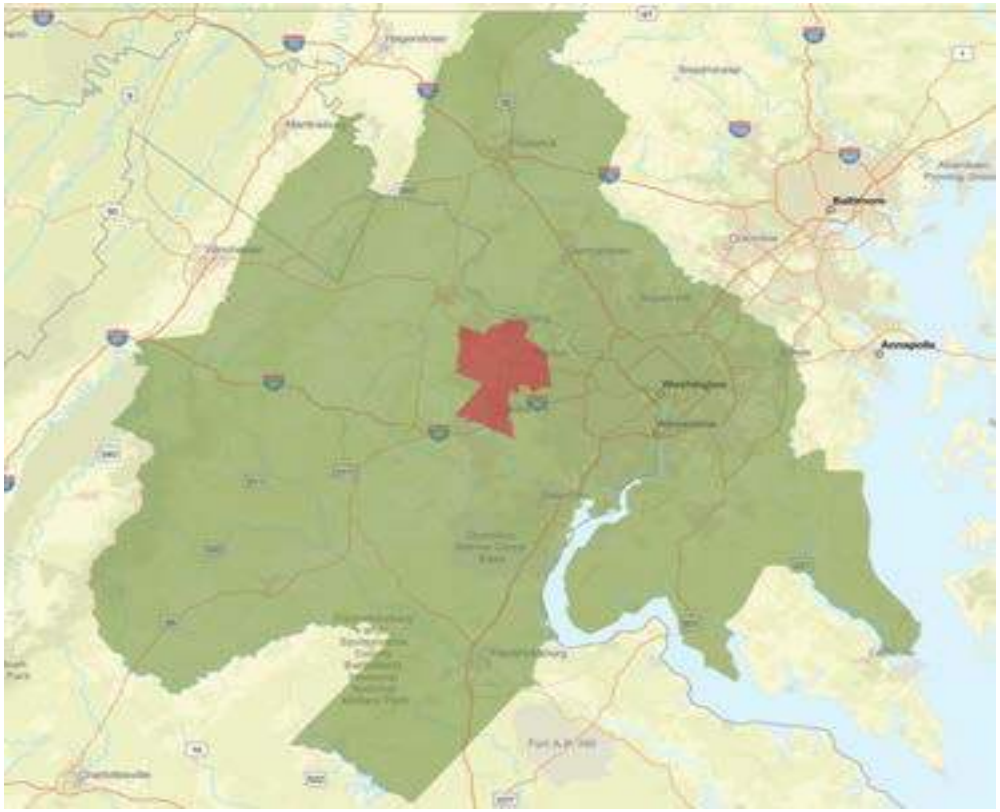


Note: Active Buyers are current owner households that have moved within a four year period.
Source: American Community Survey PUMS; RCLCO

III. RENTAL RESIDENTIAL

Exhibit III-1

Submarket-Market Overview
Dulles Corridor and Washington, D.C. MSA



Note: Includes market-rate properties with 20 units or more.

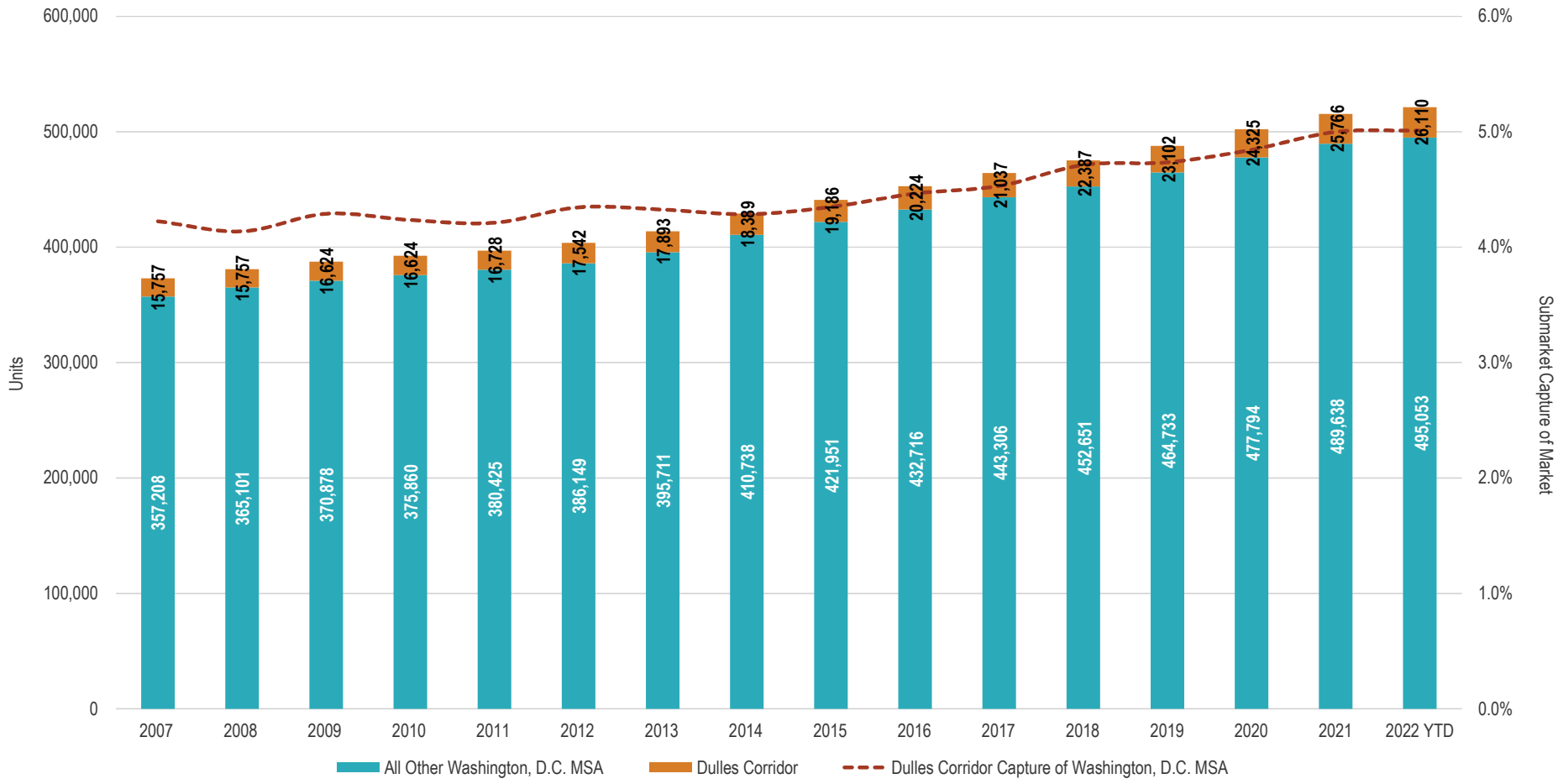
Note: 2022 YTD data is through August 2022.

Source: CoStar Group, Inc.; RCLCO

	DULLES CORRIDOR	WASHINGTON, D.C. MSA
CURRENT CHARACTERISTICS (2022 YTD)		
Properties	80	2,374
Units	26,110	521,163
Avg. Effective Rent	$2,181	$2,079
Vacancy	6.5%	5.8%
SHORT-TERM TRENDS (2017-2021)		
Avg. Rent Growth	2.9%	2.6%
Avg. Vacancy	8.2%	7.0%
Avg. Net Absorption	1,029	11,960
Avg. Completions	1,108	12,493
LONG-TERM TRENDS (2007-2021)		
Avg. Rent Growth	2.5%	2.4%
Avg. Vacancy	7.0%	6.8%
Avg. Net Absorption	684	9,425
Avg. Completions	752	10,006

Exhibit III-2

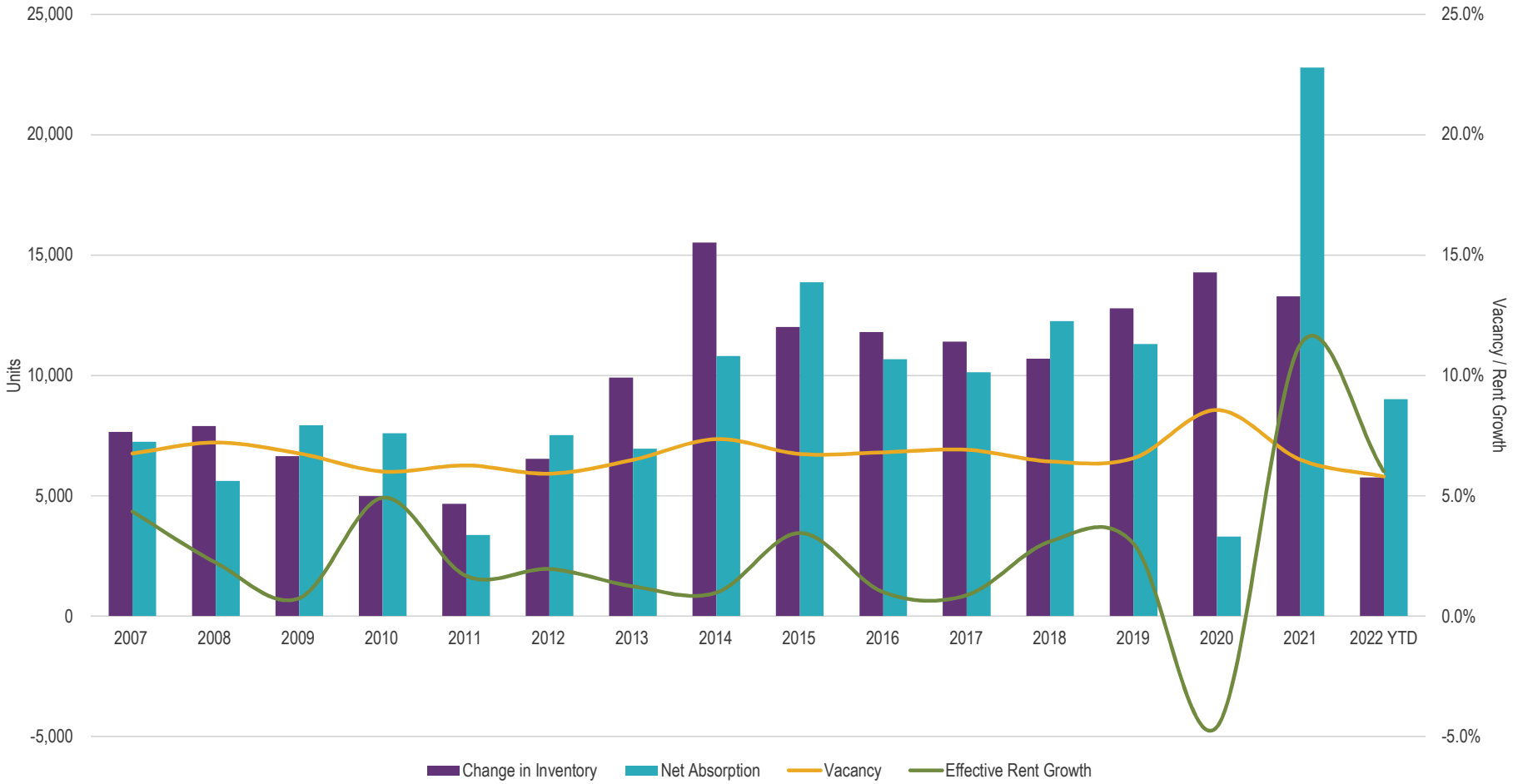
Apartment Inventory
Dulles Corridor and Washington, D.C. MSA
2007-2022



Note: Includes market-rate properties with 20 units or more.
Note: 2022 YTD data is through August 2022.
Source: CoStar Group, Inc.; RCLCO

Exhibit III-3

Completions, Absorption, Vacancy, and Rent Growth
Washington, D.C. MSA
2007-2022



Note: Includes market-rate properties with 20 units or more.
Note: 2022 YTD data is through August 2022.
Source: CoStar Group, Inc.; RCLCO

Exhibit III-4

Summary of Comparable Apartment Communities by Unit Type
Dulles Corridor
August 2022

MAP KEY	COMMUNITY	COMMUNITY CHARACTERISTICS		CONFIG.	MARKET RATE UNITS	UNIT MIX	UNIT SIZE (SF) RANGE	UNIT SIZE (SF) AVG.	ASKING RENT RANGE	ASKING RENT AVG.	ASKING RENT AVG./SF	CONCESSIONS	EFFECTIVE RENT RANGE	EFFECTIVE RENT AVG.	EFFECTIVE RENT AVG./SF
1	**Harrison at Reston Town Center**	**Occupancy**	**98%**		**360**	**100%**	**674 - 1,516**	**1,009**	**$2,407 - $6,603**	**$3,229**	**$3.20**	**0%**	**$2,407 - $6,603**	**$3,229**	**$3.20**
	1800 Jonathan Way	Year Built	2015	1BR	106	29%	674 - 881	729	$2,407 - $3,190	$2,638	$3.62	0%	$2,407 - $3,190	$2,638	$3.62
	Reston, VA 20190	Year Last Renovate	N/A	1BR+	68	19%	790 - 867	822	$2,466 - $3,169	$2,755	$3.35	0%	$2,466 - $3,169	$2,755	$3.35
		Stories	14	2BR	146	41%	1,022 - 1,388	1,178	$3,116 - $3,874	$3,423	$2.91	0%	$3,116 - $3,874	$3,423	$2.91
		Total Units	360	2BR+	20	6%	1,328 - 1,516	1,441	$4,173 - $4,480	$4,360	$3.02	0%	$4,173 - $4,480	$4,360	$3.02
				3BR	20	6%	1,419 - 1,504	1,459	$4,909 - $6,603	$5,426	$3.72	0%	$4,909 - $6,603	$5,426	$3.72
2	**Avant At Reston Town Center**	**Occupancy**	**98%**		**351**	**100%**	**537 - 1,551**	**897**	**$2,024 - $4,352**	**$2,851**	**$3.18**	**0%**	**$2,024 - $4,352**	**$2,851**	**$3.18**
	12025 Town Square St	Year Built	2013	Jr. 1BR	48	14%	537 - 644	586	$2,024 - $2,175	$2,118	$3.62	0%	$2,024 - $2,175	$2,118	$3.62
	Reston, VA 20190	Year Last Renovate	N/A	1BR	147	42%	692 - 779	738	$2,288 - $2,930	$2,789	$3.78	0%	$2,288 - $2,930	$2,789	$3.78
		Stories	15	1BR+	26	7%	859 - 920	889	$3,050 - $3,649	$3,116	$3.50	0%	$3,050 - $3,649	$3,116	$3.50
		Total Units	351	2BR	107	30%	1,106 - 1,234	1,166	$2,929 - $3,467	$3,080	$2.64	0%	$2,929 - $3,467	$3,080	$2.64
				2BR+	18	5%	1,277 - 1,277	1,277	$3,264 - $3,264	$3,264	$2.56	0%	$3,264 - $3,264	$3,264	$2.56
				3BR	5	1%	1,404 - 1,551	1,455	$3,822 - $4,352	$3,928	$2.70	0%	$3,822 - $4,352	$3,928	$2.70
3	**The Signature**	**Occupancy**	**95%**		**427**	**100%**	**449 - 1,808**	**1,030**	**$1,963 - $4,991**	**$3,115**	**$3.03**	**0%**	**$1,963 - $4,991**	**$3,115**	**$3.03**
	11850 Freedom Dr	Year Built	2018	Studio	1	0%	449 - 449	449	$1,963 - $1,963	$1,963	$4.37	0%	$1,963 - $1,963	$1,963	$4.37
	Reston, VA 20190	Year Last Renovate	N/A	Jr. 1BR	40	9%	577 - 792	593	$2,012 - $2,416	$2,053	$3.46	0%	$2,012 - $2,416	$2,053	$3.46
		Stories	21	1BR	91	21%	673 - 1,025	721	$2,275 - $2,732	$2,461	$3.41	0%	$2,275 - $2,732	$2,461	$3.41
		Total Units	427	1BR+	57	13%	837 - 932	903	$2,295 - $2,890	$2,718	$3.01	0%	$2,295 - $2,890	$2,718	$3.01
				2BR	193	45%	1,041 - 1,766	1,199	$3,160 - $4,915	$3,447	$2.88	0%	$3,160 - $4,915	$3,447	$2.88
				2BR+	37	9%	1,238 - 1,727	1,469	$3,540 - $4,991	$4,431	$3.02	0%	$3,540 - $4,991	$4,431	$3.02
				3BR	8	2%	1,475 - 1,808	1,584	$4,537 - $4,871	$4,749	$3.00	0%	$4,537 - $4,871	$4,749	$3.00
4	**Exo Reston**	**Occupancy**	**94%**		**457**	**100%**	**711 - 1,413**	**958**	**$2,061 - $5,363**	**$2,803**	**$2.93**	**0%**	**$2,061 - $5,363**	**$2,803**	**$2.93**
	1897 Oracle Way	Year Built	2018	1BR	214	47%	711 - 732	718	$2,061 - $2,598	$2,309	$3.21	0%	$2,061 - $2,598	$2,309	$3.21
	Reston, VA 20190	Year Last Renovate	N/A	2BR	211	46%	1,098 - 1,165	1,132	$2,753 - $3,513	$3,065	$2.71	0%	$2,753 - $3,513	$3,065	$2.71
		Stories	16	3BR	32	7%	1,340 - 1,413	1,404	$3,942 - $5,363	$4,382	$3.12	0%	$3,942 - $5,363	$4,382	$3.12
		Total Units	457												
5	**BLVD Reston Station**	**Occupancy**	**95%**		**458**	**100%**	**495 - 2,160**	**987**	**$1,765 - $10,425**	**$3,254**	**$3.30**	**0%**	**$1,765 - $10,425**	**$3,254**	**$3.30**
	1908 Reston Metro Plaza	Year Built	2016	Studio	55	12%	495 - 787	588	$1,765 - $2,674	$2,103	$3.58	0%	$1,765 - $2,674	$2,103	$3.58
	Reston, VA 20190	Year Last Renovate	N/A	1BR	114	25%	619 - 869	769	$2,105 - $3,245	$2,747	$3.57	0%	$2,105 - $3,245	$2,747	$3.57
		Stories	21	1BR+	68	15%	823 - 961	915	$2,630 - $4,010	$3,146	$3.44	0%	$2,630 - $4,010	$3,146	$3.44
		Total Units	458	2BR	153	33%	938 - 1,193	1,114	$2,850 - $4,130	$3,391	$3.04	0%	$2,850 - $4,130	$3,391	$3.04
				2BR+	57	12%	1,098 - 1,474	1,370	$3,585 - $5,150	$4,390	$3.20	0%	$3,585 - $5,150	$4,390	$3.20
				3BR	6	1%	1,664 - 2,160	1,895	$5,142 - $6,665	$5,934	$3.13	0%	$5,142 - $6,665	$5,934	$3.13
				Townhome	5	1%	1,862 - 2,152	1,978	$8,045 - $10,425	$8,627	$4.36	0%	$8,045 - $10,425	$8,627	$4.36

Exhibit III-4

Summary of Comparable Apartment Communities by Unit Type
Dulles Corridor
August 2022

MAP KEY	COMMUNITY	COMMUNITY CHARACTERISTICS		CONFIG.	MARKET RATE UNITS	UNIT MIX	UNIT SIZE (SF) RANGE	UNIT SIZE (SF) AVG.	ASKING RENT RANGE	ASKING RENT AVG.	ASKING RENT AVG./SF	CONCESSIONS	EFFECTIVE RENT RANGE	EFFECTIVE RENT AVG.	EFFECTIVE RENT AVG./SF
6	**The Ian**	**Occupancy**	**95%**		**375**	**100%**	**524 - 1,327**	**838**	**$1,670 - $4,535**	**$2,399**	**$2.86**	**8%**	**$1,536 - $4,172**	**$2,207**	**$2.63**
	2249 Woodland Grove Pl	Year Built	2021	Studio	66	18%	524 - 665	581	$1,670 - $2,030	$1,858	$3.20	8%	$1,536 - $1,868	$1,710	$2.94
	Herndon, VA 20171	Year Last Renovate	N/A	1BR	202	54%	682 - 992	746	$1,930 - $2,995	$2,292	$3.07	8%	$1,776 - $2,755	$2,109	$2.83
		Stories	5	1BR+	14	4%	760 - 914	859	$2,043 - $2,305	$2,211	$2.57	8%	$1,880 - $2,121	$2,035	$2.37
		Total Units	375	2BR	76	20%	936 - 1,327	1,217	$2,046 - $4,535	$3,010	$2.47	8%	$1,882 - $4,172	$2,770	$2.28
				2BR+	17	5%	1,181 - 1,240	1,229	$2,705 - $4,305	$3,194	$2.60	8%	$2,489 - $3,961	$2,938	$2.39
7	**The Point at Reston**	**Occupancy**	**74%**		**306**	**100%**	**515 - 1,296**	**928**	**$1,713 - $3,090**	**$2,480**	**$2.67**	**8%**	**$1,570 - $2,833**	**$2,273**	**$2.45**
	1925 Roland Clarke Pl	Year Built	2021	Jr. 1BR	43	14%	515 - 623	583	$1,713 - $1,798	$1,750	$3.00	8%	$1,570 - $1,648	$1,604	$2.75
	Reston, VA 20191	Year Last Renovate	N/A	1BR	115	38%	608 - 1,078	762	$1,759 - $2,633	$2,246	$2.95	8%	$1,612 - $2,414	$2,059	$2.70
		Stories	7	2BR	148	48%	1,009 - 1,296	1,158	$2,701 - $3,090	$2,873	$2.48	8%	$2,476 - $2,833	$2,633	$2.27
		Total Units	306												
8	**The Aperture**	**Occupancy**	**97%**		**412**	**100%**	**521 - 1,380**	**853**	**$1,743 - $3,227**	**$2,374**	**$2.78**	**0%**	**$1,743 - $3,227**	**$2,374**	**$2.78**
	11410 Reston Station Blvd	Year Built	2017	Studio	61	15%	521 - 569	537	$1,743 - $2,009	$1,802	$3.36	0%	$1,743 - $2,009	$1,802	$3.36
	Reston, VA 20190	Year Last Renovate	N/A	1BR	156	38%	593 - 758	685	$2,050 - $2,253	$2,149	$3.14	0%	$2,050 - $2,253	$2,149	$3.14
		Stories	7	1BR+	48	12%	811 - 1,062	876	$2,330 - $2,558	$2,390	$2.73	0%	$2,330 - $2,558	$2,390	$2.73
		Total Units	412	2BR	98	24%	1,034 - 1,092	1,069	$2,457 - $2,891	$2,683	$2.51	0%	$2,457 - $2,891	$2,683	$2.51
				2BR+	49	12%	1,221 - 1,380	1,329	$3,047 - $3,227	$3,171	$2.39	0%	$3,047 - $3,227	$3,171	$2.39
9	**Russell at Reston Station**	**Occupancy**	**98%**		**260**	**100%**	**532 - 1,480**	**884**	**$1,605 - $3,575**	**$2,200**	**$2.49**	**0%**	**$1,605 - $3,575**	**$2,200**	**$2.49**
	11500 Commerce Park Dr	Year Built	2020	Jr. 1BR	20	8%	532 - 651	605	$1,605 - $1,829	$1,721	$2.85	0%	$1,605 - $1,829	$1,721	$2.85
	Reston, VA 20191	Year Last Renovate	N/A	1BR	136	52%	600 - 947	729	$1,777 - $2,677	$1,926	$2.64	0%	$1,777 - $2,677	$1,926	$2.64
		Stories	7	2BR	83	32%	946 - 1,244	1,080	$2,203 - $3,000	$2,476	$2.29	0%	$2,203 - $3,000	$2,476	$2.29
		Total Units	260	3BR	21	8%	1,312 - 1,480	1,381	$3,012 - $3,575	$3,346	$2.42	0%	$3,012 - $3,575	$3,346	$2.42
10	**Faraday Park**	**Occupancy**	**60%**		**407**	**100%**	**465 - 1,499**	**840**	**$1,633 - $4,144**	**$2,306**	**$2.75**	**0%**	**$1,633 - $4,144**	**$2,306**	**$2.75**
	11201 Reston Station Blvd,	Year Built	2021	Studio	28	7%	465 - 527	511	$1,633 - $1,841	$1,700	$3.33	0%	$1,633 - $1,841	$1,700	$3.33
	Reston, VA 20190	Year Last Renovate	N/A	Jr. 1BR	78	19%	564 - 705	610	$1,779 - $2,128	$1,926	$3.16	0%	$1,779 - $2,128	$1,926	$3.16
		Stories	7	1BR	145	36%	704 - 780	743	$1,967 - $2,234	$2,113	$2.84	0%	$1,967 - $2,234	$2,113	$2.84
		Total Units	407	1BR+	37	9%	767 - 1,256	905	$2,243 - $3,162	$2,363	$2.61	0%	$2,243 - $3,162	$2,363	$2.61
				2BR	98	24%	1,030 - 1,256	1,125	$2,100 - $3,287	$2,695	$2.40	0%	$2,100 - $3,287	$2,695	$2.40
				2BR+	21	5%	1,288 - 1,499	1,357	$3,674 - $4,144	$3,943	$2.91	0%	$3,674 - $4,144	$3,943	$2.91

Exhibit III-4

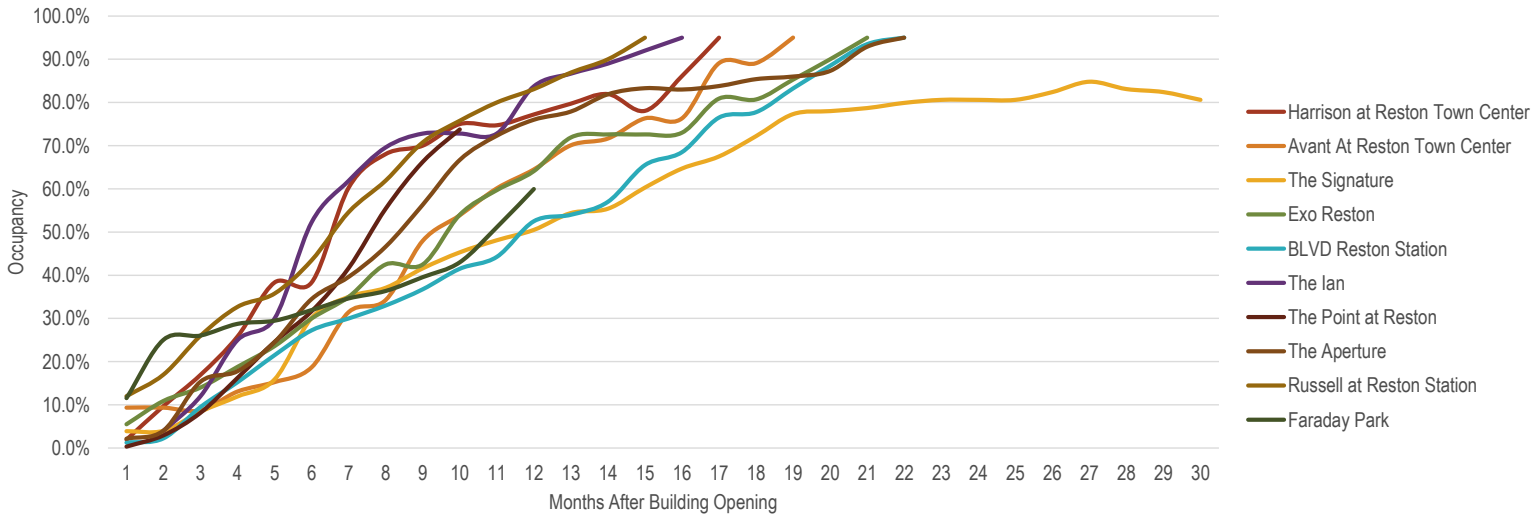
Summary of Comparable Apartment Communities by Unit Type
Dulles Corridor
August 2022

MAP KEY	COMMUNITY	COMMUNITY CHARACTERISTICS		CONFIG.	MARKET RATE UNITS	UNIT MIX	UNIT SIZE (SF) RANGE	UNIT SIZE (SF) AVG.	ASKING RENT RANGE	ASKING RENT AVG.	ASKING RENT AVG./SF	CONCESSIONS	EFFECTIVE RENT RANGE	EFFECTIVE RENT AVG.	EFFECTIVE RENT AVG./SF
11	**City Center Townes**	**Occupancy**	**96%**		**66**	**100%**	**1,340 - 1,534**	**1,493**	**$3,342 - $3,692**	**$3,618**	**$2.42**	**0%**	**$3,342 - $3,692**	**$3,618**	**$2.42**
	21153 Parc Dulles Square	Year Built	2019	Townhome	66	100%	1,340 - 1,534	1,493	$3,342 - $3,692	$3,618	$2.42	0%	$3,342 - $3,692	$3,618	$2.42
	Dulles, VA 20166	Year Last Renovate	N/A												
		Stories	3												
		Total Units	66												
12	**The Townes At Herndon Center**	**Occupancy**	**100%**		**216**	**100%**	**1,264 - 1,457**	**1,312**	**$2,430 - $2,709**	**$2,551**	**$1.94**	**0%**	**$2,430 - $2,709**	**$2,551**	**$1.94**
	508 Pride Ave	Year Built	2002	Townhome	216	100%	1,264 - 1,457	1,312	$2,430 - $2,709	$2,551	$1.94	0%	$2,430 - $2,709	$2,551	$1.94
	Herndon, VA 20170	Year Last Renovate	2014												
		Stories	3												
		Total Units	216												

Source: Leasing agent interview; Property website; Axiometrics; CoStar; RCLCO

Exhibit III-5

Lease-Up History
Dulles Corridor
August 2022



MAP KEY	COMMUNITY NAME	TOTAL UNITS	YEAR BUILT	AR LAST RENOVAT	OCCUPANCY	LEASE-UP PERIOD (MONTHS)	AVG. MONTHLY ABSORPTION
1	Harrison at Reston Town Center	360	2015	N/A	98.1%	17	20.1
2	Avant At Reston Town Center	351	2013	N/A	97.5%	19	17.6
3	The Signature	427	2018	N/A	95.3%	44	9.5
4	Exo Reston	457	2018	N/A	94.3%	21	20.7
5	BLVD Reston Station	458	2016	N/A	94.7%	22	19.8
6	The Ian	375	2021	N/A	94.9%	16	22.3
7	The Point at Reston	306	2021	N/A	73.8%	In Lease-Up	22.6
8	The Aperture	412	2017	N/A	97.3%	22	17.8
9	Russell at Reston Station	260	2020	N/A	98.1%	15	16.5
10	Faraday Park	407	2021	N/A	60.0%	In Lease-Up	20.3
11	City Center Townes	66	2019	N/A	95.5%	10	6.3

Note: Excludes communities where lease-up history is not available.
Source: Axiometrics; RCLCO

Exhibit III-6

Rental Development Pipeline
Dulles Corridor
August 2022

MAP KEY	PROJECT NAME	ADDRESS	CITY	STATE	DEVELOPER	STATUS	EST. OPENING	TOTAL UNITS	COMPETITIVENESS/ PROBABILITY	2022	2023	2024	2025	2026+	N/A
	UNDER CONSTRUCTION														
1	Makers Rise I	2311 Dulles Station Blvd	Herndon	VA	Crimson Partners	Under Construction	2023	356	100%		356				
2	Preserve at Westfields II	4950 Westcroft Blvd	Chantilly	VA	Northwood Ravin LLC	Under Construction	2023	338	100%		338				
3	Innovation Center South D1	2350 Innovation Center Dr	Herndon	VA	Rocks Engineering Company	Under Construction	2023	125	100%		125				
4	RTC Next	Sunset Hills Rd & Reston Pkwy	Reston	VA	Boston Properties	Under Construction	2025	508	100%				508		
								1,327	**100%**		**819**		**508**		
	PLANNED/PROPOSED														
5	Midline Block C	Sunset Hills Rd & Wiehle Ave	Reston	VA	The Chevy Chase Land Company	Planned	2024	229	70%			229			
6	BLVD Gramercy West	Gramercy Park Dr & Loudoun Station Dr	Ashburn	VA	Comstock Companies	Planned	2025	249	70%				249		
7	The Boulevards at Westfields	Park Meadow Dr & Meadow Wood Ln	Centreville	VA	Zumot Real Estate Management	Planned	2025	130	70%				130		
8	Parkview Building B	Van Buren St & Herndon Pkwy	Herndon	VA	Lerner	Planned	2026	300	70%					300	
9	BLVD Herndon	770 Elden St	Herndon	VA	Comstock Companies	Planned	2026	273	70%					273	
10	Parkview Building C	Van Buren St & Herndon Pkwy	Herndon	VA	Lerner	Planned	2026	250	70%					250	
11	Rivana at Innovation Station	2214 Rock Hill Rd	Herndon	VA	Novais Partners	Planned	Not Available	1,954	70%						1,954
12	Silver District West	Dulles Greenway & Loudon County Pkwy	Ashburn	VA	Soave Enterprises	Planned	Not Available	1,000	70%						1,000
13	Former Isaac Newton Square	Isaac Newton Square S & Wiehle Ave	Reston	VA	Peter Lawrence Company	Planned	Not Available	1,000	70%						1,000
14	Makers Rise II	Dulles Station Blvd & Sunrise Valley Dr	Herndon	VA	Crimson Partners	Planned	Not Available	516	70%						516
15	Campus Commons Building C	1900 Campus Commons Dr	Reston	VA	TF Cornerstone	Planned	Not Available	479	70%						479
16	Sunrise Valley Drive & Wiehle Av	Sunrise Valley Dr & Wiehle Ave	Reston	VA	Comstock Companies	Planned	Not Available	469	70%						469
17	Halley Rise Block H	Sunrise Valley Dr & Reston Pkwy	Reston	VA	Brookfield Properties	Planned	Not Available	450	70%						450
18	Innovation Avenue & Rock Hill R	Innovation Ave & Rock Hill Rd	Herndon	VA	Greystar	Planned	Not Available	415	70%						415
19	Reston Town Center North	Bowman Towne Dr & Town Center Pkwy	Reston	VA	Foulger-Pratt	Planned	Not Available	400	70%						400
20	Halley Rise Block C	Sunrise Valley Dr & Reston Pkwy	Reston	VA	Brookfield Properties	Planned	Not Available	366	70%						366
21	Foulger-Pratt Development Block	Soapstone Dr & Sunrise Valley Dr	Reston	VA	Foulger-Pratt	Planned	Not Available	360	70%						360
22	Reston Row District at Reston St	Wiehle Ave & Sunset Hills Rd	Reston	VA	Comstock Companies	Planned	Not Available	350	70%						350
23	Soave Development II	Evergreen Mills Rd & Loudon County Pkwy	Ashburn	VA	Soave Enterprises	Planned	Not Available	350	70%						350
24	Innovation Center South B2	2343 Innovation Center Dr	Herndon	VA	Rocks Engineering Company	Planned	Not Available	345	70%						345
25	Midline Block A	1831 Wiehle Ave	Reston	VA	JBG Smith	Planned	Not Available	325	70%						325
26	Reston Crossing Building 3	2001 Edmund Halley Dr	Reston	VA	Tishman Speyer	Planned	Not Available	322	70%						322
27	Innovation Center South A3	3625 King Johns Way	Herndon	VA	Rocks Engineering Company	Planned	Not Available	321	70%						321
28	Neon Lofts at Gramercy District	Dulles Greenway & Claiborne Pkwy	Ashburn	VA	Bonaventure Inc.	Planned	Not Available	300	70%						300
29	Golf Course Overlook	11480 Sunset Hills Rd	Reston	VA	Pineview Equity Group	Planned	Not Available	300	70%						300
30	RTC West I	12100-12120 Sunset Hills Rd	Reston	VA	JBG Smith	Planned	Not Available	293	70%						293
31	Halley Rise Block E	Sunrise Valley Dr & Reston Pkwy	Reston	VA	Brookfield Properties	Planned	Not Available	291	70%						291
32	RTC West II	12100-12120 Sunset Hills Rd	Reston	VA	JBG Smith	Planned	Not Available	283	70%						283
33	Reston Crossing Building 5	2001 Edmund Halley Dr	Reston	VA	Tishman Speyer	Planned	Not Available	261	70%						261
34	Monroe Metro Plaza Building C	555 Herndon Pkwy	Herndon	VA	Penzance	Planned	Not Available	255	70%						255
35	Reston Crossing Building 6	2001 Edmund Halley Dr	Reston	VA	Tishman Speyer	Planned	Not Available	244	70%						244
36	Midline Block B	Sunset Hills Rd & Wiehle Ave	Reston	VA	JBG Smith	Planned	Not Available	225	70%						225
37	Reston Crossing Building 7	2001 Edmund Halley Dr	Reston	VA	Tishman Speyer	Planned	Not Available	222	70%						222
38	Innovation Center South A4	3627 King Johns Way	Herndon	VA	Rocks Engineering Company	Planned	Not Available	214	70%						214
39	Halley Rise Block D	Sunrise Valley Dr & Reston Pkwy	Reston	VA	Not Available	Planned	Not Available	200	70%						200
40	Monroe Metro Plaza Building A	555 Herndon Pkwy	Herndon	VA	Penzance	Planned	Not Available	200	70%						200
41	Former Residence Inn	315 Elden St	Herndon	VA	Elden Street Owner LLC	Planned	Not Available	170	70%						170
42	Campus Commons Building A	1900 Campus Commons Dr	Reston	VA	TF Cornerstone	Planned	Not Available	150	70%						150
43	Reston Crossing Building 2	2001 Edmund Halley Dr	Reston	VA	Tishman Speyer	Planned	Not Available	144	70%						144
44	Waterside	Old Ox Rd & Shaw Rd	Sterling	VA	Chantilly Crushed Stone	Planned	Not Available		70%						
45	Moorefield Station Multifamily	Loudon County Pkwy & Centergate Dr	Ashburn	VA	The Claude-Moore Foundation	Planned	Not Available		70%						
46	RTC Next Future Phases	Sunset Hills Rd & Reston Pkwy	Reston	VA	Boston Properties	Planned	Not Available		70%						
47	Aurora Station at Dulles	Frying Pan Rd & Sunrise Valley Dr	Herndon	VA	Pomeroy Companies	Planned	Not Available		70%						
48	Innovation Gateway	Innovation Ave & Rock Hill Rd	Herndon	VA	Fairfield Residential / The BlackChamber Group	Planned	Not Available		70%						
								14,605	**70%**			**229**	**379**	**823**	**13,174**

Source: CoStar; Axiometrics; RCLCO

Exhibit III-7

Total New Attached/Small Multifamily Renter Housing Demand
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Demand from Existing Renter Households	231,044	232,223	236,263	239,282	242,433	245,492	248,240	250,983	253,665	256,531	259,445	262,125	264,671	267,226	269,791	272,367	274,952	277,548	293,330
Demand from New Renter Households	9,635	11,703	10,608	10,503	10,176	9,850	9,830	9,810	9,865	9,688	9,375	9,267	9,303	9,339	9,375	9,411	9,447	9,483	9,699
Total Renter Demand	240,679	243,927	246,870	249,785	252,609	255,342	258,070	260,793	263,530	266,219	268,820	271,392	273,973	276,565	279,166	281,777	284,399	287,030	303,029
Attached/Small Multifamily Apartment Demand by Rent Range																			
Distribution by Rent Range																			
Monthly Rent																			
Less than $1,000	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
$1,000-$1,499	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%
$1,500-$1,749	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%
$1,750-$1,999	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%
$2,000-$2,499	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%
$2,500-$2,999	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%
$3,000-$3,499	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Over $3,500	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	24,028	24,352	24,646	24,937	25,219	25,492	25,764	26,036	26,310	26,578	26,838	27,094	27,352	27,611	27,871	28,131	28,393	28,656	30,253
$1,000-$1,499	53,193	53,911	54,561	55,205	55,830	56,434	57,037	57,638	58,243	58,837	59,412	59,981	60,551	61,124	61,699	62,276	62,855	63,437	66,973
$1,500-$1,749	42,178	42,747	43,263	43,774	44,269	44,748	45,226	45,703	46,183	46,654	47,110	47,561	48,013	48,467	48,923	49,381	49,840	50,301	53,105
$1,750-$1,999	42,178	42,747	43,263	43,774	44,269	44,748	45,226	45,703	46,183	46,654	47,110	47,561	48,013	48,467	48,923	49,381	49,840	50,301	53,105
$2,000-$2,499	42,968	43,548	44,074	44,594	45,098	45,586	46,073	46,559	47,048	47,528	47,992	48,451	48,912	49,375	49,839	50,306	50,774	51,243	54,099
$2,500-$2,999	17,844	18,085	18,303	18,519	18,729	18,931	19,133	19,335	19,538	19,738	19,930	20,121	20,312	20,505	20,697	20,891	21,085	21,281	22,467
$3,000-$3,499	11,451	11,606	11,746	11,885	12,019	12,149	12,279	12,408	12,539	12,667	12,790	12,913	13,035	13,159	13,283	13,407	13,532	13,657	14,418
Over $3,500	6,838	6,930	7,014	7,096	7,177	7,254	7,332	7,409	7,487	7,563	7,637	7,710	7,784	7,857	7,931	8,005	8,080	8,155	8,609
TOTAL UNITS RENTED	**240,679**	**243,927**	**246,870**	**249,785**	**252,609**	**255,342**	**258,070**	**260,793**	**263,530**	**266,219**	**268,820**	**271,392**	**273,973**	**276,565**	**279,166**	**281,777**	**284,399**	**287,030**	**303,029**
Attached/Small Multifamily Propensity by Rent Range																			
Monthly Rent																			
Less than $1,000	16.7%	17.3%	17.9%	18.5%	19.2%	19.8%	20.4%	21.0%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%
$1,000-$1,499	22.1%	22.7%	23.4%	24.0%	24.6%	25.2%	25.9%	26.5%	27.1%	27.1%	27.1%	27.1%	27.1%	27.1%	27.1%	27.1%	27.1%	27.1%	27.1%
$1,500-$1,749	18.4%	19.0%	19.6%	20.2%	20.9%	21.5%	22.1%	22.7%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%
$1,750-$1,999	18.4%	19.1%	19.7%	20.3%	20.9%	21.6%	22.2%	22.8%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%	23.4%
$2,000-$2,499	19.6%	20.3%	20.9%	21.5%	22.1%	22.8%	23.4%	24.0%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%
$2,500-$2,999	20.7%	21.4%	22.0%	22.6%	23.2%	23.9%	24.5%	25.1%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%
$3,000-$3,499	28.5%	29.1%	29.7%	30.3%	31.0%	31.6%	32.2%	32.8%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%
Over $3,500	19.4%	20.0%	20.6%	21.2%	21.9%	22.5%	23.1%	23.7%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%
Attached/Small Multifamily Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	4,002	4,209	4,413	4,621	4,831	5,043	5,258	5,476	5,698	5,756	5,812	5,868	5,924	5,980	6,036	6,092	6,149	6,206	6,552
$1,000-$1,499	11,762	12,257	12,746	13,242	13,740	14,242	14,750	15,266	15,790	15,951	16,107	16,261	16,416	16,571	16,727	16,884	17,041	17,198	18,157
$1,500-$1,749	7,744	8,115	8,484	8,857	9,234	9,614	9,999	10,390	10,788	10,898	11,005	11,110	11,216	11,322	11,428	11,535	11,642	11,750	12,405
$1,750-$1,999	7,781	8,153	8,522	8,896	9,274	9,654	10,039	10,431	10,829	10,940	11,047	11,152	11,258	11,365	11,472	11,579	11,687	11,795	12,452
$2,000-$2,499	8,434	8,820	9,202	9,589	9,979	10,372	10,771	11,176	11,587	11,705	11,820	11,933	12,046	12,160	12,275	12,389	12,505	12,620	13,324
$2,500-$2,999	3,700	3,863	4,024	4,187	4,352	4,517	4,685	4,855	5,028	5,079	5,129	5,178	5,227	5,277	5,327	5,376	5,426	5,477	5,782
$3,000-$3,499	3,258	3,375	3,489	3,604	3,720	3,836	3,954	4,073	4,194	4,237	4,279	4,320	4,361	4,402	4,443	4,485	4,527	4,568	4,823
Over $3,500	1,324	1,385	1,446	1,507	1,569	1,631	1,695	1,759	1,824	1,843	1,861	1,879	1,896	1,914	1,932	1,950	1,969	1,987	2,097
TOTAL ATTACHED/SMALL MULTIFAMILY DEMAND	**48,005**	**50,177**	**52,326**	**54,505**	**56,700**	**58,909**	**61,151**	**63,426**	**65,739**	**66,410**	**67,059**	**67,700**	**68,344**	**68,991**	**69,640**	**70,291**	**70,945**	**71,602**	**75,592**

Exhibit III-7

Total New Attached/Small Multifamily Renter Housing Demand
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
New Apartment Demand by Rent Range																			
New Apartment Demand as a % of Total Apartments																			
Monthly Rent																			
Less than $1,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,000-$1,499	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,500-$1,749	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,750-$1,999	0.4%	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
$2,000-$2,499	0.8%	0.8%	0.9%	1.0%	1.0%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
$2,500-$2,999	2.6%	2.8%	3.1%	3.3%	3.5%	3.6%	3.8%	3.9%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%
$3,000-$3,499	4.4%	4.7%	5.1%	5.5%	5.8%	6.0%	6.3%	6.6%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%
Over $3,500	3.0%	3.2%	3.5%	3.7%	3.9%	4.1%	4.3%	4.5%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
Total Apartment Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,000-$1,499	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,500-$1,749	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,750-$1,999	35	39	44	50	54	59	64	70	75	76	77	78	78	79	80	81	81	82	87
$2,000-$2,499	65	74	83	92	101	110	119	129	140	141	142	144	145	147	148	149	151	152	161
$2,500-$2,999	97	110	123	138	150	163	177	191	207	209	211	213	215	217	219	221	223	225	238
$3,000-$3,499	143	160	178	198	214	231	249	268	287	290	293	296	299	302	304	307	310	313	330
Over $3,500	39	45	50	56	61	67	72	79	85	86	87	87	88	89	90	91	92	92	98
TOTAL NEW APARTMENT DEMAND	**379**	**428**	**479**	**533**	**581**	**631**	**683**	**737**	**794**	**802**	**810**	**818**	**825**	**833**	**841**	**849**	**857**	**865**	**913**
Dulles Corridor Capture																			
Dulles Corridor Capture Rate																			
Monthly Rent																			
Less than $1,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,000-$1,499	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,500-$1,749	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,750-$1,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$2,000-$2,499	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$2,500-$2,999	17.5%	17.5%	17.5%	17.5%	18.0%	18.5%	19.0%	19.5%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
$3,000-$3,499	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Over $3,500	18.2%	18.2%	18.2%	18.2%	18.5%	18.9%	19.3%	19.6%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Dulles Corridor Sales by Rent Range																			
Monthly Rent																			
Less than $1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,000-$1,499	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,500-$1,749	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,750-$1,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2,000-$2,499	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2,500-$2,999	17	19	22	24	27	30	34	37	41	42	42	43	43	43	44	44	45	45	48
$3,000-$3,499	36	40	45	49	54	58	62	67	72	73	73	74	75	75	76	77	78	78	83
Over $3,500	7	8	9	10	11	13	14	15	17	17	17	17	18	18	18	18	18	18	20
TOTAL DULLES CORRIDOR NEW APARTMENT DEMAND	**60**	**67**	**75**	**84**	**92**	**101**	**110**	**120**	**130**	**131**	**133**	**134**	**135**	**137**	**138**	**139**	**140**	**142**	**150**

Exhibit III-7

Total New Attached/Small Multifamily Renter Housing Demand
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Subject Site Capture																			
Subject Site Capture Rate by Rent Range																			
Monthly Rent																			
Less than $1,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,000-$1,499	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,500-$1,749	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,750-$1,999	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$2,000-$2,499	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$2,500-$2,999	18.1%	17.1%	16.1%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$3,000-$3,499	18.1%	17.1%	16.1%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Over $3,500	18.1%	17.1%	16.1%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Subject Site Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,000-$1,499	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,500-$1,749	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,750-$1,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2,000-$2,499	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$2,500-$2,999	3	3	3	4	4	5	5	6	6	6	6	6	6	7	7	7	7	7	7
$3,000-$3,499	6	7	7	7	8	9	9	10	11	11	11	11	11	11	11	12	12	12	12
Over $3,500	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
TOTAL SUBJECT SITE DEMAND	**11**	**12**	**12**	**13**	**14**	**15**	**17**	**18**	**20**	**20**	**20**	**20**	**20**	**21**	**21**	**21**	**21**	**21**	**23**

Source:

Exhibit III-8

Total New Multifamily (5+ Units) Renter Housing Demand
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Demand from Existing Renter Households	231,044	232,223	236,263	239,282	242,433	245,492	248,240	250,983	253,665	256,531	259,445	262,125	264,671	267,226	269,791	272,367	274,952	277,548	293,330
Demand from New Renter Households	9,635	11,703	10,608	10,503	10,176	9,850	9,830	9,810	9,865	9,688	9,375	9,267	9,303	9,339	9,375	9,411	9,447	9,483	9,699
Total Renter Demand	240,679	243,927	246,870	249,785	252,609	255,342	258,070	260,793	263,530	266,219	268,820	271,392	273,973	276,565	279,166	281,777	284,399	287,030	303,029
Multifamily (5+ Units) Apartment Demand by Rent Range																			
Distribution by Rent Range																			
Monthly Rent																			
Less than $1,000	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
$1,000-$1,499	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%	22.1%
$1,500-$1,749	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%
$1,750-$1,999	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%
$2,000-$2,499	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%
$2,500-$2,999	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%
$3,000-$3,499	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Over $3,500	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	24,028	24,352	24,646	24,937	25,219	25,492	25,764	26,036	26,310	26,578	26,838	27,094	27,352	27,611	27,871	28,131	28,393	28,656	30,253
$1,000-$1,499	53,193	53,911	54,561	55,205	55,830	56,434	57,037	57,638	58,243	58,837	59,412	59,981	60,551	61,124	61,699	62,276	62,855	63,437	66,973
$1,500-$1,749	42,178	42,747	43,263	43,774	44,269	44,748	45,226	45,703	46,183	46,654	47,110	47,561	48,013	48,467	48,923	49,381	49,840	50,301	53,105
$1,750-$1,999	42,178	42,747	43,263	43,774	44,269	44,748	45,226	45,703	46,183	46,654	47,110	47,561	48,013	48,467	48,923	49,381	49,840	50,301	53,105
$2,000-$2,499	42,968	43,548	44,074	44,594	45,098	45,586	46,073	46,559	47,048	47,528	47,992	48,451	48,912	49,375	49,839	50,306	50,774	51,243	54,099
$2,500-$2,999	17,844	18,085	18,303	18,519	18,729	18,931	19,133	19,335	19,538	19,738	19,930	20,121	20,312	20,505	20,697	20,891	21,085	21,281	22,467
$3,000-$3,499	11,451	11,606	11,746	11,885	12,019	12,149	12,279	12,408	12,539	12,667	12,790	12,913	13,035	13,159	13,283	13,407	13,532	13,657	14,418
Over $3,500	6,838	6,930	7,014	7,096	7,177	7,254	7,332	7,409	7,487	7,563	7,637	7,710	7,784	7,857	7,931	8,005	8,080	8,155	8,609
TOTAL UNITS RENTED	**240,679**	**243,927**	**246,870**	**249,785**	**252,609**	**255,342**	**258,070**	**260,793**	**263,530**	**266,219**	**268,820**	**271,392**	**273,973**	**276,565**	**279,166**	**281,777**	**284,399**	**287,030**	**303,029**
Multifamily (5+ Units) Propensity by Rent Range																			
Monthly Rent																			
Less than $1,000	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%
$1,000-$1,499	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%	69.6%
$1,500-$1,749	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%	72.4%
$1,750-$1,999	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%	70.4%
$2,000-$2,499	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%	65.7%
$2,500-$2,999	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%	64.8%
$3,000-$3,499	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%
Over $3,500	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%
Multifamily (5+ Units) Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	18,242	18,488	18,711	18,932	19,146	19,353	19,560	19,766	19,974	20,178	20,375	20,570	20,765	20,962	21,159	21,357	21,556	21,755	22,968
$1,000-$1,499	37,034	37,534	37,986	38,435	38,869	39,290	39,710	40,129	40,550	40,964	41,364	41,760	42,157	42,556	42,956	43,358	43,761	44,166	46,628
$1,500-$1,749	30,523	30,934	31,308	31,677	32,035	32,382	32,728	33,073	33,420	33,761	34,091	34,417	34,745	35,073	35,403	35,735	36,067	36,401	38,430
$1,750-$1,999	29,713	30,114	30,477	30,837	31,185	31,523	31,860	32,196	32,534	32,866	33,187	33,504	33,823	34,143	34,464	34,786	35,110	35,435	37,410
$2,000-$2,499	28,210	28,591	28,936	29,277	29,608	29,929	30,248	30,568	30,888	31,204	31,508	31,810	32,112	32,416	32,721	33,027	33,334	33,643	35,518
$2,500-$2,999	11,557	11,713	11,854	11,994	12,130	12,261	12,392	12,523	12,654	12,783	12,908	13,032	13,155	13,280	13,405	13,530	13,656	13,782	14,551
$3,000-$3,499	5,355	5,427	5,492	5,557	5,620	5,681	5,742	5,802	5,863	5,923	5,981	6,038	6,095	6,153	6,211	6,269	6,327	6,386	6,742
Over $3,500	2,965	3,005	3,041	3,077	3,112	3,146	3,179	3,213	3,246	3,280	3,312	3,343	3,375	3,407	3,439	3,471	3,504	3,536	3,733
TOTAL MULTIFAMILY (5+ UNITS) DEMAND	**163,597**	**165,805**	**167,806**	**169,787**	**171,707**	**173,565**	**175,419**	**177,269**	**179,130**	**180,957**	**182,726**	**184,474**	**186,228**	**187,990**	**189,758**	**191,533**	**193,315**	**195,104**	**205,978**

Exhibit III-8

Total New Multifamily (5+ Units) Renter Housing Demand
Washington, D.C. MSA
2022-2045

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
New Apartment Demand by Rent Range																			
New Apartment Demand as a % of Total Apartments																			
Monthly Rent																			
Less than $1,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,000-$1,499	0.8%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
$1,500-$1,749	2.8%	2.9%	3.0%	3.1%	3.1%	3.1%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
$1,750-$1,999	6.3%	6.6%	6.8%	7.0%	6.9%	6.9%	6.8%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
$2,000-$2,499	11.5%	11.9%	12.3%	12.7%	12.5%	12.4%	12.3%	12.2%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
$2,500-$2,999	19.6%	20.3%	21.0%	21.7%	21.5%	21.3%	21.1%	20.8%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%
$3,000-$3,499	26.5%	27.4%	28.3%	29.2%	28.9%	28.6%	28.4%	28.1%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%
Over $3,500	39.6%	41.0%	42.3%	43.7%	43.3%	42.9%	42.5%	42.0%	41.6%	41.6%	41.6%	41.6%	41.6%	41.6%	41.6%	41.6%	41.6%	41.6%	41.6%
Total Apartment Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,000-$1,499	313	328	343	358	358	359	359	359	360	363	367	370	374	377	381	384	388	392	413
$1,500-$1,749	861	902	944	985	987	988	989	990	990	1,000	1,010	1,020	1,029	1,039	1,049	1,059	1,069	1,079	1,139
$1,750-$1,999	1,882	1,973	2,064	2,155	2,159	2,161	2,163	2,164	2,165	2,187	2,209	2,230	2,251	2,272	2,294	2,315	2,337	2,358	2,490
$2,000-$2,499	3,235	3,391	3,546	3,704	3,710	3,714	3,717	3,720	3,721	3,759	3,796	3,832	3,869	3,905	3,942	3,979	4,016	4,053	4,279
$2,500-$2,999	2,271	2,380	2,489	2,599	2,604	2,607	2,609	2,611	2,612	2,638	2,664	2,690	2,715	2,741	2,767	2,793	2,819	2,845	3,003
$3,000-$3,499	1,417	1,485	1,553	1,622	1,625	1,627	1,628	1,629	1,630	1,647	1,663	1,679	1,695	1,711	1,727	1,743	1,759	1,775	1,874
Over $3,500	1,175	1,232	1,288	1,345	1,347	1,349	1,350	1,351	1,351	1,365	1,378	1,392	1,405	1,418	1,432	1,445	1,458	1,472	1,554
TOTAL NEW APARTMENT DEMAND	**11,153**	**11,692**	**12,226**	**12,768**	**12,790**	**12,804**	**12,815**	**12,823**	**12,829**	**12,960**	**13,087**	**13,212**	**13,338**	**13,464**	**13,591**	**13,718**	**13,845**	**13,974**	**14,752**
Dulles Corridor Capture																			
Dulles Corridor Capture Rate																			
Monthly Rent																			
Less than $1,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,000-$1,499	7.2%	6.4%	5.7%	5.0%	4.6%	4.2%	3.8%	3.4%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
$1,500-$1,749	10.0%	9.7%	9.3%	9.0%	8.8%	8.6%	8.4%	8.2%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
$1,750-$1,999	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
$2,000-$2,499	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
$2,500-$2,999	4.9%	4.9%	4.9%	4.9%	5.1%	5.3%	5.5%	5.8%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
$3,000-$3,499	2.5%	2.8%	3.2%	3.5%	3.8%	4.1%	4.4%	4.7%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Over $3,500	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Dulles Corridor Sales by Rent Range																			
Monthly Rent																			
Less than $1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,000-$1,499	22	21	20	18	16	15	14	12	11	11	11	11	11	11	11	12	12	12	12
$1,500-$1,749	86	87	88	89	87	85	83	81	79	80	81	82	82	83	84	85	85	86	91
$1,750-$1,999	226	237	248	259	259	259	260	260	260	262	265	268	270	273	275	278	280	283	299
$2,000-$2,499	324	339	355	370	371	371	372	372	372	376	380	383	387	391	394	398	402	405	428
$2,500-$2,999	110	116	121	126	132	139	145	151	157	158	160	161	163	164	166	168	169	171	180
$3,000-$3,499	35	42	49	57	62	67	72	77	81	82	83	84	85	86	86	87	88	89	94
Over $3,500	21	22	23	24	24	24	24	24	24	25	25	25	25	26	26	26	26	26	28
TOTAL DULLES CORRIDOR NEW APARTMENT DEMAND	**825**	**864**	**903**	**943**	**952**	**960**	**969**	**977**	**984**	**995**	**1,004**	**1,014**	**1,024**	**1,033**	**1,043**	**1,053**	**1,062**	**1,072**	**1,132**

Exhibit III-8

Total New Multifamily (5+ Units) Renter Housing Demand
Washington, D.C. MSA
2022-2045

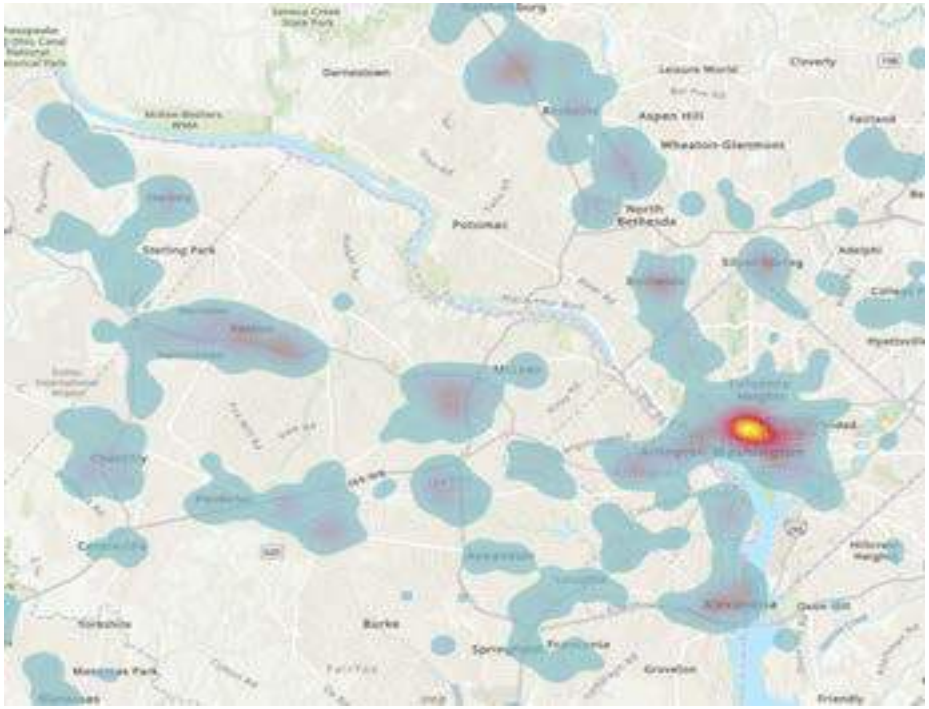
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2045
Subject Site Capture																			
Subject Site Capture Rate by Rent Range																			
Monthly Rent																			
Less than $1,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
$1,000-$1,499	23.1%	22.1%	21.0%	20.0%	19.3%	18.7%	18.0%	17.3%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
$1,500-$1,749	23.1%	22.1%	21.0%	20.0%	19.3%	18.7%	18.0%	17.3%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
$1,750-$1,999	23.1%	22.1%	21.0%	20.0%	19.3%	18.7%	18.0%	17.3%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
$2,000-$2,499	23.1%	22.1%	21.0%	20.0%	19.3%	18.7%	18.0%	17.3%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
$2,500-$2,999	23.1%	22.1%	21.0%	20.0%	19.3%	18.7%	18.0%	17.3%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
$3,000-$3,499	23.1%	22.1%	21.0%	20.0%	19.3%	18.7%	18.0%	17.3%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
Over $3,500	23.1%	22.1%	21.0%	20.0%	19.3%	18.7%	18.0%	17.3%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
Subject Site Demand by Rent Range																			
Monthly Rent																			
Less than $1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1,000-$1,499	5	5	4	4	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2
$1,500-$1,749	20	19	19	18	17	16	15	14	13	13	13	14	14	14	14	14	14	14	15
$1,750-$1,999	52	52	52	52	50	48	47	45	43	44	44	45	45	45	46	46	47	47	50
$2,000-$2,499	75	75	75	74	72	69	67	64	62	63	63	64	64	65	66	66	67	68	71
$2,500-$2,999	25	26	25	25	26	26	26	26	26	26	27	27	27	27	28	28	28	28	30
$3,000-$3,499	8	9	10	11	12	12	13	13	14	14	14	14	14	14	14	15	15	15	16
Over $3,500	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	5
TOTAL SUBJECT SITE DEMAND	**190**	**191**	**190**	**189**	**184**	**179**	**174**	**169**	**164**	**166**	**167**	**169**	**171**	**172**	**174**	**175**	**177**	**179**	**189**

Source:

IV. OFFICE

Exhibit IV-1

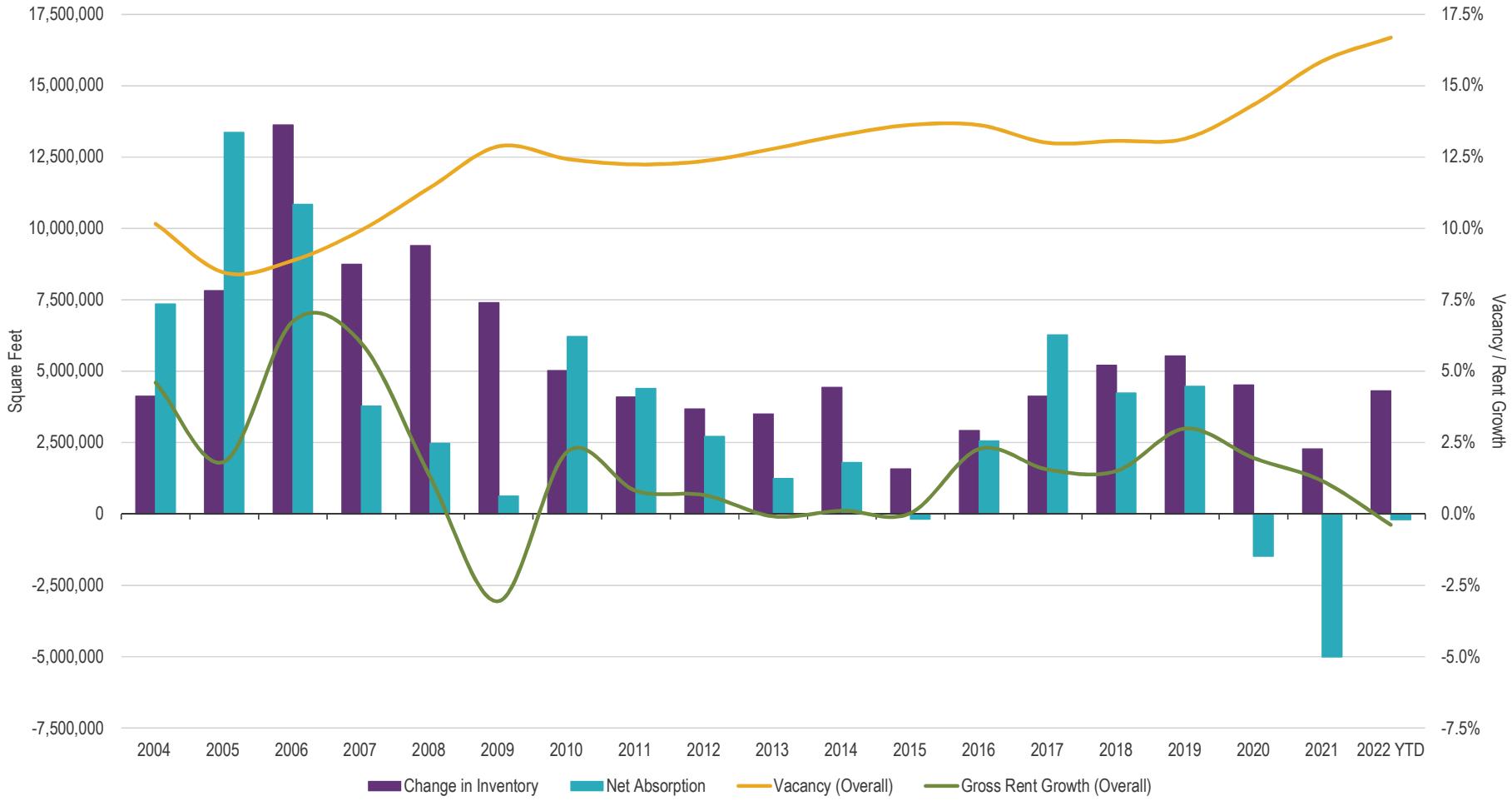
Heat Map of Existing Office
Washington, D.C. MSA
August 2022



Note: Includes office properties over 25,000 square feet.
Source: CoStar; RCLCO

Exhibit IV-2

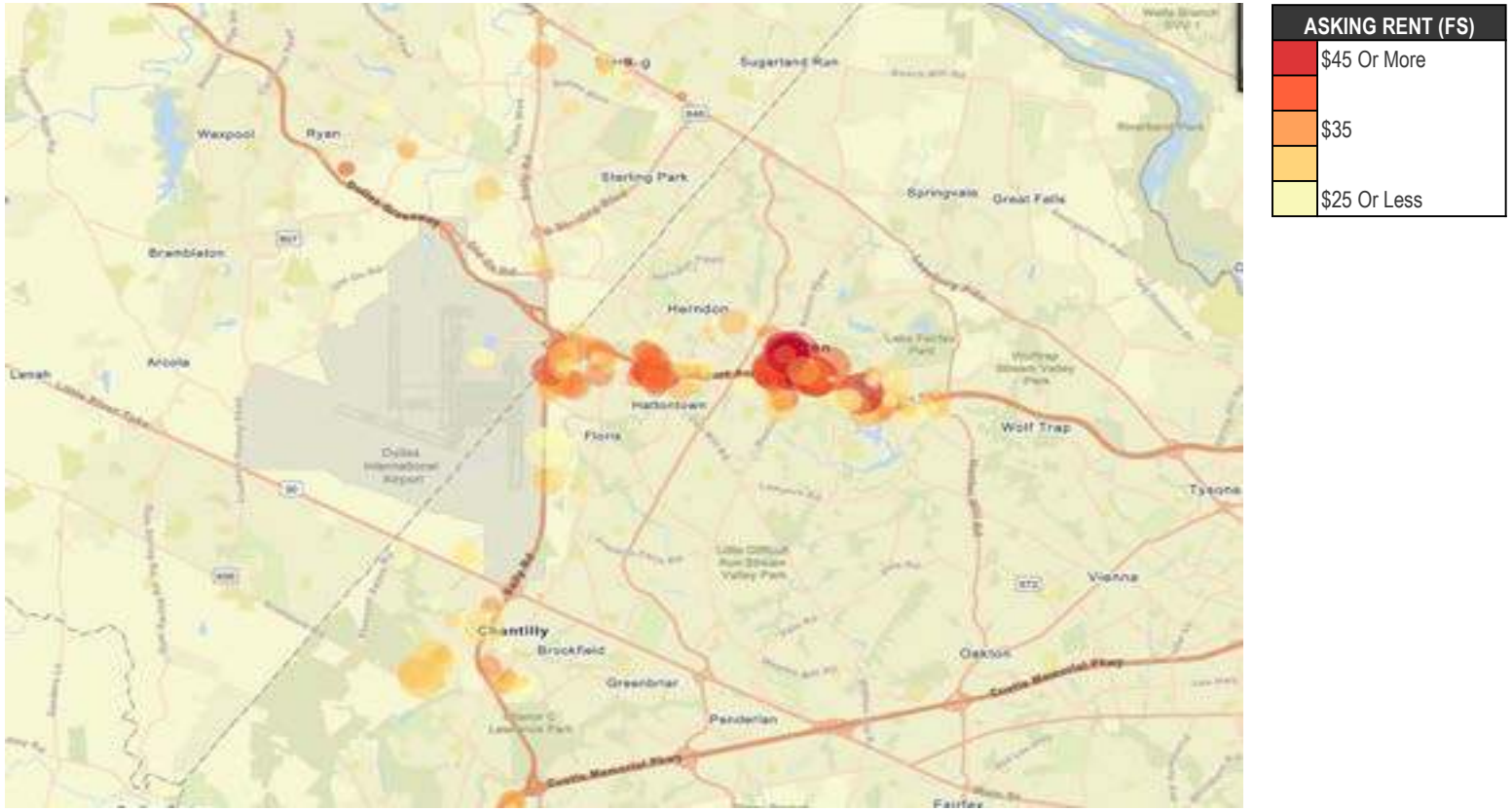
Completions, Absorption, Vacancy, and Rent Growth
Washington, D.C. MSA
2004-2022



Note: Includes office properties over 25,000 square feet.
Source: CoStar; RCLCO

Exhibit IV-3

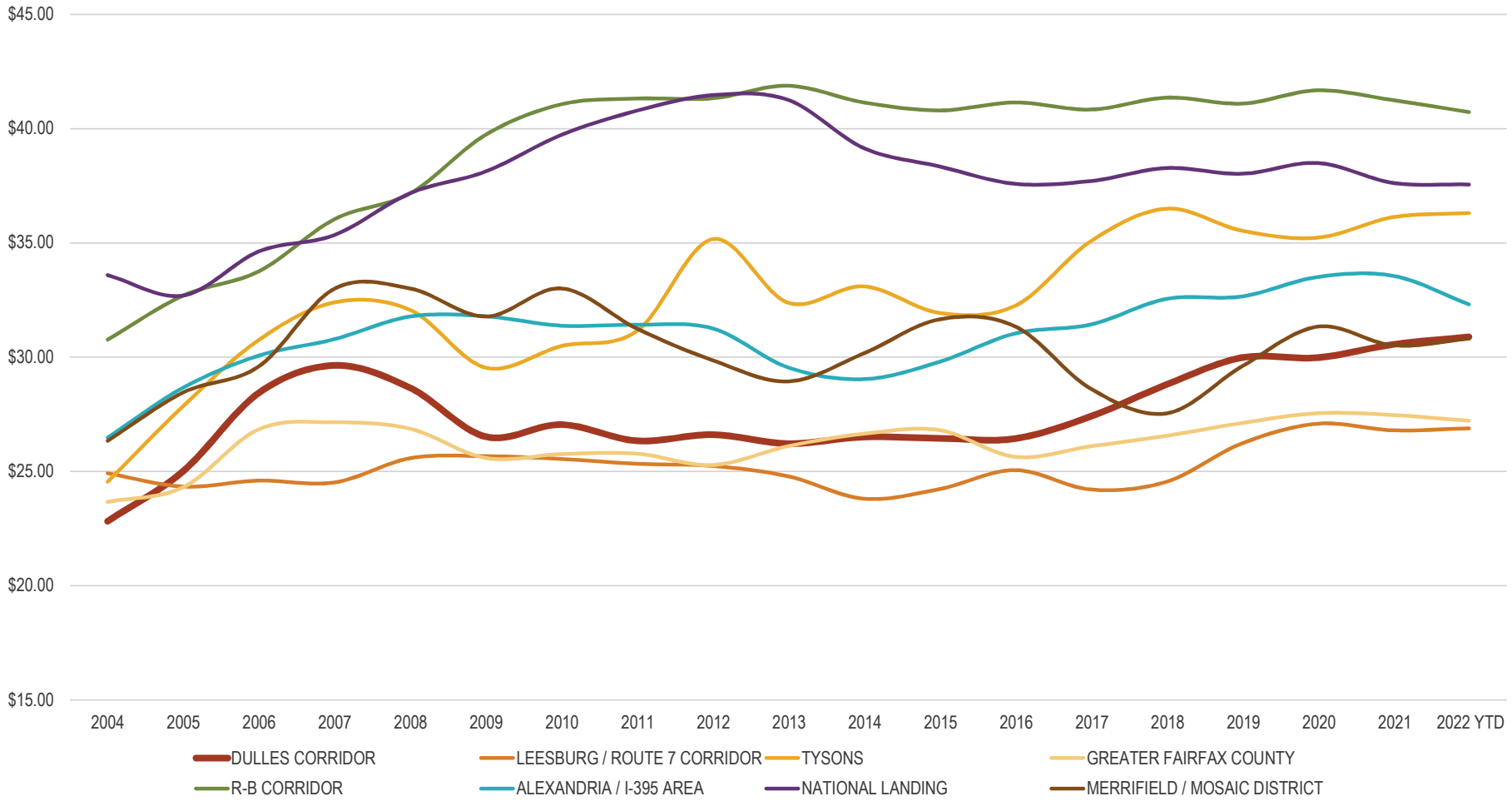
Office Lease Rates by Price and Size of Building
Dulles Corridor
August 2022



Note: Size of circle denotes amount of available space, from least (1,000 square feet) to most (200,000+ square feet). Includes office properties over 25,000 square feet.
Source: CoStar; ArcGIS; RCLCO

Exhibit IV-4

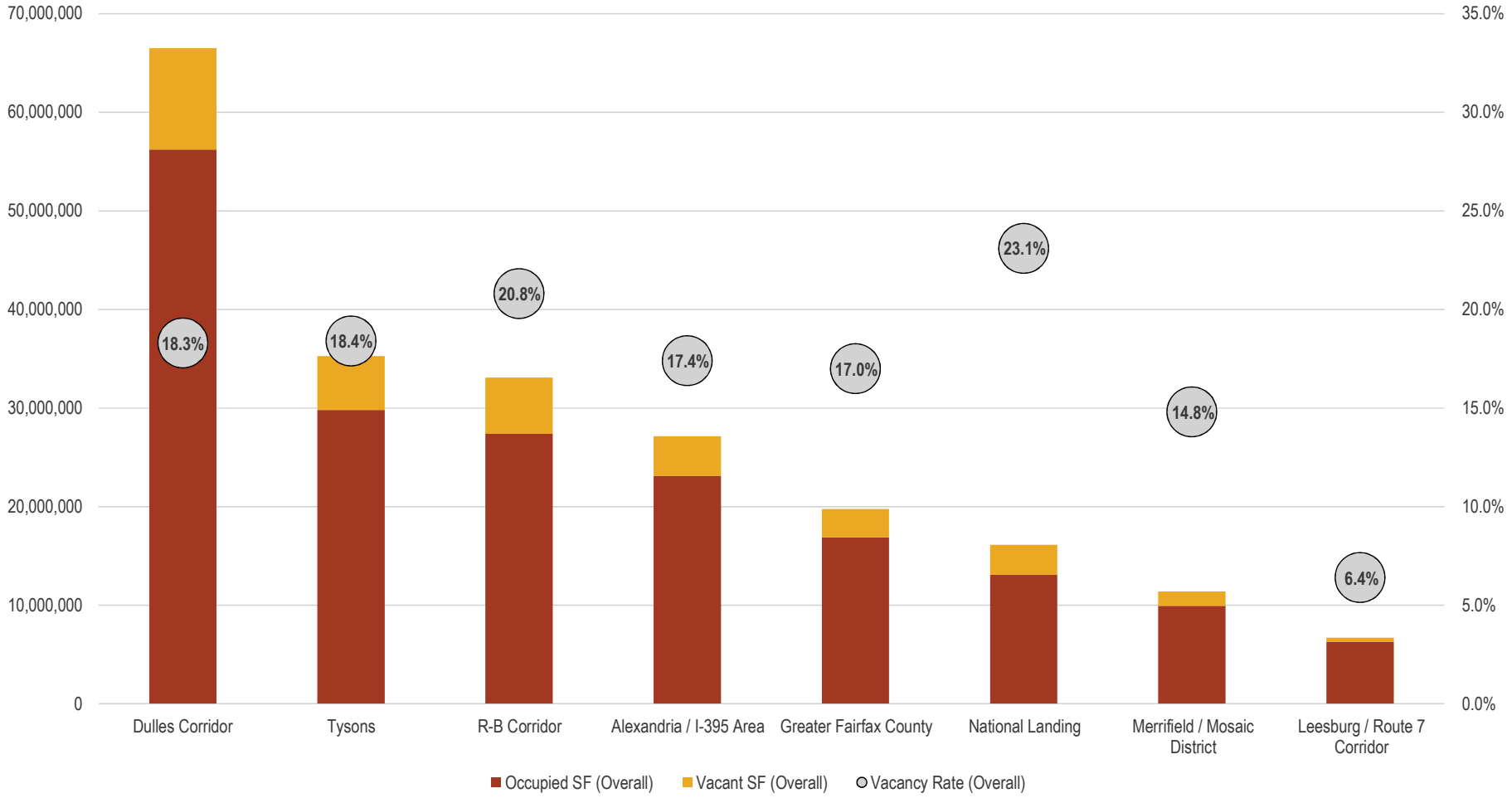
Historic Office Rent Trends
Dulles Corridor
2004-2022



Note: Includes office properties over 25,000 square feet.
Source: CoStar; RCLCO

Exhibit IV-5

Vacancy by Submarket
Dulles Corridor
August 2022



Note: Includes office properties over 25,000 square feet.
Source: CoStar; RCLCO

Exhibit IV-6

Historical and Projected Office Demand - Base Case
Washington, D.C. MSA
2022-2045

	NAICS	ASSUM-PTIONS	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
WASHINGTON, D.C, MSA PROJECTIONS																										
Total Employment			3,305,904	3,360,046	3,398,546	3,432,342	3,466,138	3,499,934	3,533,730	3,567,526	3,601,322	3,635,119	3,668,915	3,702,711	3,736,507	3,770,303	3,804,099	3,837,895	3,871,691	3,905,487	3,939,283	3,973,079	4,006,875	4,040,671	4,074,468	4,108,264
WASHINGTON, D.C, MSA PROJECTIONS BY SECTOR																										
Natural Resources & Mining	11-21	0%	1,486	1,705	1,742	1,728	1,714	1,700	1,686	1,672	1,658	1,644	1,630	1,616	1,602	1,588	1,574	1,560	1,547	1,533	1,519	1,505	1,491	1,477	1,463	1,449
Utilities	22	5%	8,002	8,058	8,027	8,051	8,075	8,100	8,124	8,148	8,172	8,197	8,221	8,245	8,269	8,293	8,318	8,342	8,366	8,390	8,415	8,439	8,463	8,487	8,512	8,536
Construction	23	5%	156,662	157,899	157,923	159,891	161,859	163,827	165,796	167,764	169,732	171,700	173,668	175,636	177,604	179,573	181,541	183,509	185,477	187,445	189,413	191,381	193,350	195,318	197,286	199,254
Manufacturing	31-33	5%	55,976	56,417	56,652	56,895	57,137	57,380	57,623	57,866	58,108	58,351	58,594	58,837	59,079	59,322	59,565	59,807	60,050	60,293	60,536	60,778	61,021	61,264	61,506	61,749
Wholesale Trade	42	5%	65,452	66,508	66,928	66,946	66,964	66,983	67,001	67,019	67,037	67,056	67,074	67,092	67,110	67,128	67,147	67,165	67,183	67,201	67,219	67,238	67,256	67,274	67,292	67,311
Retail Trade	44-45	0%	263,771	266,705	269,894	271,184	272,475	273,765	275,055	276,345	277,636	278,926	280,216	281,506	282,797	284,087	285,377	286,668	287,958	289,248	290,538	291,829	293,119	294,409	295,700	296,990
Transportation & Warehousing	48-49	0%	71,662	73,284	74,024	75,297	76,570	77,844	79,117	80,390	81,663	82,936	84,209	85,483	86,756	88,029	89,302	90,575	91,848	93,122	94,395	95,668	96,941	98,214	99,487	100,761
Information	51	60%	77,929	79,331	80,272	79,847	79,423	78,998	78,574	78,149	77,725	77,300	76,876	76,451	76,027	75,602	75,178	74,753	74,329	73,904	73,480	73,055	72,631	72,206	71,782	71,357
Financial Activities	52-53	70%	153,831	154,714	155,277	156,660	158,042	159,425	160,808	162,191	163,573	164,956	166,339	167,722	169,104	170,487	171,870	173,253	174,635	176,018	177,401	178,784	180,166	181,549	182,932	184,315
Professional & Business Services	54-56	80%	800,083	808,458	816,390	825,253	834,116	842,979	851,842	860,705	869,568	878,431	887,294	896,157	905,020	913,883	922,746	931,609	940,472	949,335	958,198	967,061	975,924	984,787	993,650	1,002,513
Educational & Health Services	61-62	20%	437,322	449,917	455,033	463,017	471,000	478,984	486,968	494,952	502,935	510,919	518,903	526,887	534,870	542,854	550,838	558,821	566,805	574,789	582,773	590,756	598,740	606,724	614,708	622,691
Leisure & Hospitality	71-72	5%	302,229	318,832	332,640	339,660	346,680	353,700	360,720	367,740	374,760	381,780	388,800	395,820	402,840	409,860	416,881	423,901	430,921	437,941	444,961	451,981	459,001	466,021	473,041	480,061
Other Services	81	5%	200,019	204,212	205,348	208,218	211,088	213,958	216,829	219,699	222,569	225,439	228,309	231,179	234,050	236,920	239,790	242,660	245,530	248,400	251,270	254,141	257,011	259,881	262,751	265,621
State & Local Government	92	15%	711,480	714,006	718,396	719,694	720,992	722,290	723,589	724,887	726,185	727,483	728,781	730,079	731,377	732,675	733,974	735,272	736,570	737,868	739,166	740,464	741,762	743,061	744,359	745,657
Office-Using Employment			**1,028,109**	**1,040,345**	**1,050,111**	**1,060,313**	**1,070,515**	**1,080,718**	**1,090,920**	**1,101,122**	**1,111,324**	**1,121,527**	**1,131,729**	**1,141,931**	**1,152,133**	**1,162,336**	**1,172,538**	**1,182,740**	**1,192,942**	**1,203,145**	**1,213,347**	**1,223,549**	**1,233,751**	**1,243,954**	**1,254,156**	**1,264,358**
Cumulative New Office-Using Jobs			***20,001***	***32,237***	***42,003***	***52,205***	***62,407***	***72,610***	***82,812***	***93,014***	***103,216***	***113,419***	***123,621***	***133,823***	***144,025***	***154,228***	***164,430***	***174,632***	***184,834***	***195,037***	***205,239***	***215,441***	***225,643***	***235,846***	***246,048***	***256,250***
Annual New Office-Using Jobs			***20,001***	***12,237***	***9,766***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***
Existing Occupied Space			384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135
Future Occupied Space, from Growth		272	5,448,937	8,782,583	11,443,070	14,222,514	17,001,959	19,781,404	22,560,848	25,340,293	28,119,737	30,899,182	33,678,627	36,458,071	39,237,516	42,016,960	44,796,405	47,575,850	50,355,294	53,134,739	55,914,183	58,693,628	61,473,073	64,252,517	67,031,962	69,811,406
Total Occupied Space			**389,566,072**	**392,899,718**	**395,560,205**	**398,339,649**	**401,119,094**	**403,898,539**	**406,677,983**	**409,457,428**	**412,236,872**	**415,016,317**	**417,795,762**	**420,575,206**	**423,354,651**	**426,134,095**	**428,913,540**	**431,692,985**	**434,472,429**	**437,251,874**	**440,031,318**	**442,810,763**	**445,590,208**	**448,369,652**	**451,149,097**	**453,928,541**
Annual Demand from Growth			***5,448,937***	***3,333,646***	***2,660,487***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***	***2,779,445***
DULLES CORRIDOR PROJECTIONS																										
Capture of Regional Demand		20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Demand from Growth			**1,063,402**	**650,587**	**519,215**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**	**542,430**
			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
% Creative Office			19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%
% Corporate Office			*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*
Existing Occupied Creative Office			9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119
Future Occupied Creative Office			207,531	334,498	435,827	541,686	647,546	753,405	859,265	965,124	1,070,983	1,176,843	1,282,702	1,388,562	1,494,421	1,600,280	1,706,140	1,811,999	1,917,859	2,023,718	2,129,578	2,235,437	2,341,296	2,447,156	2,553,015	2,658,875
Total Occupied Creative Office			**9,222,650**	**9,349,617**	**9,450,946**	**9,556,806**	**9,662,665**	**9,768,524**	**9,874,384**	**9,980,243**	**10,086,103**	**10,191,962**	**10,297,821**	**10,403,681**	**10,509,540**	**10,615,400**	**10,721,259**	**10,827,118**	**10,932,978**	**11,038,837**	**11,144,697**	**11,250,556**	**11,356,416**	**11,462,275**	**11,568,134**	**11,673,994**
Creative Office Demand from New Users			**207,531**	**126,967**	**101,329**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**	**105,859**
Existing Occupied Corporate Office			37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899
Future Occupied Corporate Office			855,871	1,379,491	1,797,377	2,233,947	2,670,518	3,107,088	3,543,659	3,980,230	4,416,800	4,853,371	5,289,942	5,726,512	6,163,083	6,599,654	7,036,224	7,472,795	7,909,366	8,345,936	8,782,507	9,219,078	9,655,648	10,092,219	10,528,790	10,965,360
Total Occupied Corporate Office			**38,034,770**	**38,558,389**	**38,976,275**	**39,412,846**	**39,849,417**	**40,285,987**	**40,722,558**	**41,159,129**	**41,595,699**	**42,032,270**	**42,468,841**	**42,905,411**	**43,341,982**	**43,778,553**	**44,215,123**	**44,651,694**	**45,088,264**	**45,524,835**	**45,961,406**	**46,397,976**	**46,834,547**	**47,271,118**	**47,707,688**	**48,144,259**
Corporate Office Demand from New Users			**855,871**	**523,620**	**417,886**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**	**436,571**
Occupied Creative Office Space in Dulles Corridor at End of Prior			9,015,119	9,222,650	9,349,617	9,450,946	9,556,806	9,662,665	9,768,524	9,874,384	9,980,243	10,086,103	10,191,962	10,297,821	10,403,681	10,509,540	10,615,400	10,721,259	10,827,118	10,932,978	11,038,837	11,144,697	11,250,556	11,356,416	11,462,275	11,568,134
Creative Office Space in Turnover in Dulles Corridor		10%	901,512	922,265	934,962	945,095	955,681	966,266	976,852	987,438	998,024	1,008,610	1,019,196	1,029,782	1,040,368	1,050,954	1,061,540	1,072,126	1,082,712	1,093,298	1,103,884	1,114,470	1,125,056	1,135,642	1,146,227	1,156,813
% Looking for New Space in Dulles Corridor		10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Creative Office Demand from Turnover within Submarket			**64,031**	**65,505**	**66,407**	**67,126**	**67,878**	**68,630**	**69,382**	**70,134**	**70,886**	**71,638**	**72,390**	**73,141**	**73,893**	**74,645**	**75,397**	**76,149**	**76,901**	**77,653**	**78,405**	**79,157**	**79,908**	**80,660**	**81,412**	**82,164**
Occupied Corporate Office Space in Dulles Corridor at End of Prio			37,178,899	38,034,770	38,558,389	38,976,275	39,412,846	39,849,417	40,285,987	40,722,558	41,159,129	41,595,699	42,032,270	42,468,841	42,905,411	43,341,982	43,778,553	44,215,123	44,651,694	45,088,264	45,524,835	45,961,406	46,397,976	46,834,547	47,271,118	47,707,688
Corporate Office Space in Turnover in Dulles Corrido		10%	3,717,890	3,803,477	3,855,839	3,897,628	3,941,285	3,984,942	4,028,599	4,072,256	4,115,913	4,159,570	4,203,227	4,246,884	4,290,541	4,334,198	4,377,855	4,421,512	4,465,169	4,508,826	4,552,484	4,596,141	4,639,798	4,683,455	4,727,112	4,770,769
% Looking for New Space in Dulles Corridor		10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Corporate Office Demand from Turnover within Submarket			**264,067**	**270,146**	**273,865**	**276,834**	**279,934**	**283,035**	**286,136**	**289,237**	**292,338**	**295,438**	**298,539**	**301,640**	**304,741**	**307,842**	**310,942**	**314,043**	**317,144**	**320,245**	**323,345**	**326,446**	**329,547**	**332,648**	**335,749**	**338,849**
Occupied Creative Office Space Elsewhere in MSA at End of Prio			65,948,305	66,804,176	67,327,796	67,745,681	68,182,252	68,618,823	69,055,393	69,491,964	69,928,535	70,365,105	70,801,676	71,238,247	71,674,817	72,111,388	72,547,959	72,984,529	73,421,100	73,857,671	74,294,241	74,730,812	75,167,383	75,603,953	76,040,524	76,477,094
Creative Office Space in Turnover Elsewhere in MS		10%	6,594,830	6,680,418	6,732,780	6,774,568	6,818,225	6,861,882	6,905,539	6,949,196	6,992,853	7,036,511	7,080,168	7,123,825	7,167,482	7,211,139	7,254,796	7,298,453	7,342,110	7,385,767	7,429,424	7,473,081	7,516,738	7,560,395	7,604,052	7,647,709
% Looking for New Space in Dulles Corridor		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Creative Office Demand from Turnover into Submarket			**46,841**	**47,448**	**47,820**	**48,117**	**48,427**	**48,737**	**49,047**	**49,357**	**49,668**	**49,978**	**50,288**	**50,598**	**50,908**	**51,218**	**51,528**	**51,838**	**52,148**	**52,458**	**52,768**	**53,078**	**53,389**	**53,699**	**54,009**	**54,319**

Exhibit IV-6

Historical and Projected Office Demand - Base Case
Washington, D.C. MSA
2022-2045

NAICS	ASSUM-PTIONS	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Occupied Office Space Elsewhere in PMA at End of Prior Year		271,974,812	275,504,476	277,663,915	279,387,302	281,187,746	282,988,190	284,788,634	286,589,077	288,389,521	290,189,965	291,990,409	293,790,853	295,591,297	297,391,741	299,192,185	300,992,628	302,793,072	304,593,516	306,393,960	308,194,404	309,994,848	311,795,292	313,595,736	315,396,179
Office Space in Turnover Elsewhere in PMA	10%	27,197,481	27,550,448	27,766,392	27,938,730	28,118,775	28,298,819	28,478,863	28,658,908	28,838,952	29,018,997	29,199,041	29,379,085	29,559,130	29,739,174	29,919,218	30,099,263	30,279,307	30,459,352	30,639,396	30,819,440	30,999,485	31,179,529	31,359,574	31,539,618
% Looking for New Space in Dulles Corridor	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
% Change in Office Footprint	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Office Demand from Turnover into Submarket		**193,173**	**195,680**	**197,214**	**198,438**	**199,717**	**200,996**	**202,274**	**203,553**	**204,832**	**206,111**	**207,390**	**208,668**	**209,947**	**211,226**	**212,505**	**213,784**	**215,062**	**216,341**	**217,620**	**218,899**	**220,177**	**221,456**	**222,735**	**224,014**
SUBJECT SITE																									
Capture of Creative Office Demand from Growth within Dulles Corridor				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Capture of Creative Office Demand from Turnover within Dulles Corridor				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Capture of Creative Office Demand from Turnover into Dulles Corridor				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Annual Creative Office Demand				**18,686**	**19,167**	**19,259**	**19,351**	**19,443**	**19,535**	**19,627**	**19,719**	**19,811**	**19,904**	**19,996**	**20,088**	**20,180**	**20,272**	**20,364**	**20,456**	**20,548**	**20,640**	**20,732**	**20,824**	**20,916**	**21,008**
Cumulative Creative Office Demand				**18,686**	**37,853**	**57,112**	**76,464**	**95,907**	**115,442**	**135,070**	**154,789**	**174,600**	**194,504**	**214,500**	**234,587**	**254,767**	**275,039**	**295,403**	**315,859**	**336,407**	**357,047**	**377,779**	**398,603**	**419,519**	**440,527**
Capture of Corporate Office Demand from Growth within Dulles Corridor				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Capture of Corporate Office Demand from Turnover within Dulles Corridor				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Capture of Corporate Office Demand from Turnover into Dulles Corridor				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Annual Corporate Office Demand				**57,797**	**59,285**	**59,569**	**59,854**	**60,139**	**60,424**	**60,708**	**60,993**	**61,278**	**61,563**	**61,847**	**62,132**	**62,417**	**62,702**	**62,986**	**63,271**	**63,556**	**63,841**	**64,125**	**64,410**	**64,695**	**64,980**
Cumulative Corporate Office Demand				**57,797**	**117,082**	**176,651**	**236,505**	**296,644**	**357,068**	**417,776**	**478,769**	**540,047**	**601,610**	**663,457**	**725,589**	**788,006**	**850,708**	**913,694**	**976,965**	**1,040,521**	**1,104,361**	**1,168,486**	**1,232,897**	**1,297,591**	**1,362,571**

Source: Moody's Analytics; CoStar; U.S. Census PMA Business Patterns; RCLCO

Exhibit IV-7

Historical and Projected Office Demand - Hybrid Work Model
Washington, D.C. MSA
2022-2045

	NAICS	ASSUM-PTIONS	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
WASHINGTON, D.C, MSA PROJECTIONS																										
Total Employment			3,305,904	3,360,046	3,398,546	3,432,342	3,466,138	3,499,934	3,533,730	3,567,526	3,601,322	3,635,119	3,668,915	3,702,711	3,736,507	3,770,303	3,804,099	3,837,895	3,871,691	3,905,487	3,939,283	3,973,079	4,006,875	4,040,671	4,074,468	4,108,264
WASHINGTON, D.C, MSA PROJECTIONS BY SECTOR																										
Natural Resources & Mining	11-21	0%	1,486	1,705	1,742	1,728	1,714	1,700	1,686	1,672	1,658	1,644	1,630	1,616	1,602	1,588	1,574	1,560	1,547	1,533	1,519	1,505	1,491	1,477	1,463	1,449
Utilities	22	5%	8,002	8,058	8,027	8,051	8,075	8,100	8,124	8,148	8,172	8,197	8,221	8,245	8,269	8,293	8,318	8,342	8,366	8,390	8,415	8,439	8,463	8,487	8,512	8,536
Construction	23	5%	156,662	157,899	157,923	159,891	161,859	163,827	165,796	167,764	169,732	171,700	173,668	175,636	177,604	179,573	181,541	183,509	185,477	187,445	189,413	191,381	193,350	195,318	197,286	199,254
Manufacturing	31-33	5%	55,976	56,417	56,652	56,895	57,137	57,380	57,623	57,866	58,108	58,351	58,594	58,837	59,079	59,322	59,565	59,807	60,050	60,293	60,536	60,778	61,021	61,264	61,506	61,749
Wholesale Trade	42	5%	65,452	66,508	66,928	66,946	66,964	66,983	67,001	67,019	67,037	67,056	67,074	67,092	67,110	67,128	67,147	67,165	67,183	67,201	67,219	67,238	67,256	67,274	67,292	67,311
Retail Trade	44-45	0%	263,771	266,705	269,894	271,184	272,475	273,765	275,055	276,345	277,636	278,926	280,216	281,506	282,797	284,087	285,377	286,668	287,958	289,248	290,538	291,829	293,119	294,409	295,700	296,990
Transportation & Warehousing	48-49	0%	71,662	73,284	74,024	75,297	76,570	77,844	79,117	80,390	81,663	82,936	84,209	85,483	86,756	88,029	89,302	90,575	91,848	93,122	94,395	95,668	96,941	98,214	99,487	100,761
Information	51	60%	77,929	79,331	80,272	79,847	79,423	78,998	78,574	78,149	77,725	77,300	76,876	76,451	76,027	75,602	75,178	74,753	74,329	73,904	73,480	73,055	72,631	72,206	71,782	71,357
Financial Activities	52-53	70%	153,831	154,714	155,277	156,660	158,042	159,425	160,808	162,191	163,573	164,956	166,339	167,722	169,104	170,487	171,870	173,253	174,635	176,018	177,401	178,784	180,166	181,549	182,932	184,315
Professional & Business Services	54-56	80%	800,083	808,458	816,390	825,253	834,116	842,979	851,842	860,705	869,568	878,431	887,294	896,157	905,020	913,883	922,746	931,609	940,472	949,335	958,198	967,061	975,924	984,787	993,650	1,002,513
Educational & Health Services	61-62	20%	437,322	449,917	455,033	463,017	471,000	478,984	486,968	494,952	502,935	510,919	518,903	526,887	534,870	542,854	550,838	558,821	566,805	574,789	582,773	590,756	598,740	606,724	614,708	622,691
Leisure & Hospitality	71-72	5%	302,229	318,832	332,640	339,660	346,680	353,700	360,720	367,740	374,760	381,780	388,800	395,820	402,840	409,860	416,881	423,901	430,921	437,941	444,961	451,981	459,001	466,021	473,041	480,061
Other Services	81	5%	200,019	204,212	205,348	208,218	211,088	213,958	216,829	219,699	222,569	225,439	228,309	231,179	234,050	236,920	239,790	242,660	245,530	248,400	251,270	254,141	257,011	259,881	262,751	265,621
State & Local Government	92	15%	711,480	714,006	718,396	719,694	720,992	722,290	723,589	724,887	726,185	727,483	728,781	730,079	731,377	732,675	733,974	735,272	736,570	737,868	739,166	740,464	741,762	743,061	744,359	745,657
Office-Using Employment			**1,028,109**	**1,040,345**	**1,050,111**	**1,060,313**	**1,070,515**	**1,080,718**	**1,090,920**	**1,101,122**	**1,111,324**	**1,121,527**	**1,131,729**	**1,141,931**	**1,152,133**	**1,162,336**	**1,172,538**	**1,182,740**	**1,192,942**	**1,203,145**	**1,213,347**	**1,223,549**	**1,233,751**	**1,243,954**	**1,254,156**	**1,264,358**
Annual New Office-Using Jobs			***20,001***	***12,237***	***9,766***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***	***10,202***
Existing Occupied Space			384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135
Future Occupied Space, from Growth		224	4,480,413	7,221,519	9,409,116	11,694,527	13,979,938	16,265,349	18,550,760	20,836,171	23,121,582	25,406,994	27,692,405	29,977,816	32,263,227	34,548,638	36,834,049	39,119,460	41,404,871	43,690,282	45,975,693	48,261,104	50,546,515	52,831,926	55,117,337	57,402,748
Total Occupied Space			**388,597,548**	**391,338,654**	**393,526,251**	**395,811,662**	**398,097,073**	**400,382,484**	**402,667,895**	**404,953,306**	**407,238,717**	**409,524,129**	**411,809,540**	**414,094,951**	**416,380,362**	**418,665,773**	**420,951,184**	**423,236,595**	**425,522,006**	**427,807,417**	**430,092,828**	**432,378,239**	**434,663,650**	**436,949,061**	**439,234,472**	**441,519,883**
Annual Demand from Growth			***4,480,413***	***2,741,105***	***2,187,598***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***	***2,285,411***
DULLES CORRIDOR PROJECTIONS																										
Capture of Regional Demand		20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Demand from Growth			**874,387**	**534,948**	**426,927**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**	**446,016**
			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
% Creative Office			19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%
% Corporate Office			*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*
Existing Occupied Creative Office			9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119
Future Occupied Creative Office			170,643	275,043	358,361	445,404	532,447	619,491	706,534	793,578	880,621	967,664	1,054,708	1,141,751	1,228,795	1,315,838	1,402,881	1,489,925	1,576,968	1,664,011	1,751,055	1,838,098	1,925,142	2,012,185	2,099,228	2,186,272
Total Occupied Creative Office			**9,185,763**	**9,290,162**	**9,373,480**	**9,460,523**	**9,547,567**	**9,634,610**	**9,721,653**	**9,808,697**	**9,895,740**	**9,982,784**	**10,069,827**	**10,156,870**	**10,243,914**	**10,330,957**	**10,418,001**	**10,505,044**	**10,592,087**	**10,679,131**	**10,766,174**	**10,853,217**	**10,940,261**	**11,027,304**	**11,114,348**	**11,201,391**
Creative Office Demand from New Users			**170,643**	**104,399**	**83,318**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**	**87,043**
Existing Occupied Corporate Office			37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899
Future Occupied Corporate Office			703,744	1,134,292	1,477,901	1,836,873	2,195,845	2,554,818	2,913,790	3,272,762	3,631,734	3,990,707	4,349,679	4,708,651	5,067,623	5,426,595	5,785,568	6,144,540	6,503,512	6,862,484	7,221,456	7,580,429	7,939,401	8,298,373	8,657,345	9,016,318
Total Occupied Corporate Office			**37,882,643**	**38,313,191**	**38,656,800**	**39,015,772**	**39,374,744**	**39,733,716**	**40,092,689**	**40,451,661**	**40,810,633**	**41,169,605**	**41,528,578**	**41,887,550**	**42,246,522**	**42,605,494**	**42,964,466**	**43,323,439**	**43,682,411**	**44,041,383**	**44,400,355**	**44,759,327**	**45,118,300**	**45,477,272**	**45,836,244**	**46,195,216**
Corporate Office Demand from New Users			**703,744**	**430,549**	**343,609**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**	**358,972**
Occupied Creative Office Space in Dulles Corridor at End of Prior			9,015,119	9,185,763	9,290,162	9,373,480	9,460,523	9,547,567	9,634,610	9,721,653	9,808,697	9,895,740	9,982,784	10,069,827	10,156,870	10,243,914	10,330,957	10,418,001	10,505,044	10,592,087	10,679,131	10,766,174	10,853,217	10,940,261	11,027,304	11,114,348
Creative Office Space in Turnover in Dulles Corridor		10%	901,512	918,576	929,016	937,348	946,052	954,757	963,461	972,165	980,870	989,574	998,278	1,006,983	1,015,687	1,024,391	1,033,096	1,041,800	1,050,504	1,059,209	1,067,913	1,076,617	1,085,322	1,094,026	1,102,730	1,111,435
% Looking for New Space in Dulles Corridor		10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Creative Office Demand from Turnover within Submarket			**64,031**	**65,243**	**65,984**	**66,576**	**67,194**	**67,813**	**68,431**	**69,049**	**69,667**	**70,286**	**70,904**	**71,522**	**72,140**	**72,759**	**73,377**	**73,995**	**74,613**	**75,232**	**75,850**	**76,468**	**77,086**	**77,704**	**78,323**	**78,941**
Occupied Corporate Office Space in Dulles Corridor at End of Prio			37,178,899	37,882,643	38,313,191	38,656,800	39,015,772	39,374,744	39,733,716	40,092,689	40,451,661	40,810,633	41,169,605	41,528,578	41,887,550	42,246,522	42,605,494	42,964,466	43,323,439	43,682,411	44,041,383	44,400,355	44,759,327	45,118,300	45,477,272	45,836,244
Corporate Office Space in Turnover in Dulles Corridor		10%	3,717,890	3,788,264	3,831,319	3,865,680	3,901,577	3,937,474	3,973,372	4,009,269	4,045,166	4,081,063	4,116,961	4,152,858	4,188,755	4,224,652	4,260,549	4,296,447	4,332,344	4,368,241	4,404,138	4,440,036	4,475,933	4,511,830	4,547,727	4,583,624
% Looking for New Space in Dulles Corridor		10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Corporate Office Demand from Turnover within Submarket			**264,067**	**269,066**	**272,124**	**274,564**	**277,114**	**279,664**	**282,213**	**284,763**	**287,313**	**289,862**	**292,412**	**294,962**	**297,511**	**300,061**	**302,611**	**305,160**	**307,710**	**310,259**	**312,809**	**315,359**	**317,908**	**320,458**	**323,008**	**325,557**
Occupied Creative Office Space Elsewhere in MSA at End of Prio			65,948,305	66,652,049	67,082,597	67,426,206	67,785,178	68,144,150	68,503,123	68,862,095	69,221,067	69,580,039	69,939,011	70,297,984	70,656,956	71,015,928	71,374,900	71,733,873	72,092,845	72,451,817	72,810,789	73,169,761	73,528,734	73,887,706	74,246,678	74,605,650
Creative Office Space in Turnover Elsewhere in MSA		10%	6,594,830	6,665,205	6,708,260	6,742,621	6,778,518	6,814,415	6,850,312	6,886,209	6,922,107	6,958,004	6,993,901	7,029,798	7,065,696	7,101,593	7,137,490	7,173,387	7,209,284	7,245,182	7,281,079	7,316,976	7,352,873	7,388,771	7,424,668	7,460,565
% Looking for New Space in Dulles Corridor		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Creative Office Demand from Turnover into Submarket			**46,841**	**47,340**	**47,646**	**47,890**	**48,145**	**48,400**	**48,655**	**48,910**	**49,165**	**49,420**	**49,675**	**49,930**	**50,185**	**50,440**	**50,695**	**50,950**	**51,205**	**51,460**	**51,715**	**51,970**	**52,225**	**52,480**	**52,735**	**52,990**

Exhibit IV-7

Historical and Projected Office Demand - Hybrid Work Model
Washington, D.C. MSA
2022-2045

NAICS	ASSUM-PTIONS	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Occupied Office Space Elsewhere in PMA at End of Prior Year		271,974,812	274,877,094	276,652,703	278,069,766	279,550,189	281,030,612	282,511,035	283,991,459	285,471,882	286,952,305	288,432,728	289,913,151	291,393,575	292,873,998	294,354,421	295,834,844	297,315,267	298,795,691	300,276,114	301,756,537	303,236,960	304,717,383	306,197,807	307,678,230
Office Space in Turnover Elsewhere in PMA	10%	27,197,481	27,487,709	27,665,270	27,806,977	27,955,019	28,103,061	28,251,104	28,399,146	28,547,188	28,695,230	28,843,273	28,991,315	29,139,357	29,287,400	29,435,442	29,583,484	29,731,527	29,879,569	30,027,611	30,175,654	30,323,696	30,471,738	30,619,781	30,767,823
% Looking for New Space in Dulles Corridor	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
% Change in Office Footprint	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Office Demand from Turnover into Submarket		**193,173**	**195,235**	**196,496**	**197,502**	**198,554**	**199,605**	**200,657**	**201,708**	**202,760**	**203,811**	**204,863**	**205,914**	**206,966**	**208,017**	**209,069**	**210,120**	**211,172**	**212,223**	**213,275**	**214,326**	**215,378**	**216,429**	**217,481**	**218,532**
SUBJECT SITE																									
Capture of Creative Office Demand from Growth within Dulles Cor				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Capture of Creative Office Demand from Turnover within Dulles C				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Capture of Creative Office Demand from Turnover into Dulles Cor				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Annual Creative Office Demand				**17,073**	**17,469**	**17,544**	**17,620**	**17,696**	**17,771**	**17,847**	**17,923**	**17,998**	**18,074**	**18,150**	**18,226**	**18,301**	**18,377**	**18,453**	**18,528**	**18,604**	**18,680**	**18,755**	**18,831**	**18,907**	**18,983**
Cumulative Creative Office Demand				**17,073**	**34,542**	**52,086**	**69,706**	**87,402**	**105,173**	**123,020**	**140,943**	**158,941**	**177,015**	**195,165**	**213,391**	**231,692**	**250,069**	**268,522**	**287,050**	**305,654**	**324,334**	**343,089**	**361,920**	**380,827**	**399,809**
Capture of Corporate Office Demand from Undersupply																									
Capture of Corporate Office Demand from Growth within Dulles C				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Capture of Corporate Office Demand from Turnover within Dulles				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Capture of Corporate Office Demand from Turnover into Dulles C				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Annual Corporate Office Demand				**52,808**	**54,031**	**54,265**	**54,499**	**54,733**	**54,968**	**55,202**	**55,436**	**55,670**	**55,904**	**56,138**	**56,372**	**56,607**	**56,841**	**57,075**	**57,309**	**57,543**	**57,777**	**58,011**	**58,245**	**58,480**	**58,714**
Cumulative Corporate Office Demand				**52,808**	**106,839**	**161,104**	**215,604**	**270,337**	**325,305**	**380,507**	**435,943**	**491,613**	**547,517**	**603,655**	**660,027**	**716,634**	**773,475**	**830,549**	**887,858**	**945,401**	**1,003,179**	**1,061,190**	**1,119,436**	**1,177,915**	**1,236,629**

Source: Moody's Analytics; CoStar; U.S. Census PMA Business Patterns; RCLCO

Exhibit IV-8

Historical and Projected Office Demand - Additional Work From Home
Washington, D.C. MSA
2022-2045

	NAICS	ASSUM-PTIONS	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
WASHINGTON, D.C, MSA PROJECTIONS																										
Total Employment			3,305,904	3,360,046	3,398,546	3,432,342	3,466,138	3,499,934	3,533,730	3,567,526	3,601,322	3,635,119	3,668,915	3,702,711	3,736,507	3,770,303	3,804,099	3,837,895	3,871,691	3,905,487	3,939,283	3,973,079	4,006,875	4,040,671	4,074,468	4,108,264
WASHINGTON, D.C, MSA PROJECTIONS BY SECTOR																										
Natural Resources & Mining	11-21	0%	1,486	1,705	1,742	1,728	1,714	1,700	1,686	1,672	1,658	1,644	1,630	1,616	1,602	1,588	1,574	1,560	1,547	1,533	1,519	1,505	1,491	1,477	1,463	1,449
Utilities	22	5%	8,002	8,058	8,027	8,051	8,075	8,100	8,124	8,148	8,172	8,197	8,221	8,245	8,269	8,293	8,318	8,342	8,366	8,390	8,415	8,439	8,463	8,487	8,512	8,536
Construction	23	5%	156,662	157,899	157,923	159,891	161,859	163,827	165,796	167,764	169,732	171,700	173,668	175,636	177,604	179,573	181,541	183,509	185,477	187,445	189,413	191,381	193,350	195,318	197,286	199,254
Manufacturing	31-33	5%	55,976	56,417	56,652	56,895	57,137	57,380	57,623	57,866	58,108	58,351	58,594	58,837	59,079	59,322	59,565	59,807	60,050	60,293	60,536	60,778	61,021	61,264	61,506	61,749
Wholesale Trade	42	5%	65,452	66,508	66,928	66,946	66,964	66,983	67,001	67,019	67,037	67,056	67,074	67,092	67,110	67,128	67,147	67,165	67,183	67,201	67,219	67,238	67,256	67,274	67,292	67,311
Retail Trade	44-45	0%	263,771	266,705	269,894	271,184	272,475	273,765	275,055	276,345	277,636	278,926	280,216	281,506	282,797	284,087	285,377	286,668	287,958	289,248	290,538	291,829	293,119	294,409	295,700	296,990
Transportation & Warehousing	48-49	0%	71,662	73,284	74,024	75,297	76,570	77,844	79,117	80,390	81,663	82,936	84,209	85,483	86,756	88,029	89,302	90,575	91,848	93,122	94,395	95,668	96,941	98,214	99,487	100,761
Information	51	53%	77,929	79,331	80,272	79,847	79,423	78,998	78,574	78,149	77,725	77,300	76,876	76,451	76,027	75,602	75,178	74,753	74,329	73,904	73,480	73,055	72,631	72,206	71,782	71,357
Financial Activities	52-53	62%	153,831	154,714	155,277	156,660	158,042	159,425	160,808	162,191	163,573	164,956	166,339	167,722	169,104	170,487	171,870	173,253	174,635	176,018	177,401	178,784	180,166	181,549	182,932	184,315
Professional & Business Services	54-56	71%	800,083	808,458	816,390	825,253	834,116	842,979	851,842	860,705	869,568	878,431	887,294	896,157	905,020	913,883	922,746	931,609	940,472	949,335	958,198	967,061	975,924	984,787	993,650	1,002,513
Educational & Health Services	61-62	20%	437,322	449,917	455,033	463,017	471,000	478,984	486,968	494,952	502,935	510,919	518,903	526,887	534,870	542,854	550,838	558,821	566,805	574,789	582,773	590,756	598,740	606,724	614,708	622,691
Leisure & Hospitality	71-72	5%	302,229	318,832	332,640	339,660	346,680	353,700	360,720	367,740	374,760	381,780	388,800	395,820	402,840	409,860	416,881	423,901	430,921	437,941	444,961	451,981	459,001	466,021	473,041	480,061
Other Services	81	5%	200,019	204,212	205,348	208,218	211,088	213,958	216,829	219,699	222,569	225,439	228,309	231,179	234,050	236,920	239,790	242,660	245,530	248,400	251,270	254,141	257,011	259,881	262,751	265,621
State & Local Government	92	15%	711,480	714,006	718,396	719,694	720,992	722,290	723,589	724,887	726,185	727,483	728,781	730,079	731,377	732,675	733,974	735,272	736,570	737,868	739,166	740,464	741,762	743,061	744,359	745,657
Office-Using Employment			**1,016,425**	**1,016,738**	**1,014,377**	**1,012,209**	**1,009,811**	**1,007,184**	**1,004,328**	**1,001,241**	**1,010,526**	**1,019,810**	**1,029,094**	**1,038,378**	**1,047,662**	**1,056,946**	**1,066,231**	**1,075,515**	**1,084,799**	**1,094,083**	**1,103,367**	**1,112,651**	**1,121,936**	**1,131,220**	**1,140,504**	**1,149,788**
Annual New Office-Using Jobs			***8,317***	***313***	***-2,361***	***-2,168***	***-2,398***	***-2,627***	***-2,857***	***-3,086***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***	***9,284***
Existing Occupied Space			384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135	384,117,135
Future Occupied Space, from Growth		224	1,863,095	1,933,124	1,404,338	918,660	381,569	-206,937	-846,858	-1,538,193	541,561	2,621,314	4,701,067	6,780,821	8,860,574	10,940,327	13,020,081	15,099,834	17,179,588	19,259,341	21,339,094	23,418,848	25,498,601	27,578,355	29,658,108	31,737,861
Total Occupied Space			**385,980,230**	**386,050,259**	**385,521,473**	**385,035,795**	**384,498,704**	**383,910,198**	**383,270,277**	**382,578,942**	**384,658,696**	**386,738,449**	**388,818,202**	**390,897,956**	**392,977,709**	**395,057,462**	**397,137,216**	**399,216,969**	**401,296,723**	**403,376,476**	**405,456,229**	**407,535,983**	**409,615,736**	**411,695,490**	**413,775,243**	**415,854,996**
Annual Demand from Growth			***1,863,095***	***70,029***	***-528,787***	***-485,677***	***-537,092***				***159,992***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***	***2,079,753***
DULLES CORRIDOR PROJECTIONS																										
Capture of Regional Demand		20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Demand from Growth			**363,597**	**13,667**	**-103,197**	**-94,784**	**-104,818**				**31,224**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**	**405,880**
			+	+							+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
% Creative Office			19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%	19.5%
% Corporate Office			*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*	*80.5%*
Existing Occupied Creative Office			9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119	9,015,119
Future Occupied Creative Office			70,959	73,626	53,486	34,989	14,533	14,533	14,533	14,533	20,626	99,837	179,047	258,258	337,469	416,679	495,890	575,100	654,311	733,522	812,732	891,943	971,153	1,050,364	1,129,575	1,208,785
Total Occupied Creative Office			**9,086,078**	**9,088,745**	**9,068,606**	**9,050,108**	**9,029,652**	**9,029,652**	**9,029,652**	**9,029,652**	**9,035,745**	**9,114,956**	**9,194,167**	**9,273,377**	**9,352,588**	**9,431,798**	**9,511,009**	**9,590,220**	**9,669,430**	**9,748,641**	**9,827,851**	**9,907,062**	**9,986,273**	**10,065,483**	**10,144,694**	**10,223,904**
Creative Office Demand from New Users			**70,959**	**2,667**	**-20,140**	**-18,498**	**-20,456**				**6,094**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**	**79,211**
Existing Occupied Corporate Office			37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899	37,178,899
Future Occupied Corporate Office			292,639	303,638	220,581	144,295	59,933	59,933	59,933	59,933	85,064	411,733	738,402	1,065,072	1,391,741	1,718,410	2,045,080	2,371,749	2,698,418	3,025,087	3,351,757	3,678,426	4,005,095	4,331,765	4,658,434	4,985,103
Total Occupied Corporate Office			**37,471,537**	**37,482,537**	**37,399,480**	**37,323,194**	**37,238,832**	**37,238,832**	**37,238,832**	**37,238,832**	**37,263,962**	**37,590,632**	**37,917,301**	**38,243,970**	**38,570,640**	**38,897,309**	**39,223,978**	**39,550,648**	**39,877,317**	**40,203,986**	**40,530,656**	**40,857,325**	**41,183,994**	**41,510,664**	**41,837,333**	**42,164,002**
Corporate Office Demand from New Users			**292,639**	**11,000**	**-83,057**	**-76,286**	**-84,362**				**25,130**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**	**326,669**
Occupied Creative Office Space in Dulles Corridor at End of Pri			9,015,119	9,086,078	9,088,745	9,068,606	9,050,108	9,029,652	9,029,652	9,029,652	9,029,652	9,035,745	9,114,956	9,194,167	9,273,377	9,352,588	9,431,798	9,511,009	9,590,220	9,669,430	9,748,641	9,827,851	9,907,062	9,986,273	10,065,483	10,144,694
Creative Office Space in Turnover in Dulles Corridor		10%	901,512	908,608	908,875	906,861	905,011	902,965	902,965	902,965	902,965	903,575	911,496	919,417	927,338	935,259	943,180	951,101	959,022	966,943	974,864	982,785	990,706	998,627	1,006,548	1,014,469
% Looking for New Space in Dulles Corridor		10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Creative Office Demand from Turnover within Submarket			**64,031**	**64,535**	**64,554**	**64,411**	**64,279**	**64,134**	**64,134**	**64,134**	**64,134**	**64,177**	**64,740**	**65,303**	**65,865**	**66,428**	**66,990**	**67,553**	**68,116**	**68,678**	**69,241**	**69,803**	**70,366**	**70,929**	**71,491**	**72,054**
Occupied Corporate Office Space in Dulles Corridor at End of P			37,178,899	37,471,537	37,482,537	37,399,480	37,323,194	37,238,832	37,238,832	37,238,832	37,238,832	37,263,962	37,590,632	37,917,301	38,243,970	38,570,640	38,897,309	39,223,978	39,550,648	39,877,317	40,203,986	40,530,656	40,857,325	41,183,994	41,510,664	41,837,333
Corporate Office Space in Turnover in Dulles Corrid		10%	3,717,890	3,747,154	3,748,254	3,739,948	3,732,319	3,723,883	3,723,883	3,723,883	3,723,883	3,726,396	3,759,063	3,791,730	3,824,397	3,857,064	3,889,731	3,922,398	3,955,065	3,987,732	4,020,399	4,053,066	4,085,732	4,118,399	4,151,066	4,183,733
% Looking for New Space in Dulles Corridor		10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Corporate Office Demand from Turnover within Submarket			**264,067**	**266,146**	**266,224**	**265,634**	**265,092**	**264,493**	**264,493**	**264,493**	**264,493**	**264,672**	**266,992**	**269,312**	**271,632**	**273,952**	**276,273**	**278,593**	**280,913**	**283,233**	**285,554**	**287,874**	**290,194**	**292,514**	**294,834**	**297,155**
Occupied Creative Office Space Elsewhere in MSA at End of Pr			65,948,305	66,240,943	66,251,943	66,168,886	66,092,600	66,008,238	66,008,238	66,008,238	66,008,238	66,033,368	66,360,038	66,686,707	67,013,376	67,340,046	67,666,715	67,993,384	68,320,054	68,646,723	68,973,392	69,300,062	69,626,731	69,953,400	70,280,070	70,606,739
Creative Office Space in Turnover Elsewhere in MSA		10%	6,594,830	6,624,094	6,625,194	6,616,889	6,609,260	6,600,824	6,600,824	6,600,824	6,600,824	6,603,337	6,636,004	6,668,671	6,701,338	6,734,005	6,766,672	6,799,338	6,832,005	6,864,672	6,897,339	6,930,006	6,962,673	6,995,340	7,028,007	7,060,674
% Looking for New Space in Dulles Corridor		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
% Change in Office Footprint		-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Creative Office Demand from Turnover into Submarket			**46,841**	**47,048**	**47,056**	**46,997**	**46,943**	**46,883**	**46,883**	**46,883**	**46,883**	**46,901**	**47,133**	**47,365**	**47,597**	**47,829**	**48,061**	**48,293**	**48,525**	**48,757**	**48,989**	**49,221**	**49,453**	**49,685**	**49,917**	**50,149**

Exhibit IV-8

Historical and Projected Office Demand - Additional Work From Home
Washington, D.C. MSA
2022-2045

NAICS	ASSUM-PTIONS	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Occupied Corporate Office Space Elsewhere in PMA at End of I		271,974,812	273,181,671	273,227,034	272,884,502	272,569,894	272,221,981	272,221,981	272,221,981	272,221,981	272,325,619	273,672,823	275,020,028	276,367,232	277,714,436	279,061,640	280,408,844	281,756,048	283,103,252	284,450,457	285,797,661	287,144,865	288,492,069	289,839,273	291,186,477
Corporate Office Space in Turnover Elsewhere in PI	10%	27,197,481	27,318,167	27,322,703	27,288,450	27,256,989	27,222,198	27,222,198	27,222,198	27,222,198	27,232,562	27,367,282	27,502,003	27,636,723	27,771,444	27,906,164	28,040,884	28,175,605	28,310,325	28,445,046	28,579,766	28,714,486	28,849,207	28,983,927	29,118,648
% Looking for New Space in Dulles Corridor	1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
% Change in Office Footprint	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%	-29%
Corporate Office Demand from Turnover into Submarket		**193,173**	**194,030**	**194,063**	**193,819**	**193,596**	**193,349**	**193,349**	**193,349**	**193,349**	**193,422**	**194,379**	**195,336**	**196,293**	**197,250**	**198,207**	**199,164**	**200,121**	**201,077**	**202,034**	**202,991**	**203,948**	**204,905**	**205,862**	**206,819**
SUBJECT SITE																									
Capture of Creative Office Demand from Growth within Dulles C				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Capture of Creative Office Demand from Turnover within Dulles				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Capture of Creative Office Demand from Turnover into Dulles C				8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Annual Creative Office Demand				**7,929**	**8,054**	**7,868**	**9,624**	**9,624**	**9,624**	**10,152**	**16,496**	**16,565**	**16,634**	**16,703**	**16,771**	**16,840**	**16,909**	**16,978**	**17,047**	**17,116**	**17,185**	**17,254**	**17,322**	**17,391**	**17,460**
Cumulative Creative Office Demand				**7,929**	**15,984**	**23,852**	**33,476**	**43,100**	**52,724**	**62,876**	**79,372**	**95,937**	**112,570**	**129,273**	**146,044**	**162,884**	**179,794**	**196,772**	**213,819**	**230,934**	**248,119**	**265,373**	**282,695**	**300,086**	**317,547**
Capture of Corporate Office Demand from Undersupply																									
Capture of Corporate Office Demand from Growth within Dulles				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Capture of Corporate Office Demand from Turnover within Dulle				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Capture of Corporate Office Demand from Turnover into Dulles				6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Annual Corporate Office Demand				**24,526**	**24,912**	**24,337**	**29,767**	**29,767**	**29,767**	**31,401**	**51,022**	**51,235**	**51,449**	**51,662**	**51,875**	**52,088**	**52,301**	**52,514**	**52,727**	**52,940**	**53,153**	**53,366**	**53,579**	**53,792**	**54,005**
Cumulative Corporate Office Demand				**24,526**	**49,438**	**73,776**	**103,543**	**133,310**	**163,077**	**194,478**	**245,501**	**296,736**	**348,185**	**399,846**	**451,721**	**503,809**	**556,110**	**608,623**	**661,350**	**714,290**	**767,443**	**820,810**	**874,389**	**928,181**	**982,186**

Source: Moody's Analytics; CoStar; U.S. Census PMA Business Patterns; RCLCO

V. HOTEL

Exhibit V-1

Definition of the Chain Scale
Smith Travel Research
August 2022

Chain Scale Definition

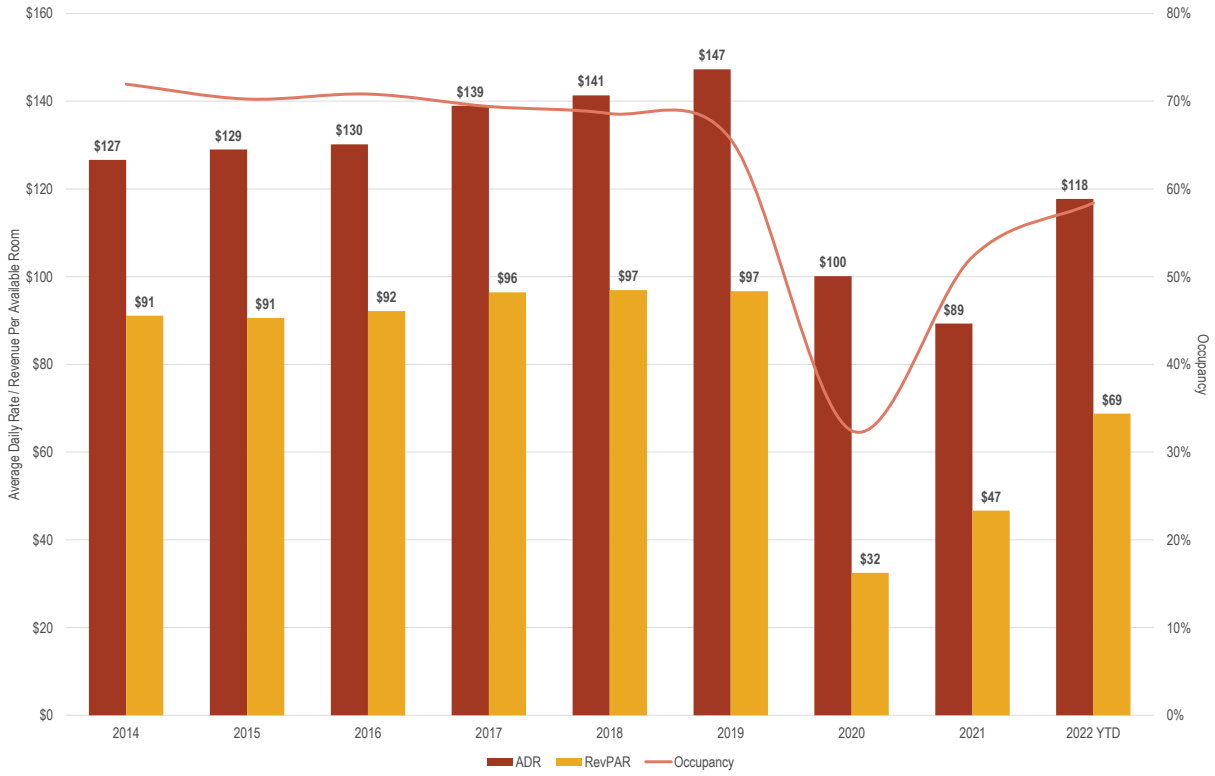
Chain scale segments are a method by which branded hotels are grouped based on the actual average room rates (ADR). Independent hotels, regardless of their average room rates, are included as a separate chain scale category. The chain scale segments are: Luxury, Upper Upscale, Upscale, Upper Midscale, Midscale, Economy, and Independents.

EXAMPLES					
ECONOMY	MIDSCALE	UPPER MIDSCALE	UPSCALE	UPPER UPSCALE	LUXURY
Affordable Suites of America	3 Palms Hotels & Resorts	Aqua Hotels & Resorts	AC Hotels by Marriott	Ace Hotel Group	21c Museum Hotels
America`s Best Inns	A Victory Hotels	Ayres	aloft Hotels	Affinia	AKA
Americas Best Value Inn	AmericInn	Best Western Executive Residency	APA Hotel	Alila Hotels & Resorts	Aman Resort Services Ltd
AmeriVu I & S	Avid Hotels	Best Western Plus	Ascend Collection	Autograph Collection	Andaz
Budget Host	Baymont Inn & Suites	Boarders Inn & Suites	Aston Hotels	Bridgestreet	Belmond
Budget Suites of America	Best Western	Boulders Inn & Suites	Best Western Premier	Canopy by Hilton	COMO Hotels & Resorts
Budgetel	Candlewood Suites	BW Signature Collection	BW Premier Collection	Club Med	Conrad
Country Hearth Inn	ClubHouse	Centerstone Hotels	Cambria hotel & suites	Club Quarters	Destination Hotels
Days Inn	Crystal Inn	Chase Suites	Canad Inns	Curio Collection by Hilton	Dorchester Collection
Downtowner Inns	FairBridge Inn	Clarion	Citadines	Disney's Deluxe Resorts	Doyle Collection
Econo Lodge	Generator Hostel	Cobblestone	citizenM Hotels	Dolce Hotels & Resorts	Edition
Extended Stay America	GuestHouse	Comfort Inn	Coast Hotels USA	Dream Hotels	Fairmont
E-Z 8	Hawthorn Suites by Wyndham	Comfort Suites	Courtyard	Embassy Suites by Hilton	Firmdale Hotels
Family Inns Of America	ibis Styles	Country Inn & Suites	Crowne Plaza	Fireside Inn & Suites	Four Seasons
Good Nite Inn	InnSuites Hotels	Disney's Value Resorts	Dazzler Hotels	Gaylord Entertainment	Grand Hyatt
Great Western	Loyalty Inn	DoubleTree Club	Delta Hotels	Graduate Hotels	InterContinental
GreenTree Inns	MainStay Suites	Drury Inn	Disney's Moderate Resorts	Hard Rock	JW Marriott
HomeTowne Studios by Red Roof	Oak Tree Inn	Drury Inn & Suites	DoubleTree by Hilton	Hilton	Langham
Howard Johnson	Palace Inn	Drury Plaza Hotel	Eaton	Hilton Grand Vacations	Loews
InTown Suites	Quality Inn	Fairfield Inn	element	Hotel Indigo	Lotte Hotels & Resorts
Jameson Inn	Ramada	Glo Hotel	Eurostars Hotel	Hotel Nikko	Luxury Collection
Key West Inn	Red Lion Inn & Suites	GrandStay Hotels	EVEN Hotels	The Hoxton	Mandarin Oriental Hotel Group
Knights Inn	Rode Inn Motels	Hampton by Hilton	Four Points by Sheraton	Hyatt	Mantis Collection
Lite Hotel	Signature Inn	Holiday Inn	Grand America Hotels & Resort	Hyatt Centric	Miraval
Master Hosts Inns	Sleep Inn	Holiday Inn Express Hotel	Great Wolf Lodge	Hyatt Regency	Mokara
Masters Inn	Tru by Hilton	Home2 Suites by Hilton	Hilton Garden Inn	Instinct Hotel	Montage Hotels
Microtel Inn & Suites by Wyndham	Uptown Suites	Isle of Capri	Homewood Suites by Hilton	Joie De Vivre	Nobu Hotels
Motel 6	Vagabond Inn	La Quinta Inns & Suites	Hotel RL	Kimpton	Park Hyatt
National 9	Vista	Lexington	Hyatt House	Le Meridien	Red Carnation
Passport Inns	Wingate by Wyndham	Mama Shelter	Hyatt Place	Lyric Suites	Ritz-Carlton
Pear Tree Inn		MOXY	Iberostar Hotels & Resorts	Magnolia Hotel	RockResorts
Red Carpet Inns		My Place Hotels	Innside by Melia	Margaritaville	Rosewood
Red Roof Inn		OHANA Hotels	Larkspur Landing	Marriott	Sixty Hotels
Rodeway Inn		Oxford Suites	Legacy Vacation Club	Marriott Conference Center	Sofitel Luxury Hotels
Scottish Inns		Park Inn	Mantra	Millennium Hotels	St Regis
Select Inn		Red Lion Hotel	Melia	Mint House	Taj Group
Studio 6		Shilo Inn	Miyako Hotels	New Otani Hotels	The Peninsula Hotel
Suburban Extended Stay Hotels		Sonesta ES Suites	NH Hotels	Oakwood Apartments	The Unbound Collection
Super 8		The Red Collection	Novotel Hotels	Omni	Thompson Hotel
SureStay		TownePlace Suites	Prince Hotels	Outrigger Resorts	Trump International
SureStay Collection		Trademark Hotel Collection	Radisson	Pan Pacific Hotel Group	Valencia Group
SureStay Plus		Tryp by Wyndham	Residence Inn	Pestana	Viceroy
Travelodge		Wyndham Garden Hotel	RIU Hotel	Pullman	W Hotel
Value Place		Yotel	Room Mate Hotels	Radisson Blu	Waldorf Astoria
WoodSpring Suites			Sandman Signature	Radisson RED	
			Sonesta Hotel	Renaissance	
			Springhill Suites	Sheraton Hotel	
			Staybridge Suites	Silver Cloud	
			Stoney Creek	St. Giles Hotels	
			Tapestry Collection by Hilton	Starhotels	
			Travel Inn Hotel	Swissotel	
			Vacation Condos by Outrigger	Time Hotels	
			Vib	Tribute Portfolio	
			Westmark	Virgin Hotels	
			Wyndham Hotels	Warwick Hotels	
			Wyndham Vacation Resort	Westin	
				Wyndham Grand Hotels	

Source: Smith Travel Research

Exhibit V-2

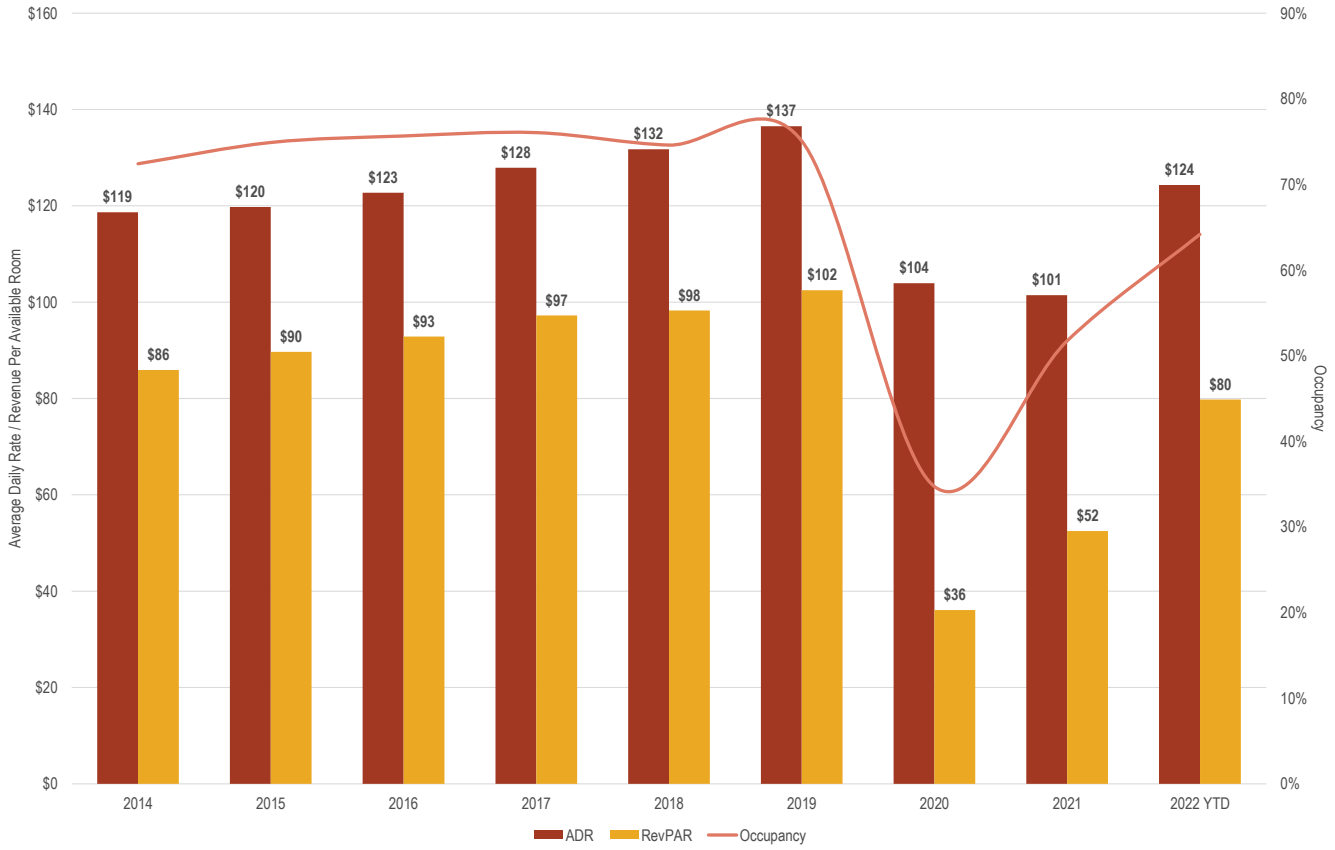
Hotel Average Daily Rate and Revenue Per Available Room
Competitive Set
2014-2022



Note: For more information on hotels included in competitive set, please see page 42
Source: Smith Travel Research; RCLCO

Exhibit V-3

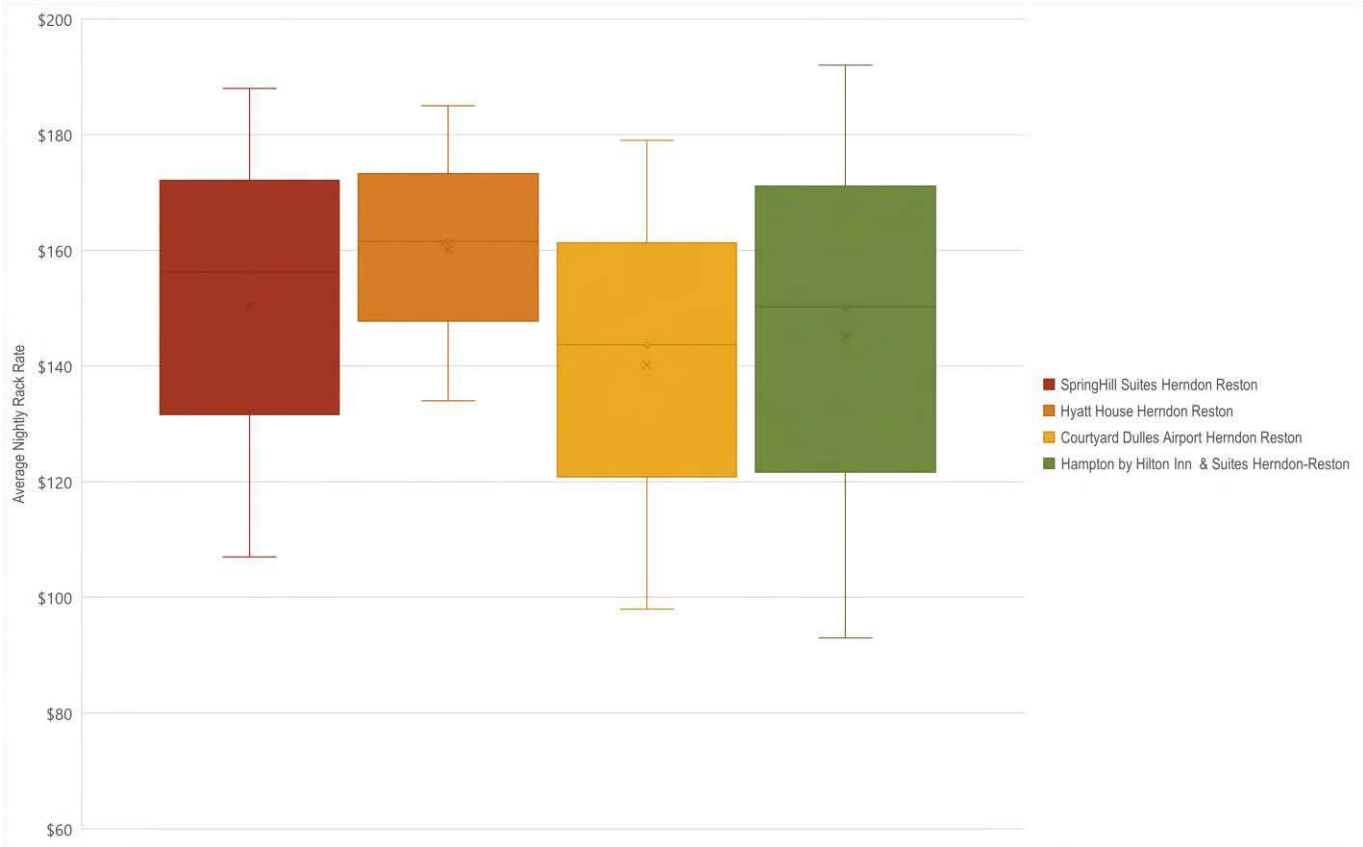
Hotel Average Daily Rate and Revenue Per Available Room
Dulles Corridor
2014-2022



Note: For more information on hotels included in competitive set, please see page 42
Source: Smith Travel Research; RCLCO

Exhibit V-4

Competitive Set Hotels - Rack Rate Comparison
Dulles Corridor
August 2022



Note: Pricing data from August 26, 2022 to November 22, 2022.
Source: RCLCO

Exhibit V-5

Hotel Demand Analysis
Dulles Corridor
2017-2045

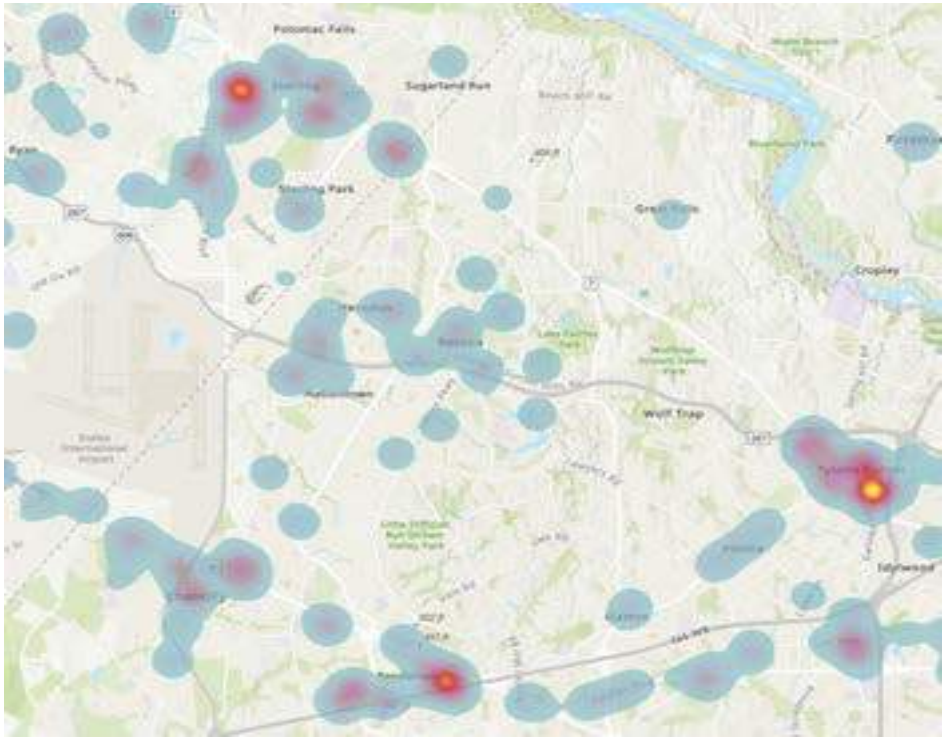
	HISTORICAL					PROJECTED																								
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
SUPPLY																														
Beginning Room Nights	2,173,210	2,172,292	2,172,757	2,173,210	2,128,072	2,163,857	2,269,935	2,269,935	2,399,656	2,490,906	2,522,588	2,522,588	2,570,951	2,570,951	2,616,576	2,616,576	2,616,576	2,616,576	2,616,576	2,643,951	2,643,951	2,643,951	2,643,951	2,643,951	2,643,951	2,643,951	2,643,951	2,643,951	2,643,951	2,643,951
Change in Room Nights	-918	465	453	-45,138	35,785	106,078	0	129,721	91,250	31,682	0	48,363	0	45,625	0	0	0	0	27,375	0	0	0	0	0	0	0	0	0	0	0
Ending Room Nights	**2,172,292**	**2,172,757**	**2,173,210**	**2,128,072**	**2,163,857**	**2,269,935**	**2,269,935**	**2,399,656**	**2,490,906**	**2,522,588**	**2,522,588**	**2,570,951**	**2,570,951**	**2,616,576**	**2,616,576**	**2,616,576**	**2,616,576**	**2,616,576**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**	**2,643,951**
DEMAND																														
Demonstrated Demand Growth Rate	0.5%	-1.9%	0.7%	-54.7%	51.5%	***50.0%***	*0.7%*	*0.7%*	*0.7%*	*0.7%*	*0.7%*	*0.7%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*
Beginning Demand Nights	1,644,196	1,652,075	1,620,791	1,631,566	738,818	1,119,529	1,679,294	1,690,803	1,702,313	1,729,791	1,741,301	1,752,810	1,781,247	1,792,756	1,828,219	1,839,729	1,851,238	1,862,748	1,874,257	1,885,767	1,897,277	1,908,786	1,920,296	1,931,805	1,943,315	1,954,825	1,966,334	1,977,844	1,989,353
Demonstrated Demand Growth	7,879	-31,284	10,775	-892,748	380,711	559,765	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510	11,510
Induced Demand	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	0	0	0	15,969	0	0	16,927	0	23,953	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ending Demand Nights	**1,652,075**	**1,620,791**	**1,631,566**	**738,818**	**1,119,529**	**1,679,294**	**1,690,803**	**1,702,313**	**1,729,791**	**1,741,301**	**1,752,810**	**1,781,247**	**1,792,756**	**1,828,219**	**1,839,729**	**1,851,238**	**1,862,748**	**1,874,257**	**1,885,767**	**1,897,277**	**1,908,786**	**1,920,296**	**1,931,805**	**1,943,315**	**1,954,825**	**1,966,334**	**1,977,844**	**1,989,353**	**2,000,863**
Historical & Projected Occupancies	76.1%	74.6%	75.1%	34.7%	51.7%	74.0%	74.5%	70.9%	69.4%	69.0%	69.5%	69.3%	69.7%	69.9%	70.3%	70.8%	71.2%	71.6%	71.3%	71.8%	72.2%	72.6%	73.1%	73.5%	73.9%	74.4%	74.8%	75.2%	75.7%
Target Occupancy						*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*	*70.0%*
UNMET DEMAND																														
Demand at Target Occupancy (Nights)						2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M	2M
Unmet Demand (Nights)						90K	102K	23K	0	0	0	0	0	0	8K	20K	31K	43K	35K	47K	58K	70K	81K	93K	104K	116K	127K	139K	150K
Unmet Demand (Available Room Nights)						129K	145K	32K	0	0	0	0	0	0	12K	28K	44K	61K	50K	66K	83K	99K	116K	132K	149K	165K	182K	198K	214K
Unmet Demand (Rooms)						**354**	**399**	**88**	**0**	**0**	**0**	**0**	**0**	**0**	**32**	**77**	**122**	**167**	**137**	**182**	**227**	**272**	**317**	**362**	**407**	**452**	**497**	**542**	**587**
SUBJECT SITE CAPTURE OF DEMAND																														
Fair Share Capture						5.0%	5.0%	4.8%	4.6%	4.5%	4.5%	4.5%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
Subject Site Capture of Demand (Nights)						84K	85K	81K	79K	79K	80K	79K	80K	80K	81K	81K	82K	82K	82K	82K	83K	83K	84K	84K	85K	85K	86K	86K	87K
Subject Site Capture of Demand (Rooms)						231	233	222	218	217	218	217	219	219	221	222	224	225	224	225	227	228	230	231	232	234	235	236	238
Supported Room Supply (at Target Occupancy)						**330**	**332**	**317**	**311**	**309**	**311**	**311**	**313**	**313**	**315**	**317**	**319**	**321**	**320**	**322**	**324**	**326**	**328**	**330**	**332**	**334**	**336**	**338**	**340**

Source: Smith Travel Research; RCLCO

VI. RETAIL

Exhibit VI-1

Heat Map of Existing Retail
Dulles Corridor
September 2022

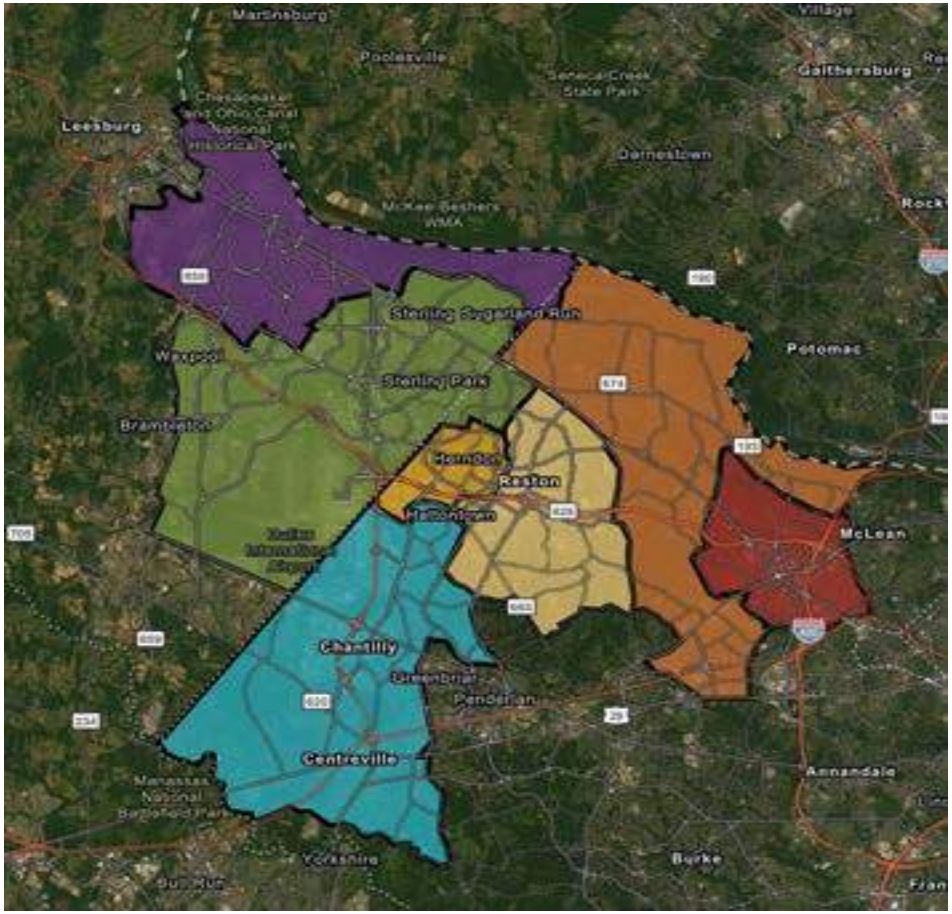


MAP KEY	
	High Concentration
	Low Concentration

Source: CoStar; RCLCO

Exhibit VI-2

Primary Retail Submarkets
Dulles Corridor
September 2022

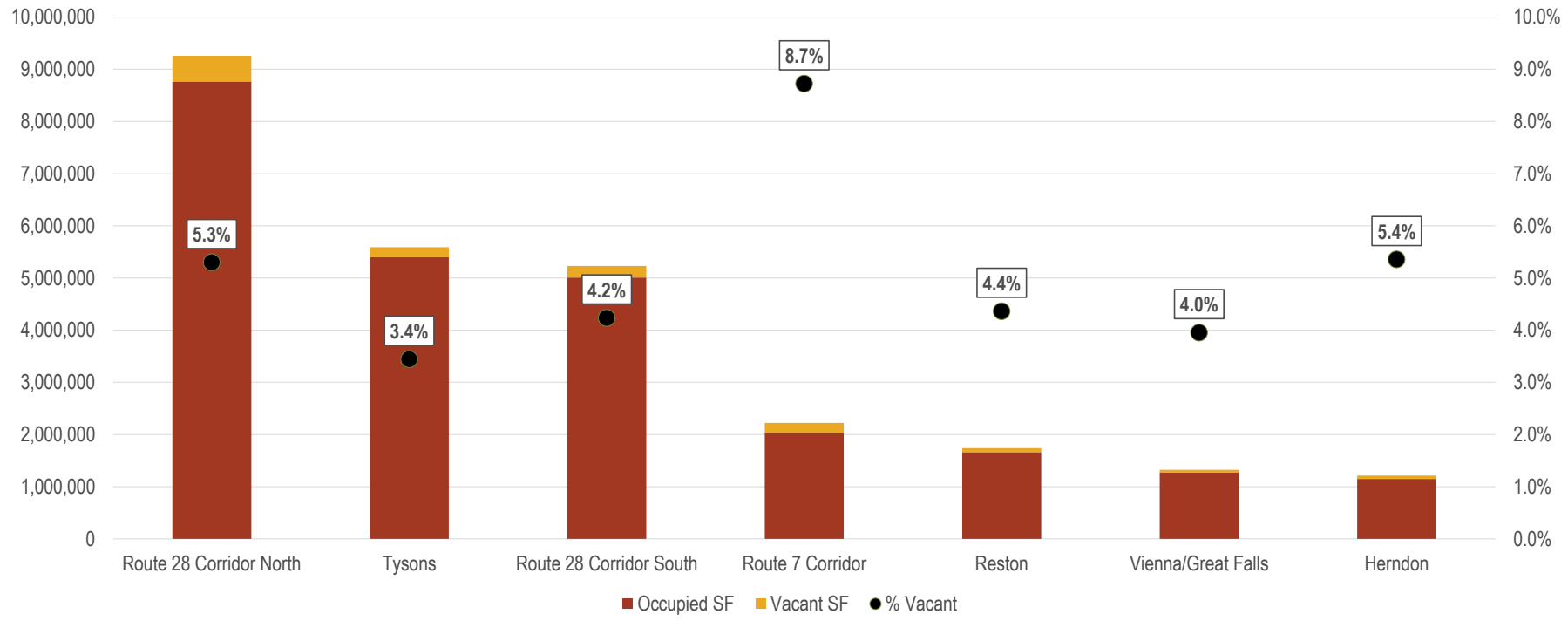


COMPARISON BY SUBMARKET				
KEY	SUBMARKET	INVENTORY (SF)	VANCANCY RATE	NNN OVERALL RENT
	Tysons	5,589,289	3.4%	$49
	Vienna/Great Falls	1,322,745	4.0%	$35
	Herndon	1,212,686	5.4%	$40
	Reston	1,737,895	4.4%	$50
	Route 28 Corridor North	9,257,100	5.3%	$33
	Route 28 Corridor South	5,229,421	4.2%	$39
	Route 7 Corridor	2,222,467	8.7%	$32
TOTAL SUBMARKETS		**26,571,603**	**4.9%**	**$39**

Note: Data shown above reflects all space, regardless of direct/sublet status. Data includes properties larger than 5,000 SF
Source: CoStar; RCLCO

Exhibit VI-3

Summary of Inventory by Submarket
Primary Retail Submarkets in Dulles Corridor
September 2022

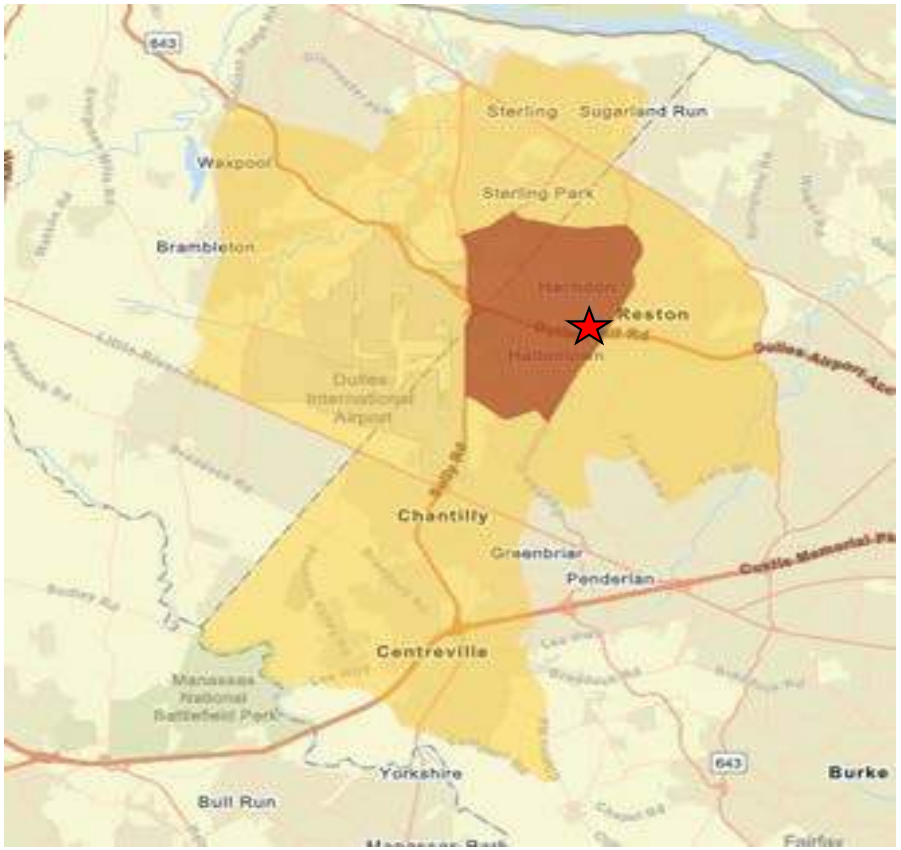


	ROUTE 28 CORRIDOR NORTH	TYSONS	ROUTE 28 CORRIDOR SOUTH	ROUTE 7 CORRIDOR	RESTON	VIENNA/GREAT FALLS	HERNDON	TOTAL SUBMARKETS
Vacant SF	490,444	192,459	221,488	193,852	75,823	52,295	64,935	**1,291,296**
Occupied SF	8,766,656	5,396,830	5,007,933	2,028,615	1,662,072	1,270,450	1,147,751	**25,280,307**
Total SF	**9,257,100**	**5,589,289**	**5,229,421**	**2,222,467**	**1,737,895**	**1,322,745**	**1,212,686**	**26,571,603**
% Vacant	***5.3%***	***3.4%***	***4.2%***	***8.7%***	***4.4%***	***4.0%***	***5.4%***	***4.9%***

Note: Data shown above reflects all space, regardless of direct/sublet status. Data includes properties larger than 5,000 SF
Source: CoStar

Exhibit VI-4

Map of Retail Geographies
Dulles Corridor
September 2022



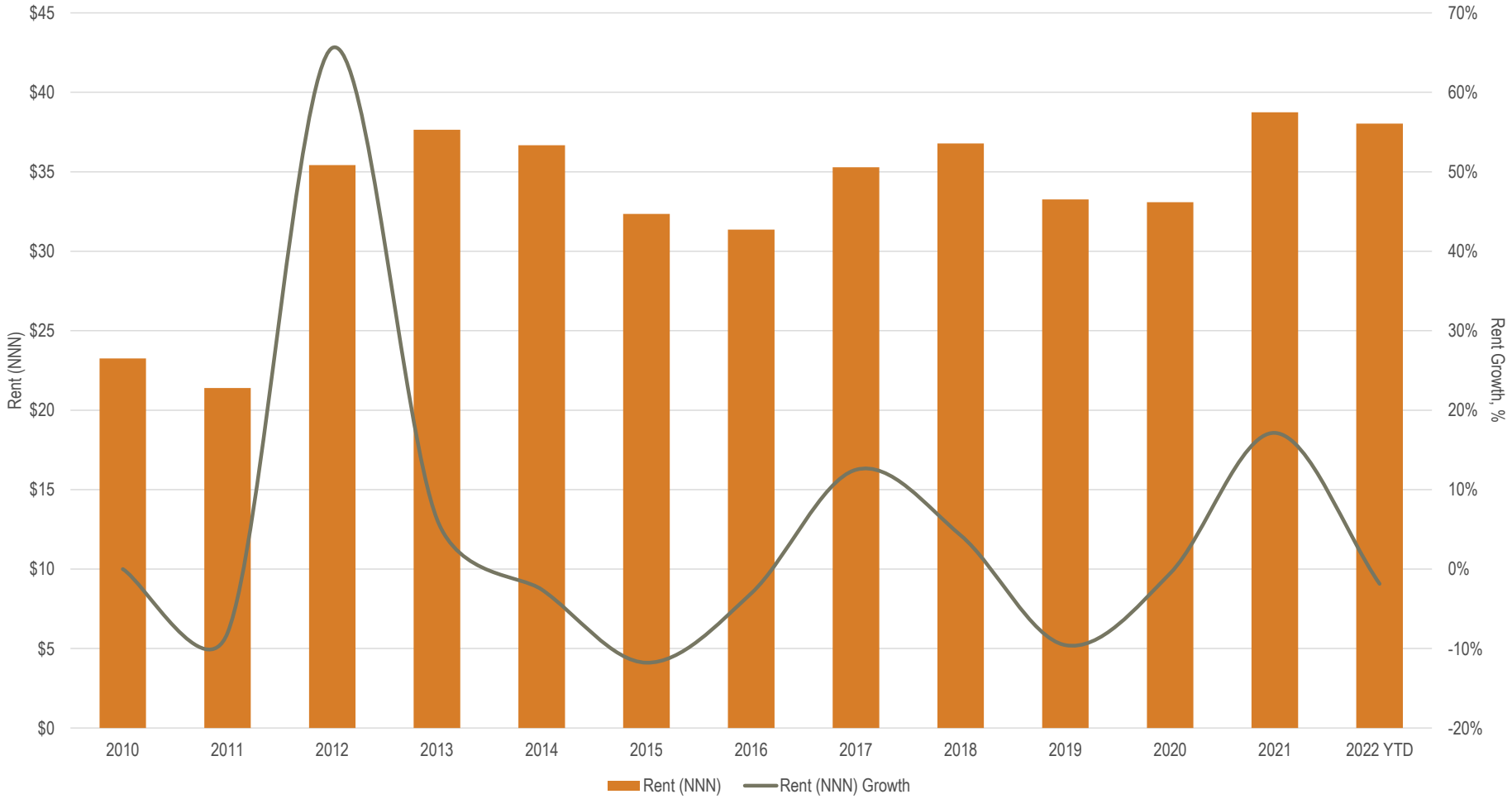
MAP KEY

Retail PMA
(Herndon, VA)
Retail SMA
(Dulles Corridor)
Subject Sites

Source: Esri; RCLCO

Exhibit VI-5

Retail Rents and Rent Growth
Herndon, VA
2010-2022



Note: The above graph displays rent for all leases, regardless of direct/sublet status. Data includes properties larger than 5,000 SF
Source: CoStar

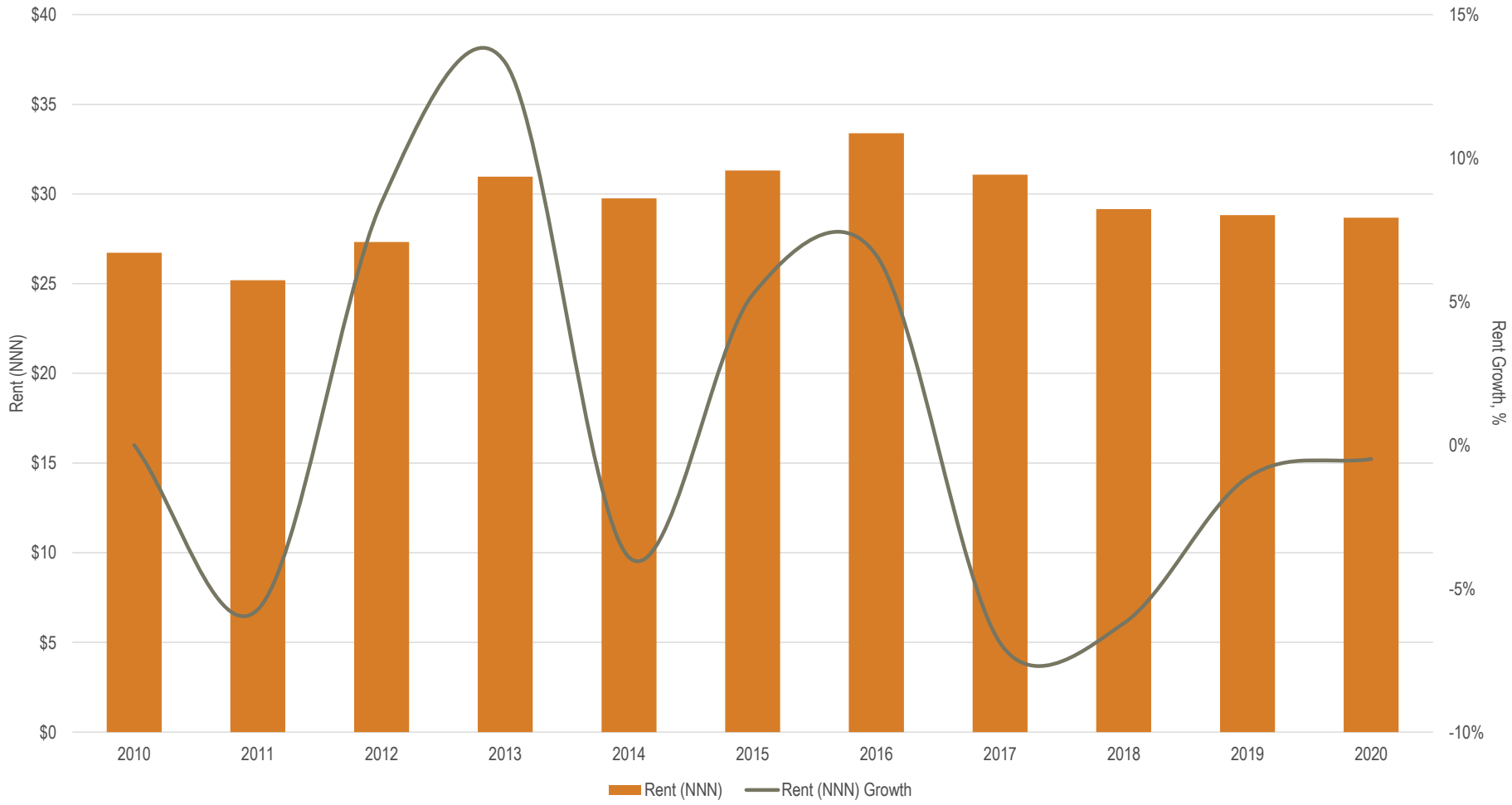
Exhibit VI-6

Retail Completions, Net Absorption, and Vacancy Rate
Dulles Corridor
2010-2021

Note: Above graph displays both direct and sublet net absorption, vacancies, etc. Data includes properties larger than 5,000 SF
Source: CoStar

Exhibit VI-7

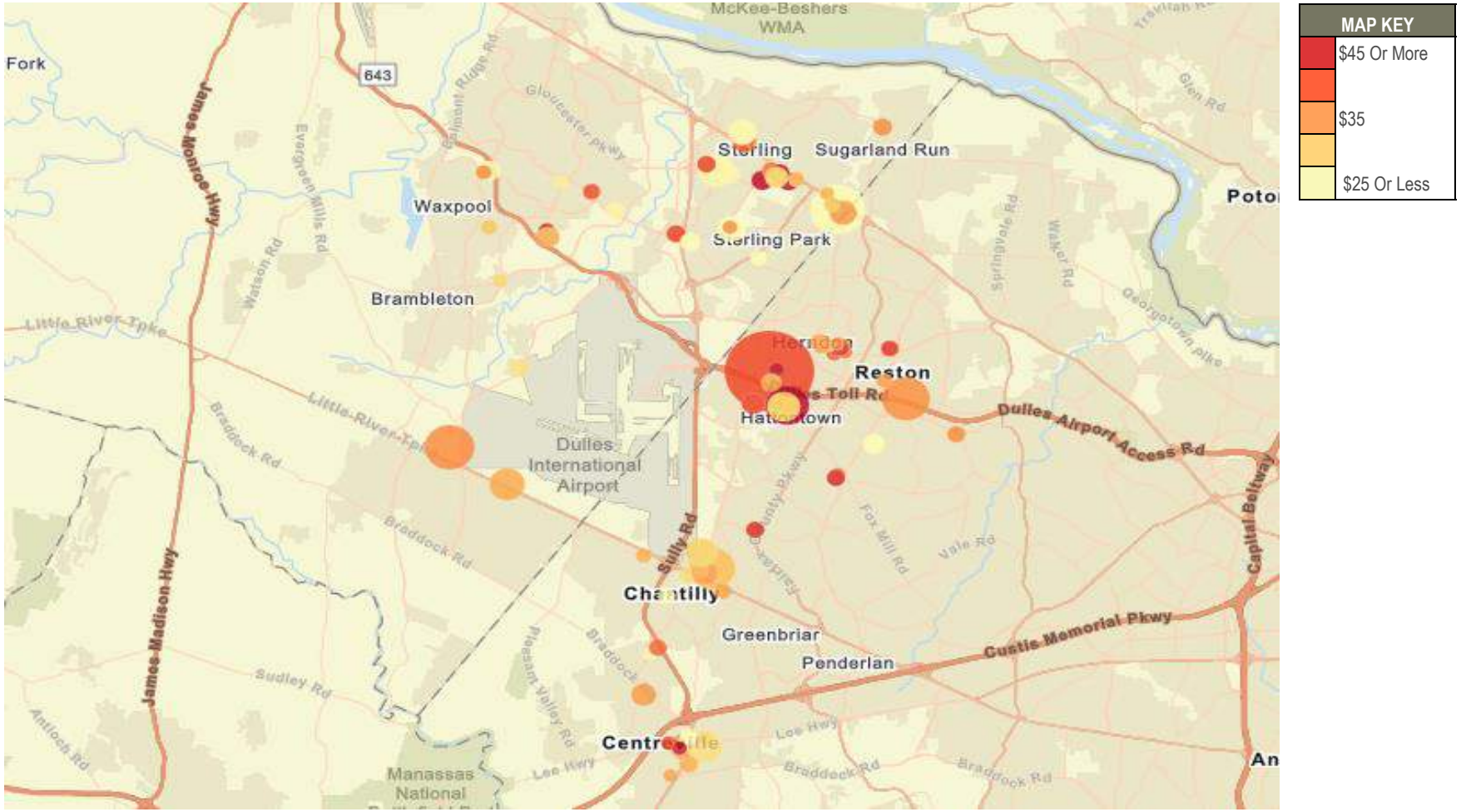
Retail Rents and Rent Growth
Dulles Corridor
2010-2022



Note: The above graph displays rent for all leases, regardless of direct/sublet status. Data includes properties larger than 5,000 SF
Source: CoStar

Exhibit VI-8

Map of Available Retail Spaces by Rent and Size
Dulles Corridor
September 2022

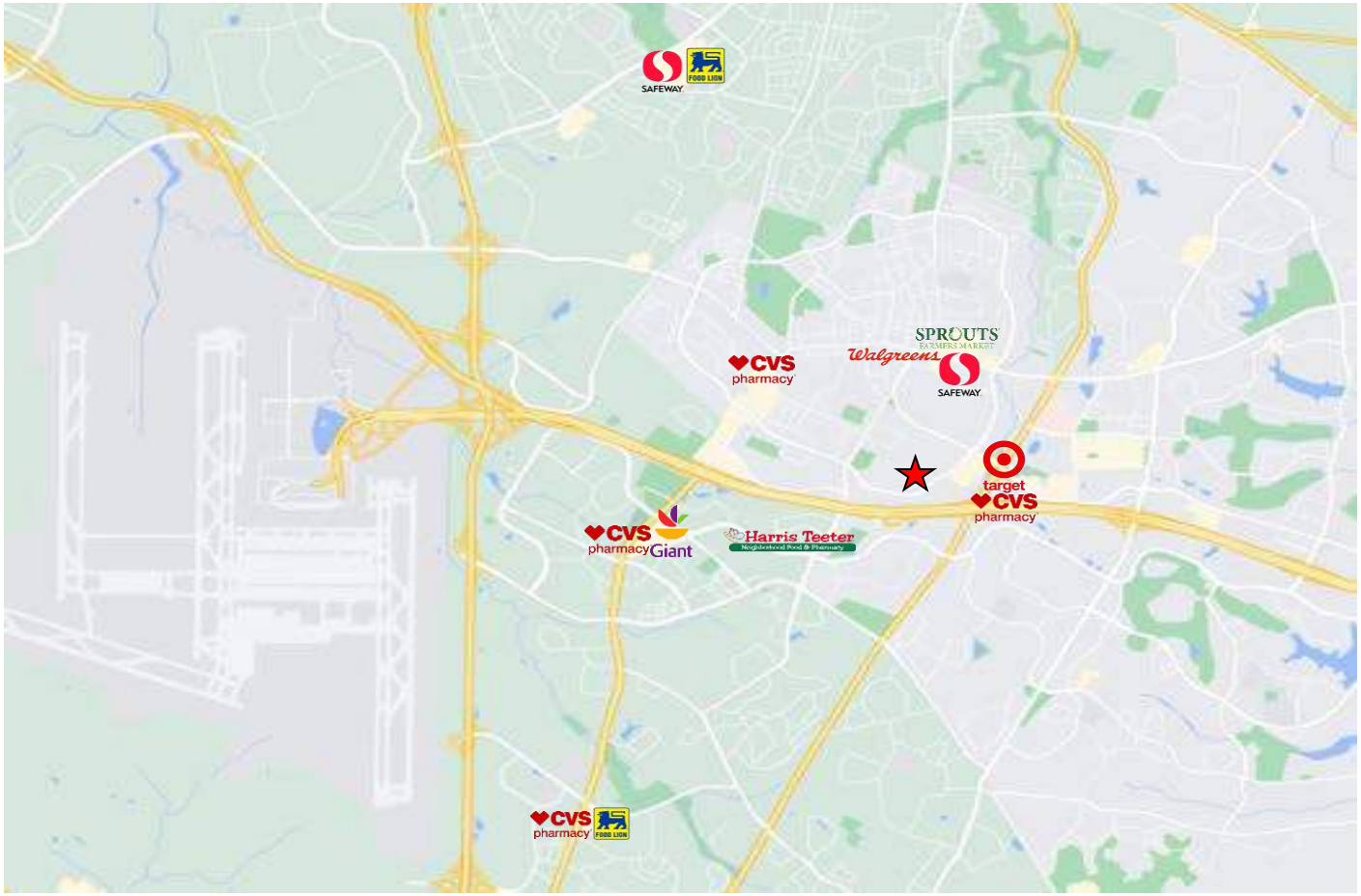


Note: Size of circle denotes amount of space, from smallest to largest.

Source: CoStar; RCLCO

Exhibit VI-9

Map of Surrounding Grocers and Pharmacies
Herndon, VA
September 2022



Source: RCLCO; Google Maps

Exhibit VI-10

List of Competitive Retail Properties
Dulles Corridor
September 2022

MAP KEY	PROPERTY NAME	CENTER TYPE	SIZE (SF)	YEAR BUILT	ANCHOR TENANT SF	NON-ANCHOR TENANT SF	VACANT SF	VACANCY RATE	RENT - SIGNED LEASES	RENT - AVAILABLE SPACES	ANCHOR TENANTS	SELECTED OTHER TENANTS
1	**Reston Town Center** 11869 Market St Reston, VA 20190	**Lifestyle Center**	425,000	1990	51,511	373,489	28,514	6.7%	Withheld	31-42	Bow Tie Cinemas	Kendra Scott, Francesca's, Ted's Bulletin, Bluemercury, Chico's, Scout & Molly's, J. McLaughlin, Francesca's Collections, Ben &
2	**One Loudoun** 20394 Exchange St Ashburn, VA 20147	**Lifestyle Center**	309,908	2013	36,997	272,911	78,439	25.3%	Withheld	38-46	Fortessa Tableware Solutions	AT&T Wireless, Alamo Drafthouse Cinema, Barnes & Noble, City Tap House, Current Salon, Starbucks, Wells Fargo, Udig, Eddie Merlot's,
3	**Dulles Town Center** 21000 Dulles Town Cir Sterling, VA 20166	**Regional Mall**	1,400,000	1999	365,916	1,034,084	372,163	26.6%	Withheld	36-44	Macy's, JCPenney	LA Fitness, Regal Cinemas, Havertys Furniture, Cheesecake Factory, Chuck E. Cheese, Hollister Co., Benihana, Forever 21, H&M, Los Toltecos,
4	**The Spectrum at Reston Town Center** 11846 Spectrum Cir Reston, VA 20190	**Community Center**	279,627	1995	50,000	229,627	73,802	26.4%	Withheld	31-37	Petsmart, The Container Store	Men's Wearhouse, Citibank, Ravel Dance Studio, Harris Teeter, United Bank, Navy Federal Credit Union, Bubbles, Einstein Bros, CAVA, HSBC
5	**Herndon Centre** 400 Elden St Herndon, VA 20170	**Community Center**	157,629	1985 Ren. 1991	0	157,629	12,357	7.8%	Withheld	32-39	N/A	Lotte Plaza Market, Ace Learning Center, Cirque Salon Studio, Virginia ABC Store, My Dr's Pharmacy, Escape Room Herndon, Charcoal
6	**Worldgate Centre** 13001 Worldgate Dr Herndon, VA 20170	**Community Center**	62,289	1990 Ren. 2001	38,238	24,051	8,679	13.9%	Withheld	29-36	Worldgate Athletic Club & Spa, AMC	TGI Fridays, Sandy Spring Bank, Anatolian Bistro, Tara Thai, Subway, Cold Stone Creamery, Salon Plaza, Hangry Joe's, FedEx Office
7	**Cascades Overlook** 21435 Epicurie Plz Sterling, VA 20164	**Community Center**	149,452	2016	55,207	94,245	13,273	8.9%	38-45	$45	Harris Teeter	Salon Lofts, Chuy's, Burton's Grill, Ocean Blue, Cascades Pet Depot, Wells Fargo, CAVA, Pivot Physical Therapy, Fireworks Pizza, Greener
8	**Loudoun Station** 43777 Central Station Dr Ashburn, VA 20147	**Community Center**	119,618	2015	0	119,618	28,195	23.6%	$30	38-47	N/A	Pulse Inferno, Senor Tequilas, Famous Toastery, Firenza Pizza, BlackFinn Ameripub, Chai Coffee Club, Nail Society Spa
9	**Shoppes at Ryan Park** 43670 Greenway Corporate Dr Ashburn, VA 20147	**Community Center**	93,218	2006	63,095	30,123	3,200	3.4%	$35	32-39	Giant Food	Sakura Grill Ashburn, Panera Bread, Divine Nail Spa, Wayback Burgers

Exhibit VI-10

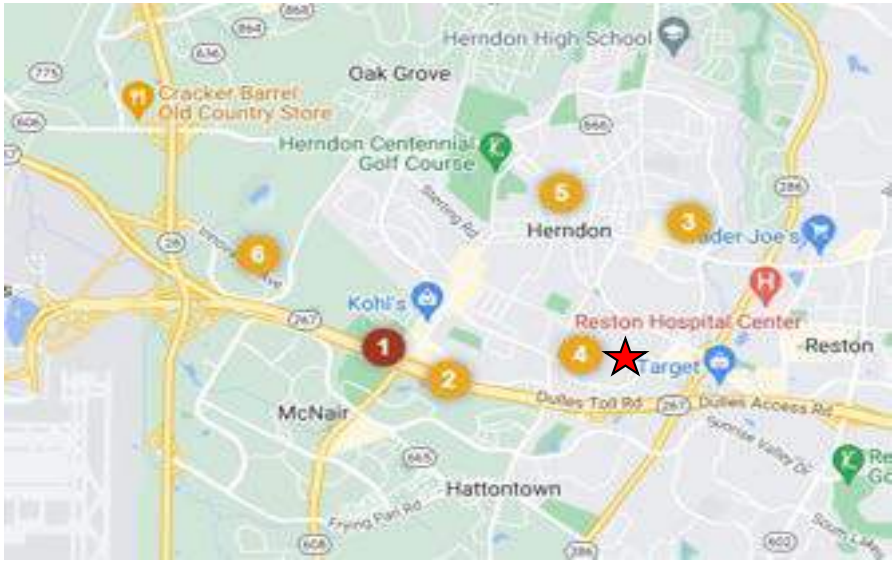
List of Competitive Retail Properties
Dulles Corridor
September 2022

MAP KEY	PROPERTY NAME	CENTER TYPE	SIZE (SF)	YEAR BUILT	ANCHOR TENANT SF	NON-ANCHOR TENANT SF	VACANT SF	VACANCY RATE	RENT - SIGNED LEASES	RENT - AVAILABLE SPACES	ANCHOR TENANTS	SELECTED OTHER TENANTS
10	**Woodland Park Crossing** 12950 Highland Crossing Dr Herndon, VA 20171	**Neighborhood Center**	112,534	2007	48,971	63,563	38,076	33.8%	Withheld	27-34	Harris Teeter	Biryani Pointe, Moe's Southwest Grill, Manhattan Pizza, Pure Barre, Luxury Nail Spa, Woodland Barber, Down Dog Yoga
11	**Nokes Plaza** 21305 Windmill Parc Dr Sterling, VA 20166	**Neighborhood Center**	61,500	2016	0	61,500	13,954	22.7%	$26	27-33	N/A	Bassett Furniture, Cafesano, Burger 21, La Prensa, Nothing Bundt Cakes, Magnolia's Natural Nail Care Clinic
12	**Reston Station** 1904 Reston Metro Plz Reston, VA 20190	**Ground-Level**	52,539	2017	0	52,539	0	0.0%	Withheld	43-53	Founding Farmers	N/A
13	**RTC West** 12130 Sunset Hills Rd Reston, VA 20190	**Ground-Level**	39,307	2017	9,720	29,587	2,662	6.8%	Withheld	31-38	Cooper's Hawk Winery & Restaurant	Nando's, Little Beast, Punjabi by Nature, Honeygrow, Mezeh, Infinity Spa & Nails, MVB Bank, BGR The Burger Joint

Source: CoStar; Loopnet; Property Websites; RCLCO

Exhibit VI-11

Map of Under Construction and Planned Retail Properties
Herndon, VA
September 2022



MAP KEY	PROPERTY NAME	STATUS	ESTIMATED DELIVERY	SIZE (SF)	ASKING RENT
1	Arrowbrook Centre	Under Construction	2022	33,294	$30 - 37
2	Wood Oak	Planned	2024	21,350	N/A
3	Elden & Post Dr	Planned	2024	6,000	N/A
4	Parkview	Planned	2025+	7,500	N/A
5	Comstock Development	Planned	2025+	17,000	N/A
6	Rivana at Innovation Station	Planned	2025+	225,000	N/A

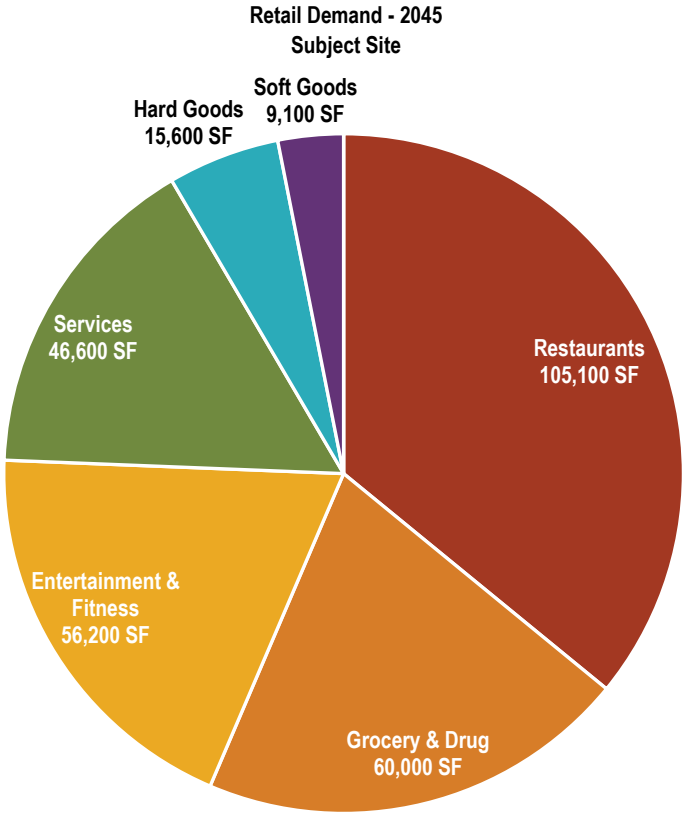
MAP KEY	
	Under Construction
	Planned

Source: CoStar; Loopnet; Property Websites; RCLCO

Exhibit VI-12

Summary of Demand
Subject Site
2022-2045

STORE TYPE	2022	2027	2030	2040
Grocery & Drug	19,700	35,900	45,000	57,900
Restaurants	76,900	86,400	91,600	101,900
Hard Goods	12,300	13,900	14,700	15,900
Soft Goods	8,200	8,900	9,300	9,500
Entertainment & Fitness	39,600	45,800	48,800	54,100
Services	26,200	35,000	39,700	45,800
TOTAL	**182,900 SF**	**225,900 SF**	**249,100 SF**	**285,100 SF**



Source: Esri; Consumer Expenditure Survey; ICSC; RCLCO

Exhibit VI-13

Retail Demand
Subject Site
2022-2045

HOUSEHOLDS - PRIMARY MARKET AREA

	SPENDING PER HOUSEHOLD[1]					% OF SPENDING NOT ONLINE[2]					ANNUAL RETAIL EXPENDITURES					CAPTURE OF	ANNUAL RETAIL CAPTURE AT SUBJECT SITE					SALES / SF	TOTAL RETAIL SPACE DEMANDED				
STORE TYPE	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	SPENDING[3]	2022	2027	2030	2040	2045	THRESHOLD	2022	2027	2030	2040	2045
Grocery & Drug	$13,562	$13,794	$13,935	$14,416	$14,663	98.1%	97.5%	97.1%	95.9%	95.2%	$349,423,346	$373,458,918	$388,659,308	$443,892,183	$474,356,584	2.5%	$8,735,584	$9,336,473	$9,716,483	$11,097,305	$11,858,915	$500 / SF	17,500	18,700	19,400	22,200	23,700
Restaurants	$7,143	$7,265	$7,339	$7,593	$7,723	95.8%	93.9%	92.7%	88.8%	86.8%	$179,792,623	$189,431,338	$195,420,435	$216,530,256	$227,762,309	7.5%	$13,484,447	$14,207,350	$14,656,533	$16,239,769	$17,082,173	$450 / SF	30,000	31,600	32,600	36,100	38,000
Hard Goods	$6,037	$6,141	$6,204	$6,418	$6,528	78.3%	72.7%	69.3%	58.2%	52.6%	$124,152,482	$123,995,924	$123,557,333	$119,884,146	$116,547,121	2.5%	$3,103,812	$3,099,898	$3,088,933	$2,997,104	$2,913,678	$350 / SF	8,900	8,900	8,800	8,600	8,300
Soft Goods	$3,878	$3,944	$3,984	$4,122	$4,192	69.0%	60.3%	55.1%	37.6%	28.9%	$70,292,372	$66,058,162	$63,026,256	$49,840,733	$41,200,854	2.5%	$1,757,309	$1,651,454	$1,575,656	$1,246,018	$1,030,021	$400 / SF	4,400	4,100	3,900	3,100	2,600
Entertainment & Fitness	$936	$952	$961	$995	$1,012	100.0%	100.0%	100.0%	100.0%	100.0%	$24,581,545	$26,438,443	$27,619,252	$31,949,592	$34,363,075	15.0%	$3,687,232	$3,965,767	$4,142,888	$4,792,439	$5,154,461	$250 / SF	14,700	15,900	16,600	19,200	20,600
Services	$3,812	$3,877	$3,917	$4,052	$4,122	92.3%	89.8%	88.3%	83.3%	80.7%	$92,455,564	$96,730,805	$99,353,127	$108,383,294	$113,049,762	7.5%	$6,934,167	$7,254,810	$7,451,484	$8,128,747	$8,478,732	$400 / SF	17,300	18,100	18,600	20,300	21,200
Auto & Gas	$10,512	$10,692	$10,801	$11,174	$11,366	97.9%	97.7%	97.5%	97.0%	96.8%	$270,487,886	$290,159,701	$302,642,020	$348,253,260	$373,571,416	0.0%	$0	$0	$0	$0	$0	$800 / SF	0	0	0	0	0
TOTAL DEMAND POTENTIAL	$45,879	$46,664	$47,142	$48,770	$49,605						$1,111,185,819	$1,166,273,290	$1,200,277,730	$1,318,733,465	$1,380,851,121		$37,702,551	$39,515,752	$40,631,977	$44,501,382	$46,517,981		92,800	97,300	99,900	109,500	114,400

EMPLOYEES - PRIMARY MARKET AREA

	SPENDING PER EMPLOYEE[3]					% OF SPENDING NOT ONLINE[2]					ANNUAL RETAIL EXPENDITURES					CAPTURE OF	ANNUAL RETAIL CAPTURE AT SUBJECT SITE					SALES / SF	TOTAL RETAIL SPACE DEMANDED				
STORE TYPE	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	SPENDING[3]	2022	2027	2030	2040	2045	THRESHOLD	2022	2027	2030	2040	2045
Grocery & Drug	$2,406	$2,406	$2,406	$2,406	$2,406	100.0%	100.0%	100.0%	100.0%	100.0%	$88,455,376	$88,954,157	$88,954,157	$93,044,385	$94,158,186	1.0%	$884,554	$889,542	$889,542	$930,444	$941,582	$500 / SF	1,800	1,800	1,800	1,900	1,900
Restaurants	$1,501	$1,501	$1,501	$1,501	$1,501	100.0%	100.0%	100.0%	100.0%	100.0%	$55,172,296	$55,483,401	$55,483,401	$58,034,600	$58,729,311	15.0%	$8,275,844	$8,322,510	$8,322,510	$8,705,190	$8,809,397	$450 / SF	18,400	18,500	18,500	19,300	19,600
Hard Goods	$1,300	$1,300	$1,300	$1,300	$1,300	100.0%	100.0%	100.0%	100.0%	100.0%	$47,793,049	$48,062,544	$48,062,544	$50,272,523	$50,874,317	2.5%	$1,194,826	$1,201,564	$1,201,564	$1,256,813	$1,271,858	$350 / SF	3,400	3,400	3,400	3,600	3,600
Soft Goods	$1,639	$1,639	$1,639	$1,639	$1,639	100.0%	100.0%	100.0%	100.0%	100.0%	$60,238,359	$60,578,031	$60,578,031	$63,363,488	$64,121,989	2.5%	$1,505,959	$1,514,451	$1,514,451	$1,584,087	$1,603,050	$400 / SF	3,800	3,800	3,800	4,000	4,000
Entertainment & Fitness	$261	$261	$261	$261	$261	100.0%	100.0%	100.0%	100.0%	100.0%	$9,577,727	$9,631,734	$9,631,734	$10,074,614	$10,195,213	10.0%	$957,773	$963,173	$963,173	$1,007,461	$1,019,521	$250 / SF	3,800	3,900	3,900	4,000	4,100
Services	$513	$513	$513	$513	$513	100.0%	100.0%	100.0%	100.0%	100.0%	$18,868,696	$18,975,092	$18,975,092	$19,847,592	$20,085,180	3.8%	$707,576	$711,566	$711,566	$744,285	$753,194	$250 / SF	2,800	2,800	2,800	3,000	3,000
Auto & Gas	$1,959	$1,959	$1,959	$1,959	$1,959	100.0%	100.0%	100.0%	100.0%	100.0%	$72,014,567	$72,420,642	$72,420,642	$75,750,637	$76,657,421	0.0%	$0	$0	$0	$0	$0	$800 / SF	0	0	0	0	0
TOTAL DEMAND POTENTIAL	$9,578	$9,578	$9,578	$9,578	$9,578						$352,120,069	$354,105,601	$354,105,601	$370,387,838	$374,821,617		$13,526,532	$13,602,805	$13,602,805	$14,228,280	$14,398,602		34,000	34,200	34,200	35,800	36,200

HOUSEHOLDS - DULLES CORRIDOR

	SPENDING PER HOUSEHOLD[1]					% OF SPENDING NOT ONLINE[2]					ANNUAL RETAIL EXPENDITURES					CAPTURE OF	ANNUAL RETAIL CAPTURE AT SUBJECT SITE					SALES / SF	TOTAL RETAIL SPACE DEMANDED				
STORE TYPE	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	SPENDING[3]	2022	2027	2030	2040	2045	THRESHOLD	2022	2027	2030	2040	2045
Grocery & Drug	$14,917	$14,971	$15,003	$15,102	$15,148	98.1%	97.5%	97.1%	95.9%	95.2%	$1,706,785,942	$1,746,424,002	$1,770,333,608	$1,850,539,705	$1,890,819,578	0.0%	$0	$0	$0	$0	$0	$500 / SF	0	0	0	0	0
Restaurants	$7,794	$7,822	$7,839	$7,891	$7,915	95.8%	93.9%	92.7%	88.8%	86.8%	$871,213,271	$878,788,080	$883,042,262	$895,498,729	$900,642,607	1.0%	$8,712,133	$8,787,881	$8,830,423	$8,954,987	$9,006,426	$450 / SF	19,400	19,500	19,600	19,900	20,000
Hard Goods	$6,923	$6,948	$6,963	$7,009	$7,031	78.3%	72.7%	69.3%	58.2%	52.6%	$632,227,731	$604,512,465	$586,739,816	$521,043,114	$484,325,911	0.0%	$0	$0	$0	$0	$0	$350 / SF	0	0	0	0	0
Soft Goods	$4,253	$4,268	$4,277	$4,305	$4,319	69.0%	60.3%	55.1%	37.6%	28.9%	$342,344,756	$308,007,779	$286,243,674	$207,173,248	$163,749,403	0.0%	$0	$0	$0	$0	$0	$400 / SF	0	0	0	0	0
Entertainment & Fitness	$1,062	$1,066	$1,068	$1,076	$1,079	100.0%	100.0%	100.0%	100.0%	100.0%	$123,938,890	$127,618,615	$129,858,156	$137,485,695	$141,386,670	2.5%	$3,098,472	$3,190,465	$3,246,454	$3,437,142	$3,534,667	$250 / SF	12,400	12,800	13,000	13,700	14,100
Services	$4,266	$4,281	$4,291	$4,319	$4,332	92.3%	89.8%	88.3%	83.3%	80.7%	$459,458,450	$460,211,756	$460,419,415	$459,694,498	$458,459,378	0.3%	$1,148,646	$1,150,529	$1,151,049	$1,149,236	$1,146,148	$250 / SF	4,600	4,600	4,600	4,600	4,600
Auto & Gas	$11,718	$11,761	$11,786	$11,864	$11,900	97.9%	97.7%	97.5%	97.0%	96.8%	$1,339,034,552	$1,375,183,889	$1,397,114,793	$1,471,407,362	$1,509,161,163	0.0%	$0	$0	$0	$0	$0	$800 / SF	0	0	0	0	0
TOTAL DEMAND POTENTIAL	$50,932	$51,119	$51,227	$51,567	$51,723						$5,475,003,593	$5,500,746,586	$5,513,751,725	$5,542,842,351	$5,548,544,711		$12,959,251	$13,128,876	$13,227,925	$13,541,366	$13,687,241		36,400	36,900	37,200	38,200	38,700

HOUSEHOLDS - SUBJECT SITE

	SPENDING PER HOUSEHOLD[1]					% OF SPENDING NOT ONLINE[2]					ANNUAL RETAIL EXPENDITURES					CAPTURE OF	ANNUAL RETAIL CAPTURE AT SUBJECT SITE					SALES / SF	TOTAL RETAIL SPACE DEMANDED				
STORE TYPE	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	SPENDING[3]	2022	2027	2030	2040	2045	THRESHOLD	2022	2027	2030	2040	2045
Grocery & Drug	$9,904	$9,904	$9,904	$9,904	$9,904	98.1%	97.5%	97.1%	95.9%	95.2%	$0	$13,802,383	$21,442,387	$28,480,298	$28,297,317	50.0%	$0	$6,901,192	$10,721,193	$14,240,149	$14,148,658	$500 / SF	0	13,800	21,400	28,500	28,300
Restaurants	$5,216	$5,216	$5,216	$5,216	$5,216	95.8%	93.9%	92.7%	88.8%	86.8%	$0	$7,001,048	$10,781,372	$13,892,667	$13,586,956	25.0%	$0	$1,750,262	$2,695,343	$3,473,167	$3,396,739	$450 / SF	0	3,900	6,000	7,700	7,500
Hard Goods	$4,409	$4,409	$4,409	$4,409	$4,409	78.3%	72.7%	69.3%	58.2%	52.6%	$0	$4,582,671	$6,816,675	$7,691,814	$6,952,514	10.0%	$0	$458,267	$681,667	$769,181	$695,251	$350 / SF	0	1,300	1,900	2,200	2,000
Soft Goods	$2,832	$2,832	$2,832	$2,832	$2,832	69.0%	60.3%	55.1%	37.6%	28.9%	$0	$2,441,393	$3,477,167	$3,197,801	$2,457,800	10.0%	$0	$244,139	$347,717	$319,780	$245,780	$400 / SF	0	600	900	800	600
Entertainment & Fitness	$683	$683	$683	$683	$683	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$977,118	$1,523,758	$2,049,898	$2,049,898	50.0%	$0	$488,559	$761,879	$1,024,949	$1,024,949	$250 / SF	0	2,000	3,000	4,100	4,100
Services	$2,784	$2,784	$2,784	$2,784	$2,784	92.3%	89.8%	88.3%	83.3%	80.7%	$0	$3,575,000	$5,481,325	$6,953,915	$6,743,882	50.0%	$0	$1,787,500	$2,740,663	$3,476,957	$3,371,941	$250 / SF	0	7,200	11,000	13,900	13,500
Auto & Gas	$7,677	$7,677	$7,677	$7,677	$7,677	97.9%	97.7%	97.5%	97.0%	96.8%	$0	$10,723,791	$16,696,801	$22,344,067	$22,285,068	0.0%	$0	$0	$0	$0	$0	$800 / SF	0	0	0	0	0
TOTAL DEMAND POTENTIAL	$33,505	$33,505	$33,505	$33,505	$33,505						$0	$43,103,405	$66,219,484	$84,610,460	$82,373,435		$0	$11,629,919	$17,948,462	$23,304,184	$22,883,319		0	28,800	44,200	57,200	56,000

Exhibit VI-13

Retail Demand
Subject Site
2022-2045

EMPLOYEES - SUBJECT SITE

	SPENDING PER EMPLOYEE[5]					% OF SPENDING NOT ONLINE[2]					ANNUAL RETAIL EXPENDITURES					CAPTURE OF	ANNUAL RETAIL CAPTURE AT SUBJECT SITE					SALES / SF	TOTAL RETAIL SPACE DEMANDED				
STORE TYPE	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	SPENDING[3]	2022	2027	2030	2040	2045	THRESHOLD	2022	2027	2030	2040	2045
Grocery & Drug	$2,406	$2,406	$2,406	$2,406	$2,406	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$2,179,637	$3,896,657	$9,679,367	$11,254,044	25.0%	$0	$544,909	$974,164	$2,419,842	$2,813,511	$500 / SF	0	1,100	1,900	4,800	5,600
Restaurants	$1,501	$1,501	$1,501	$1,501	$1,501	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$1,359,506	$2,430,463	$6,037,315	$7,019,488	50.0%	$0	$679,753	$1,215,232	$3,018,657	$3,509,744	$450 / SF	0	1,500	2,700	6,700	7,800
Hard Goods	$1,300	$1,300	$1,300	$1,300	$1,300	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$1,177,673	$2,105,391	$5,229,829	$6,080,638	10.0%	$0	$117,767	$210,539	$522,983	$608,064	$350 / SF	0	300	600	1,500	1,700
Soft Goods	$1,639	$1,639	$1,639	$1,639	$1,639	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$1,484,339	$2,653,634	$6,591,676	$7,664,036	10.0%	$0	$148,434	$265,363	$659,168	$766,404	$400 / SF	0	400	700	1,600	1,900
Entertainment & Fitness	$261	$261	$261	$261	$261	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$236,006	$421,920	$1,048,058	$1,218,560	33.3%	$0	$78,669	$140,640	$349,353	$406,187	$250 / SF	0	300	600	1,400	1,600
Services	$513	$513	$513	$513	$513	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$464,945	$831,208	$2,064,736	$2,400,636	25.0%	$0	$116,236	$207,802	$516,184	$600,159	$250 / SF	0	500	800	2,100	2,400
Auto & Gas	$1,959	$1,959	$1,959	$1,959	$1,959	100.0%	100.0%	100.0%	100.0%	100.0%	$0	$1,774,518	$3,172,403	$7,880,306	$9,162,305	0.0%	$0	$0	$0	$0	$0	$800 / SF	0	0	0	0	0
TOTAL DEMAND POTENTIAL	$9,578	$9,578	$9,578	$9,578	$9,578						$0	$8,676,623	$15,511,677	$38,531,288	$44,799,705		$0	$1,685,768	$3,013,740	$7,486,186	$8,704,068		0	4,100	7,300	18,100	21,000

HOTEL GUESTS

	SPENDING PER VISITOR PER DAY					% OF SPENDING NOT ONLINE[2]					ANNUAL RETAIL EXPENDITURES					CAPTURE OF	ANNUAL RETAIL CAPTURE AT SUBJECT SITE					SALES / SF	TOTAL RETAIL SPACE DEMANDED				
STORE TYPE	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	2022	2027	2030	2040	2045	SPENDING[3]	2022	2027	2030	2040	2045	THRESHOLD	2022	2027	2030	2040	2045
Grocery & Drug	$4.0	$4.0	$4.0	$4.0	$4.0	100.0%	100.0%	100.0%	100.0%	100.0%	$7,263,792	$9,083,025	$9,740,938	$9,740,938	$9,740,938	2.5%	$181,595	$227,076	$243,523	$243,523	$243,523	$500 / SF	400	500	500	500	500
Restaurants	$30.0	$30.0	$30.0	$30.0	$30.0	100.0%	100.0%	100.0%	100.0%	100.0%	$54,478,440	$68,122,688	$73,057,031	$73,057,031	$73,057,031	7.5%	$4,085,883	$5,109,202	$5,479,277	$5,479,277	$5,479,277	$450 / SF	9,100	11,400	12,200	12,200	12,200
Hard Goods	$2.0	$2.0	$2.0	$2.0	$2.0	100.0%	100.0%	100.0%	100.0%	100.0%	$3,631,896	$4,541,513	$4,870,469	$4,870,469	$4,870,469	0.0%	$0	$0	$0	$0	$0	$350 / SF	0	0	0	0	0
Soft Goods	$4.0	$4.0	$4.0	$4.0	$4.0	100.0%	100.0%	100.0%	100.0%	100.0%	$7,263,792	$9,083,025	$9,740,938	$9,740,938	$9,740,938	0.0%	$0	$0	$0	$0	$0	$400 / SF	0	0	0	0	0
Entertainment & Fitness	$8.0	$8.0	$8.0	$8.0	$8.0	100.0%	100.0%	100.0%	100.0%	100.0%	$14,527,584	$18,166,050	$19,481,875	$19,481,875	$19,481,875	15.0%	$2,179,138	$2,724,908	$2,922,281	$2,922,281	$2,922,281	$250 / SF	8,700	10,900	11,700	11,700	11,700
Services	$2.0	$2.0	$2.0	$2.0	$2.0	100.0%	100.0%	100.0%	100.0%	100.0%	$3,631,896	$4,541,513	$4,870,469	$4,870,469	$4,870,469	10.0%	$363,190	$454,151	$487,047	$487,047	$487,047	$250 / SF	1,500	1,800	1,900	1,900	1,900
Auto & Gas	$20.0	$20.0	$20.0	$20.0	$20.0	100.0%	100.0%	100.0%	100.0%	100.0%	$36,318,960	$45,415,125	$48,704,688	$48,704,688	$48,704,688	0.0%	$0	$0	$0	$0	$0	$800 / SF	0	0	0	0	0
TOTAL DEMAND POTENTIAL	$70	$70	$70	$70	$70						$127,116,360	$158,952,938	$170,466,406	$170,466,406	$170,466,406		$6,809,805	$8,515,336	$9,132,129	$9,132,129	$9,132,129		19,700	24,600	26,300	26,300	26,300

SUBJECT SITE TOTAL DEMAND

STORE TYPE	2022	2027	2030	2040	2045
Grocery & Drug	19,700	35,900	45,000	57,900	60,000
Restaurants	76,900	86,400	91,600	101,900	105,100
Hard Goods	12,300	13,900	14,700	15,900	15,600
Soft Goods	8,200	8,900	9,300	9,500	9,100
Entertainment & Fitness	39,600	45,800	48,800	54,100	56,200
Services	26,200	35,000	39,700	45,800	46,600
	182,900	**225,900**	**249,100**	**285,100**	**292,600**

[1] *Based on 2018-2019 Consumer Expenditure data, adjusting for the likely income levels within the area and at the subject site*
[2] *Based on 2018-2019 Consumer Expenditure data*
[3] *RCLCO assumption; site capture is based on competing locations in the market and likelihood of households to make store type expenditures at the property.*
[4] *RCLCO*
[5] *Based on 2012 ICSC office worker spending data*

Source: Esri; Consumer Expenditure Survey; ICSC; RCLCO

VII. SELF-STORAGE

Exhibit VII-1

Stortrack Summary
6.5 Mile Radius; TRG, Herndon, VA
July 2022

STORE TYPES							
		REITS		MID OPS		SMALL OPS	
STORES IN MARKET		NUMBER	% OF MARKET	NUMBER	% OF MARKET	NUMBER	% OF MARKET
6.5 Mile Radius	36	21	58.33%	13	36.11%	2	5.56%
Virginia	1,340	277	20.67%	553	41.27%	510	38.06%
USA	60,525	8,666	14.32%	21,222	35.06%	30,636	50.62%

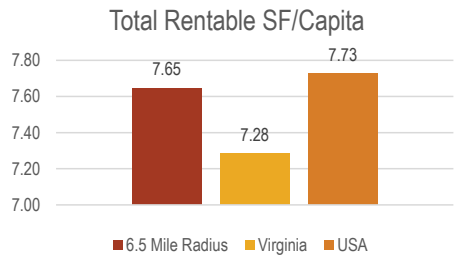
UNIT TYPES OFFERED														
	5X5 REG	5X5 CC	5X10 REG	5X10 CC	10X10 REG	10X10 CC	10X15 REG	10X15 CC	10X20 REG	10X20 CC	10X30 REG	10X30 CC	CAR PARKING	RV PARKING
6.5 Mile Radius	41.7%	58.3%	50.0%	58.3%	52.8%	66.7%	36.1%	38.9%	33.3%	30.6%	27.8%	13.9%	0.0%	13.9%
Virginia	37.2%	36.3%	60.7%	44.9%	62.3%	46.0%	53.9%	37.2%	54.7%	30.3%	36.6%	12.9%	4.0%	14.3%
USA	26.9%	28.6%	57.3%	44.9%	62.3%	46.0%	52.7%	31.2%	59.0%	25.9%	32.1%	8.7%	4.1%	17.8%

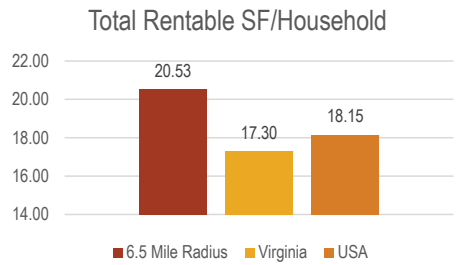
Source: StorTrack; Costar; Esri; RCLCO

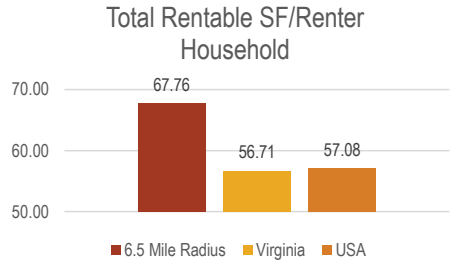
Exhibit VII-2

Overall Market Supply Metrics
6.5 Mile Radius; TRG, Herndon, VA
July 2022

	TOTAL RENTABLE SF/CAPITA			TOTAL RENTABLE SF/HOUSEHOLD			TOTAL RENTABLE SF/RENTER HOUSEHOLD		
LOCATION	TOTAL RENTABLE SF	POPULATION	TOTAL RENTABLE SF/CAPITA	TOTAL RENTABLE SF	HOUSEHOLDS	TOTAL RENTABLE SF/HOUSEHOLD	TOTAL RENTABLE SF	RENTER HOUSEHOLDS	RENTABLE SF/RENTER HH
6.5 Mile Radius	2,593,330	339,161	7.65	2,593,330	126,314	20.53	2,593,330	38,273	67.76
Virginia	63,699,061	8,744,590	7.28	63,699,061	3,682,750	17.30	63,699,061	1,123,239	56.71
USA	2,594,446,040	335,707,897	7.73	2,594,446,040	142,933,286	18.15	2,594,446,040	45,452,785	57.08







Source: StorTrack; Costar; Esri; RCLCO

Exhibit VII-3

Price per Square Foot and Average Unit Type Pricing
6.5 Mile Radius; TRG, Herndon, VA
July 2022

PRICE PER SQUARE FOOT BY STORE TYPE				
LOCATION	OVERALL MARKET AVG	REITS	MID OPS	SMALL OPS
6.5 Mile Radius	$1.73	$1.63	$2.00	$1.10
Virginia	$1.59	$1.77	$1.64	$1.21
USA	$1.45	$1.74	$1.51	$1.02

PRICE PER SQUARE FOOT BY UNIT TYPE														
	5X5 REG	5X5 CC	5X10 REG	5X10 CC	10X10 REG	10X10 CC	10X15 REG	10X15 CC	10X20 REG	10X20 CC	10X30 REG	10X30 CC	CAR PARKING	RV PARKING
6.5 Mile Radius	$2.18	$2.35	$1.47	$1.90	$1.64	$1.70	$1.41	$1.70	$1.38	$1.57	$1.26	$1.80	N/A	$0.65
Virginia	$2.46	$2.99	$1.68	$2.18	$1.33	$1.72	$1.08	$1.50	$1.00	$1.45	$0.91	$1.42	$0.44	$0.50
USA	$2.55	$2.88	$1.64	$2.10	$1.24	$1.65	$1.07	$1.46	$0.93	$1.40	$0.83	$1.33	$0.44	$0.44

AVERAGE UNIT TYPE PRICES														
	5X5 REG	5X5 CC	5X10 REG	5X10 CC	10X10 REG	10X10 CC	10X15 REG	10X15 CC	10X20 REG	10X20 CC	10X30 REG	10X30 CC	CAR PARKING	RV PARKING
6.5 Mile Radius	$55	$59	$73	$95	$164	$170	$211	$254	$277	$313	$377	$540	N/A	$150
Virginia	$62	$75	$84	$109	$133	$172	$163	$225	$200	$289	$274	$426	$117	$129
USA	$64	$72	$82	$105	$124	$165	$160	$218	$186	$280	$249	$398	$127	$142

Source: StorTrack; Costar; Esri; RCLCO

Exhibit VII-4

Number of Stores Offering Each Unit Type
6.5 Mile Radius; TRG, Herndon, VA
July 2022

UNIT TYPES	6.5 MILE RADIUS				VIRGINIA				UNITED STATES			
	ON MARKET	ON MARKET %	OFF MARKET	OFF MARKET %	ON MARKET	ON MARKET %	OFF MARKET	OFF MARKET %	ON MARKET	ON MARKET %	OFF MARKET	OFF MARKET %
5X5 REG	15	79%	4	21%	315	46%	371	54%	9,354	42%	13,111	58%
5X5 CC	21	70%	9	30%	308	49%	315	51%	9,931	49%	10,324	51%
5X10 REG	18	69%	8	31%	515	57%	393	43%	19,925	58%	14,260	42%
5X10 CC	21	68%	10	32%	381	56%	298	44%	12,782	55%	10,631	45%
10X10 REG	19	76%	6	24%	528	56%	415	44%	22,381	60%	14,681	40%
10X10 CC	24	77%	7	23%	390	56%	304	44%	13,076	54%	10,960	46%
10X15 REG	13	52%	12	48%	457	51%	435	49%	18,328	56%	14,616	44%
10X15 CC	14	47%	16	53%	315	48%	339	52%	10,860	50%	10,972	50%
10X20 REG	12	40%	18	60%	464	51%	448	49%	2,051	12%	15,653	88%
10X20 CC	11	39%	17	61%	257	43%	343	57%	8,997	44%	11,260	56%
10X30 REG	10	40%	15	60%	310	43%	416	57%	11,158	44%	14,105	56%
10X30 CC	5	31%	11	69%	109	32%	231	68%	3,022	29%	7,330	71%
Car Parking	0	0%	11	100%	34	9%	352	91%	1,440	9%	15,374	91%
RV Parking	5	25%	15	75%	121	27%	328	73%	6,199	32%	13,111	68%

Source: StorTrack; Costar; Esri; RCLCO

RCLCO
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RCLCO
REAL ESTATE CONSULTING

MEMORANDUM

DATE: October 6, 2022

TO: Town of Herndon

FROM: RCLCO – Jacob Ross, Liam Mercer, Evan Farrar

SUBJECT: Responses to Questions Regarding September 12, 2022 Market Analysis

INTRODUCTION

Skidmore, Owings & Merrill ("SOM") is working with the Town of Herndon to create a transit-related small area plan, which would guide the development of approximately 25 privately owned parcels—collectively referred to as the Transit-Related Growth Area ("TRG")—near the future Herndon Metrorail Station. With this background in mind, SOM brought RCLCO onto the consultant team to conduct an independent market analysis for the TRG, to determine the level of support for various forms of residential and commercial development. The purpose of this memorandum is to respond to questions that staff from the Town of Herndon raised on September 29th about RCLCO's September 12th draft report. The Town's questions are shown in yellow, and responses from RCLCO are shown below them.

RCLCO RESPONSES

1. *RCLCO has identified major development near the TRG area, in the submarket, and Dulles Corridor as "future competition" and a challenge for the TRG. Based on your analysis, what are the Town's and TRG's comparative advantages that can be leveraged to promote not only the TRG but also the Town of Herndon?*

Perhaps the biggest comparative advantage that RCLCO sees is that the TRG is convenient to a large existing household base, while many of the other development sites are either located in more greenfield (e.g., Innovation Station) or commercial (e.g., Halley Rise) settings. Those sites are thus likely to have to develop their own household bases to create on-site demand for other uses, such as retail; otherwise, they will be more reliant on destination support, which can leave them vulnerable to competition should other, newer destinations emerge over time. Finding ways to better serve nearby residents, many of whom currently travel to other jurisdictions to accomplish their various needs, is a strong opportunity for the TRG, and adding to the local household base at the TRG will only strengthen the opportunity.

Another advantage of the TRG is the existing energy around Sunset Business Park, which points to interest in the types of creative, local businesses that are not present in many new mixed-use developments today. Finding ways to retain that character—or even enhance it—is another opportunity that is not as available to other development projects in the submarket.

2. *RCLCO has summarized its projections of the TRG development that support (approximately) 480 townhomes and 590 two-over-twos (P26), 580 condominiums and, (P27), and over 4,000 rental apartment units in the TRG by 2045 (P 32).*
    a. *Are these projected housing types exclusive of one another (i.e. townhome, two over two, condos, and rental)?*

    Yes, these projected housing types are exclusive of each other.

    b. *How do these demands relate to OR compare with the Sample Development Program on page 12?*

    The sample development program on Page 12 is based on the demand projections shown on Pages 10 and 11. For example, the amount of office in the program roughly matches the amount for which RCLCO estimates there is demand over the next 25 years. In general, the sample development program maximizes the amount of commercial space for which there is demand during that time, and fills the remainder with residential space—for which there is likely to be more demand than there is land to accommodate it.

    c. *For the local retail market, RCLCO estimates demand for 292,600 square feet by 2045, does this depend on the projected number of housing units (population) increase? How would the demand for retail usages (grocery, restaurant, services) be impacted should the infrastructure analysis not support the projected number of housing units?*

That is correct. If the TRG were to feature fewer housing units than the number in the sample development program, demand for retail would be lower. The biggest change would likely be to grocery and drug demand, which would likely either be realized in the form of a more boutique user or take more time to manifest. The changes in demand for the other uses is likely to be more moderate (e.g., +/- 5,000 square feet) in comparison. For your reference, the exact amount that is attributable to on-site households is shown on Exhibit VI-13, under "Households – Subject Site."

d. *The projected amount of housing if realized will bring a significant amount of population to the Town, it is important to see how far the infrastructure analysis as major constraints supports the market-driven demand.*

That is correct. The purpose of the analysis was to illustrate market demand; however, we recognize that the Town will likely have to consider other goals, needs, etc. when determining the final vision for the TRG.

3. *The report indicates a strong market for rental townhouses. This is not a product that staff has seen in Herndon or the immediate area and RCLCO states that it is not a product that is widely present today. Is there a market indication that such a product will play a larger role within the Metrorail accessible areas of western Fairfax and eastern Loudoun? The study also indicates that the typical project scale for rental townhouses is 50 units while showing 440 such units within the TRG by 2045. This appears aggressive for a product that isn't common within the market. Has an interest in developers pursuing this use been seen along the Silver Line Corridor?*

Thus far, the best example of this product is City Center Townes near Dulles Town Center. While not widely present in the market or submarket today, build-for-rent ("BFR") townhomes—and even single-family detached homes—represent a growing portion of the national housing inventory. The popularity of these units stems from demographic trends, as Millennials have reached prime age for family formation, and affordability challenges, as the rising cost of for-sale housing simultaneously limits the ability of these individuals to purchase single-family homes as previous generations could.

We believe that the lack of BFR product is not a reflection of limited demand; rather, it stems from the fact that the development community has been slow to respond to this opportunity, both locally and nationally. Homebuilders (e.g., Toll Brothers) and apartment developers (e.g., Mill Creek Residential), however, are increasingly entering this segment of the market, which RCLCO expects to grow in the years to come.

4. *RCLCO shows achievable pricing for "creative office" to be $40.00. This amount is quite high and almost as high as the corporate office which is shown at $45.00. Staff would like additional information regarding the definition of "creative office" to ascertain whether or not it includes the uses that are currently in the TRG which are providing needed and desired services and products.*

The primary difference between corporate office and creative office is that the former tends to be higher-density, larger-scale, and occupied by many different tenants, while the latter tends to be lower-density, smaller-scale, and with larger floorplates—often with a single-tenant occupying one or more floors. As an example, RCLCO has added a page with "sample development typologies" to Page 14, which borrows from other projects in the region.

In many cases, RCLCO believes it will be difficult to serve existing tenants in new spaces, considering the likely mismatch between the rents those tenants are paying now and the rents that developers would need to achieve in order to support construction. RCLCO believes the best strategies to serve existing tenants would likely involve redevelopment or repositioning, and/or the construction of lower-cost office (e.g., second-story office above retail). However, even lower-cost office is likely to require higher rents than the ones these tenants are paying today.

5. *The report compares data from Washington DC MSA with Dulles Corridor; however, it falls short to elaborate on a similar level of detail when it comes to the Town of Herndon and TRG area (i.e., pages 37-38). For example:*
    a. *What is the current inventory of offices in the TRG, and what is the occupancy vs. vacancy rate in them?*
    b. *What is the average rent in TRG and how it compares with the larger submarket and MSA?*
    c. *How and why would the current condition (Occupancy and net absorption rates, etc.) change in the projected time horizon?*

What is now Page 38 contains an analysis of existing supply in the TRG, comparing what is available in the TRG with the broader Dulles Corridor market, and opining on how current office market trends may affect this existing product.

6. *The staff is curious to see the method and details of projections for different components of the Market Analysis. For example, the summary matrixes on page 10 and 11 shows Cumulative Demand in the TRG for different market components including (residential, retail, offices, and hospitality uses), however, the data and methodology based on which the demand is estimated are not elaborated. Please describe the methodology and data used for the demand projections.*

RCLCO added additional detail on Pages 26, 33, 41, and 46 to clarify demand methodology.

7. *Similarly, please elaborate on the method and data used to prepare the recommended redevelopment program for TRG shown on Page 12.*

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This program is based on RCLCO's analysis of demand in the TRG, using the densities shown on Pages 11 and 12. As discussed above, the sample development program features roughly the maximum amount of commercial space for which we project there is demand over the next 20 to 25 years.

8. *Most of the data exhibited in appendices, i.e. For-Sale Housing Demand for Multifamily (Page 71-78) as well as, Demand for Renter Housing on pages (88-93), are for Washington- Arlington-Alexandria Areas NOT Fairfax County or Herndon vicinity. The staff is curious whether or not the data is used to estimate the demand for TRG. How similar or different are the data to Fairfax County and particularly Herndon?*

The "Washington-Arlington-Alexandria" label refers to the Washington-Arlington-Alexandria metropolitan statistical area ("MSA"), which includes Fairfax County and Herndon. RCLCO's demand projections utilize data for the MSA because demand for most land uses (e.g., housing, office, etc.) is derived at the market level, by households/companies deciding to move to the Washington, D.C., region before settling on the specific jurisdiction in which they would like to be. The methodology starts by examining MSA demand, and then considers the share of that demand that the Dulles Corridor and, eventually, the TRG are likely to capture.

RCLCO has updated the title of those exhibits to make the geography more clear, and RCLCO has also added a map of the Washington-Arlington-Alexandria MSA to Exhibit III-1 (Submarket-Market Overview) for reference.

9. *While some level of uncertainty when it comes to the projection of the Market in the mid- long term is understandable due to the dynamic and volatile market forces, the disclaimer on page 58, in which RCLCO disregards responsibility for any data inaccuracies used in this report weakens the reliability of the analysis in general, the staff is curious if such disclaimer is a common language in Market Analysis or if there are certain discrepancies of which we should be aware?*

This slide is a standard one that RCLCO includes in all of its reports. That particular language refers to data that RCLCO receives from the client (e.g., the acreage totals for the parcels in the TRG) or other sources (e.g., CoStar, Axiometrics, Esri, American Community Survey, etc.). While RCLCO does its best to vet the information that it uses in its analyses, it cannot guarantee the accuracy of information that it does not generate in-house.

10. *Throughout the report some comments are internally communicated between RCLCOs staff, please revise, and resubmit.*

These comments have been removed.

11. *What about pharmacy/drug store demand instead of grocery stores?*

This demand is included within "Grocery & Drug," since there is considerable overlap between the types of goods that grocery stores and drug stores sell; however, the demand we project (e.g., 60,000 square feet by 2045) could include a mixture of the two. RCLCO has amended the description on Page 11 to make this point clear.

12. *The suggested location for the grocery store sounds suburban in nature.*

A grocery store in the suggested location does not have to be suburban in nature (e.g., surface-parked, part of a shopping center, etc.). RCLCO simply believes that location is more favorable given its accessibility and visibility, which are two of the characteristics that grocers prioritize when making site selection decisions.

In the long term, the portion of the TRG that is closest to the Herndon Metro station could be attractive to a grocer, and the presence of transit could be enough to offset the difference in vehicular accessibility. However, RCLCO generally believes grocers would prefer sites near the intersection of Spring St and Herndon Pkwy over those to the south, at least until the TRG and HTOC have generated enough of an on-site household base—likely in the range of 1,500 to 2,000 households—to support such a store on their own.

13. *We didn't see the Home 2 Suites/Hilton Garden Inn that was approved near Sunset Business Park included on the list. Is that project canceled?*

RCLCO originally excluded this project because it falls within the TRG, and RCLCO did not want its presence in the pipeline to adversely impact the amount of demand we would project for the TRG. RCLCO has since added it back to the map and table to avoid confusion about the status of this development. A note was added on Page 46 to clarify that projected demand within the TRG would theoretically include this development.

14. *Is there any information about affordable housing data that can be shared for the region and locally? The total number of units planned and needed. On (pg. 25) it highlights the bulk of for sale demand being for new home sales below $750,000. How much of the upcoming pipeline meets this criterion?*

Unfortunately, RCLCO does not have projections of affordable housing needs, as this asset class relies on forces other than market supply and demand (e.g., affordability levels, cost burdens, etc.), and would require additional research outside of the market analysis to quantify. RCLCO's market analysis reflects market-rate housing demand, and any affordable housing demand would be additive to the totals shown. Through prior experience, RCLCO has seen a significant need for additional low- and moderate-income housing, and it does not expect demand to be a constraint. Rather, the challenge is likely to be the ability to provide this supply, as the costs of development tend to necessitate public subsidy for affordable housing to be built at scale.

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The demand projections on what is now Page 26 refer to demand at the MSA level, before determining the share that the Dulles Corridor is likely to capture. While RCLCO did not complete a pipeline analysis for the broader MSA, its sense is that the market will be undersupplied at price points under $750,000 given land and construction costs in the region.

15. *Pg. 30 "High-Rise Premium" staff found the statement difficult to agree with "lack of direct access to transit". Certainly, portions of the TRG are far from the metro station, other sites are closer than portions of the HTOC.*

That is correct. However, RCLCO's sense is that proximity to transit is only part of the challenge. Most of the high-rise buildings in the submarket are five or more years old at this point, and construction costs have risen considerably since the time that they locked in costs (likely two years prior to delivery). Today, RCLCO does not believe this form of development would be feasible to construct outside of established mixed-use environments with direct access to transit, and—unfortunately—the economics may prove challenging even with these site conditions.

16. *Office market fundamentals- What are the minimum rental pricing points needed to construct new office space?*

For corporate office, RCLCO's sense is that rents would need to reach—if not exceed—$50 for construction to take place right now, which would make it difficult to construct in most parts of the TRG. This threshold is based on conversations that RCLCO has previously had with developers and other industry professionals, and further analysis would be necessary in order to provide a more concrete estimate. That threshold would likely be lower for creative office, though the exact rents needed would depend on a number of factors, including building scale, height/density, etc.

17. *A key finding that the TRG is not well situated to compete for corporate users and a flight to quality has hurt vacancy rates in non-new buildings may not fully apply for the TRG which currently enjoys almost full occupancy rates for many of its properties. While this may be a result of lower rent rate the healthy occupancy rates for the TRG office parks represents a localized market that may be beneficial to retain or reinterpret in some form. Understanding the dynamic here and identifying whether there is a market that could be leveraged even with redevelopment is certainly something that we would like to explore.*

Please see the response to #4 above. In general, RCLCO does believe there is a market opportunity to serve the existing tenants in the TRG. However, the biggest obstacle is likely to be the financial ability to do so, as these tenants are currently paying rents that are much lower than the ones necessary to support new development.

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FINAL

Herndon Transit-Related Growth Area

Existing and No Build Traffic Conditions

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1

Introduction

The Town of Herndon is preparing a Small Area Plan for the Transit-Related Growth (TRG) Area proximate to the Silver Line Metro Station. VHB is providing transportation services on the SOM-led Project Team. This report covers VHB's transportation analysis of Existing and No Build 2045 traffic conditions. These findings will help facilitate and guide the Project Team in establishing TRG development scenarios.

1.1 Location and Context

The TRG Area is located in the Town of Herndon, within Fairfax County, Virginia. The TRG, in conjunction with the Herndon Transit-Oriented Core (HTOC), comprises the land area that the Town has designated for mixed-use, transit-supported development. The HTOC is the area immediately adjacent to the Metro Station, located north of the Dulles Toll Road, east of Van Buren Street, south of Herndon Parkway, and west of the Fairbrook site. The TRG represents the next layer of development, and is located adjacent to the HTOC but farther away from the Metro Station in comparison to the HTOC. **Figure 1** outlines the boundaries of both the HTOC and the TRG. The TRG consists of the office and light industrial land areas both north and west of Herndon Parkway, as well as east of Herndon Parkway between the Fairbrook site, Fairfax County Parkway, and Spring Street.

The TRG Small Area Plan is not the first planning effort completed by the Town of Herndon in the vicinity of the Metro Station. The Herndon Metro Station Area Study, completed in 2012, outlined expected development within the HTOC area. In 2017, a transportation planning study (the "2017 TRG study") was completed to identify a potential density and land use mix for the TRG area that could be supported by the transportation system. This TRG Small Area Plan currently underway is a broader planning study that will encompass land use planning, placemaking, transportation, and other infrastructure.

1.2 Transportation Scope of Work

The Town of Herndon outlined specific requirements for the TRG transportation study in its Request for Proposals (RFP). These requirements include the analysis of key intersections and roadway segments along Herndon Parkway, Spring Street, and Van Buren Street. The list of study intersections is as follows:

1. Elden Street / Monroe Street
2. Elden Street / Van Buren Street
3. Van Buren Street / Spring Street
4. Van Buren Street / Herndon Parkway with scheduled roadway improvements
5. Van Buren Street / Alabama Drive with scheduled roadway improvements
6. Van Buren Street / Worldgate Drive
7. Herndon Parkway / Exchange Place
8. Herndon Parkway / Fairbrook Drive

Figure 1 Transit-Related Growth Area Map

Source: SOM Transit-Related Growth Area Phase 1 Inception and Engagement Summary Report, Page 8, August 2022.

9. Herndon Parkway / Driveway (Potential Future Worldgate Drive Extension)
10. Spring Street / Herndon Parkway with scheduled roadway improvements
11. Spring Street / Fairfax County Parkway ramps / Potential Future Fairbrook Drive Extension

1.2.1 Baseline Traffic Data

The Town's RFP also specified the utilization of the peak hour traffic counts collected in May 2017 as part of the prior TRG planning study; the use of this count data is to avoid COVID-19 pandemic-related reductions in peak hour traffic that would be present in newly collected 2022 data. This is a typical approach employed in transportation studies in the years following the start of the pandemic to account for the unknowns regarding the return to pre-COVID traffic patterns.

1.3 Transportation Analysis Scenarios

This report submittal documents only Existing conditions and No Build 2045 conditions. This analysis and documentation establishes the background transportation conditions with no additional development within the TRG Area. The projected traffic operations in the No Build scenario help establish the roadway capacity and its ability to handle increased demand from potential TRG development scenarios. Subsequent analysis and documentation will evaluate development scenario traffic and test mitigation measures that could help facilitate development from a transportation standpoint. Per the Inception Report for the TRG Small Area Plan, following are the specific transportation scenarios (with associated assumptions and activities) that will ultimately be evaluated:

- Existing Conditions
  - 2017 Volume Data + Metro Square Development
  - 2022 Signal Timing and Phasing
- No Build 2045
  - 1% Annual Background Growth for Volumes
  - HTOC (Excluding Metro Square Acreage) + Fairbrook Development Volumes
  - Funded Roadway Improvement Projects + Worldgate Drive extension
  - HTOC + Fairbrook Roadway and Traffic Signal Improvements
- Three (3) Build 2045 Scenarios without Mitigation
  - TRG Development Scenarios
  - VHB will work with SOM and the Town to identify development density and distribution, land use composition, and internal roadway network.
- The same Three (3) Build 2045 Scenarios, but with the addition of the Fairbrook Drive extension to Spring Street to identify the potential mitigating impact of this roadway
  - Fairbrook Drive extension will be modeled as a two-lane cross-section and will be tied into the existing traffic signal at Spring Street / Fairfax County Parkway Ramps.
- Three (3) Build 2045 Scenarios with Transportation Mitigation
  - Mitigation could include infrastructure and/or policy.
  - VHB will work with SOM and the Town to identify which three (3) Build Scenarios to use for the mitigation scenario modeling, including whether any or all should include the Fairbrook Drive extension.
- One (1) Iteration of Revisions to the Three (3) Build 2045 Scenarios with Transportation Mitigation

2

Existing Traffic Conditions

This chapter discusses the assumptions, methodology, and findings of the Existing conditions traffic analysis. A microsimulation traffic model was utilized to estimate the operating conditions of the existing transportation system. Existing conditions traffic operates acceptably.

2.1 Traffic Model

In the 2017 TRG transportation study, a VISSIM microscopic simulation model was developed to analyze traffic conditions at the study intersections and along the study roadway segments. A microsimulation model is the most accurate transportation modeling tool for complex traffic conditions. An example of a complex traffic condition is when the vehicular queue from one traffic signal extends into a separate, upstream signalized intersection, thereby impacting its operations; a macroscopic traffic model (e.g., Synchro) is not the appropriate tool to accurately analyze this condition.

A microscopic simulation model must also be calibrated to establish that it is an accurate representation of the modeled traffic conditions. Calibration involves modifying model behavior such that model outputs (e.g., processed volume, vehicle speeds, vehicular travel time, etc.) are consistent with field obversations on the actual roadway network. This calibration data must be collected concurrently to the traffic volume dataset so that the model can replicate the calibration conditions.

The previously developed and calibrated 2017 VISSIM model was utilized as the foundation for modeling efforts in the 2022 study. The model was first reviewed, ported into the most recent software version (VISSIM 11) approved for use by the Virginia Department of Transportation (VDOT), and verified that it could be repurposed for this study. The model was then updated to more accurately represent 2022 conditions via the inclusion of the most recent traffic signal timings (provided by the Town) as well as the addition of traffic volumes associated with the Metro Square two-over-two townhome development (see **Table 1**). These updates were minor enough that the model was assumed to still be calibrated; additionally, the model could not be recalibrated as newly collected calibration data (e.g., travel times, vehicle speeds) would be five years newer than the utilized 2017 traffic volume data.

Table 1 Metro Square Trip Generation

AM Peak Hour			PM Peak Hour		
Total	Entry	Exit	Total	Entry	Exit
17	4	13	25	15	10

Source: Institute of Transportation Engineer's *Trip Generation Manual, 11th Edition*, Land Use Code 221. 64 condo units in two-over-two (four-story) buildings.

2.2 Traffic Volumes

As mentioned, the 2017 traffic volume dataset was utilized for the analysis of 2022 Existing conditions due to the impact of the COVID-19 pandemic on traffic patterns. One of the more notable impacts has been the rise of remote work, which

anecdotally appears to still be occurring at significantly higher levels than pre-pandemic conditions. More working from home activity results in lower peak hour traffic levels due to the reduction in commuting. As it remains unclear what the long-term stabilization of traffic patterns will look like, agencies such as VDOT have utilized traffic data collected prior to the COVID-19 pandemic to conservatively plan for the future (VDOT's IIM-TMPD-7.0 allows for traffic counts as old as 2015 to be utilized to establish base traffic). The balanced, Existing conditions volume dataset is shown in **Figure 2**.

2.3 Existing Conditions Traffic Analysis

Consistent with the 2017 TRG Study, the AM and PM peak hour traffic models were run for 90 minutes per simulation run – the first 30 minutes is a loading ("seeding") period for the traffic while the final 60 minutes represent the peak hour condition. This latter period is when the traffic performance metrics are collected from the model. It is standard policy to average the results of multiple simulation runs. VDOT's microsimulation sample size tool was utilized to determine the number of model runs that result in averaged results that have a statistical 95% confidence level. Consequently, the AM model and PM model were simulated seven and twenty times, respectively, in accordance with the output from the sample size tool.

2.3.1 Performance Metrics

In this study, vehicle delay (seconds per vehicle) and queue (feet) at intersections are the primary performance metrics, as determined by the Town. The most commonly utilized transportation metric is Level of Service (LOS), which measures the adequacy of intersection geometrics and the traffic control for the given turning volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of total delay attributed to traffic control devices (e.g., signals or stop signs). **Table 2** provides a description of various levels of service categories and delay ranges. In the Herndon and greater Northern Virginia area, it is common and acceptable to have LOS D during the peak hours.

As noted, Level of Service is defined by the *Highway Capacity Manual* as a scale based on control delay. The delay reported by VISSIM is microsimulation delay, which is actual minus expected travel time. This delay includes both control delay (e.g., due to intersection control) and roadway friction (e.g., drivers interacting with traffic). For this reason, VDOT's policy in its *Traffic Operations and Safety Analysis Manual* (TOSAM) is to not report LOS from VISSIM. Given that it is the most widely recognized traffic metric, LOS is reported in this study; however, this difference in LOS definition should be noted.

Table 2 Level of Service Description for Intersections

Level of Service	Description	Signalized Intersection / Roundabout	Unsignalized Intersection
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80 sec.	> 50 sec.

2.3.2 Existing Conditions Findings

The Existing Conditions traffic model results indicate that one of the key model calibration metrics is satisfied – the model is able to process existing traffic volume demand on each movement, approach, and intersection within an appropriate calibration threshold. While the model was not recalibrated as discussed previously, this result conveys confidence that the model is still representative of existing conditions.

In Existing conditions, the traffic models estimate that all of the signalized intersections operate at a LOS of D or better during the two peak hours, which is an acceptable condition. During the PM peak hour, the Van Buren Street / Alabama Drive all-way stop-control intersection operates at LOS E, which is primarily due to delay on the southbound Van Buren Street approach that also experiences vehicle queues extending upstream to Spring Street. A traffic signal is under construction at this intersection in Fall 2022 and will help facilitate flow at this location. **Table 3** lists the intersection delay and LOS at each of the eleven study intersections. Intersection LOS is also shown in **Figure 3**.

Table 3 Existing Condition Intersection Delay and LOS

Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
Elden St / Monroe St	18.0	B	22.5	C
Elden St / Van Buren St	24.3	C	22.4	C
Van Buren St / Spring St	11.7	B	44.8	D
Van Buren St / Herndon Pkwy	35.9	D	39.2	D
Van Buren St / Alabama Dr [1]	10.6	B	46.1	E
Van Buren St / Worldgate Dr	39.1	D	24.9	C
Herndon Pwky / Driveway [1]	0.5	A	0.8	A
Herndon Pkwy / Exchange Pl [1]	0.5	A	0.6	A
Herndon Pkwy / Fairbrook Dr [1]	0.4	A	0.6	A
Spring St / Herndon Pkwy	47.4	D	46.8	D
Spring St / FCP Ramps	18.8	B	17.4	B

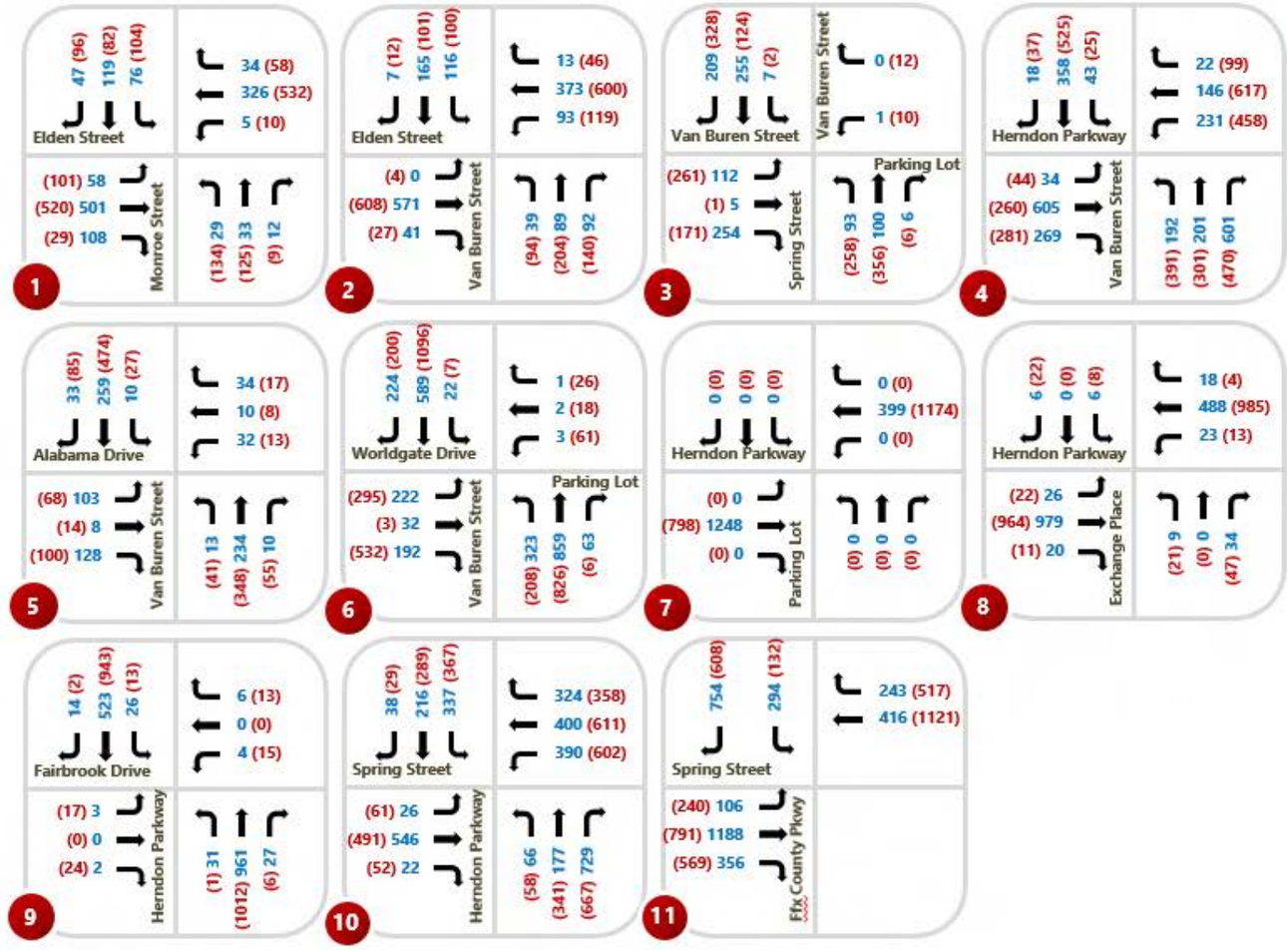
Source: Average of 7 AM and 20 PM Peak Hour VISSIM simulation runs.
1 Unsignalized intersections in Existing conditions scenario.

Congestion "heat" maps for each of the peak hours are shown in **Figures 4 and 5**. These represent the average vehicle speeds present in different segments of the model. Slower vehicle speeds (shown in shades of red) represent areas of higher congestion and vehicle queuing, whereas higher vehicle speeds (shown in shades of green) represent areas of lower congestion and vehicle queueing. In the AM peak hour, the greatest areas of congestion are northbound Van Buren Street south of Herndon Parkway and the Spring Street / Herndon Parkway intersection vicinity. In the PM peak hour, the heaviest congestion areas are the Van Buren Street corridor (notably southbound north of Alabama Drive and northbound south of Herndon Parkway) as well as the Spring Street / Herndon Parkway intersection vicinity.

As seen in the traffic model results, in Existing conditions the transportation system is able to accommodate the traffic demand and facilitate vehicular movement throughout the Town. Additionally, roadway improvement projects are under-construction or planned in the near future at Van Buren Street / Alabama Drive, Van Buren Street / Herndon Parkway, and Spring Street / Herndon Parkway; these projects will help improve conditions at the areas of with the highest levels of congestion in Existing conditions.

Appendix A documents the delay, LOS, and vehicle queuing for all of the movements at each of the eleven study intersections.

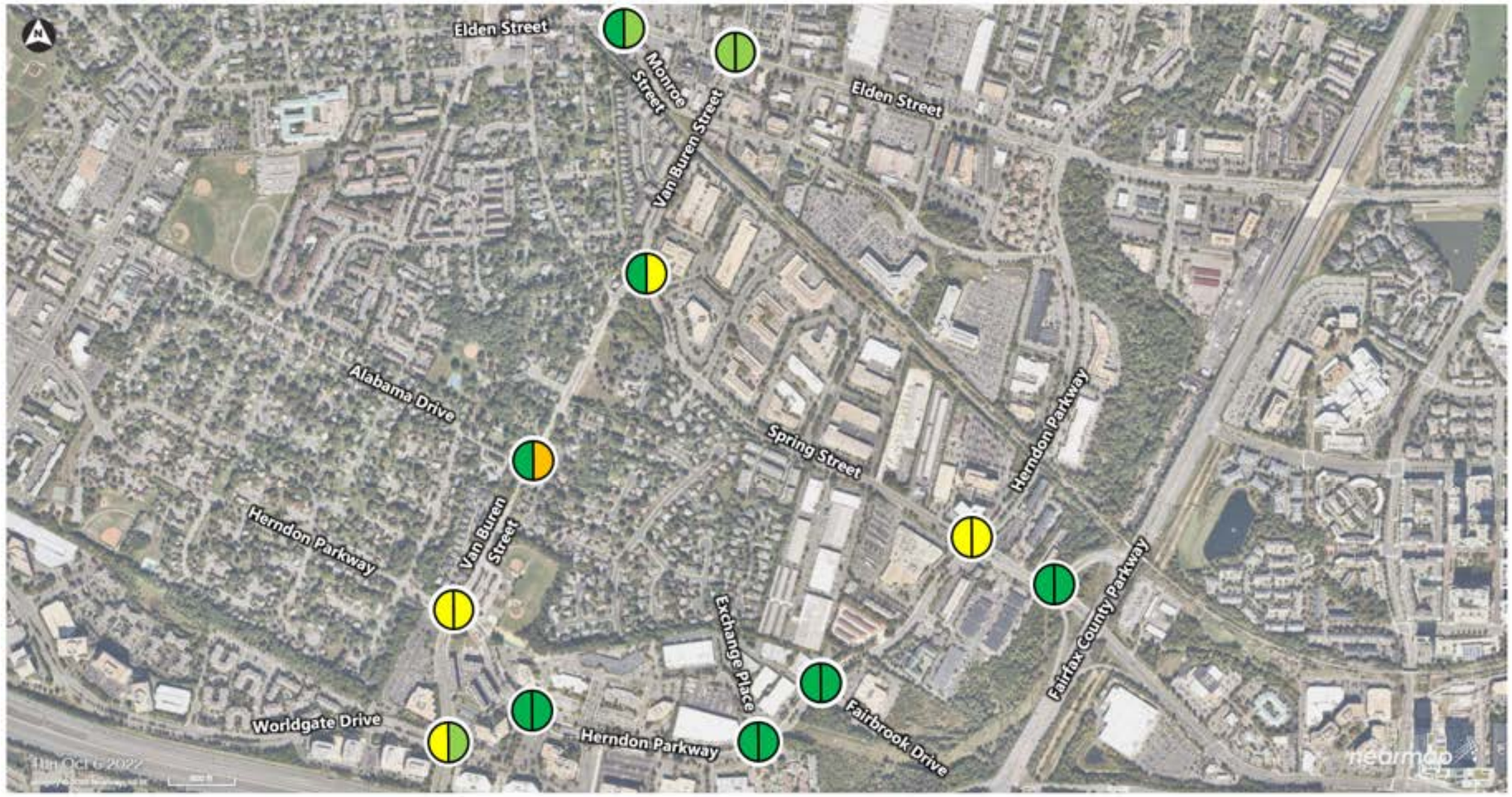
Figure 2 Existing Conditions Traffic Volumes



Study Intersection
XX AM Peak Hour Volume
(XX) PM Peak Hour Volume

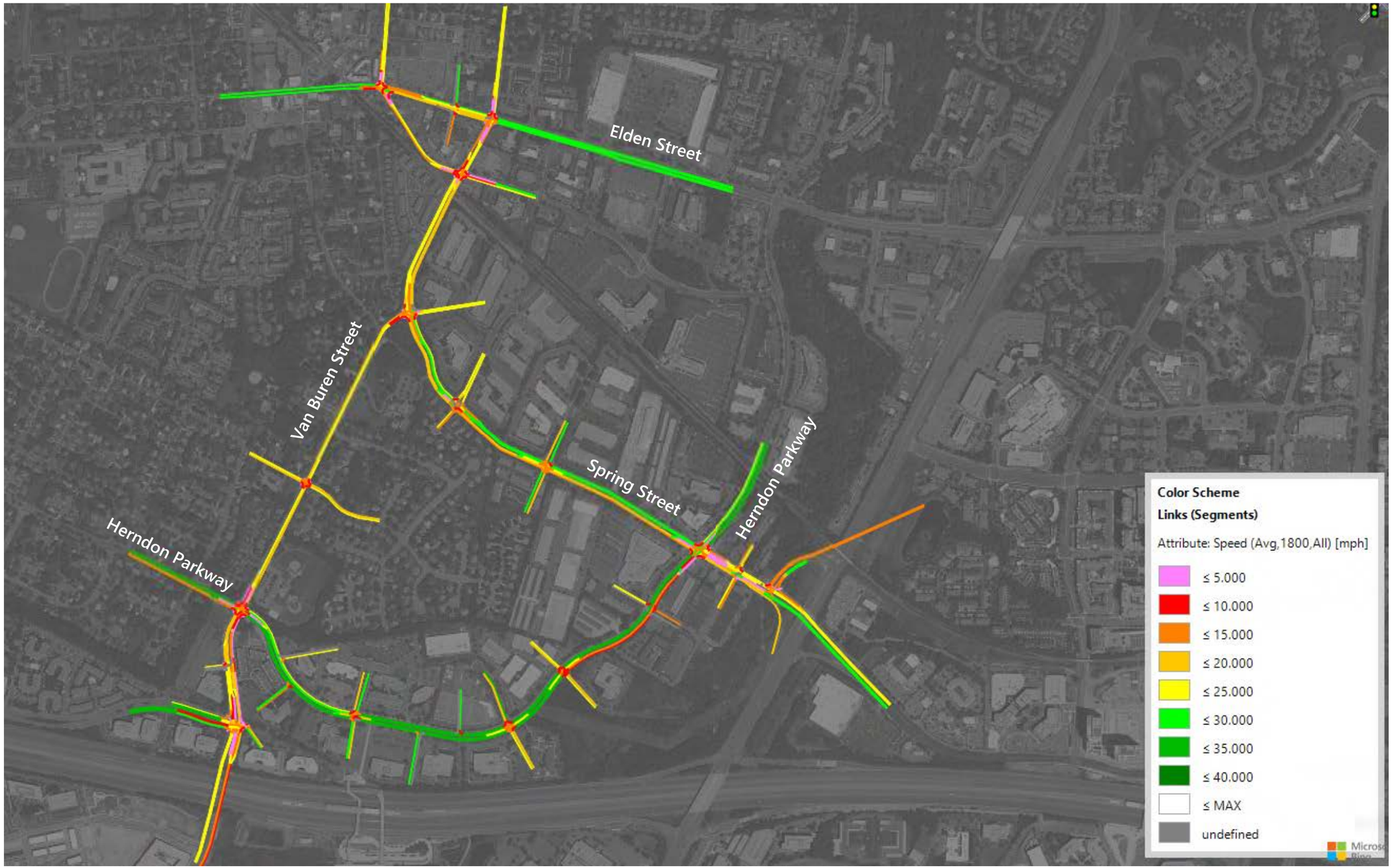
Existing traffic volumes are from May 2017 and include the addition of Metro Square townhome traffic. Basemap Source: Nearmap.

Figure 3 Existing Conditions Intersection Level of Service



Source: Average of 7 AM Peak Hour and 20 PM Peak Hour VISSIM simulation runs. Aerial imagery from NearMap.

Figure 4 Existing Conditions Congestion Heat Map – AM Peak Hour



Source: Average of 7 AM Peak Hour VISSIM simulation runs.

Figure 5 Existing Conditions Congestion Heat Map – PM Peak Hour

Source: Average of 20 PM Peak Hour VISSIM simulation runs.

3

No Build 2045 Traffic Conditions

This section of the report documents the assumptions and findings of the No Build traffic analysis, which establishes a baseline condition for the design year to which the TRG development scenarios can be compared. While congestion is higher than Existing conditions, the network has capacity to accommodate the demand.

3.1 No Build 2045 Model Assumptions

In coordination with Town of Herndon staff, VHB set the horizon year for future-year traffic analysis as 2045. Using 2045 as the horizon year was deemed appropriate because it allows sufficient time for full buildout of the development associated with the TRG Small Area Plan.

A VISSIM microscopic simulation model was developed for No Build 2045 conditions to analyze projected traffic conditions for the 2045 horizon year. The No Build model considers growth in traffic volumes associated with organic growth as well as known development projects outside of the TRG area. This No Build 2045 model provides a future-year baseline against which to evaluate traffic impacts associated with the TRG Small Area Plan.

3.1.1 Traffic Volumes

In estimating background traffic growth for the No Build 2045 model, a 1% annual growth rate was applied to existing traffic volumes to project traffic volumes to the horizon year 2045. As mentioned in the approach to the Existing conditions traffic modeling in Chapter 2, VHB assumed zero traffic growth through 2022 as a result of sustained impacts to traffic volumes due to the COVID-19 pandemic. The 1% annual growth rate was then applied from 2022 to 2045. This rate was utilized in both the 2012 HMSAS and 2017 TRG studies, and was agreed upon by Town staff for this study.

In addition to the 1% annual growth rate, VHB layered in estimated trips related to known development projects:

- Development volume growth included the HTOC-related volumes as identified in the 2012 Herndon Metro Station Area Study. To account for the Metro Square development – which was built by-right as 2-over-2 townhomes on a parcel that the HTOC assumed would develop at a substantially greater density – VHB applied a 20% trip reduction to the HTOC-related volumes. The 20% reduction is based on the Metro Square parcel's acreage relative to the total HTOC site.
- Development volume growth also included volumes associated with the Fairbrook development, as identified in the 2020 Fairbrook Business Park Traffic Impact Study (TIS).

This approach to background growth estimation is consistent with the methodologies used in both the 2012 Herndon Metrorail Station Area Study and the 2017 TRG study. It should be noted that, based on a comparison to growth projections derived from the MWCOG Regional Travel Demand Model (TDM), this approach may overstate traffic demand in the No Build 2045 scenario; however, a conservative traffic forecasting

approach ensures that the infrastructure can more than accommodate the future demand.

3.1.2 Roadway Network

VHB included the following transportation network improvements in the No Build 2045 traffic model:

- Van Buren Street / Herndon Parkway intersection improvements.
- Herndon Parkway / Spring Street roadway project.
- Worldgate Drive extension to Herndon Parkway.
- Van Buren Street / Alabama Drive traffic signal. Note: the remainder of the Van Buren Street streetscape project did not necessitate modifications to the traffic model.
- Traffic signals along Herndon Parkway at Worldgate Drive extension, the Metro Promenade, 555 Herndon Parkway, Exchange Place, and Fairbrook Drive. These signals are planned to accommodate the Worldgate Drive extension, HTOC and Fairbrook developments, and the Herndon Metro Station; therefore, they are anticipated to be in operation by the 2045 analysis year.
- Fairbrook Drive approach to Herndon Parkway as shown in Fairbrook TIS.

Based on information provided by Fairfax County Department of Transportation (DOT) to the Town of Herndon, the proposed improvements to the Spring Street / Fairfax County Parkway (FCP) interchange were not included in the Future Year VISSIM models. The County's correspondence indicated that the Spring Street / FCP interchange improvements project is unfunded, is not a priority for the County, and has no associated timeline.

Furthermore, the County's correspondence implies that the Spring Street / FCP interchange conceptual design is inextricably linked with a proposed "Echelon" interchange between Fairbrook Drive extension and the Dulles Toll Road. To that point, the County's concept for the Spring Street / FCP interchange does not accommodate movements from northbound Fairfax County Parkway onto westbound Spring Street (i.e., into Herndon), as it appears that the County assumes those movements will be accommodated by a future Fairbrook Drive extension / Dulles Toll Road interchange.

Given the linking of the two interchanges, the County's concept for the Spring Street / FCP interchange improvements cannot be incorporated into a Future Year model on its own. Incorporating both interchanges is infeasible as the Project Team has already determined that the Fairbrook Drive extension / Dulles Toll Road interchange will not be included in the Future Year VISSIM models. Furthermore, one or both concepts seem likely to change if and when they advance past the conceptual stage.

The uncertainty around the timing and configuration of the Spring Street / FCP interchange improvements project led to a decision to exclude it in the Future Year models for the Herndon TRG traffic analysis. If the study were to include the current concept design and subsequently that design were to change, it could raise questions/doubts regarding the study conclusions and recommendations.

The proposed extension of Fairbrook Drive between Herndon Parkway and Spring Street was also excluded from the roadway network for the No Build 2045 model. The decision to exclude the Fairbrook Drive extension was based on input from Town of Herndon staff regarding challenges in right-of-way acquisition and VDOT concurrence on connecting Fairbrook Drive to the existing Spring Street / FCP ramp signal. These challenges cast doubt on the feasibility of constructing the Fairbrook Drive extension by 2045; therefore it was determined to include the extension not as a baseline No Build condition, but rather a potential Build condition.

The proposed Herndon Parkway / Sunset Business Park traffic signal exclusively services turning movements associated with potential TRG development; as such, this signal was not modeled in No Build conditions.

Signal phasing and timing was optimized at all traffic signals within the No Build model. It is appropriate to include optimized signals because transportation agencies typically optimize their traffic signals every few years. It is safe to assume that in 2045, the Town of Herndon will operate the signals to most efficiently serve all road users (vehicular and pedestrian). At all new or modified signals (i.e., from roadway projects), signal timings include multimodal consideration of pedestrian crossing intervals.

Through iterative testing to identify the optimal signal phasing and timing at the Spring Street / Herndon Parkway intersection, the Project Team identified a phasing strategy that is an established strategy but one that is not frequently utilized. Specifically, the westbound Spring Street left turn signal phase was modeled to reservice during the signal cycle (i.e., occur twice at separate time points within the cycle). This reservicing is needed to clear the vehicle queue in the left turn lanes to allow traffic on both westbound Spring Street and the Fairfax County Parkway offramps to consecutively enter the left turn lanes. It was otherwise found that one of these traffic streams would experience lengthy queues without this reservicing.

3.2 No Build 2045 Traffic Volumes

As mentioned in Section 3.1.1, No Build 2045 traffic volumes were derived from a 1% annual background growth rate and known development projects. The process utilized to develop the volume dataset is listed below:

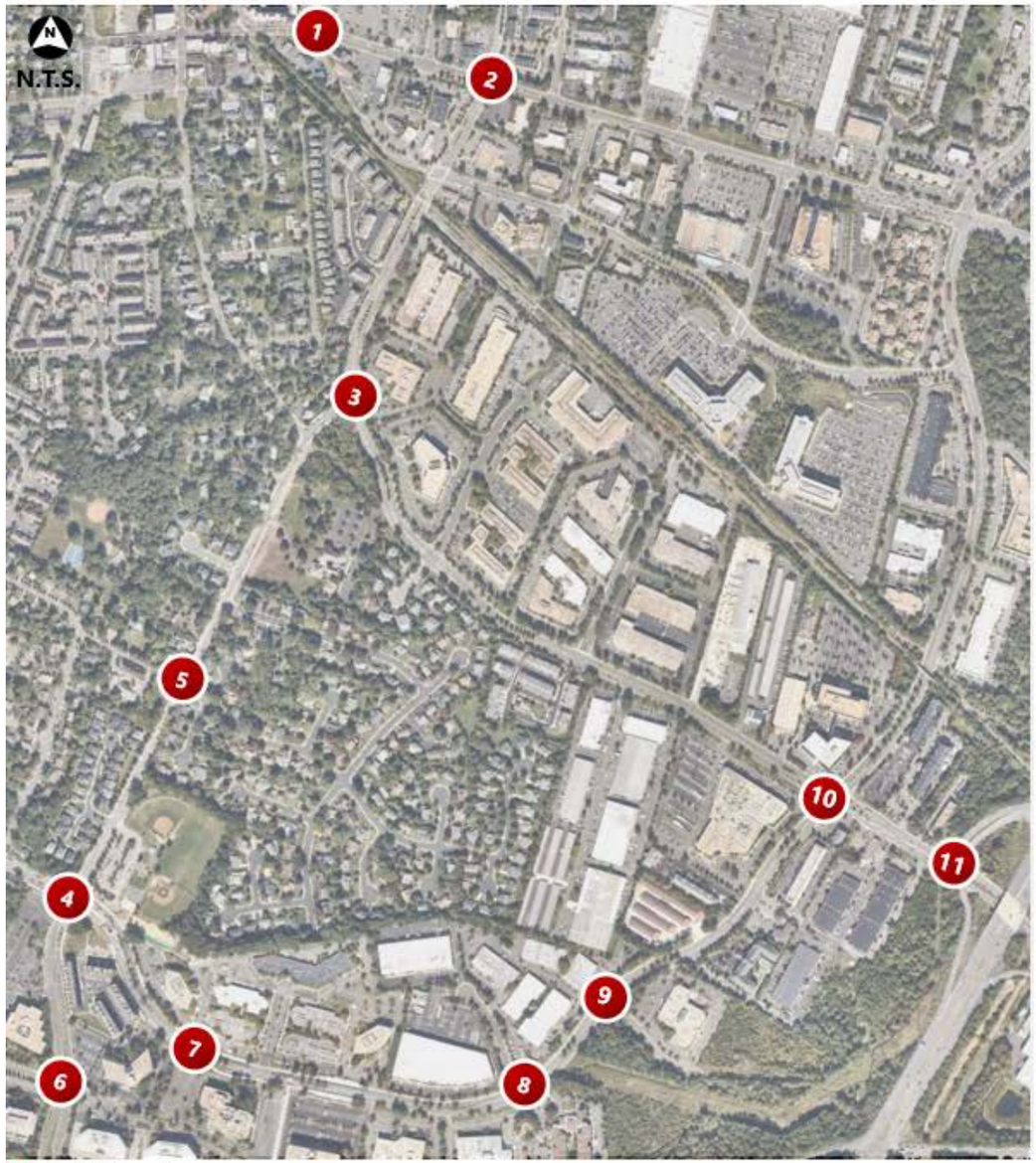
1. Remove volumes associated with the existing land uses on the HTOC site and the Fairbrook site, with the exception of the Metro Square development volumes that were maintained.
2. Apply a 1% annual growth rate from 2022 to 2045.
3. Shift traffic volume to account for the Worldgate Drive extension to Herndon Parkway. Shift consistent with previous HMSAS.
4. Add the traffic volumes associated with the Fairbrook development, per the previously completed Fairbrook TIS.
5. Add the traffic volumes associated with 80% of the HTOC development, per the previously completed HMSAS. The 20% reduction accounts for the Metro Square property that will not developed at the anticipated HTOC density.
6. Shift a percentage of northbound Van Buren Street left turns from Herndon Parkway to Worldgate Drive in the PM peak hour only. This shift is a result of iterative traffic modeling and is discussed more in the subsequent analysis section.

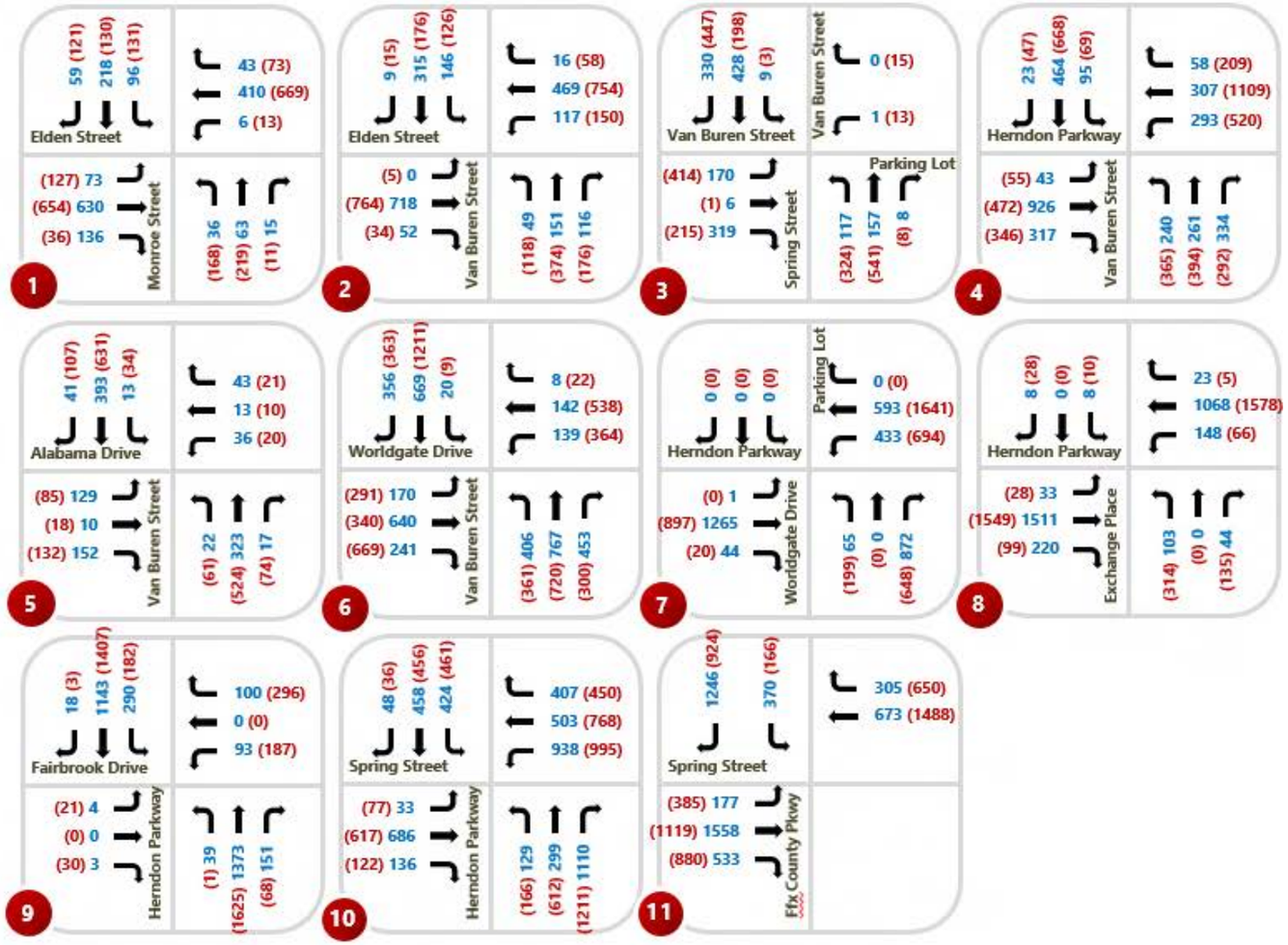
Figure 6 displays the No Build 2045 traffic volume dataset that was analyzed in the No Build traffic model. These traffic volumes are substantially higher than Existing conditions traffic volumes.

3.3 No Build 2045 Traffic Analysis

Consistent with the Existing conditions traffic analysis, the No Build models were run under the same conditions (i.e., length of individual simulation run and number of averaged simulation runs). The same traffic operations metrics were also collected to evaluate the change in system performance between Existing and No Build 2045 conditions.

Figure 6 No Build 2045 Traffic Volumes





Study Intersection
XX AM Peak Hour Volume
(XX) PM Peak Hour Volume

No Build 2045 traffic volumes include annual background growth, specific development projects, and volume shift to account for the Worldgate Drive extension. Basemap Source: Nearmap

3.3.1 No Build 2045 Findings

In No Build 2045 conditions, with significantly higher traffic volumes but also improved roadway configurations, the transportation network within the study area is able to accommodate the increased demand; albeit the network does have more congestion than Existing conditions. **Table 4** lists the intersection delay and LOS at each of the eleven study intersections. Intersection LOS is also shown in **Figure 7**.

All study intersections are projected to operate at LOS D or better in both peak hours, except for the Spring Street / Herndon Parkway intersection, which is anticipated to operate at LOS E in the PM peak hour. While LOS E does represent increased delay, many intersections in the Northern Virginia area operate at this condition during a peak hour.

Table 4 No Build 2045 Intersection Delay and LOS

Intersection [1]	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
Elden St / Monroe St	27.2	C	34.1	C
Elden St / Van Buren St	31.2	C	36.7	D
Van Buren St / Spring St	16.8	B	40.8	D
Van Buren St / Herndon Pkwy	30.5	C	44.4	D
Van Buren St / Alabama Dr	16.1	B	33.4	C
Van Buren St / Worldgate Dr	23.8	C	27.7	C
Herndon Pwky / Driveway	25.2	C	22.0	C
Herndon Pkwy / Exchange Pl	11.0	B	15.8	B
Herndon Pkwy / Fairbrook Dr	14.2	B	19.9	B
Spring St / Herndon Pkwy	51.5	D	59.1	E
Spring St / FCP Ramps	22.1	C	25.8	C

Source: Average of 7 AM and 20 PM Peak Hour VISSIM simulation runs.
1 All study intersections are signalized in the No Build scenario.

The heaviest volume movements at the Spring Street / Herndon Parkway intersection (in both peak hours) are the westbound Spring Street left turn and the northbound Herndon Parkway right turn. Even with the roadway improvements and signal phasing strategy that optimize the capacity of these signal movements, the heavy demand on these movements limits the overall efficiency of the intersection. Previous studies, including the 2017 TRG Study and the Fairbrook TIS, identified the need to extend Fairbrook Drive to the Spring Street / Fairfax County Parkway Ramps signal. This roadway extension would help alleviate the predicted congestion at Spring Street / Herndon Parkway by providing a second connection between the Metro Station area and Fairfax County Parkway / Reston, which would likely better distribute traffic demand across the network rather than concentrating it at a single location (i.e., Spring Street / Herndon Parkway).

As mentioned in Section 3.2, initial traffic modeling of the PM peak indicated significant and severe congestion at the Van Buren Street / Herndon Parkway intersection. Several intersection constraints such as a single northbound left turn lane and only 150 feet of dual southbound thru lanes limit the capacity of the intersection. Even with optimized signal timings, the model indicates that the northbound Van Buren Street queue will extend south of the Dulles Toll Road and that the southbound Van Burent Street queue will extend to Spring Street.

As a general rule, drivers will typically take the fastest path to their destinations, especially with GPS navigation so widely utilized. The northbound Van Buren Street left turn at Worldgate Drive has approximately twice the capacity of the left turn at Herndon Parkway due to the presence of dual left turn lanes. An approximate 20% shift of drivers from the left turn at Van Buren Street to the left turn at Worldgate Drive allows the system to reach an equilibrium.

Congestion "heat" maps for each of the peak hours are shown in **Figures 8 and 9**. These represent the average vehicle speeds present in different segments of the model. Slower vehicle speeds (shown in shades of red) represent areas of higher congestion and vehicle queuing, whereas higher vehicle speeds (shown in shades of green) represent areas of lower congestion and vehicle queueing. In both peak hours, the heaviest areas of congestion are the Spring Street / Herndon Parkway intersection and the three intersections at the junctions of Van Buren Street, Worldgate Drive, and Herndon Parkway. Additionally, in the PM peak hour, southbound Van Buren Street experiences a significant amount of congestion.

In summary, the No Build 2045 study area roadway network is projected to accommodate the increased demand via a combination of publicly funded roadway projects, optimized signal operations, and developer-funded roadway projects. Based on the findings, the Herndon Parkway intersections with Van Buren Street and Spring Street appear to be the locations with the most limited capacity. While the potential Fairbrook Drive extension would relieve a portion of the demand at the Spring Street intersection, the Van Buren Street intersection appears to potentially need additional roadway improvements to provide necessary capacity to meet the future demand of the No Build scenario.

Appendix A documents the delay, LOS, and vehicle queuing for all of the movements at each of the eleven study intersections.

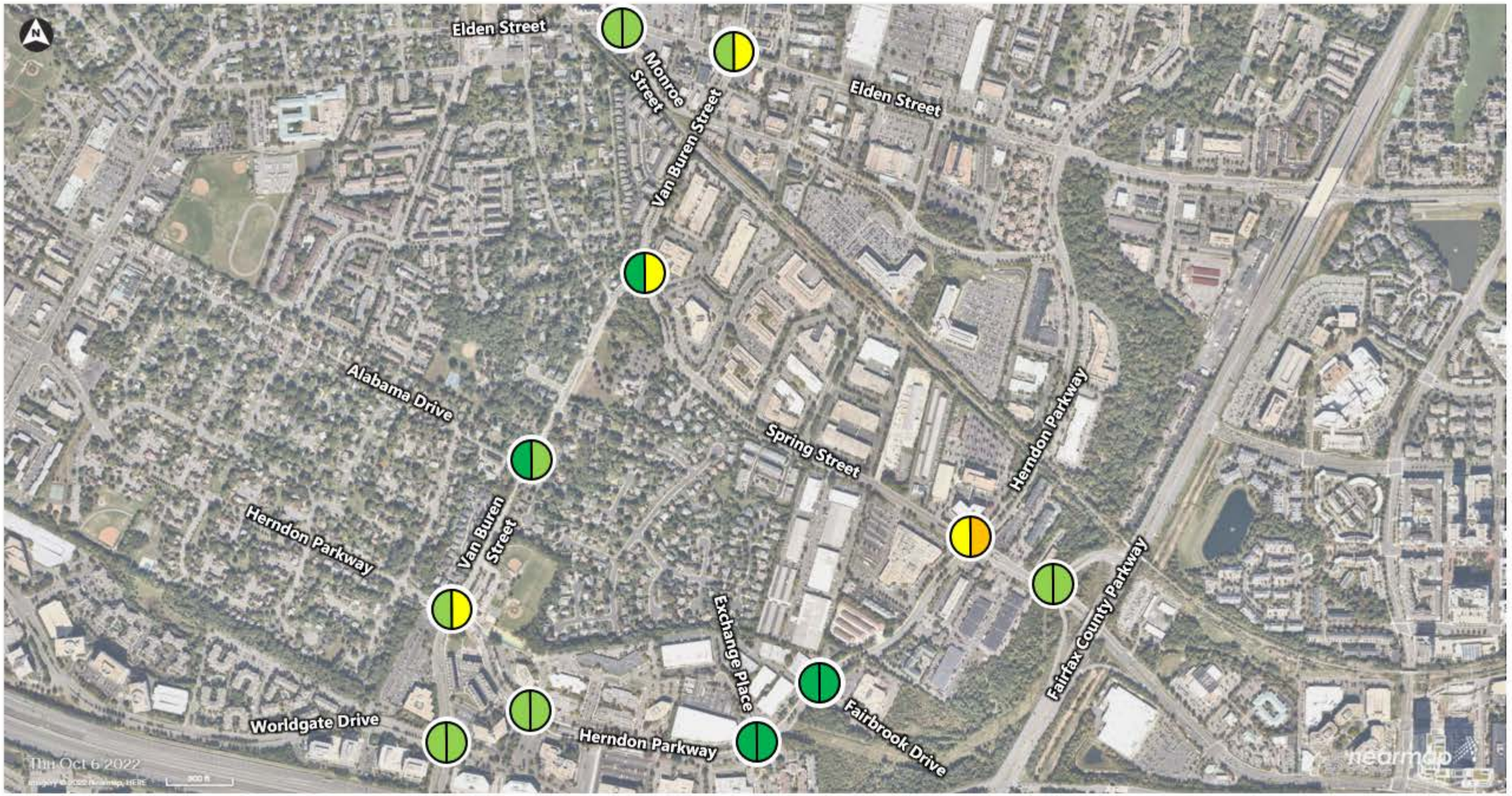
3.4 No Build Traffic Conclusions – Constraints and Opportunities

The Herndon Parkway corridor is anticipated to accommodate projected 2045 volume demand (without TRG redevelopment) and the system appears to have surplus capacity to handle additional demand, whether from TRG redevelopment or elsewhere. The most constrained locations within the study area system are at the two ends of Herndon Parkway – Van Buren Street and Spring Street. In the modeled No Build condition, the Worldgate Drive extension offers the only additional access to the corridor beyond these two "bookend" intersections. Previous studies have identified a Fairbrook Drive extension as an improvement that would create an additional access route on the corridor's eastern end and relieve pressure on the Herndon Parkway / Spring Street intersection.

The operating performance of the Herndon Parkway / Van Buren Street intersection is limited by its geometry and lane configuration – both the northbound left turn and the southbound thru movement on Van Buren Street. The northbound left turn is limited by the single left turn lane while the southbound thru movement is limited by the dual thru lanes only extending approximately 150 feet. If the signal gives more green time than the time to clear the queue in this 150 feet, the approach capacity essentially drops to a single thru lane because vehicles are only arriving at the rate of a single lane. This intersection would likely need to be expanded to provide more capacity on the west end of the Herndon Parkway study corridor.

The 2017 TRG Study found that only 13% (AM) and 37% (PM) of TRG redevelopment vehicle trips would represent new traffic on the roadway network. The remaining development trips replaced existing trips. If this pattern holds in this study, the network will more easily absorb traffic volumes associated with TRG redevelopment.

Figure 7 No Build 2045 Intersection Level of Service



Intersection Level of Service (LOS)

- AM Peak Hour / PM Peak Hour
- LOS A / LOS B
- LOS C
- LOS D
- LOS E
- LOS F

Source: Average of 7 AM Peak Hour and 20 PM Peak Hour VISSIM simulation runs. Aerial imagery from NearMap.

Figure 8 No Build 2045 Congestion Heat Map – AM Peak Hour

Source: Average of 7 AM Peak Hour VISSIM simulation runs.

Figure 9 No Build 2045 Congestion Heat Map – PM Peak Hour

Source: Average of 20 PM Peak Hour VISSIM simulation runs.

Divider

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A

VISSIM Model Complete Intersection Metrics

Existing Conditions: Weekday Morning Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes												Existing Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Calibration Threshold: Within ±	Calibration Threshold: Met Threshold? *	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Calibration Threshold: Within ±	Calibration Threshold: Met Threshold?	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Elden Street / Monroe Street	**Signal**	Elden Street	EBL	58	60	2	3%	20%	YES	667	662	-5	-1%	15%	YES	8.1	A	10.0	B	2	59	
			EBT	501	495	-6	-1%	15%	YES							10.5	B			37	439	
			EBR	108	107	-1	-1%	15%	YES							8.8	A			36	438	
		Elden Street	WBL	5	4	-1	-20%	20%	YES	365	356	-9	-2%	15%	YES	15.0	B	6.8	A	0	22	
			WBT	326	318	-8	-2%	15%	YES							6.9	A			13	222	
			WBR	34	34	0	0%	20%	YES							4.8	A			16	261	
		Monroe Street	NBL	29	29	0	0%	20%	YES	74	74	0	0%	20%	YES	75.4	E	63.4	E	12	74	
			NBT	33	33	0	0%	20%	YES							73.5	E			14	84	
			NBR	12	12	0	0%	20%	YES							6.9	A			2	74	
		Monroe Street	SBL	76	75	-1	-1%	20%	YES	242	248	6	2%	15%	YES	43.2	D	41.6	D	21	177	
			SBT	119	123	4	3%	15%	YES							45.7	D			40	194	
			SBR	47	50	3	6%	20%	YES							29.1	C			37	194	
		Intersection		**1,348**	**1,340**	-8	**-1%**	**10%**	**YES**	**1,348**	**1,340**	**-8**	**-1%**	**10%**	**YES**	18.0	B	**18.0**	**B**			
Elden Street / Van Buren Street	**Signal**	Elden Street	EBL	0	0	0	0%	20%	YES	612	603	-9	-1%	15%	YES	0.0	A	11.0	B	24	180	
			EBT	571	563	-8	-1%	15%	YES							11.6	B			24	180	
			EBR	41	40	-1	-2%	20%	YES							2.9	A			0	29	
		Elden Street	WBL	93	90	-3	-3%	20%	YES	479	468	-11	-2%	15%	YES	12.0	B	8.7	A	11	141	
			WBT	373	368	-5	-1%	15%	YES							8.0	A			11	141	
			WBR	13	10	-3	-23%	20%	YES*							4.9	A			15	155	
		Van Buren Street	NBL	39	39	0	0%	20%	YES	220	215	-5	-2%	15%	YES	44.4	D	28.7	C	10	94	
			NBT	89	86	-3	-3%	20%	YES							46.2	D			22	158	
			NBR	92	90	-2	-2%	20%	YES							5.2	A			2	72	
		Van Buren Street	SBL	116	117	1	1%	15%	YES	288	293	5	2%	15%	YES	47.6	D	48.9	D	33	195	
			SBT	165	168	3	2%	15%	YES							50.4	D			50	205	
			SBR	7	8	1	14%	20%	YES							36.2	D			52	215	
		Intersection		**1,311**	**1,286**	-25	**-2%**	**10%**	**YES**	**1,311**	**1,286**	**-25**	**-2%**	**10%**	**YES**	24.3	C	**24.3**	**C**			
Van Buren Street / Spring Street	**Signal**	Van Buren Street	EBL	112	105	-7	-6%	15%	YES	371	358	-13	-4%	15%	YES	12.2	B	8.5	A	0	0	
			EBT	5	5	0	0%	20%	YES							9.3	A			7	99	
			EBR	254	248	-6	-2%	15%	YES							6.9	A			8	113	
		Parking Lot	WBL	1	1	0	0%	20%	YES	1	1	0	0%	20%	YES	14.3	B	14.3	B	0	14	
			WBR	0	0	0	0%	20%	YES							0.0	A			0	0	
		Spring Street	NBL	93	94	1	1%	20%	YES	199	201	2	1%	15%	YES	8.1	A	6.2	A	2	89	
			NBT	100	102	2	2%	20%	YES							4.6	A			2	79	
			NBR	6	5	-1	-17%	20%	YES							1.9	A			1	87	
		Van Buren Street	SBL	7	6	-1	-14%	20%	YES	471	465	-6	-1%	15%	YES	6.2	A	4.8	A	0	30	
			SBT	255	248	-7	-3%	15%	YES							5.9	A			5	95	
			SBR	209	211	2	1%	15%	YES							3.5	A			2	102	
		Intersection		**571**	**560**	-11	**-2%**	**15%**	**YES**	**571**	**560**	**-11**	**-2%**	**15%**	**YES**	11.7	B	**11.7**	**B**			
Spring Street / Herndon Parkway	**Signal**	Spring Street	EBL	26	28	2	8%	20%	YES	594	584	-10	-2%	15%	YES	57.8	E	46.6	D	9	77	
			EBT	546	534	-12	-2%	15%	YES							46.5	D			84	313	
			EBR	22	22	0	0%	20%	YES							34.9	C			91	325	
		Spring Street	WBL	390	394	4	1%	15%	YES	1,114	1,139	25	2%	10%	YES	52.5	D	30.5	C	70	236	
			WBT	400	404	4	1%	15%	YES							29.8	C			41	177	
			WBR	324	341	17	5%	15%	YES							5.8	A			8	132	
		Herndon Parkway	NBL	66	65	-1	-2%	20%	YES	972	924	-48	-5%	15%	YES	32.5	C	56.2	E	6	90	
			NBT	177	169	-8	-5%	15%	YES							46.2	D			287	901	
			NBR	729	690	-39	-5%	15%	YES							60.9	E			564	998	
		Herndon Parkway	SBL	337	338	1	0%	15%	YES	591	589	-2	0%	15%	YES	20.8	C	19.9	B	38	277	
			SBT	216	212	-4	-2%	15%	YES							19.8	B			17	123	
			SBR	38	39	1	3%	20%	YES							12.8	B			16	136	
		Intersection		**2,680**	**2,647**	-33	**-1%**	**10%**	**YES**	**2,680**	**2,647**	**-33**	**-1%**	**10%**	**YES**	47.4	D	**47.4**	**D**			
Spring Street / Fairfax County Parkway	**Signal**	Spring Street	EBL	106	106	0	0%	15%	YES	1,650	1,605	-45	-3%	10%	YES	62.0	E	10.0	A	37	180	
			EBT	1,188	1,159	-29	-2%	10%	YES							7.7	A			28	354	
			EBR	356	340	-16	-4%	15%	YES							1.7	A			0	0	
		Spring Street	WBT	416	407	-9	-2%	15%	YES	659	649	-10	-2%	15%	YES	13.5	B	8.7	A	18	155	
			WBR	243	242	-1	0%	15%	YES							0.6	A			0	0	
		Fairfax County Parkway	SBL	294	294	0	0%	15%	YES	1,048	1,056	8	1%	10%	YES	46.2	D	38.5	D	261	758	
			SBR	754	762	8	1%	15%	YES							35.5	D			261	758	
		Intersection		**3,357**	**3,310**	-47	**-1%**	**10%**	**YES**	**3,357**	**3,310**	**-47**	**-1%**	**10%**	**YES**	18.8	B	**18.8**	**B**			

Note: Average results across 7 microsimulation runs.
* Low volume difference. Percentage difference is not significant. Considered Calibrated.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue.

Existing Conditions: Weekday Morning Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes												Existing Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Calibration Threshold Within ±	Calibration Threshold Met Threshold? *	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Calibration Threshold Within ±	Calibration Threshold Met Threshold?	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Van Buren Street / Alabama Drive	**All-Way Stop (Future Signal)**	Alabama Drive	EBL	103	97	-6	-6%	15%	YES	239	239	0	0%	15%	YES	8.9	A	8.3	A	12	121	
			EBT	8	8	0	0%	20%	YES							10.3	B			12	122	
			EBR	128	134	6	5%	15%	YES							7.7	A			12	121	
		Alabama Drive	WBL	32	31	-1	-3%	20%	YES	76	73	-3	-4%	20%	YES	6.8	A	6.3	A	3	89	
			WBT	10	11	1	10%	20%	YES							7.4	A			3	90	
			WBR	34	31	-3	-9%	20%	YES							5.6	A			3	89	
		Van Buren Street	NBL	13	14	1	8%	20%	YES	257	250	-7	-3%	15%	YES	11.5	B	12.3	B	17	177	
			NBT	234	226	-8	-3%	15%	YES							12.5	B			18	178	
			NBR	10	10	0	0%	20%	YES							10.4	B			17	177	
		Van Buren Street	SBL	10	12	2	20%	20%	YES	302	306	4	1%	15%	YES	11.8	B	11.9	B	26	193	
			SBT	259	261	2	1%	15%	YES							12.1	B			26	193	
			SBR	33	33	0	0%	20%	YES							10.7	B			26	193	
		Intersection		**874**	**868**	-6	**-1%**	**15%**	**YES**	**874**	**868**	**-6**	**-1%**	**15%**	**YES**	10.6	B	**10.6**	**B**			
Van Buren Street / Herndon Parkway	**Signal**	Herndon Parkway	EBL	34	34	0	0%	20%	YES	908	906	-2	0%	15%	YES	22.8	C	34.7	C	4	70	
			EBT	605	609	4	1%	15%	YES							36.3	D			105	414	
			EBR	269	263	-6	-2%	15%	YES							32.7	C			120	436	
		Herndon Parkway	WBL	231	203	-28	-12%	15%	YES	399	355	-44	-11%	15%	YES	37.1	D	31.0	C	67	273	
			WBT	146	133	-13	-9%	15%	YES							24.3	C			10	86	
			WBR	22	19	-3	-14%	20%	YES							12.1	B			10	86	
		Van Buren Street	NBL	192	187	-5	-3%	15%	YES	994	952	-42	-4%	15%	YES	17.4	B	43.8	D	236	1048	
			NBT	201	197	-4	-2%	15%	YES							54.4	D			763	1047	
			NBR	601	568	-33	-5%	15%	YES							48.9	D			780	1064	
		Van Buren Street	SBL	43	41	-2	-5%	20%	YES	419	425	6	1%	15%	YES	42.1	D	24.7	C	9	92	
			SBT	358	364	6	2%	15%	YES							23.4	C			28	189	
			SBR	18	20	2	11%	20%	YES							12.0	B			28	189	
		Intersection		**2,720**	**2,638**	-82	**-3%**	**10%**	**YES**	**2,720**	**2,638**	**-82**	**-3%**	**10%**	**YES**	35.9	D	**35.9**	**D**			
Van Buren Street / Worldgate Drive	**Signal**	Worldgate Drive	EBL	222	226	4	2%	15%	YES	446	451	5	1%	15%	YES	48.9	D	28.4	C	52	257	
			EBT	32	29	-3	-9%	20%	YES							46.6	D			52	257	
			EBR	192	196	4	2%	15%	YES							2.0	A			1	77	
		Parking Lot	WBL	3	3	0	0%	20%	YES	6	6	0	0%	20%	YES	45.4	D	50.4	D	1	39	
			WBT	2	3	1	50%	20%	YES*							55.5	E			1	39	
			WBR	1	0	-1	-100%	20%	YES*							29.2	C			0	0	
		Van Buren Street	NBL	323	307	-16	-5%	15%	YES	1,245	1,182	-63	-5%	10%	YES	46.0	D	62.6	E	211	753	
			NBT	859	818	-41	-5%	15%	YES							72.1	E			733	1393	
			NBR	63	57	-6	-10%	20%	YES							16.4	B			0	53	
		Van Buren Street	SBL	22	20	-2	-9%	20%	YES	835	802	-33	-4%	15%	YES	52.8	D	10.3	B	6	66	
			SBT	589	564	-25	-4%	15%	YES							12.5	B			24	201	
			SBR	224	218	-6	-3%	15%	YES							0.7	A			0	0	
		Intersection		**2,532**	**2,441**	-91	**-4%**	**10%**	**YES**	**2,532**	**2,441**	**-91**	**-4%**	**10%**	**YES**	39.1	D	**39.1**	**D**			
Herndon Parkway / Parking Lots by Metro	**Two-Way Stop Control**	Herndon Parkway	EBL	55	58	3	5%	20%	YES	1,248	1,222	-26	-2%	10%	YES	2.0	A	0.3	A	0	51	
			EBT	1,181	1,153	-28	-2%	10%	YES							0.2	A			0	0	
			EBR	12	11	-1	-8%	20%	YES							0.5	A			0	0	
		Herndon Parkway	WBL	26	28	2	8%	20%	YES	440	438	-2	0%	15%	YES	5.4	A	0.6	A	1	57	
			WBT	388	382	-6	-2%	15%	YES							0.2	A			0	13	
			WBR	26	28	2	8%	20%	YES							0.5	A			0	18	
		Parking Lot	NBL	6	5	-1	-17%	20%	YES	6	5	-1	-17%	20%	YES	10.3	B	10.3	B	0	35	
			NBT	0	0	0	0%	20%	YES							0.0	A			0	23	
			NBR	0	0	0	0%	20%	YES							0.0	A			0	35	
		Parking Lot	SBL	9	10	1	11%	20%	YES	15	15	0	0%	20%	YES	8.8	A	7.7	A	1	48	
			SBT	1	1	0	0%	20%	YES							6.1	A			0	30	
			SBR	5	4	-1	-20%	20%	YES							5.4	A			0	47	
		Intersection		**1,709**	**1,680**	-29	**-2%**	**10%**	**YES**	**1,709**	**1,680**	**-29**	**-2%**	**10%**	**YES**	0.5	A	**0.5**	**A**			

Note: Average results across 7 microsimulation runs.
* Low volume difference. Percentage difference is not significant. Considered Calibrated.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue.

Existing Conditions: Weekday Morning Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes												Existing Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Calibration Threshold		Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Calibration Threshold		Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
								Within ±	Met Threshold? *					Within ±	Met Threshold?							
Herndon Parkway / Exchange Place	**Two-Way Stop Control (future signal)**	Herndon Parkway	EBL	26	27	1	4%	20%	YES	1,025	996	-29	-3%	10%	YES	2.1	A	0.3	A	0	57	
			EBT	979	951	-28	-3%	15%	YES							0.2	A			0	0	
			EBR	20	18	-2	-10%	20%	YES							0.5	A			0	0	
		Herndon Parkway	WBL	23	23	0	0%	20%	YES	529	528	-1	0%	15%	YES	0.6	A	0.3	A	0	0	
			WBT	488	490	2	0%	15%	YES							0.3	A			0	4	
			WBR	18	15	-3	-17%	20%	YES							0.6	A			0	4	
		Parking Lot	NBL	9	9	0	0%	20%	YES	43	43	0	0%	20%	YES	7.2	A	6.7	A	3	106	
			NBT	0	0	0	0%	20%	YES							0.0	A			0	58	
			NBR	34	34	0	0%	20%	YES							6.6	A			2	75	
		Exchange Place	SBL	6	6	0	0%	20%	YES	12	12	0	0%	20%	YES	6.7	A	5.7	A	1	55	
			SBT	0	0	0	0%	20%	YES							0.0	A			0	27	
			SBR	6	6	0	0%	20%	YES							4.8	A			1	55	
		Intersection		**1,609**	**1,579**	-30	**-2%**	**10%**	**YES**	**1,609**	**1,579**	**-30**	**-2%**	**10%**	**YES**	0.5	A	**0.5**	**A**			
Herndon Parkway / Fairbrook Drive	**Two-Way Stop Control (future signal)**	Parking Lot	EBL	3	3	0	0%	20%	YES	5	5	0	0%	20%	YES	10.8	B	9.1	A	0	51	
			EBT	0	0	0	0%	20%	YES							0.0	A			0	33	
			EBR	2	2	0	0%	20%	YES							6.5	A			0	50	
		Fairbrook Drive	WBL	4	4	0	0%	20%	YES	10	9	-1	-10%	20%	YES	9.9	A	7.9	A	0	42	
			WBT	0	0	0	0%	20%	YES							0.0	A			0	25	
			WBR	6	5	-1	-17%	20%	YES							6.4	A			0	41	
		Herndon Parkway	NBL	31	29	-2	-6%	20%	YES	1,019	988	-31	-3%	10%	YES	2.0	A	0.3	A	0	44	
			NBT	961	934	-27	-3%	15%	YES							0.2	A			0	19	
			NBR	27	25	-2	-7%	20%	YES							0.7	A			0	32	
		Herndon Parkway	SBL	26	29	3	12%	20%	YES	563	563	0	0%	15%	YES	3.8	A	0.4	A	1	67	
			SBT	523	521	-2	0%	15%	YES							0.2	A			0	19	
			SBR	14	13	-1	-7%	20%	YES							0.8	A			0	28	
		Intersection		**1,597**	**1,565**	-32	**-2%**	**10%**	**YES**	**1,597**	**1,565**	**-32**	**-2%**	**10%**	**YES**	0.4	A	**0.4**	**A**			

Note: Average results across 7 microsimulation runs.
* Low volume difference. Percentage difference is not significant. Considered Calibrated.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue.

Existing Conditions: Weekday Evening Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes												Existing Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Calibration Threshold: Within ±	Calibration Threshold: Met Threshold? *	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Calibration Threshold: Within ±	Calibration Threshold: Met Threshold?	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Elden Street / Monroe Street	**Signal**	Elden Street	EBL	101	99	-2	-2%	15%	YES	650	646	-4	-1%	15%	YES	14.2	B	12.6	B	5	124	
			EBT	520	517	-3	-1%	15%	YES							12.5	B			41	416	
			EBR	29	30	1	3%	20%	YES							9.9	A			41	422	
		Elden Street	WBL	10	10	0	0%	20%	YES	600	590	-10	-2%	15%	YES	11.9	B	11.6	B	0	24	
			WBT	532	522	-10	-2%	15%	YES							11.8	B			40	429	
			WBR	58	58	0	0%	20%	YES							10.5	B			50	461	
		Monroe Street	NBL	134	129	-5	-4%	15%	YES	268	263	-5	-2%	15%	YES	55.1	E	53.8	D	41	233	
			NBT	125	125	0	0%	15%	YES							55.0	E			40	239	
			NBR	9	9	0	0%	20%	YES							18.1	B			27	233	
		Monroe Street	SBL	104	105	1	1%	15%	YES	282	285	3	1%	15%	YES	45.6	D	38.8	D	30	189	
			SBT	82	82	0	0%	20%	YES							46.4	D			35	202	
			SBR	96	98	2	2%	20%	YES							25.3	C			36	208	
		Intersection		**1,800**	**1,784**	-16	**-1%**	**10%**	**YES**	**1,800**	**1,784**	**-16**	**-1%**	**10%**	**YES**	22.5	C	**22.5**	**C**			
Elden Street / Van Buren Street	**Signal**	Elden Street	EBL	4	5	1	25%	20%	YES*	639	634	-5	-1%	15%	YES	11.7	B	11.9	B	27	199	
			EBT	608	601	-7	-1%	15%	YES							12.4	B			27	199	
			EBR	27	28	1	4%	20%	YES							2.1	A			0	34	
		Elden Street	WBL	119	120	1	1%	15%	YES	765	760	-5	-1%	15%	YES	14.5	B	11.4	B	26	219	
			WBT	600	596	-4	-1%	15%	YES							11.0	B			26	219	
			WBR	46	44	-2	-4%	20%	YES							8.7	A			26	219	
		Van Buren Street	NBL	94	93	-1	-1%	20%	YES	438	427	-11	-3%	15%	YES	45.5	D	34.6	C	23	153	
			NBT	204	197	-7	-3%	15%	YES							48.9	D			56	285	
			NBR	140	137	-3	-2%	15%	YES							6.9	A			4	104	
		Van Buren Street	SBL	100	100	0	0%	20%	YES	213	214	1	0%	15%	YES	45.5	D	45.4	D	26	154	
			SBT	101	103	2	2%	15%	YES							47.3	D			29	166	
			SBR	12	11	-1	-8%	20%	YES							26.8	C			27	176	
		Intersection		**1,842**	**1,821**	-21	**-1%**	**10%**	**YES**	**1,842**	**1,821**	**-21**	**-1%**	**10%**	**YES**	22.4	C	**22.4**	**C**			
Van Buren Street / Spring Street	**Signal**	Van Buren Street	EBL	261	257	-4	-2%	15%	YES	433	432	-1	0%	15%	YES	19.8	B	13.8	B	27	208	
			EBT	1	1	0	0%	20%	YES							24.0	C			27	208	
			EBR	171	174	3	2%	15%	YES							4.9	A			3	84	
		Parking Lot	WBL	10	11	1	10%	20%	YES	22	23	1	5%	20%	YES	25.4	C	25.3	C	1	42	
			WBR	12	12	0	0%	20%	YES							25.3	C			2	44	
		Spring Street	NBL	258	235	-23	-9%	15%	YES	620	580	-40	-6%	15%	YES	93.3	F	44.9	D	187	717	
			NBT	356	339	-17	-5%	15%	YES							12.0	B			10	184	
			NBR	6	6	0	0%	20%	YES							9.4	A			9	192	
		Van Buren Street	SBL	2	2	0	0%	20%	YES	454	452	-2	0%	15%	YES	11.2	B	30.5	C	0	19	
			SBT	124	127	3	2%	15%	YES							17.4	B			68	358	
			SBR	328	323	-5	-2%	15%	YES							35.8	D			90	380	
		Intersection		**1,075**	**1,035**	-40	**-4%**	**10%**	**YES**	**1,075**	**1,035**	**-40**	**-4%**	**10%**	**YES**	44.8	D	**44.8**	**D**			
Spring Street / Herndon Parkway	**Signal**	Spring Street	EBL	61	61	0	0%	20%	YES	604	608	4	1%	15%	YES	55.5	E	46.0	D	19	113	
			EBT	491	498	7	1%	15%	YES							45.7	D			82	303	
			EBR	52	49	-3	-6%	20%	YES							37.5	D			89	315	
		Spring Street	WBL	602	606	4	1%	15%	YES	1,571	1,574	3	0%	10%	YES	76.3	E	41.2	D	164	551	
			WBT	611	611	0	0%	15%	YES							27.4	C			63	510	
			WBR	358	357	-1	0%	15%	YES							5.2	A			6	118	
		Herndon Parkway	NBL	58	58	0	0%	20%	YES	1,066	1,053	-13	-1%	10%	YES	24.4	C	39.3	D	6	75	
			NBT	341	338	-3	-1%	15%	YES							40.6	D			147	630	
			NBR	667	657	-10	-1%	15%	YES							39.9	D			236	660	
		Herndon Parkway	SBL	367	364	-3	-1%	15%	YES	685	683	-2	0%	15%	YES	28.5	C	25.1	C	60	357	
			SBT	289	290	1	0%	15%	YES							21.8	C			23	173	
			SBR	29	29	0	0%	20%	YES							14.7	B			25	187	
		Intersection		**3,241**	**3,235**	-6	**0%**	**10%**	**YES**	**3,241**	**3,235**	**-6**	**0%**	**10%**	**YES**	46.8	D	**46.8**	**D**			
Spring Street / Fairfax County Parkway	**Signal**	Spring Street	EBL	240	241	1	0%	15%	YES	1,600	1,590	-10	-1%	10%	YES	47.5	D	11.5	B	67	319	
			EBT	791	786	-5	-1%	15%	YES							7.0	A			13	222	
			EBR	569	563	-6	-1%	15%	YES							2.3	A			0	0	
		Spring Street	WBT	1,121	1,114	-7	-1%	10%	YES	1,638	1,624	-14	-1%	10%	YES	16.1	B	11.5	B	65	452	
			WBR	517	510	-7	-1%	15%	YES							1.5	A			0	26	
		Fairfax County Parkway	SBL	132	132	0	0%	15%	YES	740	748	8	1%	15%	YES	53.2	D	42.9	D	193	608	
			SBR	608	616	8	1%	15%	YES							40.7	D			193	608	
		Intersection		**3,978**	**3,962**	-16	**0%**	**10%**	**YES**	**3,978**	**3,962**	**-16**	**0%**	**10%**	**YES**	17.4	B	**17.4**	**B**			

Note: Average results across 20 microsimulation runs.
* Low volume difference. Percentage difference is not significant. Considered Calibrated.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

Existing Conditions: Weekday Evening Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes												Existing Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Calibration Threshold Within ±	Calibration Threshold Met Threshold? *	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Calibration Threshold Within ±	Calibration Threshold Met Threshold?	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Van Buren Street / Alabama Drive	**All-Way Stop Control (future signal)**	Alabama Drive	EBL	68	67	-1	-1%	20%	YES	182	181	-1	-1%	15%	YES	8.8	A	8.0	A	8	116	
			EBT	14	14	0	0%	20%	YES							10.0	A			8	116	
			EBR	100	100	0	0%	20%	YES							7.3	A			8	116	
		Alabama Drive	WBL	13	13	0	0%	20%	YES	38	37	-1	-3%	20%	YES	7.1	A	6.7	A	2	69	
			WBT	8	8	0	0%	20%	YES							8.5	A			2	70	
			WBR	17	16	-1	-6%	20%	YES							5.6	A			2	69	
		Van Buren Street	NBL	41	42	1	2%	20%	YES	444	443	-1	0%	15%	YES	27.3	D	28.2	D	90	398	
			NBT	348	348	0	0%	15%	YES							28.6	D			91	399	
			NBR	55	53	-2	-4%	20%	YES							25.9	D			90	398	
		Van Buren Street	SBL	27	25	-2	-7%	20%	YES	586	534	-52	-9%	15%	YES	76.7	F	76.6	F	1256	1629	
			SBT	474	432	-42	-9%	15%	YES							76.8	F			1256	1629	
			SBR	85	77	-8	-9%	20%	YES							75.4	F			1256	1629	
		Intersection		**1,250**	**1,195**	-55	**-4%**	**10%**	**YES**	**1,250**	**1,195**	**-55**	**-4%**	**10%**	**YES**	46.1	E	**46.1**	**E**			
Van Buren Street / Herndon Parkway	**Signal**	Herndon Parkway	EBL	44	44	0	0%	20%	YES	585	580	-5	-1%	15%	YES	25.3	C	35.2	D	6	76	
			EBT	260	258	-2	-1%	15%	YES							42.0	D			72	320	
			EBR	281	278	-3	-1%	15%	YES							30.4	C			87	342	
		Herndon Parkway	WBL	458	456	-2	0%	15%	YES	1,174	1,230	56	5%	10%	YES	48.3	D	40.8	D	154	585	
			WBT	617	675	58	9%	15%	YES							36.7	D			109	548	
			WBR	99	99	0	0%	20%	YES							34.6	C			109	548	
		Van Buren Street	NBL	391	391	0	0%	15%	YES	1,162	1,157	-5	0%	10%	YES	39.0	D	40.4	D	353	1013	
			NBT	301	300	-1	0%	15%	YES							42.7	D			439	1019	
			NBR	470	466	-4	-1%	15%	YES							40.0	D			451	1036	
		Van Buren Street	SBL	25	24	-1	-4%	20%	YES	587	545	-42	-7%	15%	YES	34.8	C	37.3	D	4	58	
			SBT	525	484	-41	-8%	15%	YES							38.1	D			65	342	
			SBR	37	37	0	0%	20%	YES							28.5	C			65	342	
		Intersection		**3,508**	**3,512**	4	**0%**	**10%**	**YES**	**3,508**	**3,512**	**4**	**0%**	**10%**	**YES**	39.2	D	**39.2**	**D**			
Van Buren Street / Worldgate Drive	**Signal**	Worldgate Drive	EBL	295	294	-1	0%	15%	YES	830	831	1	0%	15%	YES	49.5	D	22.9	C	61	251	
			EBT	3	3	0	0%	20%	YES							52.7	D			61	251	
			EBR	532	534	2	0%	15%	YES							8.1	A			24	304	
		Parking Lot	WBL	61	60	-1	-2%	20%	YES	105	104	-1	-1%	15%	YES	54.8	D	45.9	D	25	168	
			WBT	18	17	-1	-6%	20%	YES							56.1	E			25	168	
			WBR	26	27	1	4%	20%	YES							19.6	B			1	75	
		Van Buren Street	NBL	208	201	-7	-3%	15%	YES	1,040	1,032	-8	-1%	10%	YES	53.6	D	33.7	C	41	177	
			NBT	826	826	0	0%	15%	YES							29.1	C			118	560	
			NBR	6	5	-1	-17%	20%	YES							2.9	A			0	17	
		Van Buren Street	SBL	7	6	-1	-14%	20%	YES	1,303	1,257	-46	-4%	10%	YES	51.3	D	17.2	B	2	39	
			SBT	1,096	1,059	-37	-3%	10%	YES							20.0	B			73	378	
			SBR	200	192	-8	-4%	15%	YES							0.7	A			0	37	
		Intersection		**3,278**	**3,224**	-54	**-2%**	**10%**	**YES**	**3,278**	**3,224**	**-54**	**-2%**	**10%**	**YES**	24.9	C	**24.9**	**C**			
Herndon Parkway / Parking Lots by Metro	**Two-Way Stop Control**	Herndon Parkway	EBL	11	11	0	0%	20%	YES	798	790	-8	-1%	15%	YES	4.8	A	0.2	A	0	31	
			EBT	785	777	-8	-1%	15%	YES							0.1	A			0	0	
			EBR	2	2	0	0%	20%	YES							0.4	A			0	0	
		Herndon Parkway	WBL	5	5	0	0%	20%	YES	1,122	1,122	0	0%	10%	YES	1.9	A	0.4	A	0	29	
			WBT	1,113	1,113	0	0%	10%	YES							0.4	A			0	3	
			WBR	4	4	0	0%	20%	YES							0.7	A			0	4	
		Parking Lot	NBL	17	17	0	0%	20%	YES	56	55	-1	-2%	20%	YES	12.1	B	8.5	A	2	69	
			NBT	0	0	0	0%	20%	YES							0.0	A			1	55	
			NBR	39	38	-1	-3%	20%	YES							6.9	A			2	69	
		Parking Lot	SBL	17	17	0	0%	20%	YES	61	61	0	0%	20%	YES	15.7	C	10.2	B	4	82	
			SBT	0	0	0	0%	20%	YES							0.0	A			1	62	
			SBR	44	44	0	0%	20%	YES							8.1	A			3	81	
		Intersection		**2,037**	**2,028**	-9	**0%**	**10%**	**YES**	**2,037**	**2,028**	**-9**	**0%**	**10%**	**YES**	0.8	A	**0.8**	**A**			

Note: Average results across 20 microsimulation runs.
* Low volume difference. Percentage difference is not significant. Considered Calibrated.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

Existing Conditions: Weekday Evening Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes												Existing Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Calibration Threshold		Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Calibration Threshold		Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
								Within ±	Met Threshold? *					Within ±	Met Threshold?							
Herndon Parkway / Exchange Place	**Two-Way Stop Control (future signal)**	Herndon Parkway	EBL	22	22	0	0%	20%	YES	997	984	-13	-1%	15%	YES	2.8	A	0.2	A	0	49	
			EBT	964	951	-13	-1%	15%	YES							0.2	A			0	6	
			EBR	11	11	0	0%	20%	YES							0.5	A			0	9	
		Herndon Parkway	WBL	13	13	0	0%	20%	YES	1,002	1,003	1	0%	10%	YES	0.6	A	0.4	A	0	0	
			WBT	985	986	1	0%	15%	YES							0.4	A			0	0	
			WBR	4	4	0	0%	20%	YES							0.6	A			0	0	
		Parking Lot	NBL	21	20	-1	-5%	20%	YES	68	68	0	0%	20%	YES	7.3	A	6.9	A	5	106	
			NBT	0	0	0	0%	20%	YES							0.0	A			1	62	
			NBR	47	48	1	2%	20%	YES							6.7	A			3	78	
		Exchange Place	SBL	8	8	0	0%	20%	YES	30	31	1	3%	20%	YES	9.2	A	7.3	A	1	71	
			SBT	0	0	0	0%	20%	YES							0.0	A			0	44	
			SBR	22	23	1	5%	20%	YES							6.6	A			2	71	
		Intersection		**2,097**	**2,086**	-11	**-1%**	**10%**	**YES**	**2,097**	**2,086**	**-11**	**-1%**	**10%**	**YES**	0.6	A	**0.6**	**A**			
Herndon Parkway / Fairbrook Drive	**Two-Way Stop Control (future signal)**	Parking Lot	EBL	17	19	2	12%	20%	YES	41	43	2	5%	20%	YES	11.7	B	9.4	A	2	66	
			EBT	0	0	0	0%	20%	YES							0.0	A			1	49	
			EBR	24	24	0	0%	20%	YES							7.6	A			2	65	
		Fairbrook Drive	WBL	15	15	0	0%	20%	YES	28	28	0	0%	20%	YES	11.0	B	9.1	A	1	63	
			WBT	0	0	0	0%	20%	YES							0.0	A			0	50	
			WBR	13	13	0	0%	20%	YES							7.0	A			1	62	
		Herndon Parkway	NBL	1	1	0	0%	20%	YES	1,019	1,007	-12	-1%	10%	YES	3.8	A	0.2	A	0	13	
			NBT	1,012	999	-13	-1%	10%	YES							0.2	A			0	3	
			NBR	6	7	1	17%	20%	YES							0.6	A			0	7	
		Herndon Parkway	SBL	13	14	1	8%	20%	YES	958	979	21	2%	15%	YES	4.2	A	0.4	A	0	48	
			SBT	943	963	20	2%	15%	YES							0.4	A			0	5	
			SBR	2	2	0	0%	20%	YES							0.8	A			0	8	
		Intersection		**2,046**	**2,057**	11	**1%**	**10%**	**YES**	**2,046**	**2,057**	**11**	**1%**	**10%**	**YES**	0.6	A	**0.6**	**A**			

Note: Average results across 20 microsimulation runs.
* Low volume difference. Percentage difference is not significant. Considered Calibrated.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

No Build 2045 Conditions: Weekday Morning Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes								No Build 2045 Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Elden Street / Monroe Street	**Signal**	Elden Street	EBL	73	74	1	1%	839	834	-5	-1%	20.0	C	15.4	B	4	77	
			EBT	630	627	-3	0%					15.2	B			90	656	
			EBR	136	133	-3	-2%					13.7	B			87	650	
		Elden Street	WBL	6	5	-1	-17%	459	454	-5	-1%	32.3	C	25.4	C	1	34	
			WBT	410	405	-5	-1%					25.6	C			73	419	
			WBR	43	44	1	2%					23.2	C			78	457	
		Monroe Street	NBL	36	34	-2	-6%	114	115	1	1%	60.6	E	56.6	E	11	87	
			NBT	63	66	3	5%					64.5	E			25	140	
			NBR	15	15	0	0%					12.6	B			8	130	
		Monroe Street	SBL	96	92	-4	-4%	373	378	5	1%	44.1	D	46.6	D	39	250	
			SBT	218	226	8	4%					49.9	D			79	274	
			SBR	59	60	1	2%					38.1	D			76	274	
		Intersection		**1,785**	**1,781**	-4	**0%**	**1,785**	**1,781**	**-4**	**0%**	27.2	C	**27.2**	**C**			
Elden Street / Van Buren Street	**Signal**	Elden Street	EBL	0	0	0	0%	770	751	-19	-2%	0.0	A	11.7	B	30	274	
			EBT	718	690	-28	-4%					12.4	B			30	274	
			EBR	52	61	9	17%					3.2	A			0	46	
		Elden Street	WBL	117	115	-2	-2%	602	587	-15	-2%	28.5	C	18.4	B	33	217	
			WBT	469	459	-10	-2%					16.1	B			33	217	
			WBR	16	13	-3	-19%					10.6	B			40	231	
		Van Buren Street	NBL	49	49	0	0%	316	312	-4	-1%	48.1	D	32.7	C	13	103	
			NBT	151	146	-5	-3%					49.5	D			41	204	
			NBR	116	117	1	1%					5.3	A			3	90	
		Van Buren Street	SBL	146	146	0	0%	470	481	11	2%	38.7	D	45.2	D	39	322	
			SBT	315	325	10	3%					48.4	D			97	404	
			SBR	9	10	1	11%					36.6	D			99	415	
		Intersection		**1,688**	**1,650**	-38	**-2%**	**1,688**	**1,650**	**-38**	**-2%**	31.2	C	**31.2**	**C**			
Van Buren Street / Spring Street	**Signal**	Van Buren Street	EBL	170	165	-5	-3%	495	493	-2	0%	13.3	B	10.5	B	0	4	
			EBT	6	5	-1	-17%					15.5	B			13	144	
			EBR	319	323	4	1%					9.0	A			15	170	
		Parking Lot	WBL	1	0	-1	-100%	1	0	-1	-100%	0.0	A	0.0	A	0	0	
			WBR	0	0	0	0%					0.0	A			0	0	
		Spring Street	NBL	117	121	4	3%	282	289	7	2%	13.6	B	8.7	A	4	105	
			NBT	157	162	5	3%					5.3	A			3	92	
			NBR	8	6	-2	-25%					3.1	A			2	100	
		Van Buren Street	SBL	9	9	0	0%	767	777	10	1%	5.6	A	7.0	A	0	28	
			SBT	428	426	-2	0%					7.8	A			13	202	
			SBR	330	342	12	4%					6.0	A			9	207	
		Intersection		**778**	**782**	4	**1%**	**778**	**782**	**4**	**1%**	16.8	B	**16.8**	**B**			
Spring Street / Herndon Parkway	**Signal**	Spring Street	EBL	33	37	4	12%	855	855	0	0%	72.0	E	63.1	E	14	87	
			EBT	686	684	-2	0%					64.5	E			124	357	
			EBR	136	134	-2	-1%					53.3	D			125	361	
		Spring Street	WBL	938	937	-1	0%	1,848	1,850	2	0%	39.6	D	31.9	C	140	606	
			WBT	503	508	5	1%					35.4	D			61	377	
			WBR	407	405	-2	0%					9.6	A			20	233	
		Herndon Parkway	NBL	129	130	1	1%	1,538	1,514	-24	-2%	50.9	D	36.8	D	29	190	
			NBT	299	302	3	1%					46.8	D			143	652	
			NBR	1,110	1,082	-28	-3%					32.4	C			143	652	
		Herndon Parkway	SBL	424	420	-4	-1%	930	932	2	0%	73.9	E	52.3	D	100	293	
			SBT	458	461	3	1%					35.2	D			57	262	
			SBR	48	51	3	6%					30.2	C			57	265	
		Intersection		**4,241**	**4,219**	-22	**-1%**	**4,241**	**4,219**	**-22**	**-1%**	51.5	D	**51.5**	**D**			

Note: Average results across 7 microsimulation runs.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

No Build 2045 Conditions: Weekday Morning Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes								No Build 2045 Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Spring Street / Fairfax County Parkway	**Signal**	Spring Street	EBL	177	177	0	0%	2,268	2,235	-33	-1%	41.1	D	12.1	B	39	294	
			EBT	1,558	1,533	-25	-2%					11.9	B			67	534	
			EBR	533	525	-8	-2%					2.9	A			0	0	
		Spring Street	WBT	673	667	-6	-1%	978	969	-9	-1%	36.9	D	29.3	C	92	402	
			WBR	305	302	-3	-1%					12.6	B			47	385	
		Fairfax County Parkway	SBL	370	370	0	0%	1,616	1,619	3	0%	45.9	D	31.7	C	138	838	
			SBR	1,246	1,249	3	0%					27.5	C			180	878	
		Intersection		**4,862**	**4,823**	-39	**-1%**	**4,862**	**4,823**	**-39**	**-1%**	22.1	C	**22.1**	**C**			
Van Buren Street / Alabama Drive	**Signal**	Alabama Drive	EBL	129	128	-1	-1%	291	291	0	0%	43.2	D	36.0	D	61	308	
			EBT	10	11	1	10%					38.7	D			61	308	
			EBR	152	152	0	0%					29.7	C			62	315	
		Alabama Drive	WBL	36	35	-1	-3%	92	88	-4	-4%	31.8	C	24.9	C	11	120	
			WBT	13	13	0	0%					38.6	D			11	120	
			WBR	43	40	-3	-7%					14.3	B			11	131	
		Van Buren Street	NBL	22	22	0	0%	362	364	2	1%	6.0	A	3.9	A	6	148	
			NBT	323	327	4	1%					3.8	A			7	149	
			NBR	17	15	-2	-12%					2.9	A			5	148	
		Van Buren Street	SBL	13	17	4	31%	447	461	14	3%	14.4	B	11.5	B	35	345	
			SBT	393	404	11	3%					11.5	B			35	345	
			SBR	41	40	-1	-2%					10.4	B			32	324	
		Intersection		**1,192**	**1,204**	12	**1%**	**1,192**	**1,204**	**12**	**1%**	16.1	B	**16.1**	**B**			
Van Buren Street / Herndon Parkway	**Signal**	Herndon Parkway	EBL	43	42	-1	-2%	1,286	1,274	-12	-1%	64.3	E	33.1	C	14	101	
			EBT	926	925	-1	0%					38.8	D			129	560	
			EBR	317	307	-10	-3%					11.8	B			20	197	
		Herndon Parkway	WBL	293	290	-3	-1%	658	652	-6	-1%	58.0	E	42.0	D	57	181	
			WBT	307	305	-2	-1%					30.4	C			31	172	
			WBR	58	57	-1	-2%					23.6	C			31	172	
		Van Buren Street	NBL	240	245	5	2%	835	848	13	2%	25.8	C	14.3	B	32	257	
			NBT	261	268	7	3%					12.5	B			19	245	
			NBR	334	335	1	0%					7.3	A			10	195	
		Van Buren Street	SBL	95	90	-5	-5%	582	590	8	1%	37.2	D	35.5	D	17	128	
			SBT	464	477	13	3%					35.7	D			63	458	
			SBR	23	23	0	0%					25.5	C			63	458	
		Intersection		**3,361**	**3,364**	3	**0%**	**3,361**	**3,364**	**3**	**0%**	30.5	C	**30.5**	**C**			
Van Buren Street / Worldgate Drive	**Signal**	Worldgate Drive	EBL	170	173	3	2%	1,051	1,046	-5	0%	24.4	C	28.7	C	25	179	
			EBT	640	630	-10	-2%					39.9	D			82	325	
			EBR	241	243	2	1%					2.8	A			3	114	
		Worldgate Drive	WBL	139	139	0	0%	289	293	4	1%	64.5	E	32.4	C	51	207	
			WBT	142	147	5	4%					3.2	A			0	5	
			WBR	8	7	-1	-13%					9.3	A			0	39	
		Van Buren Street	NBL	406	379	-27	-7%	1,626	1,607	-19	-1%	44.5	D	22.6	C	62	283	
			NBT	767	783	16	2%					19.0	B			53	351	
			NBR	453	445	-8	-2%					10.3	B			21	244	
		Van Buren Street	SBL	20	22	2	10%	1,045	1,056	11	1%	67.5	E	18.3	B	8	60	
			SBT	669	673	4	1%					25.5	C			57	308	
			SBR	356	361	5	1%					2.0	A			1	155	
		Intersection		**4,011**	**4,002**	-9	**0%**	**4,011**	**4,002**	**-9**	**0%**	23.8	C	**23.8**	**C**			

Note: Average results across 7 microsimulation runs.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

No Build 2045 Conditions: Weekday Morning Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes								No Build 2045 Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Herndon Parkway / Worldgate Drive	**Signal**	Herndon Parkway	EBL	1	1	0	0%	1,310	1,310	0	0%	54.1	D	23.2	C	0	15	
			EBT	1,265	1,265	0	0%					23.3	C			140	596	
			EBR	44	44	0	0%					20.4	C			141	599	
		Herndon Parkway	WBL	433	434	1	0%	1,026	1,022	-4	0%	58.0	E	26.0	C	81	336	
			WBT	593	588	-5	-1%					2.5	A			4	97	
			WBR	0	0	0	0%					0.0	A			3	107	
		Worldgate Drive	NBL	65	59	-6	-9%	937	924	-13	-1%	54.2	D	27.0	C	80	383	
			NBT	0	0	0	0%					0.0	A			80	383	
			NBR	872	865	-7	-1%					25.1	C			80	383	
		Worldgate Drive	SBL	0	0	0	0%	0	0	0	0%	0.0	A	0.0	A	0	0	
			SBT	0	0	0	0%					0.0	A			0	0	
			SBR	0	0	0	0%					0.0	A			0	0	
		Intersection		**3,273**	**3,256**	-17	**-1%**	**3,273**	**3,256**	**-17**	**-1%**	25.2	C	**25.2**	**C**			
Herndon Parkway / Exchange Place	**Signal**	Herndon Parkway	EBL	33	33	0	0%	1,764	1,722	-42	-2%	8.8	A	10.3	B	1	40	
			EBT	1,511	1,481	-30	-2%					10.3	B			72	767	
			EBR	220	208	-12	-5%					10.9	B			73	772	
		Herndon Parkway	WBL	148	146	-2	-1%	1,239	1,240	1	0%	15.6	B	9.0	A	7	117	
			WBT	1,068	1,073	5	0%					8.2	A			28	395	
			WBR	23	21	-2	-9%					7.8	A			29	405	
		Parking Lot	NBL	103	99	-4	-4%	147	145	-2	-1%	46.0	D	33.6	C	26	153	
			NBT	0	0	0	0%					0.0	A			26	153	
			NBR	44	46	2	5%					6.8	A			1	46	
		Exchange Place	SBL	8	8	0	0%	16	16	0	0%	52.7	D	31.4	C	2	45	
			SBT	0	0	0	0%					0.0	A			2	45	
			SBR	8	8	0	0%					10.1	B			1	51	
		Intersection		**3,166**	**3,123**	-43	**-1%**	**3,166**	**3,123**	**-43**	**-1%**	11.0	B	**11.0**	**B**			
Herndon Parkway / Fairbrook Drive	**Signal**	Parking Lot	EBL	4	4	0	0%	7	7	0	0%	52.9	D	33.1	C	1	25	
			EBT	0	0	0	0%					0.0	A			0	0	
			EBR	3	3	0	0%					6.8	A			0	15	
		Fairbrook Drive	WBL	93	99	6	6%	193	199	6	3%	47.6	D	28.3	C	22	98	
			WBT	0	0	0	0%					0.0	A			22	98	
			WBR	100	100	0	0%					9.3	A			1	81	
		Herndon Parkway	NBL	39	39	0	0%	1,563	1,532	-31	-2%	2.0	A	5.0	A	0	21	
			NBT	1,373	1,343	-30	-2%					5.1	A			25	539	
			NBR	151	150	-1	-1%					4.8	A			0	50	
		Herndon Parkway	SBL	290	295	5	2%	1,451	1,438	-13	-1%	23.3	C	21.9	C	30	386	
			SBT	1,143	1,127	-16	-1%					21.5	C			99	621	
			SBR	18	16	-2	-11%					21.7	C			100	626	
		Intersection		**3,214**	**3,176**	-38	**-1%**	**3,214**	**3,176**	**-38**	**-1%**	14.2	B	**14.2**	**B**			

Note: Average results across 7 microsimulation runs.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

No Build 2045 Conditions: Weekday Evening Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes								No Build 2045 Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Elden Street / Monroe Street	**Signal**	Elden Street	EBL	127	125	-2	-2%	817	816	-1	0%	38.4	D	24.6	C	16	275	
			EBT	654	655	1	0%					22.2	C			153	890	
			EBR	36	36	0	0%					21.1	C			152	889	
		Elden Street	WBL	13	13	0	0%	755	747	-8	-1%	37.4	D	33.6	C	2	43	
			WBT	669	663	-6	-1%					33.9	C			258	919	
			WBR	73	71	-2	-3%					30.2	C			268	957	
		Monroe Street	NBL	168	162	-6	-4%	398	391	-7	-2%	53.6	D	52.4	D	58	441	
			NBT	219	218	-1	0%					52.6	D			80	443	
			NBR	11	11	0	0%					28.1	C			64	437	
		Monroe Street	SBL	131	127	-4	-3%	382	382	0	0%	40.9	D	36.4	D	39	230	
			SBT	130	132	2	2%					41.1	D			51	238	
			SBR	121	123	2	2%					26.9	C			49	238	
		Intersection		**2,352**	**2,336**	-16	**-1%**	**2,352**	**2,336**	**-16**	**-1%**	34.1	C	**34.1**	**C**			
Elden Street / Van Buren Street	**Signal**	Elden Street	EBL	5	5	0	0%	803	800	-3	0%	36.2	D	23.2	C	61	335	
			EBT	764	758	-6	-1%					24.1	C			61	335	
			EBR	34	37	3	9%					3.2	A			0	33	
		Elden Street	WBL	150	153	3	2%	962	966	4	0%	41.0	D	27.4	C	88	414	
			WBT	754	756	2	0%					25.3	C			88	414	
			WBR	58	57	-1	-2%					19.6	B			97	428	
		Van Buren Street	NBL	118	114	-4	-3%	668	650	-18	-3%	56.1	E	46.4	D	33	287	
			NBT	374	360	-14	-4%					60.0	E			144	528	
			NBR	176	176	0	0%					12.3	B			8	162	
		Van Buren Street	SBL	126	125	-1	-1%	317	315	-2	-1%	42.5	D	42.6	D	32	208	
			SBT	176	175	-1	-1%					43.6	D			47	217	
			SBR	15	15	0	0%					32.3	C			49	228	
		Intersection		**2,433**	**2,416**	-17	**-1%**	**2,433**	**2,416**	**-17**	**-1%**	36.7	D	**36.7**	**D**			
Van Buren Street / Spring Street	**Signal**	Van Buren Street	EBL	414	396	-18	-4%	630	612	-18	-3%	54.7	D	41.9	D	279	1027	
			EBT	1	1	0	0%					43.6	D			279	1028	
			EBR	215	215	0	0%					18.4	B			16	319	
		Parking Lot	WBL	13	14	1	8%	28	28	0	0%	52.4	D	53.0	D	4	54	
			WBR	15	14	-1	-7%					53.6	D			4	54	
		Spring Street	NBL	324	323	-1	0%	873	869	-4	0%	35.3	D	20.6	C	70	457	
			NBT	541	538	-3	-1%					11.9	B			21	294	
			NBR	8	8	0	0%					10.8	B			21	302	
		Van Buren Street	SBL	3	4	1	33%	648	639	-9	-1%	14.6	B	25.9	C	0	17	
			SBT	198	200	2	1%					15.5	B			89	501	
			SBR	447	435	-12	-3%					30.8	C			117	535	
		Intersection		**1,531**	**1,509**	-22	**-1%**	**1,531**	**1,509**	**-22**	**-1%**	40.8	D	**40.8**	**D**			
Spring Street / Herndon Parkway	**Signal**	Spring Street	EBL	77	76	-1	-1%	816	816	0	0%	78.2	E	61.6	E	33	201	
			EBT	617	622	5	1%					62.6	E			107	333	
			EBR	122	118	-4	-3%					45.8	D			108	337	
		Spring Street	WBL	995	1,001	6	1%	2,213	2,216	3	0%	47.5	D	34.3	C	254	659	
			WBT	768	770	2	0%					31.7	C			87	476	
			WBR	450	445	-5	-1%					9.1	A			18	238	
		Herndon Parkway	NBL	166	165	-1	-1%	1,989	1,951	-38	-2%	35.6	D	55.1	E	22	195	
			NBT	612	609	-3	0%					60.5	E			724	1476	
			NBR	1,211	1,177	-34	-3%					55.0	E			725	1476	
		Herndon Parkway	SBL	461	455	-6	-1%	953	950	-3	0%	90.1	F	64.0	E	134	416	
			SBT	456	461	5	1%					40.4	D			64	272	
			SBR	36	34	-2	-6%					35.0	D			64	275	
		Intersection		**5,018**	**4,983**	-35	**-1%**	**5,018**	**4,983**	**-35**	**-1%**	59.1	E	**59.1**	**E**			

Note: Average results across 20 microsimulation runs.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

No Build 2045 Conditions: Weekday Evening Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes								No Build 2045 Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Spring Street / Fairfax County Parkway	**Signal**	Spring Street	EBL	385	380	-5	-1%	2,384	2,347	-37	-2%	61.9	E	15.3	B	146	604	
			EBT	1,119	1,099	-20	-2%					7.6	A			25	317	
			EBR	880	868	-12	-1%					4.7	A			0	0	
		Spring Street	WBT	1,488	1,492	4	0%	2,138	2,128	-10	0%	29.4	C	27.2	C	265	1096	
			WBR	650	636	-14	-2%					22.0	C			235	1080	
		Fairfax County Parkway	SBL	166	168	2	1%	1,090	1,095	5	0%	65.9	E	45.7	D	72	319	
			SBR	924	927	3	0%					42.1	D			150	583	
		Intersection		**5,612**	**5,570**	-42	**-1%**	**5,612**	**5,570**	**-42**	**-1%**	25.8	C	**25.8**	**C**			
Van Buren Street / Alabama Drive	**Signal**	Alabama Drive	EBL	85	85	0	0%	235	238	3	1%	93.8	F	84.8	F	136	477	
			EBT	18	17	-1	-6%					96.4	F			136	477	
			EBR	132	136	4	3%					77.7	E			139	484	
		Alabama Drive	WBL	20	20	0	0%	51	50	-1	-2%	51.8	D	36.0	D	9	89	
			WBT	10	10	0	0%					42.8	D			9	89	
			WBR	21	20	-1	-5%					16.8	B			7	103	
		Van Buren Street	NBL	61	60	-1	-2%	659	647	-12	-2%	16.8	B	13.0	B	57	550	
			NBT	524	517	-7	-1%					12.9	B			57	550	
			NBR	74	70	-4	-5%					10.5	B			56	550	
		Van Buren Street	SBL	34	32	-2	-6%	772	732	-40	-5%	36.5	D	34.6	C	642	1450	
			SBT	631	599	-32	-5%					35.1	D			642	1452	
			SBR	107	101	-6	-6%					30.9	C			640	1452	
		Intersection		**1,717**	**1,667**	-50	**-3%**	**1,717**	**1,667**	**-50**	**-3%**	33.4	C	**33.4**	**C**			
Van Buren Street / Herndon Parkway	**Signal**	Herndon Parkway	EBL	55	54	-1	-2%	873	867	-6	-1%	78.5	E	36.7	D	24	124	
			EBT	472	472	0	0%					47.8	D			74	321	
			EBR	346	341	-5	-1%					14.9	B			34	227	
		Herndon Parkway	WBL	520	519	-1	0%	1,838	1,846	8	0%	53.5	D	42.1	D	94	384	
			WBT	1,109	1,116	7	1%					37.7	D			287	993	
			WBR	209	211	2	1%					37.3	D			287	993	
		Van Buren Street	NBL	365	370	5	1%	1,051	1,040	-11	-1%	88.7	F	38.8	D	355	854	
			NBT	394	383	-11	-3%					15.7	B			289	840	
			NBR	292	287	-5	-2%					5.3	A			4	133	
		Van Buren Street	SBL	69	65	-4	-6%	784	743	-41	-5%	46.5	D	66.7	E	39	240	
			SBT	668	631	-37	-6%					69.6	E			750	1197	
			SBR	47	47	0	0%					55.9	E			750	1197	
		Intersection		**4,546**	**4,496**	-50	**-1%**	**4,546**	**4,496**	**-50**	**-1%**	44.4	D	**44.4**	**D**			
Van Buren Street / Worldgate Drive	**Signal**	Worldgate Drive	EBL	291	289	-2	-1%	1,300	1,298	-2	0%	26.2	C	24.5	C	45	276	
			EBT	340	339	-1	0%					46.7	D			52	204	
			EBR	669	670	1	0%					12.4	B			55	499	
		Parking Lot	WBL	364	351	-13	-4%	924	906	-18	-2%	56.7	E	24.1	C	161	650	
			WBT	538	533	-5	-1%					3.4	A			0	25	
			WBR	22	22	0	0%					7.2	A			1	49	
		Van Buren Street	NBL	361	349	-12	-3%	1,381	1,367	-14	-1%	56.5	E	31.5	C	76	333	
			NBT	720	722	2	0%					29.5	C			106	490	
			NBR	300	296	-4	-1%					6.8	A			6	155	
		Van Buren Street	SBL	9	9	0	0%	1,583	1,539	-44	-3%	70.2	E	29.1	C	3	50	
			SBT	1,211	1,178	-33	-3%					36.9	D			157	714	
			SBR	363	352	-11	-3%					1.9	A			0	95	
		Intersection		**5,188**	**5,110**	-78	**-2%**	**5,188**	**5,110**	**-78**	**-2%**	27.7	C	**27.7**	**C**			

Note: Average results across 20 microsimulation runs.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

No Build 2045 Conditions: Weekday Evening Peak Hour Intersection MOEs Summary

Intersection	Traffic Control	Approach	Movement	Simulated Traffic Volumes								No Build 2045 Conditions MOEs						Notes
				Counted / Coded Volumes (vph)	Simulated Volumes (vph)	Difference	% Difference	Counted Link Volumes (vph)	Simulated Link Volumes (vph)	Difference	% Difference	Movement Delay (sec/veh)	Estimated Movement LOS	Approach Delay (sec/veh)	Estimated Approach LOS	Average Queue Length (ft)	Max Queue Length (ft)	
Herndon Parkway / Worldgate Drive	**Signal**	Herndon Parkway	EBL	0	0	0	0%	917	909	-8	-1%	0.0	A	17.2	B	0	0	
			EBT	897	889	-8	-1%					17.2	B			55	411	
			EBR	20	20	0	0%					13.8	B			55	415	
		Herndon Parkway	WBL	694	672	-22	-3%	2,335	2,330	-5	0%	49.5	D	21.4	C	192	987	
			WBT	1,641	1,658	17	1%					10.1	B			70	765	
			WBR	0	0	0	0%					0.0	A			70	763	
		Worldgate Drive	NBL	199	196	-3	-2%	847	846	-1	0%	57.5	E	28.9	C	79	343	
			NBT	0	0	0	0%					0.0	A			79	343	
			NBR	648	650	2	0%					20.3	C			79	343	
		Worldgate Drive	SBL	0	0	0	0%	0	0	0	0%	0.0	A	0.0	A	0	0	
			SBT	0	0	0	0%					0.0	A			0	0	
			SBR	0	0	0	0%					0.0	A			0	0	
		Intersection		**4,099**	**4,085**	-14	**0%**	**4,099**	**4,085**	**-14**	**0%**	22.0	C	**22.0**	**C**			
Herndon Parkway / 555 Herndon Parkway	**Signal**	Herndon Parkway	EBL	0	0	0	0%	1,621	1,598	-23	-1%	0.0	A	12.5	B	0	0	
			EBT	1,522	1,499	-23	-2%					12.6	B			84	682	
			EBR	99	99	0	0%					12.1	B			84	685	
		Herndon Parkway	WBL	66	62	-4	-6%	2,038	2,027	-11	-1%	25.2	C	12.7	B	3	79	
			WBT	1,972	1,965	-7	0%					12.3	B			121	633	
			WBR	0	0	0	0%					0.0	A			122	636	
		Parking Lot	NBL	314	316	2	1%	449	446	-3	-1%	67.9	E	58.0	E	170	444	
			NBT	0	0	0	0%					0.0	A			0	0	
			NBR	135	130	-5	-4%					33.9	C			14	327	
		Parking Lot	SBL	0	0	0	0%	0	0	0	0%	0.0	A	0.0	A	0	0	
			SBT	0	0	0	0%					0.0	A			0	0	
			SBR	0	0	0	0%					0.0	A			0	0	
		Intersection		**4,108**	**4,071**	-37	**-1%**	**4,108**	**4,071**	**-37**	**-1%**	17.6	B	**17.6**	**B**			
Herndon Parkway / Exchange Place	**Signal**	Herndon Parkway	EBL	28	29	1	4%	1,676	1,645	-31	-2%	16.7	B	12.3	B	1	47	
			EBT	1,549	1,518	-31	-2%					12.3	B			93	657	
			EBR	99	98	-1	-1%					11.3	B			94	662	
		Herndon Parkway	WBL	66	66	0	0%	1,649	1,648	-1	0%	27.6	C	11.2	B	5	92	
			WBT	1,578	1,577	-1	0%					10.5	B			64	610	
			WBR	5	5	0	0%					8.3	A			66	620	
		Parking Lot	NBL	314	307	-7	-2%	449	447	-2	0%	54.6	D	46.0	D	124	391	
			NBT	0	0	0	0%					0.0	A			124	391	
			NBR	135	140	5	4%					27.2	C			16	334	
		Exchange Place	SBL	10	10	0	0%	38	38	0	0%	43.9	D	17.5	B	3	61	
			SBT	0	0	0	0%					0.0	A			3	61	
			SBR	28	28	0	0%					8.0	A			2	67	
		Intersection		**3,812**	**3,778**	-34	**-1%**	**3,812**	**3,778**	**-34**	**-1%**	15.8	B	**15.8**	**B**			
Herndon Parkway / Fairbrook Drive	**Signal**	Parking Lot	EBL	21	23	2	10%	51	53	2	4%	75.8	E	37.5	D	10	77	
			EBT	0	0	0	0%					0.0	A			0	14	
			EBR	30	30	0	0%					8.2	A			0	39	
		Fairbrook Drive	WBL	187	185	-2	-1%	483	482	-1	0%	50.0	D	35.3	D	36	171	
			WBT	0	0	0	0%					0.0	A			36	171	
			WBR	296	297	1	0%					26.1	C			33	314	
		Herndon Parkway	NBL	1	1	0	0%	1,694	1,662	-32	-2%	21.1	C	18.5	B	0	9	
			NBT	1,625	1,594	-31	-2%					18.9	B			157	693	
			NBR	68	67	-1	-1%					9.6	A			0	15	
		Herndon Parkway	SBL	182	186	4	2%	1,592	1,625	33	2%	46.1	D	16.1	B	54	551	
			SBT	1,407	1,435	28	2%					12.3	B			81	720	
			SBR	3	4	1	33%					10.6	B			82	725	
		Intersection		**3,820**	**3,822**	2	**0%**	**3,820**	**3,822**	**2**	**0%**	19.9	B	**19.9**	**B**			

Note: Average results across 20 microsimulation runs.

Orange/Red Highlight = LOS E/F
Yellow Highlight = Problematic Queue

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A2 VISSIM Model Complete Intersection Metrics

Memorandum

To: Town of Herndon
Department of Community Development

Date: January 18, 2023

Project #: 39479.00

From: Kevin Keeley
Chuck Conran
Chris Daily

Re: VHB Response to Comments – Herndon TRG Existing and No Build Traffic Conditions Report

VHB Comment Response

This memorandum serves as VHB's formal response to comments for the January 9th, 2023, comments received from the Town of Herndon regarding VHB's December 7th, 2022, submittal of the draft TRG Existing and No Build Traffic Conditions Report.

Comment-Response #1

Comment: *"As the reported Existing Condition Analysis is the average of multiple simulations, the staff is curious about the number of simulations that run to get this average. What is the range of results that were found?"*

Response: As mentioned in Section 2.3 (Page 5) of the draft report, the AM model metrics are the result of seven averaged simulations, while the PM model metrics are the result of twenty averaged simulations. The selection of seven and twenty simulations, respectively, was identified using VDOT's microsimulation sample size tool that computes the appropriate number of simulation runs needed to achieve a statistical 95% confidence level in the averaged results. At a 95% confidence level, the averaged condition fully accounts for the variance observed in individual microsimulation runs. This methodology is consistent with VDOT modeling policy outlined in the *Traffic Operations and Safety Analysis Manual (TOSAM)*.

Typically, for a microsimulation analysis, only the average results from the appropriate number of simulation runs are reported. This process removes the variance that an individual model run could yield and instead produces a statistically confident, representative performance of the modeled condition.

Comment-Response #2

Comment: "*The results of the Existing Conditions traffic models indicate "satisfaction of one key model calibration metrics" on Page 5, staff is curious if there any other potential metrics that are/ are not considered for the calibration and their results;"*

Response: As documented in the TRG Inception Report, VHB was not going to perform a comprehensive VISSIM model recalibration. This is due to the utilization of the 2017 TRG study VISSIM model and 2017 traffic volumes, but with updated 2022 traffic signal timings and the Metro Square development volumes. A complete model calibration includes the satisfaction of volume, travel time, and queue length metrics. The field data for these three metrics must all be collected concurrently so that the travel time and queue length performance is representative of the traffic volumes on the roadway network. With the mix of data utilized, a comprehensive set of temporally aligned, field calibration data (volumes, travel time, queue length) could not be collected. While VHB could not verify that the Existing Conditions model was calibrated to travel time or queue length metrics, VHB was able to verify that the model processed all

inputted volume demand (as noted on Page 5 of the draft report). Full processing of existing volume demand is a key model calibration metric, and in VHB's opinion, the Existing Conditions model is a valid projection of 2022 roadway performance.

Comment-Response #3

Comment: *"On page 5, Table 3 the Van Buren Street / Alabama Drive PM peak hour LoS is demonstrated as E, while the Van Buren Street / Herndon Parkway intersection LoS is shown as D. From personal experience commuting on the road during peak hours, it seems opposite. The Van Buren Street / Herndon Parkway is always more congested and has longer wait behind the queue than this intersection. Staff is curious how the model has shown otherwise."*

Response: There are several things to note.

- First, there is a different LOS scale for signalized and unsignalized intersections (see Table 2, Page 5, in draft report). In Existing conditions, the Van Buren Street / Alabama Drive intersection is unsignalized, while the Van Buren Street / Herndon Parkway intersection is signalized. Therefore, a comparison of actual delay at each intersection is likely a better metric than a comparison of LOS.
- Second, the results obtained by VHB are consistent with the 2017 TRG study that identified worse PM peak delay/LOS at the Van Buren Street / Alabama Drive intersection than the Van Buren Street / Herndon Parkway intersection.
- Third, Table 3 reports an intersection-wide delay average; individual movements and approaches experience lower and higher congestion than the intersection average. It is feasible that staff commute in a travel direction where they do experience a higher level of congestion at the Herndon Parkway intersection than at the Alabama Drive intersection. The report appendix (Page 24) shows the Existing PM results by each movement and approach. It is also possible that staff commute at a time of day different than the modeled peak hour.
- Finally, while the Van Buren Street / Alabama Drive intersection was modeled as unsignalized in Existing conditions, VHB understands that the future traffic signal is actively under construction. The performance of this intersection and the Van Buren Street corridor will soon change, and this change is reflected in the No Build 2045 models.

Comment-Response #4

Comment: *"While the analysis considers impacts such as a one percent annual background growth rate and a 20 percent reduction due to Metro Square development in HTOC, it does not demonstrate the potential or proportional effects of the Silverline and Metro Station on the existing and more so on 2045 no-build scenario. Staff is curious if the Metro Station has any role in reducing future traffic congestion. What is the potential percent of traffic congestion mitigation of the Silver Line on the Town in general and TRG in particular, if any?*

a. While the one percent annual background growth rate was considered in a previous study, Staff is curious if the rate is still realistic for the Town context and not too aggressive."

Response: A 1% annual growth rate plus known development project traffic was the selected growth rate strategy for this study, as established through coordination between the consultant team and Town staff and documented in VHB's November 1, 2022, transportation assumptions memorandum. The memorandum also documented VHB's opinion that based on a comparison to growth projections from the TDM (which includes Silver Line impacts on congestion – both mode shift and station activity), the selected 1% plus development strategy may overstate future volume demand. Despite this concern, however, the 1% strategy was determined to represent the most viable growth rate strategy because it is consistent with prior studies, it is the most easily defensible to the public, and it is a conservative projection of traffic conditions. VHB also restated this explanation on Page 9 of the draft report, noting that *"a conservative traffic forecasting approach ensures that the infrastructure can more than accommodate the future demand."*

The volume growth methodology was discussed extensively between VHB and the Town during multiple meetings, with the transportation assumptions memorandum representing the culmination of these discussions. The Town accepted the assumptions memorandum via email on November 21, 2022, which was taken by the consultant team to indicate concurrence with the growth rate strategy.

The effect of the Silver Line is taken into account in the analysis through application of a transit mode reduction. Consistent with the 2012 Herndon Metrorail Station Area Study, the 2017 TRG Study, and the Fairbrook Development TIS, a 25% transit mode reduction was applied to the base trip generation for HTOC and Fairbrook. VHB plans to apply this transit mode reduction to TRG land uses as well during Build analysis.

Comment-Response #5

Comment: *"The exclusion of the Spring Street / FCP interchange and Fairbrook Drive extension to Spring Street from the analysis is explained on Page 10, while the benefit of the latter one is highlighted at the end of the first paragraph on page 11. Staff is curious about the overall effects of these improvements on the simulations, transportation analysis, and congestion, as well as details of a justification, should one or both improvements get realized;"*

Response: It is difficult to predict the overall effect of a future Spring Street / Fairfax County Parkway interchange improvement project because the design is extremely fluid for all the reasons explained on Page 10 of the draft report. The effects on the network congestion would be subject to the final configurations of the Spring Street / Fairfax County Parkway interchange project, the potential Fairbrook Drive / Dulles Toll Road / Fairfax County Parkway interchange, and the potential Fairbrook Drive extension. There are too many unknown variables now to accurately predict the impact.

The Fairbrook Drive extension to Spring Street was specifically excluded from the No Build traffic model at request of the Town (documented on page 10 of the report). This was also documented in the Inception Report and in the November 1, 2021, transportation assumptions memorandum. Instead, the Fairbrook Drive extension will be included as an alternative mitigation improvement in the Build analysis. In the draft report (page 12), VHB noted the likely transportation improvement from the Fairbrook Drive extension only because prior studies had identified that improvement (2017 TRG study and Fairbrook TIS) and it would help alleviate one of the two constrained locations within the No Build 2045 models. The actual

improvement effect of the Fairbrook Drive extension will be quantified in the Build models that include this roadway.

Comment-Response #6

Comment: "*What is the magnitude of the surplus capacity of the Herndon Parkway Corridor highlighted in the conclusion section of the report?*"

Response: It is difficult to specifically quantify the magnitude of the surplus transportation capacity of any urban intersection or corridor due to the significant number of variables that contribute to traffic congestion. In an uninterrupted traffic flow scenario (e.g., freeway, arterial between intersections with traffic control) there is a theoretical roadway capacity that can be compared to volume demand on the roadway. In an interrupted traffic flow situation (e.g., Herndon Parkway with numerous traffic signals), it is much more difficult to quantify surplus capacity because it relates to signal capacity, which is dependent on multimodal movements (vehicles and pedestrians) competing for green time within the signal cycle. Signal splits, phasing, and coordination can be tweaked and optimized to improve corridor capacity as traffic demand grows and shifts. Additionally, as already seen with the approved development projects on the corridor, redevelopment often introduces transportation improvements such as turn lanes that further increase the corridor capacity.

VHB noted surplus capacity in the draft report as the model metrics (delay, LOS, and queue) indicate that the intersections within the Herndon Parkway corridor (between Van Buren Street and Spring Street) are not at capacity (e.g., the LOS is better than LOS E). The corridor appears to have the capacity to accommodate additional demand; however, the quantity of that demand will need to be identified during the Build analysis via scenario testing.

Comment-Response #7

Comment: *"The two constrained location within the study area is identified as the two ends of Herndon Parkway at the Spring Street and Van Buren intersections, which are currently under development. With no additional foreseeable improvement in the near future, what are the potentially feasible alternatives, that could help reduce the congestion at these nodes? (For example, a new street, and an intersection somewhere west of Spring Street and north of Herndon Pkwy, (aligned with Victory Drive or the Connector bus yard)."*

Response: While there may not be foreseeable improvement opportunities in the near future, the 2045 planning horizon within this study should allow for future planning of feasible improvement alternatives. As already documented within the draft report, the future Fairbrook Drive extension should help alleviate some of the congestion at the Spring Street / Herndon Parkway intersection. A new street and/or intersection northwest of the Spring Street / Herndon Parkway intersection should help provide access to future TRG development northwest of Herndon Parkway, thereby reducing new stress on the westbound Spring Street left turn and the northbound Herndon Parkway right turn movements.

At Herndon Parkway / Van Buren Street, there is not as obvious an opportunity for an improvement alternative. The two most constrained movements are the southbound thru and the northbound left on Van Buren Street, two movements that compete for capacity within the signal cycle. A significant capacity increase to either movement is likely only feasible by widening Van Buren Street to increase the length of

the southbound dual thru lanes and to provide northbound dual left turn lanes. Widening Van Buren Street would have right of way implications.

Comment-Response #8

Comment: "*The report highlights a 2017 TRG Study that has reflected only 13% (AM) and 37% (PM) of TRG redevelopment vehicle trips as new traffic on the roadway network while the remaining development trips replace existing ones, do you (this analysis) confirm the findings? Is there any chance of a significant deviation from the 2017 study in a potential scenario?*"

Response: The completed analysis to-date neither confirms nor rejects the findings noted in the comment. To date, new analysis has only been conducted for Existing and No Build 2045 scenarios. The determination of what percentage of TRG redevelopment trips replace existing development trips will not be conducted until Build 2045 scenarios are evaluated. VHB only referenced the noted finding from the 2017 TRG study to highlight that 100% of TRG redevelopment traffic does not have to be accommodated by the transportation network because a significant portion of it will replace vehicle trips already on the roadway. The actual percentage identified in this study will be subject to several variables, including proposed TRG density and mix of proposed land use types (e.g., residential, office, retail, hotel, etc.).

Comment-Response #9

Comment: *"Please cite specific local examples of intersections that operate at a LOS E or below, as indicated at the end of the last paragraph on page 10. This with a justification can acknowledge the need for the Town's LoS standard adjustment to allow an intersection LoS below D."*

Response: Fairfax County's 2018 *Reston Network Analysis* is one local example. As seen on Pages 32-33 of this report, 7 intersection peaks in Existing 2015 conditions operate at LOS E or worse. The Executive Summary (Page 1) documents that the goal "was to mitigate all intersections to LOS E." Page 2 of the Executive Summary notes that in the 2050 analysis, 43 intersections were originally identified as operating at LOS F in the peak hour prior to the inclusion of mitigation measures.

As documented in the TRG draft report, only the Spring Street / Herndon Parkway intersection in the PM peak hour operates at LOS E in the 2045 No Build analysis. In comparison to the nearby Reston network in 2050, the 2045 No Build Herndon TRG analysis indicates overall better performance.

The Fairfax County Comprehensive Plan also notes that "an overall LOS E is the goal for the intersections within the street network" in the Innovation Center TSA, Reston TSAs, and Tysons; note – this is potentially not an exhaustive list of locations within the County with an LOS E standard. There is additional language in the Comprehensive Plan about potential remedies if a "LOS E standard cannot be attained or maintained with planned development." The County has adopted an LOS E standard for their roadway networks adjacent to Silver Line stations.

2017 Edition of the Comprehensive Plan - Reston (fairfaxcounty.gov) – See Page 135

2017 Edition of the Comprehensive Plan - Dulles Suburban Center (fairfaxcounty.gov) – See Page 52

2017 Edition of the Comprehensive Plan - Tysons Corner Urban Center, Areawide Recommendations (fairfaxcounty.gov) – See Page 65

Comment-Response #10

Comment: *"Please color code the cells in the table where there's a LOS E/F turning movement and a problematic queue based on a metric threshold."*

Response: The cells in the Appendix tables with LOS E/F turning movement or a problematic queue have been color coded in the final report submittal.

Comment-Response #11

Comment: *"Please revise the font size or report format to make it more readable. The current font size makes it difficult to read."*

Response: The font size in the final report submittal has been increased from font size 10 to size 12. The report was prepared in a 11x17 format, so please consider that format if printing.

Town of Herndon TRG: Utilities and Storm Water Analysis (DRAFT)

October 5th, 2022

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Town of Herndon

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Introduction

The purpose of this report is to analyze the existing conditions of the water, sanitary sewer, and storm water systems within the TRG study area. The analysis is based off of GIS data provided by the town of Herndon. This report also aims to identify potential work to be done with these existing systems/networks mentioned above based on future development conditions. Pipes which may need to be increased in size or pipes that may have to be removed have been identified in the following sections. Note that this is just very preliminary analysis, and a more precise analysis will be needed once future development conditions and layouts are determined.

Exhibit 1

DRAINAGE
- Storm Manhole
- Detention Pond
- Inlet Point
- Outfalls
- Drainage Pond Pipe
- Drainage Stormwater Filter
- Drainage Gravity Main
- Drainage Pond

SEWER
- Sewer Manhole
- Sewer Meter Station
- Sewer Pump
- Sewer Vault
- Sewer Gravity Main
- Sewer Force Main

WATER SUPPLY
- Water System Valve
- Water Control Valve
- WaterPressurized Main
- Water Service Line
- Water Underground Enclosure

Water distribution system

The current water distribution system within the TRG consists of a watermains along Herndon Parkway tying into other mains along Spring St. And Van Buren St. which branches off of Herndon Pkwy and serves each individual parcel within the TRG.

The watermains along Herndon Pkwy, Spring St, and Van Buren St. shall remain as such, as long as future demands lie within existing service capacity. If future demands prove to be above capacity, then these water mains may need to be upsized.

Local, onsite water distribution networks (within each parcel) will most likely need to be removed entirely and re-laid depending on future layouts. For example, if a current industrial site with a large parking lot is redeveloped into a large multifamily building with a garage, then a new waterline network will need to be designed to avoid conflicts with structures and other constraints.

Note that current uses within the TRG are mostly industrial, retail, and office park, and have low densities overall (low FAR's) per parcel. Redevelopment to higher densities like multifamily will cause a significant increase in demands. See Tables below for comparisons of flow demands for multifamily to low density industrial.

Type of Dwelling Unit	Persons/Dwelling Unit
Single Family	3.57
Duplex	3.22
Multiplex	2.42
Mobile Home	2.61
Garden Apartment	2.50
Elevator Apartment	1.50

The average daily water consumption rates for planning purposes shall be in accordance with the Virginia Department of Health, Waterworks Regulations, as follows:

Service	Gallons Per Day
Dwellings, per person	100
High Schools with Showers, per person	16
Elementary Schools without showers, per person	10
Boarding Schools, per person	75
Motels at 65 gallons per person, minimum per room	130
Restaurants, per seat	50
Factories, per person, per eight-hour shift	15-35
Shopping Centers, per 1,000 sq. ft. of ultimate floor space	200-300
Hospitals, per bed	300
Nursing Homes, per bed	200
Home for the Aged, per bed	100
Doctor's Office in Medical Center	500
Laundromats, 9 to 12 machines, per machine	500
Community Colleges, per student and faculty member	15
Swimming Pools, per swimmer	10
Theaters, Auditorium Type, per seat	5
Picnic areas, per person	5

Source: Town of Herndon, Water Main Design and Construction standards

Table 10.1 Average Design Flows for Development Types	
Type of Development	**Design Flow (GPD)**
Residential:	
General, Mixed-use and Planned Developments	100/person
Single family detached	350/residence
Single family attached	280/unit
Multifamily	280/unit
Commercial:	
General	2,000/acre
Motel	130/unit
Office	30/employee
	0.20/net ft^2
Industrial:	
General	10,000/acre
Warehouse	600/acre
Varies with type of industry	
School Site:	
general	16/student

Source: Fairfax County Public Facilities Manual

Ultimate development will also depend on the capacity of the existing system, which will need to be coordinated with the Town. Potential for system capacity increases to handle future development may be available.

Note that once future development scenarios are finalized, accurate water demands shall be entered into the Town's water model. This water model analysis with future scenarios will determine which watermains within the main streets will need upsizing. The water model will also determine sizing of branches serving each parcel. See exhibit 2 for more detail.

Exhibit 2

EX PIPE TO BE DEMOLISHED AND REALIGNED BASED ON NEW SITE LAYOUT

EX PIPE TO BE POTENTIALLY UPSIZED BASED ON ULTIMATE DEVELOPMENT

DRAINAGE
- Storm Manhole
- Detention Pond
- Inlet Point
- Outfalls
- Drainage Pond Pipe
- Drainage Stormwater Filter
- Drainage Gravity Main
- Drainage Pond

SEWER
- Sewer Manhole
- Sewer Meter Station
- Sewer Pump
- Sewer Vault
- Sewer Gravity Main
- Sewer Force Main

WATER SUPPLY
- Water System Valve
- Water Control Valve
- WaterPressurized Main
- Water Service Line
- Water Underground Enclosure

Sanity Sewer collection system

Existing sewer system consists of collection mains that cross Herndon Pkwy and spring street. These sewers drain offsite residential areas as well as parcels within the TRG. Some sewage drains across Spring St. along Sugarland run, and another sewage main drains across Herndon Pkwy into a sewage pump station.

Note that current uses within the TRG are mostly industrial, retail, and office park, and have low densities overall (low FAR's) per parcel. Redevelopment to higher densities like multifamily will cause a significant increase in sewage flows, similar to those of water demands described above. See Tables above for comparisons of flow demands for multifamily to low density industrial. Similar to water, the trunk mains may be able to remain as is, but onsite local collector sewers on each parcel will need to be realigned to work with the future development layout. In a worst-case scenario, the trunk mains and even pump station capacity may need to be increased, which can include improvements beyond the TRG area.

Ultimate development will also depend on the capacity of the existing system, which will need to be coordinated with the Town. Potential for system capacity increases to handle future development may be available.

Note that once future development scenarios are finalized, accurate sewage demands shall be entered into the Town's sewer system model. This sewer model analysis with future scenarios will determine which sewer mains, pump stations, or sewer trunks will need upsizing. The sewer model will also determine sizing of branches serving each parcel. See exhibit 3 for more detail

Exhibit 3

EX PIPE TO BE DEMOLISHED AND REALIGNED BASED ON NEW SITE LAYOUT

EX PIPE TO BE POTENTIALLY UPSIZED BASED ON ULTIMATE DEVELOPMENT

DRAINAGE
- Storm Manhole
- Detention Pond
- Inlet Point
- Outfalls
- Drainage Pond Pipe
- Drainage Stormwater Filter
- Drainage Gravity Main
- Drainage Pond

SEWER
- Sewer Manhole
- Sewer Meter Station
- Sewer Pump
- Sewer Vault
- Sewer Gravity Main
- Sewer Force Main

WATER SUPPLY
- Water System Valve
- Water Control Valve
- WaterPressurized Main
- Water Service Line
- Water Underground Enclosure

Storm Sewer system

The existing storm sewer system consists of each parcel within the TRG collecting stormwater and discharging directly into the floodplain or larger storm sewers within the TRG and ultimately discharging into the floodplain around Sugarland run. There may be a few small runs of storm sewer that also drain offsite parcels, but on a much smaller scale compared to how current water and sewer systems are serving offsite parcels.

Fortunately, it is important to note that since the parcels within the TRG are mainly non-residential, they are already mostly impervious. This means that future development will not have to worry as much about impacts on downstream capacity. Redevelopment from industrial or commercial sites to multifamily or mixed-use development does not usually result in an increase in impervious area and thus stormwater runoff. Any redevelopment shall strive to provide an increase in pervious areas or small LID measures to avoid an increase in runoff. Doing so within the TRG is much easier than redevelopment from agricultural or R1 sites to commercial or mixed use for example.

As mentioned above, onsite storm sewer systems will have to be removed and redesigned to align with the future development layouts. Some of the larger collection storm drains can potentially remain as is. See exhibit 4 for more detail.

Exhibit 4

EX PIPE TO BE DEMOLISHED AND REALIGNED BASED ON NEW SITE LAYOUT

EX PIPE TO BE POTENTIALLY UPSIZED BASED ON ULTIMATE DEVELOPMENT

DRAINAGE	SEWER	WATER SUPPLY
Storm Manhole	Sewer Manhole	Water System Valve
Detention Pond	Sewer Meter Station	Water Control Valve
Inlet Point	Sewer Pump	WaterPressurized Main
Outfalls	Sewer Vault	Water Service Line
Drainage Pond Pipe	Sewer Gravity Main	Water Underground Enclosure
Drainage Stormwater Filter	Sewer Force Main	
Drainage Gravity Main		
Drainage Pond		

Storm water quantity and quality

As mentioned above in the storm sewer section, a significant increase in stormwater runoff is not anticipated since the current TRG parcels are already most impervious. Also, due to proximity to the major floodplain around Sugarland run, there will most likely not be a need to detain stormwater (reduce runoff quantity). Adequate outfall may be achievable without any new stormwater management facilities.

Stormwater quality improvements however may be required as a best management practice, even if overall impervious areas are not increasing. This shall be coordinated with the Town of Herndon. Any stormwater quality measures shall be included within each parcel, (storm filters, tree box filters, hydrodynamic separators. Urban bioretention basins, etc...). Alternatively, water quality credit purchase is another viable option, and shall be coordinated with the Town.