



# PRINCE WILLIAM COUNTY

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## Prince William County, Virginia Internal Audit Report: Leased Office Space Facilities Analysis

April 12, 2019





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# TRANSMITTAL LETTER



April 12, 2019

The Board Audit Committee of  
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Pursuant to the internal audit plan for calendar year ending (“CY”) 2018 for Prince William County, Virginia (“County” / “PWC”), approved by the Board of County Supervisors (“BOCS”), we hereby present this leased office space facilities analysis. The purpose of this engagement was to develop an analysis of leased facilities occupied by the County at the time of review (September 9th, 2018). This analysis presents the current state and several alternative scenarios, for consideration, including leasing, purchasing, and developing a consolidated campus of buildings. We will be presenting this report to the Board Audit Committee of Prince William County at the next scheduled meeting on June 25, 2019.

Our report is organized into the following sections:

<b>Executive Summary</b>	This section provides a high-level overview and summary of the results noted in our analysis of the County’s leased office space.
<b>Current State Analysis</b>	This section provides an analysis of the County’s current leased office spaces and utilizes historical trends to estimate space needs by 2027.
<b>Market Analysis</b>	This section provides a market analysis of office space in Northern Virginia, Prince William County, and City of Manassas markets as of the third quarter of 2018.
<b>Scenario Analysis</b>	This section provides an analysis of three different scenarios to meet the office space needs of the County by 2027: leasing buildings, constructing new buildings, and purchasing existing buildings. This analysis does not take into account current buildings available for lease or purchase in Prince William County, but is based off of average rates obtained from market data.

The assumptions developed in this analysis do not serve as an appraisal of the existing county facilities and cannot be utilized as a real estate appraisal or indication of value.

We would like to thank the staff and all those involved in assisting our firm with this analysis.

Respectfully Submitted,

*RSM US LLP*

**Internal Auditors**



## EXECUTIVE SUMMARY

### Overview

The purpose of this engagement was to develop an analysis of leased office space occupied by the County at the time of review (September 9<sup>th</sup>, 2018). This analysis presents the current state and several scenarios of possible actions based on market data, for consideration, including leasing, purchasing, and constructing facilities in an effort to develop a consolidated campus of buildings.

*Reference the definitions section of this report for descriptions of specific industry and analysis terminology utilized throughout this report.*

Scenarios included:

- **New Construction** - Purchase land and construct a consolidated campus of county buildings within Prince William County. This scenario is based on market sales of land in the region (past 10 years), and does not consider current property listings.
- **Purchase Existing Buildings** - Purchase existing property to serve as a consolidated campus of county buildings within Prince William County. This scenario is based on market sales in the region (past 10 years), does not consider current property listings, and does not include any custom renovations.
- **Lease Existing Buildings** - Lease existing property to serve as a consolidated campus of county buildings within Prince William County. This scenario is based on third-party market data of leases in the region (current and recent leases), does not consider current listings, and includes tenant improvement ("TI") allowance.

### Summary of Analysis Results

The following summary provides key information from our analysis and is not a complete depiction of all results. Please reference the corresponding sections within the body of the report for greater detail on approach and results.

<p><b>County Leased Office Space - Current State and Market Analysis</b>  <i>Reference page #5 for the first page of the detailed "Current State Analysis"</i>  <i>Reference page #12 for the first page of the detailed "Market Analysis"</i></p>
<ul style="list-style-type: none"> <li>• The County currently leases 379,262 square feet of space which includes:             <ul style="list-style-type: none"> <li>○ 233,630 square feet of leased office space;</li> <li>○ 98,545 square feet of leased warehouse space; and</li> <li>○ 47,087 of specialty warehouse, office, and retail space (excluded from this analysis)</li> </ul> </li> </ul> <p><i>Note: spaces that were excluded from this analysis would not reasonably be consolidated, purchased or built.</i></p>
<ul style="list-style-type: none"> <li>• Based on industry standards and federal guidance, an estimated 230,230 square feet of leased office space (includes additional 15% common area space) is needed to house the ~1,144 County employees currently occupying leased space (175 gross square feet per employee).</li> </ul>
<ul style="list-style-type: none"> <li>• Overall, ~4,362 employees occupy ~1,656,000 square feet within 121 buildings owned by the County. The County owns ~103 additional buildings (~318,000 square feet) utilized by Parks, Recreation &amp; Tourism that are not office, warehouse, or retail spaces.</li> </ul>
<ul style="list-style-type: none"> <li>• The County currently pays approximately over ~\$6.6 million annually for 38 leased spaces included in this analysis.</li> </ul>
<ul style="list-style-type: none"> <li>• Based on historical trends, excluding changes in Public Safety and Parks, Recreation &amp; Tourism (due to recent uncharacteristic growth), the County is expected to have 1,493 employees in leased office space by 2027.</li> </ul>
<ul style="list-style-type: none"> <li>• Total estimated leased gross building area in 2027 will be 398,943 square feet which includes:             <ul style="list-style-type: none"> <li>○ 300,398 square feet of leased office space; and</li> <li>○ 98,545 square feet of leased warehouse space.</li> </ul> </li> </ul>



**EXECUTIVE SUMMARY – CONTINUED**

Summary of Analysis Results – continued

<ul style="list-style-type: none"> <li>Real estate tax payments are not collected by PWC for the 15 properties leased outside of the County within the City of Manassas. Over 10 years, the taxes paid to the City exceeds \$2.5 million.</li> <li>The average rent in the City of Manassas is \$18.92 per square foot. The County pays an average of \$20.10 per square foot in the City of Manassas.</li> <li>Rents in Prince William County have increased every year since 2015, in line with the overall trends of the Washington, DC Metro office market.</li> </ul>
<p><b>Build, Buy or Lease – Scenario Analysis</b> <i>Reference page #19 for first page of the detailed “Scenarios Analysis” and present value tables</i></p>
<ul style="list-style-type: none"> <li>There are three primary actions an entity can take to obtain their required space needs: build, buy, or lease. Utilizing market data we developed three different scenarios.             <ul style="list-style-type: none"> <li><b>Build</b> <ul style="list-style-type: none"> <li>New Construction – 30 year cost in present day value(\$) = \$92,000,000 (\$231 per square foot)</li> <li>Build on land already owned by the County = \$83,000,000 (208 per square foot)</li> </ul> </li> <li><b>Buy</b> <ul style="list-style-type: none"> <li>Purchase Existing Buildings – 30 year cost in present day value(\$) = \$39,900,000 (\$100 per square foot)</li> </ul> </li> <li><b>Lease</b> <ul style="list-style-type: none"> <li>Lease Existing Buildings – 30 year cost in present day value(\$) = \$60,000,000 (\$150 per square foot)</li> </ul> </li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>There are additional anticipated costs associated with County buildings including generators, sprinkler systems, CCTV/security, directory, signage, and elevators. Based on the County’s estimate, the scenarios included in this analysis would also have \$14.29 per square foot in specialty refinement costs (Office Building Specialty Refinements - \$15.51 per square foot; Warehouse Building Specialty Refinements - \$10.61 per square foot).</li> </ul> <p><i>Note: these estimates were provided by the County and were not validated as part of RSM’s analysis. Reference page #30 for the details related to “Specialty Costs”.</i></p>
<p><b>Analysis Considerations</b> <i>Items to take into account</i></p>
<ul style="list-style-type: none"> <li>Newly constructed buildings have a longer economic life when compared to leasing or purchasing existing buildings.</li> <li>A newly constructed facility can be customized to fit the County’s specific space requirements. Additionally, the facility would likely have energy and space efficiencies that can decrease total expenditures.</li> <li>Leased buildings have flexible lease terms and can be vacated if the County’s needs change over time.</li> <li>The purchase of existing buildings is less expensive on a price per square foot basis than new construction.</li> </ul>



## EXECUTIVE SUMMARY – CONTINUED

### DISCLAIMER

- Information presented in this report has been obtained from reliable sources, and it is assumed that the information is accurate.
- This report shall be used for its intended purpose only, and by the party to whom it is addressed. Possession of this report does not include the right of publication.
- The statements of value and all conclusions shall apply as of the dates shown herein.
- This report must be used in its entirety. Reliance on any portion of the report independent of others, may lead the reader to erroneous conclusions regarding the property values. Unless approval is provided by the author no portion of the report stands alone.
- We assume no responsibility for matters legal in character, nor do we render any opinion as to title, which is assumed to be marketable. All existing liens, encumbrances, and assessments have been disregarded, unless otherwise noted, and the property is appraised as though free and clear, under responsible ownership, and competent management.
- The valuation stated herein assumes professional management and operation of the buildings throughout the lifetime of the improvements, with an adequate maintenance and repair program.
- The liability of RSM, its principals, agents, and employees is limited to the client. Further, there is no accountability, obligation, or liability to any third party. If this report is placed in the hands of anyone other than the client, the client shall make such party aware of all limiting conditions and assumptions of the assignment and related discussions.



## CURRENT STATE ANALYSIS

### Overview

The County currently occupies 38 leased buildings that have been analyzed for consolidation in this analysis. These buildings serve an estimated 1,144 employees and volunteers within 332,165 total square feet. Of the 332,165 leased square feet, 233,630 square feet is office space and 98,545 square feet is warehouse space. The properties are located throughout Prince William County; however, 15 of the properties are leased in the City of Manassas. Twelve (12) properties with 47,087 square feet of specialty warehouse, office, and retail space were excluded from this analysis since they would not be applicable for consolidation, purchase or to be built.

Based on lease rates, as of September 2018, the County currently pays over ~\$6.6 million annually for the 38 leased spaces included in this analysis. The buildings are office and industrial in nature and serve a variety of uses.


While the County leases certain buildings, the majority of the facility portfolio includes buildings owned by the County. Approximately 4,362 employees occupy ~1,656,000 square feet within 121 buildings owned by the County. The County owns ~103 additional buildings (~318,000 square feet) utilized by Parks, Recreation & Tourism that are not office, warehouse, or retail spaces. Therefore, 26% of applicable facilities utilized by the County are leased (18% of space) and 74% of facilities are owned by the County (82% of space). The average age of buildings owned by the County is 36 years (constructed in 1982).

Key:

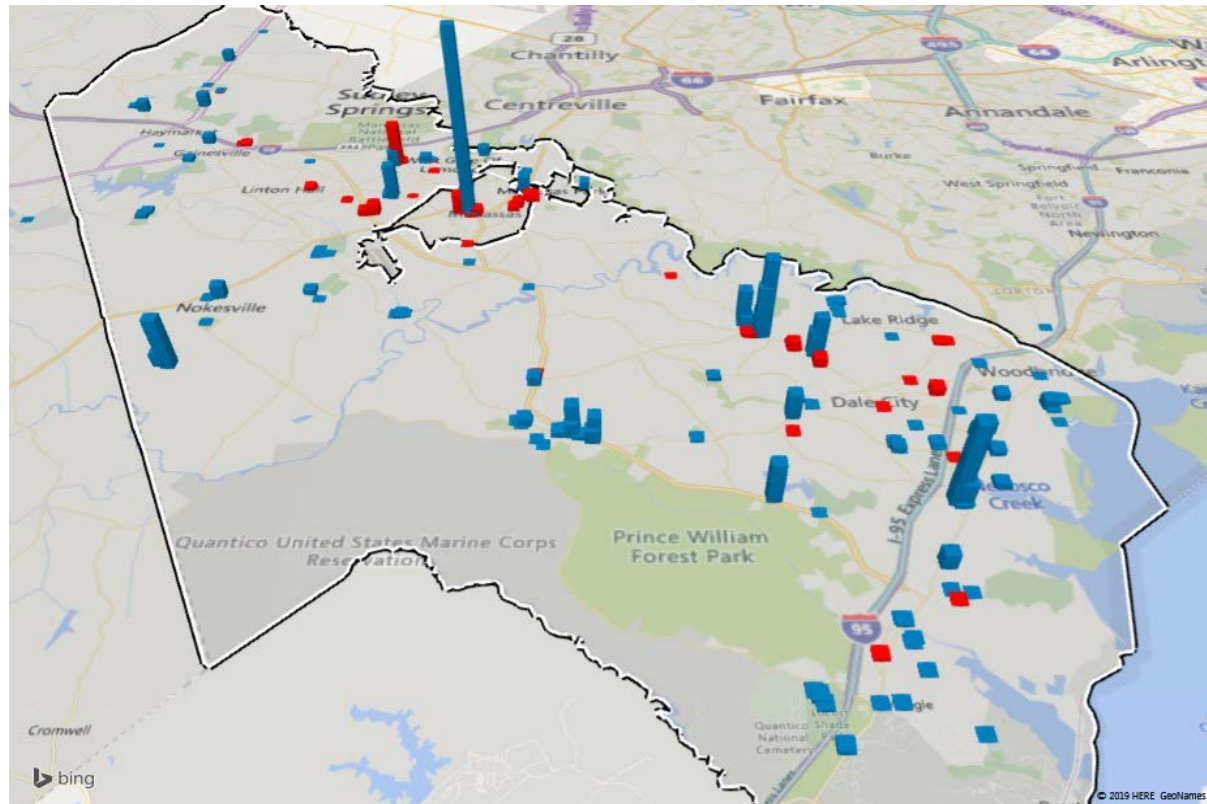
- = County Leased
- = County Owned

\*Block Height Illustrates Facility Square Footage

Height Scale:



= ~75,000 Sq. Ft.





## CURRENT STATE ANALYSIS – CONTINUED

### Employee Count and Space Estimation

This section estimates the total number of County employees that currently occupy the leased buildings.

REQUIRED SPACE ESTIMATE (2018)	
Employees	1,144
Square Footage Per Employee	175
Net Building Area	200,200
Common Area Space	15%
Gross Building Area	230,230
Source: Facilities Master Plan 2015	

Recent publications by the General Services Administration (“GSA”), an independent agency of the US government, have indicated that the federal government plans to decrease employee office square footage over the next ten years. New space goals range from 150 to 200 square feet per employee. Additionally, interviews with market participants indicated the average square footage per employee in Northern Virginia office improvements is 175 square feet. This figure has been utilized to estimate the County’s long-term office requirements.

Historically, the County has expanded its personnel at a pace of approximately 3% per year (excluding parks, police, and fire & rescue due to prevent skewing). Following this trend, the County is expected to have 1,493 employees in leased office space by 2027. The following table outlines the calculation of employee growth over the next 10 years.

PERSONNEL ESTIMATE - 10 YEAR ANALYSIS										
CATEGORY	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Growth Estimate		3%	3%	3%	3%	3%	3%	3%	3%	3%
Employee Count	1,144	1,178	1,214	1,250	1,288	1,326	1,366	1,407	1,449	1,493

REQUIRED SPACE ESTIMATE (2027)	
Employees	1,493
Office Square Footage Per Employee	175
Office Building Area	261,216
Common Area Office Space	15%
Total Office Area	300,398
Warehouse Building Area	98,545
Total Gross Building Area	398,943
Source: RSM Estimate	

Personnel in leased space is estimated to reach 1,493 employees by 2027. This figure along with 98,545 square feet of warehouse space have been utilized in this analysis to determine the County’s long-term land and building requirements. As detailed above, the total estimated gross building area required in 2027 will be 398,943 square feet.





**CURRENT STATE ANALYSIS – CONTINUED**

Real Estate Tax Payments – City of Manassas

Prince William County currently occupies 15 buildings that are located in the City of Manassas. We have analyzed the real estate tax assessments and payments that apply to the properties in the City of Manassas.

The following table outlines the tax assessments for the leased properties located within the City of Manassas.

LEASED BUILDINGS - CITY OF MANASSAS					
Address	Occupant	Real Estate Tax Assessment	Annual Real Estate Taxes	Pro Rata Share of Building Area	Pro Rata Share of Real Estate Taxes
8400-8406 Kao Circle		\$13,842,400	\$194,209	66%	\$128,506
8400-8406 Kao Circle	Police Administration	-	-	-	-
8410 Kao Circle	F&R Emergency Deploymt Wrhse	-	-	-	-
8478 Kao Circle	Police Identification	-	-	-	-
8490 Kao Circle	F & R Emergency Mgmt	-	-	-	-
8488 Kao Circle	Fire and Rescue SCBA Shop	-	-	-	-
8480 Kao Circle	Employee Health	-	-	-	-
8494 Kao Circle	F&R CPAT Course	-	-	-	-
9033 Euclid Avenue	Police WH Ext. / RC	-	-	-	-
9039 Euclid Avenue	Police Warehouse	-	-	-	-
9029 Euclid Avenue	Fire & Rescue WH	-	-	-	-
9300 West Courthouse Road#102	Commonwealth Attorney	\$7,585,200	\$110,744	8%	\$8,420
9309 Center St.	Courthouse Station	\$3,838,100	\$56,036	12%	\$6,556
8609, 8611-8613, 8615B Quarry Rd.	Radio Shop Headquarters	\$1,691,200	\$23,728	100%	\$23,728
8500, 8501, 8502, 8504, 8506 and 8508 Phoenix	CSB Clubhouse (2016)	\$5,843,600	\$81,896	53%	\$43,585
9540 Center St.	Courthouse Professional Ctr	\$4,773,200	\$69,689	100%	\$69,689
<b>Total</b>		<b>\$37,573,700</b>	<b>\$536,302</b>		<b>\$280,484</b>



**CURRENT STATE ANALYSIS – CONTINUED**

Real Estate Tax Payments – City of Manassas – Continued

The following analysis is an illustration of the annual real estate tax payments for leased properties in the City of Manassas over the next 10, 20, and 30 years, respectively. In the analysis, the current tax rate of \$1.460 per \$100 of assessed value has been utilized to calculate the tax payments. The total assessment was increased by 3% annually. Present value is defined as the current worth of a future stream of cash flow. Discount rates of 10%, 11%, and 12% have been utilized in the 10-, 20-, and 30-year analysis, respectively.

PRESENT VALUE OF REAL ESTATE TAX PAYMENTS - 10 YEARS							
YEAR	PERIOD	Growth	Tax Assessment	Tax Rate (Per \$100 A.V.)	Annual Real Estate Taxes	DISCOUNT @ 10%	PRESENT VALUE
1	FY 2019	-	\$14,986,297	\$1.460	\$218,800	0.90909091	\$198,909
2	FY 2020	3%	\$15,435,886	\$1.460	\$225,364	0.82644628	\$186,251
3	FY 2021	3%	\$15,898,963	\$1.460	\$232,125	0.75131480	\$174,399
4	FY 2022	3%	\$16,375,932	\$1.460	\$239,089	0.68301346	\$163,301
5	FY 2023	3%	\$16,867,210	\$1.460	\$246,261	0.62092132	\$152,909
6	FY 2024	3%	\$17,373,226	\$1.460	\$253,649	0.56447393	\$143,178
7	FY 2025	3%	\$17,894,423	\$1.460	\$261,259	0.51315812	\$134,067
8	FY 2026	3%	\$18,431,255	\$1.460	\$269,096	0.46650738	\$125,535
9	FY 2027	3%	\$18,984,193	\$1.460	\$277,169	0.42409762	\$117,547
10	FY 2028	3%	\$19,553,719	\$1.460	\$285,484	0.38554329	\$110,067
Total					\$2,508,296		\$1,506,163
<b>Present Value of Real Estate Tax Payments (Rounded)</b>							<b>\$1,500,000</b>



## CURRENT STATE ANALYSIS – CONTINUED

Real Estate Tax Payments – City of Manassas – Continued

PRESENT VALUE OF REAL ESTATE TAX PAYMENTS - 20 YEARS							
YEAR	PERIOD	Growth	Tax Assessment	Tax Rate (Per \$100 A.V.)	Annual Real Estate Taxes	DISCOUNT @ 11%	PRESENT VALUE
1	FY 2019	-	\$14,986,297	\$1.460	\$218,800	0.90090090	\$197,117.06
2	FY 2020	3%	\$15,435,886	\$1.460	\$225,364	0.81162243	\$182,910.43
3	FY 2021	3%	\$15,898,963	\$1.460	\$232,125	0.73119138	\$169,727.70
4	FY 2022	3%	\$16,375,932	\$1.460	\$239,089	0.65873097	\$157,495.07
5	FY 2023	3%	\$16,867,210	\$1.460	\$246,261	0.59345133	\$146,144.07
6	FY 2024	3%	\$17,373,226	\$1.460	\$253,649	0.53464084	\$135,611.17
7	FY 2025	3%	\$17,894,423	\$1.460	\$261,259	0.48165841	\$125,837.39
8	FY 2026	3%	\$18,431,255	\$1.460	\$269,096	0.43392650	\$116,768.03
9	FY 2027	3%	\$18,984,193	\$1.460	\$277,169	0.39092477	\$108,352.31
10	FY 2028	3%	\$19,553,719	\$1.460	\$285,484	0.35218448	\$100,543.14
11	FY 2029	3%	\$20,140,331	\$1.460	\$294,049	0.31728331	\$93,296.79
12	FY 2030	3%	\$20,744,540	\$1.460	\$302,870	0.28584082	\$86,572.69
13	FY 2031	3%	\$21,366,877	\$1.460	\$311,956	0.25751426	\$80,333.22
14	FY 2032	3%	\$22,007,883	\$1.460	\$321,315	0.23199482	\$74,543.44
15	FY 2033	3%	\$22,668,119	\$1.460	\$330,955	0.20900435	\$69,170.94
16	FY 2034	3%	\$23,348,163	\$1.460	\$340,883	0.18829220	\$64,185.65
17	FY 2035	3%	\$24,048,608	\$1.460	\$351,110	0.16963262	\$59,559.65
18	FY 2036	3%	\$24,770,066	\$1.460	\$361,643	0.15282218	\$55,267.07
19	FY 2037	3%	\$25,513,168	\$1.460	\$372,492	0.13767764	\$51,283.85
20	FY 2038	3%	\$26,278,563	\$1.460	\$383,667	0.12403391	\$47,587.72
Total					\$5,879,236		\$2,122,307
<b>Present Value of Real Estate Tax Payments (Rounded)</b>							<b>\$2,100,000</b>



## CURRENT STATE ANALYSIS – CONTINUED

### Real Estate Tax Payments – City of Manassas – Continued

PRESENT VALUE OF REAL ESTATE TAX PAYMENTS - 30 YEARS							
YEAR	PERIOD	Growth	Tax Assessment	Tax Rate (Per \$100 A.V.)	Annual Real Estate Taxes	DISCOUNT @ 12%	PRESENT VALUE
1	FY 2019	-	\$14,986,297	\$1.460	\$218,800	0.89285714	\$195,357.09
2	FY 2020	3%	\$15,435,886	\$1.460	\$225,364	0.79719388	\$179,658.75
3	FY 2021	3%	\$15,898,963	\$1.460	\$232,125	0.711178025	\$165,221.89
4	FY 2022	3%	\$16,375,932	\$1.460	\$239,089	0.63551808	\$151,945.13
5	FY 2023	3%	\$16,867,210	\$1.460	\$246,261	0.56742686	\$139,735.25
6	FY 2024	3%	\$17,373,226	\$1.460	\$253,649	0.50663112	\$128,506.53
7	FY 2025	3%	\$17,894,423	\$1.460	\$261,259	0.45234922	\$118,180.11
8	FY 2026	3%	\$18,431,255	\$1.460	\$269,096	0.40388323	\$108,683.49
9	FY 2027	3%	\$18,984,193	\$1.460	\$277,169	0.36061002	\$99,950.00
10	FY 2028	3%	\$19,553,719	\$1.460	\$285,484	0.32197324	\$91,918.30
11	FY 2029	3%	\$20,140,331	\$1.460	\$294,049	0.28747610	\$84,532.01
12	FY 2030	3%	\$20,744,540	\$1.460	\$302,870	0.25667509	\$77,739.26
13	FY 2031	3%	\$21,366,877	\$1.460	\$311,956	0.22917419	\$71,492.36
14	FY 2032	3%	\$22,007,883	\$1.460	\$321,315	0.20461981	\$65,747.43
15	FY 2033	3%	\$22,668,119	\$1.460	\$330,955	0.18269626	\$60,464.16
16	FY 2034	3%	\$23,348,163	\$1.460	\$340,883	0.16312166	\$55,605.43
17	FY 2035	3%	\$24,048,608	\$1.460	\$351,110	0.14564434	\$51,137.14
18	FY 2036	3%	\$24,770,066	\$1.460	\$361,643	0.13003959	\$47,027.90
19	FY 2037	3%	\$25,513,168	\$1.460	\$372,492	0.11610678	\$43,248.88
20	FY 2038	3%	\$26,278,563	\$1.460	\$383,667	0.10366677	\$39,773.52
21	FY 2039	3%	\$27,066,920	\$1.460	\$395,177	0.09255961	\$36,577.43
22	FY 2040	3%	\$27,878,928	\$1.460	\$407,032	0.08264251	\$33,638.17
23	FY 2041	3%	\$28,715,295	\$1.460	\$419,243	0.07378796	\$30,935.11
24	FY 2042	3%	\$29,576,754	\$1.460	\$431,821	0.06588210	\$28,449.25
25	FY 2043	3%	\$30,464,057	\$1.460	\$444,775	0.05882331	\$26,163.15
26	FY 2044	3%	\$31,377,979	\$1.460	\$458,118	0.05252081	\$24,060.75
27	FY 2045	3%	\$32,319,318	\$1.460	\$471,862	0.04689358	\$22,127.30
28	FY 2046	3%	\$33,288,898	\$1.460	\$486,018	0.04186927	\$20,349.21
29	FY 2047	3%	\$34,287,565	\$1.460	\$500,598	0.03738327	\$18,714.01
30	FY 2048	3%	\$35,316,191	\$1.460	\$515,616	0.03337792	\$17,210.20
Total					\$10,409,498		\$2,234,149
<b>Present Value of Real Estate Tax Payments (Rounded)</b>							<b>\$2,200,000</b>



**CURRENT STATE ANALYSIS – CONTINUED**

Real Estate Tax Payments – City of Manassas – Continued

The following table summarizes the total estimated tax payments to be received by the City of Manassas over the forthcoming 10-, 20-, and 30-year periods.

TOTAL REAL ESTATE TAX PAYMENTS		
Timing	Aggregate Tax Payments	Present Value of Tax Payments
10-Years	\$2,508,296	\$1,506,163
20-Years	\$5,879,236	\$2,122,307
30-Years	\$10,409,498	\$2,234,149

Rent Comparison - City of Manassas

Based on the market analysis depicted within the following section, the average rent in the City of Manassas is \$18.92 per square foot. The County pays an average of \$20.10 per square foot in the City of Manassas. Therefore, although the County is paying more than the average, by approximately 6% in the City of Manassas for office space, it is within an acceptable range and could be attributed to a variety of reasons (market fluctuations, location, special requirements, etc).



## MARKET ANALYSIS

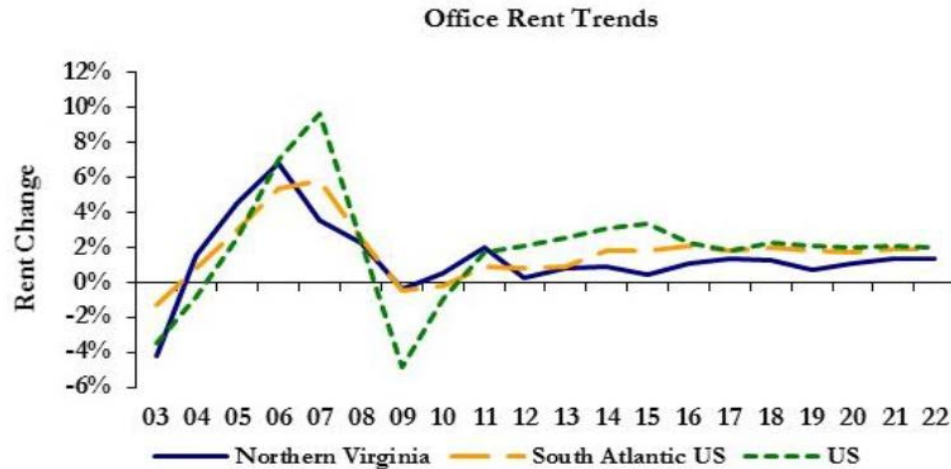
The following section provides a market analysis of the Northern Virginia, Prince William County, and City of Manassas markets as of the third quarter of 2018.

### Northern Virginia

The following exhibit illustrates the average asking rent and vacancy rates for Northern Virginia according to REIS, Inc. (real estate data source).

Average Asking Rent \$33.74	Average Vacancy Rate 20.2%
<ul style="list-style-type: none"> <li>• Up 0.2% from Q2 2018. ▲</li> <li>• Has risen for eleven consecutive quarters. ▲</li> <li>• Expected to finish 2018 at \$33.85.</li> </ul>	<ul style="list-style-type: none"> <li>• Drifted upward by 10 basis points. ▲</li> <li>• Among the 20 highest vacancies nationally.</li> <li>• Expected to finish 2018 at 20.1%.</li> </ul>

As illustrated, rental rates have risen consistently for Northern Virginia office properties for eleven quarters. The average asking rent in Northern Virginia was \$33.74 per square foot per year as of third quarter 2018. Vacancy has increased during this same period and is amongst some of the highest office vacancy in the nation.



Source: Reis, Inc.

Office rental rates fluctuated in Northern Virginia during the most recent economic downturn but have remained relatively stable since 2012.



## MARKET ANALYSIS – CONTINUED

### Prince William County

In the tables below, Washington, DC Metro office market trends are compared to Prince William County office submarket trends.

OFFICE MARKET AND SUBMARKET DATA SUMMARY (10 YEARS)					
		INVENTORY SUPPLY (SF)		VACANCY (%)	
QTR	YEAR	DC METRO	PWC	DC METRO	PWC
Q3	2018	515,085,696	7,351,837	13.0%	7.7%
Q2	2018	513,974,807	7,356,388	13.2%	7.2%
Q1	2018	513,013,014	7,356,388	13.0%	10.8%
Q4	2017	512,234,798	7,356,388	13.2%	11.5%
	2017	512,234,798	7,356,388	13.2%	11.5%
	2016	510,012,529	7,234,888	13.8%	8.2%
	2015	509,373,549	7,237,789	14.0%	9.4%
	2014	508,690,554	7,216,469	13.7%	10.7%
	2013	505,835,045	7,216,469	13.2%	11.9%
	2012	503,094,845	7,190,983	12.8%	12.3%
	2011	500,758,022	7,104,697	12.6%	14.0%
	2010	496,536,379	7,021,604	12.5%	15.2%
	2009	491,855,620	6,989,204	12.7%	16.4%
	2008	484,645,410	6,726,449	11.2%	14.3%
		RENT \$/SF		NET ABSORPTION (SF)	
QTR	YEAR	DC METRO	PWC	DC METRO	PWC
Q3	2018	\$34.89	\$22.39	1,678,966	(37,239)
Q2	2018	\$34.85	\$22.39	35,610	262,662
Q1	2018	\$34.48	\$22.25	1,404,940	50,556
Q4	2017	\$34.15	\$22.02	2,214,587	10,572
	2017	\$34.15	\$22.02	4,950,723	(128,376)
	2016	\$33.08	\$21.12	1,778,763	82,424
	2015	\$32.54	\$20.18	(1,044,631)	116,223
	2014	\$32.36	\$20.41	82,451	81,023
	2013	\$32.23	\$20.64	498,409	52,280
	2012	\$32.40	\$20.49	1,000,396	200,150
	2011	\$32.11	\$19.45	2,802,539	152,344
	2010	\$31.58	\$20.63	5,301,648	115,615
	2009	\$31.55	\$21.70	(783,458)	77,762
	2008	\$32.47	\$22.53	1,786,600	323,560

Source: CoStar Property®



## MARKET ANALYSIS – CONTINUED

### Prince William County – Continued

Overall, the Washington, DC Metro office market is significantly more expensive than the Prince William County office market. On average, the Prince William County office market rents have been just over \$10 per square foot below that of the Washington, DC Metro office market. Net Absorption in the most recent quarter has been negative for Prince William County; however, vacancy rates within the County have been at their lowest historically over the past two quarters. The low vacancy indicates consistent and increasing demand for office property in Prince William County. Furthermore, Prince William County is superior in terms of vacancy as compared with the Washington, DC Metro office market. Rents in Prince William County have increased every year since 2015, in line with the overall trends of the Washington, DC Metro office market. This analysis excludes the City of Manassas.

The average market rent in Prince William County as of Third Quarter 2018 was \$22.39.

The following tables illustrate construction deliveries and under construction square footage for the Washington, DC Metro office market and Prince William County submarket, respectively.

DELIVERIES (SF)					
QTR	YEAR	MARKET	% OF TOTAL	SUBMARKET	% OF TOTAL
Q3	2018	1,594,285	0.3%	0	0.0%
Q2	2018	1,765,046	0.3%	0	0.0%
Q1	2018	864,214	0.2%	0	0.0%
Q4	2017	2,103,986	0.4%	0	0.0%
	2018	4,223,545	0.8%	0	0.0%
	2017	4,106,900	0.8%	121,500	1.7%
	2016	2,864,185	0.6%	0	0.0%
	2015	1,801,015	0.4%	21,320	0.3%
	2014	4,254,801	0.8%	0	0.0%

UNDER CONSTRUCTION (SF)					
QTR	YEAR	MARKET	BUILDINGS	SUBMARKET	BUILDINGS
Q3	2018	9,048,044	42	87,294	2
Q3	2017	10,968,821	52	178,500	3
Q3	2016	7,733,973	47	73,500	1
Q3	2015	8,043,030	50	9,720	1
Q3	2014	5,929,639	42	0	0

Over the past five years, the Washington, DC Metro office market has shown aggressive expansion, delivering nearly 42 million square feet of office space. Approximately 350,000 square feet of office space was delivered in Prince William County during that same time period. Two new buildings were delivered in 2018 in Prince William County.

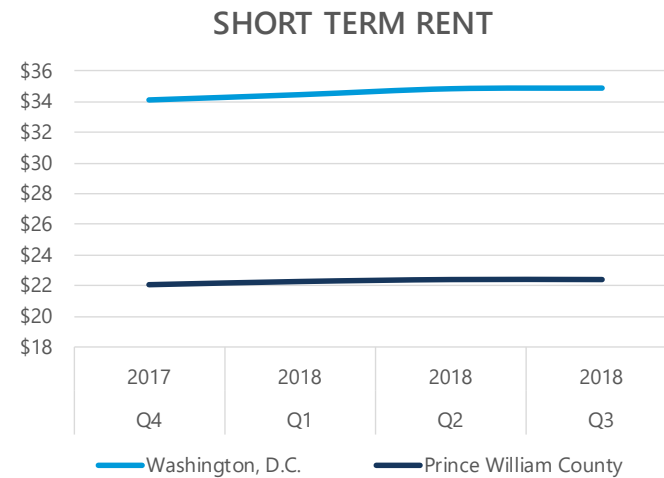
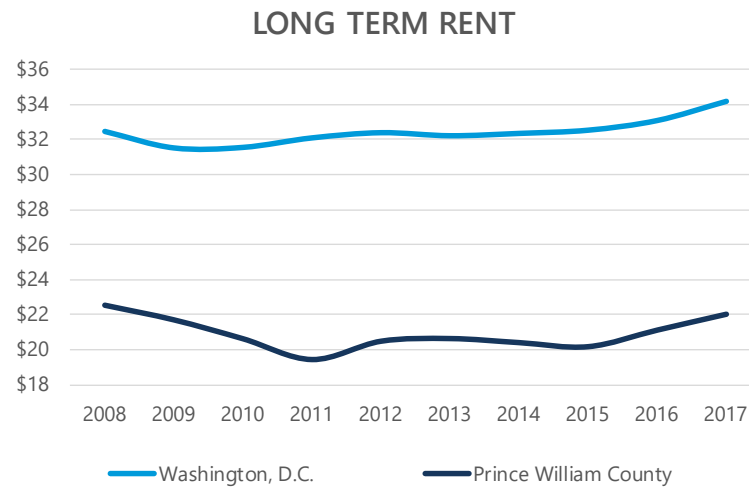
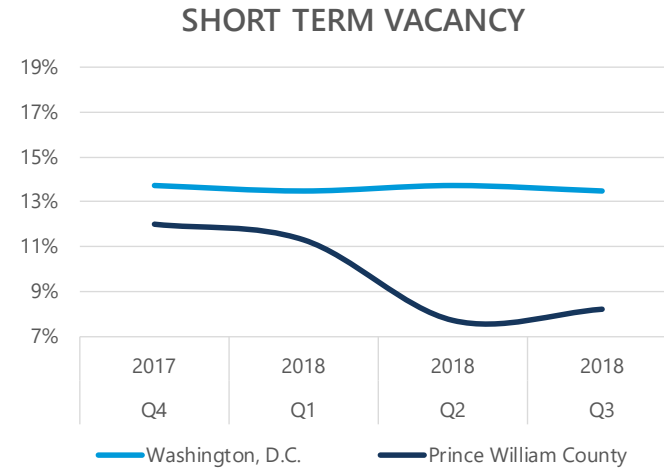
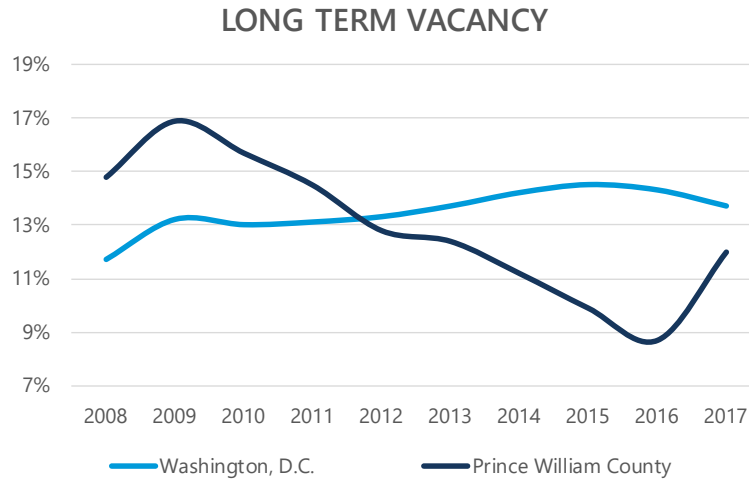




## MARKET ANALYSIS – CONTINUED

### Prince William County – Continued

The following exhibits illustrate long- and short-term vacancy and rent trends for the Washington, DC Metro area and Prince William County submarket, respectively.



Overall, the Washington, DC Metro office market outperforms Prince William County in terms of rent per square foot. Prince William County has experienced lower vacancy than the overall Washington, DC Metro office market since 2012. The City of Manassas has been excluded from the analysis above.



## MARKET ANALYSIS – CONTINUED

### City of Manassas

In the tables below, Washington, DC Metro office market trends are compared to the City of Manassas office submarket trends.

OFFICE MARKET AND SUBMARKET DATA SUMMARY (10 YEARS)					
		INVENTORY SUPPLY (SF)		VACANCY (%)	
QTR	YEAR	DC METRO	CITY OF MANASSAS	DC METRO	CITY OF MANASSAS
Q3	2018	515,085,696	4,668,048	13.0%	6.4%
Q2	2018	513,974,807	4,668,048	13.2%	6.4%
Q1	2018	513,013,014	4,668,048	13.0%	6.6%
Q4	2017	512,234,798	4,668,048	13.2%	8.0%
	2017	512,234,798	4,668,048	13.2%	8.0%
	2016	510,012,529	4,613,502	13.8%	8.6%
	2015	509,373,549	4,613,502	14.0%	11.4%
	2014	508,690,554	4,601,902	13.7%	13.5%
	2013	505,835,045	4,601,902	13.2%	15.4%
	2012	503,094,845	4,580,367	12.8%	14.6%
	2011	500,758,022	4,535,367	12.6%	13.5%
	2010	496,536,379	4,535,367	12.5%	14.9%
	2009	491,855,620	4,535,367	12.7%	14.1%
	2008	484,645,410	4,369,742	11.2%	11.9%
		RENT \$/SF		NET ABSORPTION (SF)	
QTR	YEAR	DC METRO	CITY OF MANASSAS	DC METRO	CITY OF MANASSAS
Q3	2018	\$34.89	\$18.92	1,678,966	(3,242)
Q2	2018	\$34.85	\$18.89	35,610	11,320
Q1	2018	\$34.48	\$19.52	1,404,940	66,581
Q4	2017	\$34.15	\$18.54	2,214,587	(2,642)
	2017	\$34.15	\$18.54	4,950,723	74,532
	2016	\$33.08	\$19.35	1,778,763	132,545
	2015	\$32.54	\$18.67	(1,044,631)	107,404
	2014	\$32.36	\$19.04	82,451	84,987
	2013	\$32.23	\$20.02	498,409	(16,033)
	2012	\$32.40	\$19.16	1,000,396	(13,198)
	2011	\$32.11	\$19.73	2,802,539	64,921
	2010	\$31.58	\$20.06	5,301,648	(37,680)
	2009	\$31.55	\$20.07	(783,458)	43,960
	2008	\$32.47	\$21.12	1,786,600	14,407

Source: CoStar Property®



**MARKET ANALYSIS – CONTINUED**

City of Manassas – Continued

Overall, the Washington, DC Metro office market is significantly more expensive than the City of Manassas submarket. On average, the City of Manassas office market rents have been just over \$10 per square foot below that of the Washington, DC Metro office market. Net Absorption in the most recent quarter has been negative for the City of Manassas; however, vacancy rates within the City of Manassas have been at their lowest historically over the past two quarters. The low vacancy indicates consistent and increasing demand for office property in the City of Manassas. Furthermore, the City of Manassas is superior in terms of vacancy as compared with the Washington, DC Metro office market since 2015. Growth in rents within the City of Manassas has remained within a \$2 range since 2011, underperforming in comparison to the positive and consistent rent growth trends of the Washington, DC Metro office market.

The average market rent in the City of Manassas as of Third Quarter 2018 was \$18.92.

The following tables illustrate construction deliveries and under construction square footage for the Washington, DC Metro office market and the City of Manassas submarket, respectively.

DELIVERIES (SF)						
QTR	YEAR	MARKET	% OF TOTAL	SUBMARKET	% OF TOTAL	
Q3	2018	1,594,285	0.3%	0	0.0%	
Q2	2018	1,765,046	0.3%	0	0.0%	
Q1	2018	864,214	0.2%	0	0.0%	
Q4	2017	2,103,986	0.4%	0	0.0%	
	2018	4,223,545	0.8%	0	0.0%	
	2017	4,106,900	0.8%	73,500	1.6%	
	2016	2,864,185	0.6%	0	0.0%	
	2015	1,801,015	0.4%	11,600	0.3%	
	2014	4,254,801	0.8%	0	0.0%	

UNDER CONSTRUCTION (SF)						
QTR	YEAR	MARKET	BUILDINGS	SUBMARKET	BUILDINGS	
Q3	2018	9,048,044	42	0	0	
Q3	2017	10,968,821	52	73,500	1	
Q3	2016	7,733,973	47	73,500	1	
Q3	2015	8,043,030	50	0	0	
Q3	2014	5,929,639	42	0	0	

Over the past five years approximately 85,100 square feet of office space has been delivered in the City of Manassas. The two buildings were brought in the years of 2015 and 2017, respectively.

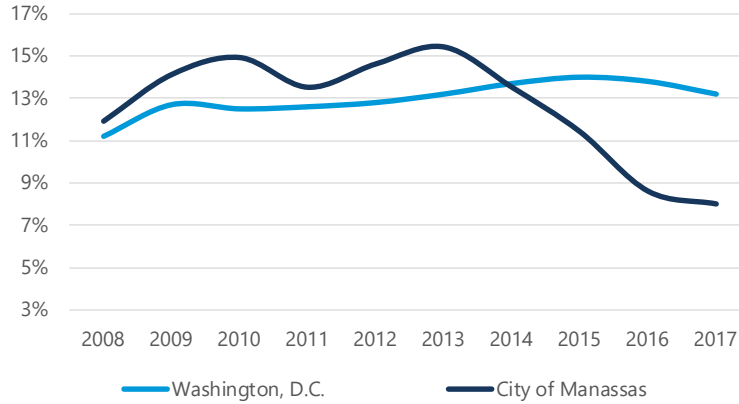


## MARKET ANALYSIS – CONTINUED

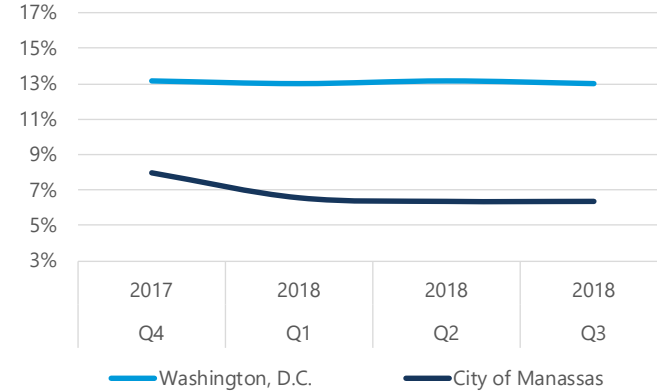
### City of Manassas – Continued

The following exhibits illustrate long- and short-term vacancy and rent trends for the Washington, DC Metro area and the City of Manassas submarket, respectively.

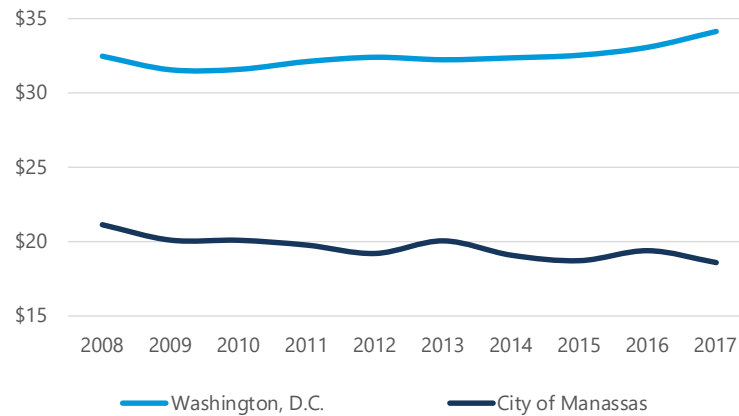
#### LONG TERM VACANCY



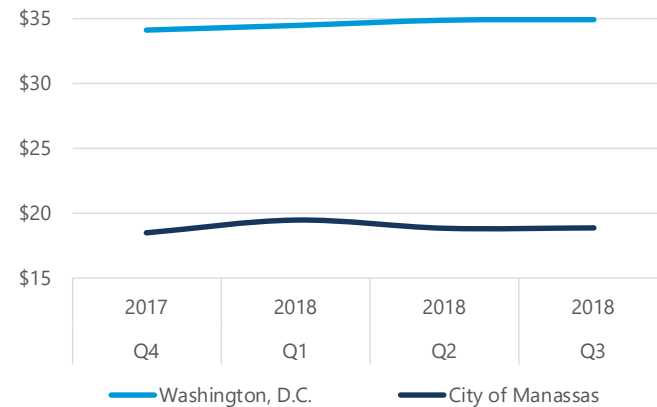
#### SHORT TERM VACANCY



#### LONG TERM RENT



#### SHORT TERM RENT



Overall, the Washington, DC Metro office market outperforms the City of Manassas in terms of rent per square foot. The City of Manassas has experienced lower vacancy than the overall Washington, DC Metro office market since 2014.



## SCENARIO ANALYSIS

The following section provides an analysis of three different scenarios to meet the space needs of the County by 2027: leasing buildings, constructing new buildings, and purchasing existing buildings. This analysis does not consider current buildings available for lease or purchase in Prince William County, but is based off of average rates from market data.

### Leased Building(s) Scenario

The following analysis is an illustration of the rental expense for the consolidated office space for Prince William County.

**Comparable Leases** - The following table summarizes recent leasing activity and current rental listings in Prince William County.

PRINCE WILLIAM COUNTY AREA OFFICE/FLEX COMPARABLES			
RECENT LEASES			
City	State	SF Leased	Market Rent (\$/SF)
Manassas	VA	150,000	N/A
Dumfries	VA	62,734	N/A
Manassas	VA	148,580	N/A
Manassas	VA	53,559	\$15.25
Manassas (Flex)	VA	129,850	\$8.50
Woodbridge	VA	80,000	N/A
Manassas (Flex)	VA	125,558	\$7.00
CURRENT LISTINGS			
City	State	Rentable Building Area	Market Rent (\$/SF)
Woodbridge	VA	70,000	\$15.00
Dumfries	VA	62,000	\$29.50
Gainesville	VA	100,000	\$29.00
Gainesville	VA	57,000	\$28.81
Woodbridge	VA	100,000	N/A
Woodbridge	VA	80,000	N/A
			<b>Average Market Rent (\$/SF)</b>
			\$19.01

The City of Manassas has been excluded from the analysis above.

Based on the market comparable data, a blended rate of \$18 per square foot has been used to determine the cash flow for the leased building scenario. The blended rate is slightly below the average to account for lower rental rate for flex space.

**Lease Payments Cash Flow** - The following table illustrates the projected lease payments for the consolidated space over the next 10, 20, and 30 years, respectively. A rent per square foot of \$18 has been utilized based on available market data, comparable leases, and current rental listings. Based on the previous estimate of employees and required leased space, the total annual rental payments has been calculated. Rents remain flat for the initial 10-year lease term and subsequently escalated 10% in years 11 and 21. In the analysis, we have increased the discount rate applied to the 20- and 30-year cash flows due to the increased risk and uncertainty associated with the longer terms.



## SCENARIO ANALYSIS – CONTINUED

### Leased Building(s) Scenario – Continued

#### ANALYSIS OF LEASE PAYMENTS - 10 YEARS

YEAR	1	2	3	4	5	6	7	8	9	10
BEGINNING YEAR	JAN-19	JAN-20	JAN-21	JAN-22	JAN-23	JAN-24	JAN-25	JAN-26	JAN-27	JAN-28
ENDING YEAR	DEC-19	DEC-21	DEC-22	DEC-23	DEC-24	DEC-25	DEC-26	DEC-27	DEC-28	DEC-29
Rent Per Square Foot	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18
Total Gross Building Area	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943
<b>TOTAL RENTAL PAYMENTS</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>
<b>Aggregate Lease Payments</b>										<b>\$71,809,727</b>
<b>Present Value of Total Lease Payments - Discounted at 10%</b>										<b>\$46,640,856</b>
Present Value of Total Lease Payments (Rounded)										\$46,600,000

#### ANALYSIS OF LEASE PAYMENTS - 20 YEARS

YEAR	1	2	3	4	5	6	7	8	9	10
BEGINNING YEAR	JAN-19	JAN-20	JAN-21	JAN-22	JAN-23	JAN-24	JAN-25	JAN-26	JAN-27	JAN-28
ENDING YEAR	DEC-19	DEC-21	DEC-22	DEC-23	DEC-24	DEC-25	DEC-26	DEC-27	DEC-28	DEC-29
Rent Per Square Foot	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18
Total Gross Building Area	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943
<b>TOTAL RENTAL PAYMENTS</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>
YEAR	11	12	13	14	15	16	17	18	19	20
BEGINNING YEAR	Jan-28	Jan-29	Jan-30	Jan-31	Jan-32	Jan-33	Jan-34	Jan-35	Jan-36	Jan-37
ENDING YEAR	Dec-28	Dec-29	Dec-30	Dec-31	Dec-32	Dec-33	Dec-34	Dec-35	Dec-36	Dec-37
Rent Per Square Foot	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Total Gross Building Area	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943
<b>TOTAL RENTAL PAYMENTS</b>	<b>\$7,899,070</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>
<b>Aggregate Lease Payments</b>										<b>\$151,518,525</b>
<b>Present Value of Total Lease Payments - Discounted at 11%</b>										<b>\$59,454,947</b>
Present Value of Total Lease Payments (Rounded)										\$59,500,000



**SCENARIO ANALYSIS – CONTINUED**

Leased Building(s) Scenario – Continued

ANALYSIS OF LEASE PAYMENTS - 30 YEARS										
YEAR	1	2	3	4	5	6	7	8	9	10
BEGINNING YEAR	JAN-19	JAN-20	JAN-21	JAN-22	JAN-23	JAN-24	JAN-25	JAN-26	JAN-27	JAN-28
ENDING YEAR	DEC-19	DEC-21	DEC-22	DEC-23	DEC-24	DEC-25	DEC-26	DEC-27	DEC-28	DEC-29
Rent Per Square Foot	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18
Total Gross Building Area	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943
<b>TOTAL RENTAL PAYMENTS</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>	<b>\$7,180,973</b>
YEAR	11	12	13	14	15	16	17	18	19	20
BEGINNING YEAR	Jan-28	Jan-29	Jan-30	Jan-31	Jan-32	Jan-33	Jan-34	Jan-35	Jan-36	Jan-37
ENDING YEAR	Dec-28	Dec-29	Dec-30	Dec-31	Dec-32	Dec-33	Dec-34	Dec-35	Dec-36	Dec-37
Rent Per Square Foot	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Total Gross Building Area	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943
<b>TOTAL RENTAL PAYMENTS</b>	<b>\$7,899,070</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>	<b>\$7,978,859</b>
YEAR	21	22	23	24	25	26	27	28	29	30
BEGINNING YEAR	Jan-38	Jan-39	Jan-40	Jan-41	Jan-42	Jan-43	Jan-44	Jan-45	Jan-46	Jan-47
ENDING YEAR	Dec-38	Dec-39	Dec-40	Dec-41	Dec-42	Dec-43	Dec-44	Dec-45	Dec-46	Dec-47
Rent Per Square Foot	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22
Total Gross Building Area	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943	398,943
<b>TOTAL RENTAL PAYMENTS</b>	<b>\$8,688,977</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>	<b>\$8,776,744</b>
<b>Aggregate Lease Payments</b>										<b>\$247,974,946</b>
<b>Present Value of Total Lease Payments - Discounted at 12%</b>										<b>\$60,160,899</b>
Present Value of Total Lease Payments (Rounded)										\$60,200,000

Present value is defined as the current worth of a future stream of cash flow. Discount rates of 10%, 11%, and 12% have been utilized in the 10-, 20-, and 30-year analysis, respectively.

This scenario summarizes the anticipated cash flow for 398,943 square feet of office/flex space. Typical office leases in this market experience rent escalations and a renewal option after the 10<sup>th</sup> year. In the analysis, we have increased the rental rates \$2 per square foot in years 11 and 21.



## SCENARIO ANALYSIS – CONTINUED

### New Construction Scenario

This section analyzes the cost to purchase land and construct a consolidated facility for Prince William County's leased office space.

**Comparable Land Sales** –A number of factors, most notably development and land use potential, influences the cost of land. These factors, as well as others, are considered in the analysis. The following table outlines office land transaction in Prince William County over the last ten years.

PRINCE WILLIAM COUNTY OFFICE LAND SALES (10 YEARS)				
City	State	Land Area (SF)	Sale Price	\$/SF
Woodbridge	VA	639,914	\$12,500,000	\$19.53
Manassas	VA	4,263,844	\$7,650,000	\$1.79
Woodbridge	VA	257,753	\$6,000,000	\$23.28
Manassas	VA	1,142,579	\$3,985,500	\$3.49
Haymarket	VA	1,481,040	\$3,824,069	\$2.58
Manassas	VA	560,931	\$3,570,000	\$6.36
Bristow	VA	558,875	\$3,200,000	\$5.73
Woodbridge	VA	1,296,781	\$3,000,000	\$2.31
Woodbridge	VA	328,839	\$3,000,000	\$9.12
Manassas	VA	1,142,579	\$2,250,000	\$1.97
Woodbridge	VA	322,344	\$2,250,000	\$6.98
Manassas	VA	545,371	\$2,100,000	\$3.85
Woodbridge	VA	1,020,611	\$1,500,000	\$1.47
Gainesville	VA	243,936	\$1,500,000	\$6.15
Gainesville	VA	230,868	\$1,500,000	\$6.50
Dumfries	VA	250,906	\$1,500,000	\$5.98
Manassas	VA	236,709	\$1,375,000	\$5.81
Manassas	VA	574,992	\$1,033,038	\$1.80
Gainesville	VA	435,600	\$950,000	\$2.18
Dumfries	VA	266,587	\$925,000	\$3.47
Manassas	VA	236,709	\$800,625	\$3.38
Gainesville	VA	243,936	\$625,000	\$2.56
		<b>Average Land Area (SF)</b>	<b>Average \$/SF</b>	
		740,077	\$5.74	





**SCENARIO ANALYSIS – CONTINUED**

New Construction Scenario – Continued

DC METRO AREA SUBURBAN OFFICE LAND SALES (2 YEARS)				
City	State	Land Area (SF)	Sale Price	\$/SF
Sterling	VA	2,846,385	\$25,500,000	\$8.96
Sterling	VA	871,200	\$18,314,100	\$21.02
Dulles	VA	4,882,640	\$18,019,000	\$3.69
Reston	VA	945,062	\$14,000,000	\$14.81
Woodbridge	VA	639,914	\$12,500,000	\$19.53
Columbia	MD	448,232	\$10,300,000	\$22.98
Sterling	VA	265,716	\$9,760,100	\$36.73
Germantown	MD	653,400	\$9,200,000	\$14.08
Manassas	VA	4,263,844	\$7,650,000	\$1.79
Woodbridge	VA	257,753	\$6,000,000	\$23.28
Sterling	VA	257,004	\$5,850,000	\$22.76
Sterling	VA	265,716	\$5,100,000	\$19.19
Chantilly	VA	778,417	\$4,800,000	\$6.17
Elkridge	MD	662,112	\$4,400,000	\$6.65
Leesburg	VA	757,944	\$3,900,000	\$5.15
Aldie	VA	722,660	\$3,800,000	\$5.26
Brandywine	MD	522,720	\$3,660,000	\$7.00
Jessup	MD	267,458	\$3,100,000	\$11.59
Manassas	VA	545,371	\$2,100,000	\$3.85
Manassas	VA	653,400	\$1,600,000	\$2.45
Manassas	VA	236,709	\$1,375,000	\$5.81
Chantilly	VA	379,408	\$1,275,000	\$3.36
Beltsville	MD	351,268	\$1,250,000	\$3.56
Chantilly	VA	409,464	\$1,150,000	\$2.81
Manassas	VA	413,384	\$1,075,000	\$2.60
Aldie	VA	1,264,760	\$1,000,000	\$0.79
Brandywine	MD	810,216	\$1,000,000	\$1.23
Waldorf	MD	220,414	\$600,000	\$2.72
		<b>Land Area (SF)</b>		<b>Average \$/SF</b>
		856,660		\$9.39

Recent office land transactions in Prince William County have averaged \$5.75 per square foot of land area, while land in the Washington, DC Metro area transacts at a premium of \$9.39 per square foot of land area. In the analysis, we have utilized a land purchase price of \$5.75 per square foot of land area.



## SCENARIO ANALYSIS – CONTINUED

### New Construction Scenario – Continued

**Required Land Area** – In order to estimate the required land area for the consolidated Prince William County facility, we have analyzed the typical floor area ratio (“FAR”) for existing office structures in the market area.

PRINCE WILLIAM COUNTY OFFICE LAND FLOOR AREA RATIO COMPARISON					
Address	City	State	Land Area (SF)	Building Size (SF)	Floor Area Ratio (FAR)
3600 Pointe Center Ct	Dumfries	VA	174,240	46,232	3.77
5300 Wellington Branch Dr	Gainesville	VA	216,806	41,350	5.24
7450 Limestone Dr	Gainesville	VA	436,209	62,470	6.98
17739 Main St	Dumfries	VA	41,743	42,350	0.99
3850 Fettler Park Dr	Dumfries	VA	141,570	49,499	2.86
3800 Fettler Park Dr	Dumfries	VA	144,183	50,125	2.88
10530-10550 Linden Lake Plz	Manassas	VA	270,943	47,201	5.74
7500 Iron Bar Ln	Gainesville	VA	33,976	40,000	0.85
3700 Fettler Park Dr	Dumfries	VA	228,254	100,000	2.28
			<b>Average Land Area (SF)</b>	<b>Average Building Size (SF)</b>	<b>Average FAR</b>
			212,413	54,170	3.86

Based on the information illustrated above, the average FAR in Prince William County is 3.86. Based on the available information, we have utilized 3.75 FAR to calculate the required land area for the consolidated county facility.

**Land Area and Purchase Price Conclusion** – The following table illustrates the estimated purchase price for the consolidated county facility.

LAND PURCHASE CONCLUSION (SF)				
	SUBJECT SF		\$/SF	PURCHASE PRICE
<b>Total Land Area</b>	1,496,036	x	\$5.75	= \$8,602,207
<b>INDICATED PRICE (ROUNDED TO NEAREST \$100,000)</b>				<b>\$8,600,000</b>

Source: RSM Estimate

Analysis of construction costs: This approach is based on the principle of substitution, using the cost to construct a similar property as a reasonable alternative.

**Unit Cost Conclusion** – Local cost comparable and *Marshall Valuation Service* (“MVS”) cost estimate provide a range of construction costs.



## SCENARIO ANALYSIS – CONTINUED

### New Construction Scenario – Continued

MVS DIRECT BUILDING COSTS			
BUILDING	1	2	TOTAL
Description	Office	Warehouse	
MVS Building Type	Admin. Office Building	Flex/Industrial	
Number of Stories	3-5	1	
Height Per Story (Feet)	12	12	
MVS Section/Page	18/31	14/16	
Building Class	C	C	
MVS Publication Date	11/1/2018	11/1/2018	
Quality Rating	Good	Good	
BASE COST / SQUARE FOOT			
Component GBA SF	300,398	98,545	398,943
MVS Base Cost \$/SF	\$163.00	\$73.50	
SQUARE FOOT REFINEMENTS			
Sprinklers	\$2.00	\$2.00	
Elevators	\$0.00	\$0.00	
Other	\$0.00	\$0.00	
Subtotal \$/SF	\$165.00	\$75.50	
HEIGHT & SIZE REFINEMENTS			
Number of Stories Multiplier	1.000	1.000	
Height Per Story Multiplier	1.000	1.000	
Floor Area Multiplier	1.050	1.050	
Subtotal \$/SF	\$173.25	\$79.28	
COST MULTIPLIERS			
Current Cost Multiplier	1.06	1.02	
Local Area Multiplier	1.05	1.05	
Subtotal \$/SF	\$192.83	\$84.90	
DIRECT BUILDING COSTS MARSHALL VALUATION SERVICES			
Direct Building Cost Total	\$57,924,907	\$8,366,818	\$66,291,725
<b>DIRECT BUILDING COSTS TOTAL</b>			<b>\$66,291,725</b>
<b>DIRECT BUILDING COSTS TOTAL \$/SF</b>			<b>\$166.17</b>



**SCENARIO ANALYSIS – CONTINUED**

New Construction Scenario – Continued

COST COMPARABLES			
	1	2	3
Property Name	Gen. Office	Gen. Office	Gen. Office
GBA	39,991	63,000	15,480
Direct Costs	\$5,329,416	\$9,010,550	\$1,945,163
Indirect Costs	\$984,803	\$1,840,981	\$195,000
Subtotal	\$6,314,219	\$10,851,531	\$2,140,163
Profit	0% \$0	\$0	\$0
<b>TOTAL COSTS</b>	<b>\$6,314,219</b>	<b>\$10,851,531</b>	<b>\$2,140,163</b>
TOTAL COSTS \$/SF	\$157.89	\$172.25	\$138.25

BUILDING REPLACEMENT COST NEW		
Marshall Valuation Services		\$182.79 \$72,920,897
Cost Comparables		\$138 - \$172
CONCLUDED BUILDING REPLACEMENT COST NEW		
Marshall Valuation Services		\$182.79 \$72,920,897
ENTREPRENEURIAL PROFIT		
Entrepreneurial Profit Total	10% of Total Direct + Indirect Building Cost	\$18.28 \$7,292,090
CONCLUDED BUILDING REPLACEMENT COST NEW		
<b>CONCLUDED BUILDING REPLACEMENT COST NEW TOTAL</b>		<b>\$201.06 \$80,212,987</b>



**SCENARIO ANALYSIS – CONTINUED**

New Construction Scenario – Continued

<b>COST APPROACH SUMMARY</b>		
	\$/SF	TOTAL
<b>BUILDING IMPROVEMENTS</b>		
Direct Costs		\$66,291,725
Indirect Costs		\$6,629,172
Entrepreneurial Profit		\$7,292,090
Depreciation		\$0
Total Depreciated Value Of Building Improvements	\$201.06	\$80,212,987
<b>SITE IMPROVEMENTS</b>		
Direct Costs		\$2,393,658
Indirect Costs		\$239,366
Entrepreneurial Profit		\$263,302
Depreciation		\$0
Total Depreciated Value Of Site Improvements	\$7.26	\$2,896,326
<b>SUMMARY OF ALL IMPROVEMENTS</b>		
Direct Costs		\$68,685,382
Indirect Costs		\$6,868,538
Entrepreneurial Profit		\$7,555,392
Replacement Cost New		\$83,109,312
Depreciation		\$0
Total Depreciated Cost of Building & Site Improvements	\$208.32	\$83,109,312
Estimated Land Value		\$8,600,000
Total Estimated Cost of Improvements & Land Value		\$91,709,312
<b>INDICATED VALUE (ROUNDED TO NEAREST \$1,000,000)</b>	<b>\$230.61</b>	<b>\$92,000,000</b>

The MVS indicates a replacement cost of \$183 per square foot and the cost comparable indicate a replacement cost range of \$138.25 per square foot to \$172.25 per square foot.



**SCENARIO ANALYSIS – CONTINUED**

Purchase of Existing Building(s) Scenario

In this section, the scenario of purchasing an existing comparable building is presented through displaying single-tenant suburban office transactions over the past two years in the Washington, DC Metro area, followed by single-tenant office transactions in Prince William County over the past 10 years. The average sale price per square foot for each transaction is calculated and an average of the sales are displayed for each.

DC METRO AREA SINGLE-TENANT SUBURBAN OFFICE SALES (2 YEARS)				
City	State	Building Size (SF)	Sale Price	\$/SF
Warrenton	VA	92,954	\$4,800,000	\$51.64
Sterling	VA	57,000	\$3,300,000	\$57.89
Columbia	MD	55,032	\$4,710,000	\$85.59
Ashburn	VA	125,685	\$14,100,000	\$112.19
Sterling	VA	151,481	\$17,750,000	\$117.18
Chantilly	VA	69,241	\$8,250,000	\$119.15
Ashburn	VA	88,432	\$10,750,000	\$121.56
Herndon	VA	355,000	\$44,920,000	\$126.54
Chantilly	VA	100,505	\$13,800,000	\$137.31
Laurel	MD	158,220	\$22,400,000	\$141.58
Herndon	VA	345,066	\$53,500,000	\$155.04
Columbia	MD	160,255	\$25,600,000	\$159.75
Herndon	VA	578,327	\$97,000,000	\$167.73
Ashburn	VA	1,232,635	\$220,000,000	\$178.48
Chantilly	VA	312,203	\$56,585,586	\$181.25
Manassas	VA	69,374	\$13,200,000	\$190.27
Leesburg	VA	229,589	\$45,000,000	\$196.00
Chantilly	VA	140,635	\$27,750,000	\$197.32
Chantilly	VA	84,652	\$18,050,000	\$213.23
Chantilly	VA	71,507	\$15,450,000	\$216.06
Chantilly	VA	323,489	\$73,550,000	\$227.36
Herndon	VA	103,502	\$25,900,000	\$250.24
Chantilly	VA	409,478	\$104,183,000	\$254.43
Chantilly	VA	104,003	\$31,800,000	\$305.76
Brandywine	MD	60,840	\$20,900,000	\$343.52
Chantilly	VA	71,504	\$25,250,000	\$353.13
<b>Average Building Size (SF)</b>			<b>Average \$/SF</b>	
214,599			\$179.24	

The Washington, DC Metro single-tenant suburban office over the last two years indicated a range of \$51.64 per square foot to \$353.13 per square foot with an average of \$179.24 per square foot.



## SCENARIO ANALYSIS – CONTINUED

### Purchase of Existing Building(s) Scenario – Continued

PRINCE WILLIAM COUNTY OFFICE SALES (10 YEARS)				
City	State	Building Size (SF)	Sale Price	\$/SF
Manassas	VA	90,497	\$3,780,000	\$41.77
Manassas	VA	59,375	\$3,525,000	\$59.37
Woodbridge	VA	64,000	\$4,005,000	\$62.58
Haymarket	VA	236,000	\$17,500,000	\$74.15
Manassas	VA	55,780	\$4,200,000	\$75.30
Manassas	VA	120,649	\$9,600,000	\$79.57
Woodbridge	VA	184,204	\$16,500,000	\$89.57
Dumfries	VA	99,624	\$9,100,000	\$91.34
Manassas	VA	70,806	\$6,700,000	\$94.62
Manassas	VA	109,650	\$10,500,000	\$95.76
Manassas	VA	56,133	\$5,900,000	\$105.11
Manassas	VA	125,451	\$18,817,800	\$150.00
Manassas	VA	69,374	\$13,050,000	\$188.11
Manassas	VA	69,374	\$13,200,000	\$190.27
Average Building Size (SF)			Average \$/SF	
100,780			\$99.82	

The Prince William County comparable sales over the last ten years indicated a range of \$41.77 per square foot to \$190.27 per square foot with an average of \$99.82 per square foot. Based on the information above, Prince William County has a lower transaction price per square foot than the suburban Washington, DC Metro market as a whole.

The following table outlines the RSM US LLP estimate for the purchase of an existing office building within Prince William County.

EXISTING BUILDING PURCHASE CONCLUSION (SF)				
	SUBJECT SF		\$/SF	PURCHASE PRICE
<b>Total Building Area</b>	398,943	x	\$100.00 =	\$39,894,293
<b>INDICATED PRICE (ROUNDED TO NEAREST \$100,000)</b>				<b>\$39,900,000</b>

Source: RSM Estimate



## SCENARIO ANALYSIS – CONTINUED

### Summary

Based on the scenario analysis depicted in the previous section, the following prices (costs) were estimated in present day dollars to account for the time value of money.

Summary					
	NEW CONSTRUCTION WITH LAND PURCHASE	NEW CONSTRUCTION EXCLUDING LAND PURCHASE	PURCHASE EXISTING BUILDING	LEASE BUILDINGS SCENARIO - 30 Years	CITY OF MANASSAS RE TAX PAYMENT 30-YEARS
Total Estimated Price	\$92,000,000	\$83,000,000	\$39,900,000	\$60,000,000	\$ -
Total Estimated Price Per Sq Ft	\$231	\$208	\$100	\$150	\$ -
RE Tax Payments	\$ -	\$ -	\$ -	\$ -	\$2,200,000

### Specialty Costs

There are additional anticipated costs associated with County buildings including generators, sprinkler systems, CCTV/security, directory, signage, and elevators. These costs should be considered in addition to the base costs estimated as part of this analysis. Based on County estimates and the structure included in our analysis, anticipated specialty costs amount to \$14.29 per square foot. *Note: these estimates were provided by the County and were not validated as part of RSM's analysis*

SPECIALTY INTERIOR REFINEMENTS		TOTAL SPECIALTY COST	
<b>Office Refinements</b>	<b>\$/SF Cost</b>	<b>Office Refinements</b>	
Generator	\$5.36	Project Size	300,398
UPS	\$1.30	\$/SF Cost	<u>\$15.51</u>
Sprinkler	\$5.00	Office Subtotal	\$4,659,172
Elevator	\$3.50	Rounded	\$4,700,000
CCTV/Security	\$0.25		
Directory & Signage	\$0.10	<b>Warehouse Refinements</b>	
Subtotal \$/SF	\$15.51	Project Size	98,545
		\$/SF Cost	<u>\$10.61</u>
<b>Warehouse Refinements</b>	<b>\$/SF Cost</b>	Office Subtotal	\$1,045,562
Generator	\$5.36	Rounded	\$1,000,000
Sprinkler	\$5.00		
CCTV/Security	\$0.25	<b>TOTAL REFINEMENTS COST</b>	<b>\$5,700,000</b>
<b>Subtotal \$/SF</b>	<b>10.61</b>	<b>Total Refinements Cost (\$/SF)</b>	<b>\$14.29</b>

### Considerations

- Newly constructed buildings have a longer economic life when compared to leasing or purchasing existing buildings.
- A newly constructed County facility can be customized to fit the County's specific space requirements. Additionally, the facility would likely have energy and space efficiencies that can decrease total expenditures.
- Leased buildings have flexible lease terms and can be vacated if the County's needs change over time.
- The purchase of existing buildings is less expensive on a price per square foot basis than new construction.





## DEFINITIONS

### Assessed Value

1. A value set on real estate and personal property by a government as a basis for levying taxes. (IAAO)
2. The monetary amount for a property as officially entered on the assessment roll for purposes of computing the tax levy. Assessed values differ from the assessor's estimate of actual (market) value for three major reasons: fractional assessment ratios, partial exemptions, and decisions by assessing officials to override market value. The process of gathering and interpreting economic data to provide information that can be used by policymakers to formulate tax policy. (IAAO)

### Discounted Cash Flow ("DCF") Analysis

The procedure in which a discount rate is applied to a set of projected income streams and a reversion. The analyst specifies the quantity, variability, timing, and duration of the income streams as well as the quantity and timing of the reversion and discounts each to its present value at a specified yield rate. DCF analysis can be applied with any yield capitalization technique and may be performed on either a lease-by-lease or aggregate basis.

### Estate

A right or interest in property.

### Inflation

An erosion of the purchasing power of currency characterized by price escalation and an increase in the volume of money, i.e., the proliferation of monetary units and consequent decline in the value of each unit. Inflation tends to increase discount rates because investors require a higher nominal rate of return to offset the loss in value due to inflation. Investors often include an additional risk premium in the required rate of return on investments that do not respond well to unexpected inflation. See also appreciation (app).

### Market

1. A set of arrangements in which many buyers and sellers are brought together through the price mechanism.
2. A gathering of people for the buying and selling of things; by extension, the people gathered for this purpose. See also real estate market.

### Market Rent

The most probable rent that a property should bring in a competitive and open market reflecting all conditions and restrictions of the specified lease agreement including term, rental adjustment and revaluation, permitted uses, use restrictions, and expense obligations; the lessee and lessor each acting prudently and knowledgeably, and assuming consummation of a lease contract as of a specified date and the passing of the leasehold from lessor to lessee under conditions whereby:

1. Lessee and lessor are typically motivated.
2. Both parties are well informed or well advised, and acting in what they consider their best interests.
3. A reasonable time is allowed for exposure in the open market.
4. The rent payment is made in terms of cash in United States dollars, and is expressed as an amount per time period consistent with the payment schedule of the lease contract.
5. The rental amount represents the normal consideration for the property leased unaffected by special fees or concessions granted by anyone associated with the transaction.



## DEFINITIONS – CONTINUED

### Market Value

The major focus of most real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. Continual refinement is essential to the growth of the appraisal profession.

1. The most widely accepted components of market value are incorporated in the following definition:

The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress.

2. Market value is defined in the Uniform Standards of Professional Appraisal Practice (“USPAP”) as follows:

A type of value, stated as an opinion, that presumes the transfer of a property (i.e., a right of ownership or a bundle of such rights), as of a certain date, under specific conditions set forth in the definition of the term identified by the appraiser as applicable in an appraisal. (USPAP, 2015 ed.)

USPAP also requires that certain items be included in every appraisal report. Among these items, the following are directly related to the definition of market value:

- Identification of the specific property rights to be appraised.
- Statement of the effective date of the value opinion.
- Specification as to whether cash, terms equivalent to cash, or other precisely described financing terms are assumed as the basis of the appraisal.
- If the appraisal is conditioned upon financing or other terms, specification as to whether the financing or terms are at, below or above market interest rates and/or contain unusual conditions or incentives. The terms of above- or below-market interest rates and/or other special incentives must be clearly set forth; their contribution to, or negative influence on, value must be described and estimated; and the market data supporting the opinion of value must be described and explained.



## DEFINITIONS – CONTINUED

### Market Value - continued

3. The following definition of market value is used by agencies that regulate federally insured financial institutions in the United States:

The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- Buyer and seller are typically motivated;
- Both parties are well informed or well advised, and acting in what they consider their best interests;
- A reasonable time is allowed for exposure in the open market;
- Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
- The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

(12 C.F.R. Part 34.42(g); 55 Federal Register 34696, August 24, 1990, as amended at 57 Federal Register 12202, April 9, 1992; 59 Federal Register 29499, June 7, 1994)

4. In 1993, the Appraisal Institute Special Task Force on Value Definitions put forward the following definition of market value:

The most probable price which a specified interest in real property is likely to bring under all of the following conditions:

- Consummation of a sale occurs as of a specified date.
- An open and competitive market exists for the property interest appraised.
- The buyer and seller are each acting prudently and knowledgeably.
- The price is not affected by undue stimulus.
- The buyer and seller are typically motivated.
- Both parties are acting in what they consider their best interest.
- Marketing efforts were adequate and a reasonable time was allowed for exposure in the open market.
- Payment was made in cash in U.S. dollars or in terms of financial arrangements comparable thereto.
- The price represents the normal consideration for the property sold, unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

This definition can also be modified to provide for valuation with specified financing terms.

5. The International Valuation Standards Committee defines market value for the purpose of international standards as follows:

Market value is the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion.

(International Valuation Standards 2001. London: International Valuation Standards Committee, 2001, 92.)



## DEFINITIONS – CONTINUED

### **Net Present Value (“NPV”)**

The difference between the present value of all expected investment benefits, or positive cash flows, and the present value of capital outlays, or negative cash flows. For purposes of real property valuation, negative cash flows include the initial cash outlay required to purchase the property. Generally, when NPV is positive, the investment is acceptable; if NPV is zero, the investment is neutral; and when NPV is negative, the investment is unacceptable. Also called dollar reward.

### **Net Absorption**

A measurement of the net change of the supply of commercial space in a given real estate market over a specific period of time. It is measured by deducting commercial space vacated by tenants and made available on the commercial space market from total space leased up.

### **Present Value (“PV”)**

The value of a future payment or series of future payments discounted to the current date or to time period zero.

### **Real Estate**

Physical land and appurtenances attached to the land, e.g., structures. An identified parcel or tract of land, including improvements, if any. See also real property.

### **Renewal Option**

The right, but not the obligation, of a tenant to continue a lease at a specified term and rent.

### **Replacement Cost**


The estimated cost to construct, at current prices as of the effective appraisal date, a building with utility equivalent to the building being appraised, using modern materials and current standards, design, and layout.

### **Tenant**

One who holds or possesses real property; commonly a person who occupies and uses the property of another under a lease, although such a person is technically a lessee, not a tenant.

### **Time Value of Money**

Time value of money is the concept that the value of a dollar to be received in future is less than the value of a dollar on hand today. One reason is that money received today can be invested thus generating more money. Another reason is that when a person opts to receive a sum of money in future rather than today, they are effectively lending the money and there are risks involved in lending such as default risk and inflation. Default risk arises when the borrower does not pay the money back to the lender. Inflation is the rise in general level of prices.



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