

## Multi-Family Residential Unit Conversion Factors | 2018 Update

This factsheet provides updated statistics for Residential and Hotel Conversion Factors as of August 2018. Gross Floor Area (GFA) is defined as the sum of the area of the horizontal surface of several floors of a building measured from the exterior faces of exterior walls. In various planning and zoning processes, a conversion factor is needed to convert between the estimated number of residential units or hotel rooms and/or the estimated residential or hotel GFA of the project. These conversion factors are primarily used in generating estimates of existing and forecasted development.

Using site plan summaries and various county data sources, a list of recent and proposed multi-family residential and hotel projects were generated and analyzed to obtain their residential unit, hotel room counts, and residential or hotel GFAs. The list of projects considered for this analysis is included at the end of this report.

### Multi-Family Residential Units

An annual multi-family residential GFA-to-unit conversion factor relies on the average GFA of a multi-family residential unit for all development projects in the County in a given year. For an individual project this can be defined as the total residential GFA divided by the number of residential units. To calculate the Countywide ratio, the Research Team takes the mean of individual project averages, which results in an average GFA of a multi-family residential unit for the sample. Residential GFA excludes any retail space but includes common building spaces such as hallways, lobbies, and amenity rooms. Tables 1 and 2 show the range of average GFA values of multi-family residential units by completion year for a selected sample of individual multi-family projects.

**Table 1: Countywide Residential Gross Floor Area (GFA) and Multi-Family Unit Statistics by Completion Year\***

Year	Average Ratio	Minimum Ratio	Maximum Ratio	Sum of Residential GFA	Sum of Residential Units from Development Tracking
2013	1,047	950	1,149	735,085	728
2014	1,062	833	1,400	912,605	914
2015	992	840	1,179	1,673,940	1,672
2016	1,141	995	1,512	1,853,028	1,625
2017	1,062	913	1,179	556,992	532
2018	1,527	1,039	2,014	306,692	236
Under Construction	1,025	853	1,223	3,247,291	3,142
Approvals	1,094	831	1,497	6,588,804	6,074

\*See the end of this report for a list of projects and assumptions used for this analysis. Source: Site Plan Summaries, Development Tracking Database, and Real Estate Assessments Database

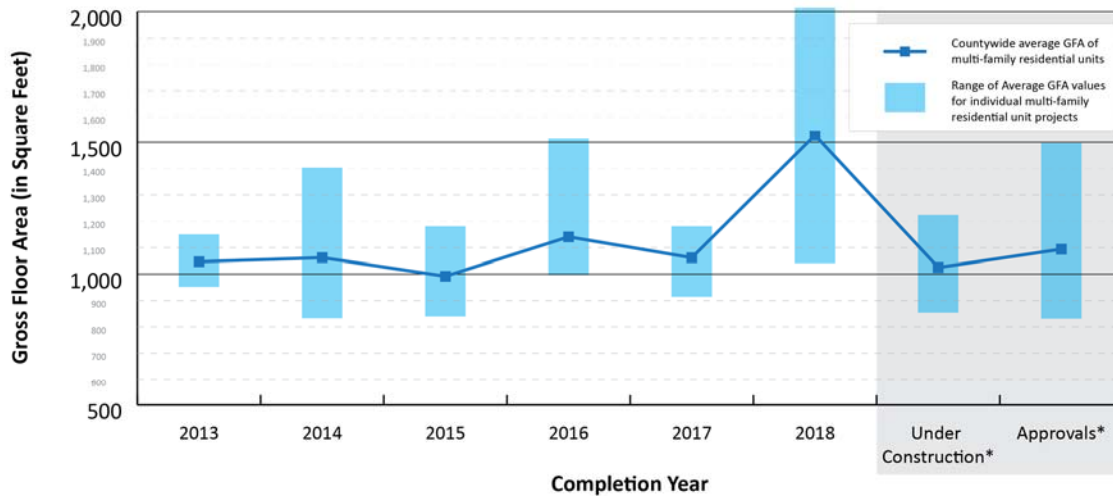
**Table 2: Summary Residential GFA and Multi-Family Unit Statistics**

Completed Projects Year Range	Average of Annual Ratios	Average of Individual Project Ratios	Median of Individual Project Ratios	Sum of Residential GFA	Sum of Residential Units from Development Tracking
2013 to 2018	1,138	1,058	1,036	6,038,342	5,707

Source: Site Plan Summaries, Development Tracking Database, and Real Estate Assessments Database

These data show that for projects completed since 2013, the annual average GFA-to-unit ratio has ranged from a minimum of 992 square feet (SF) per unit in 2015, to a high of 1,527 SF per unit in 2018. As shown in Table 2, the average of these annual ratios results in an average of 1,138 SF per residential unit for all projects completed since 2013 to date. Table 1 also shows ratios for projects currently under construction or approved by the County board. The ratio of these projects in the development pipeline are slightly smaller than completed projects. Projects currently under construction average 1,025 SF per unit, and approved projects average 1,094 SF per unit.

**Figure 1: Average Gross Floor Area (GFA) Per Multi-Family Residential Unit by Project by Completion Year**



\*For projects either currently under construction or have been approved, these represent their anticipated completion year. "Approvals" show aggregate GFA and unit data for all projects not yet under construction. "Under Construction" show aggregate data for projects in construction as of the writing of this memo.  
Source: Site Plan Summaries, Development Tracking Database, and Real Estate Assessments Database.

As is shown in Figure 1, 2018 saw both the highest average and range of GFA-to-unit ratios, raising the overall average within the five-year analysis range. This analysis considered data from only two projects in 2018: 672 Flats in Ballston, which completed 173 units averaging 1,039 residential SF per unit; and Key & Nash in Rosslyn, which completed 63 units averaging 2,014 residential SF per unit. It should be noted that Key & Nash has the highest ratio of all projects considered in this analysis. As shown in Table 2, the median of individual project ratios is 1,036 SF per unit, which is lower than the average. The median statistic suppresses the impact of outliers, which in this analysis would be any development project with a GFA-to-unit ratio that is either significantly higher or lower than the average, such as with Key & Nash.

Furthermore, it should be noted that the above analysis does not consider by-right multi-family residential development. This type of development was excluded from the analysis because they represent a small percentage of the total number of multi-family residential development occurring since 2013 and tend to be garden-style as opposed to high-rise development. Garden-style by-right multi-family residential development tends to have higher GFA-to-unit ratios. Since 2013, seven by-right multi-family residential projects have been completed, and two are currently under construction (see a table of these projects included at the end of this memo). The average GFA-to-unit ratio of these projects is 1,548 SF. The total number of by-right multi-family residential units was 543 units, whereas the total number of board-approved units in this same time period was 14,923 units (see Table 1 for a breakout of these units by year).

### *Recommendation:*

This analysis shows that both average and median residential GFA-to-unit ratios for board-approved projects from 2013 to 2018 development are close to the conversion factor of 1,100 SF. This conversion factor was recommended by the Research Team in 2013, based on a similar analysis of development from 2002 to 2013. As is seen in Figure 1, since 2013, the GFA-to-unit ratio has hovered close to 1,100 showing no consistent trend in either an increase or decrease in this figure. Therefore, the Research Team recommends continuing to consider 1,100 square feet per residential unit as the standard for estimating and forecasting multi-family residential development.

### **Hotel Rooms**

A hotel room to hotel GFA conversion factor relies on the average GFA per hotel room. For an individual building this can be defined as the total hotel GFA divided by the number of hotel rooms. For hotel buildings, the hotel GFA excludes any retail space, but includes common building spaces such as hallways, lobbies, amenity spaces, and conference facilities. Hotel Room GFA assumptions are primarily dependent on the hotel type (limited service, full service, or vertical mixed-use) and the amount of amenity and conference space.

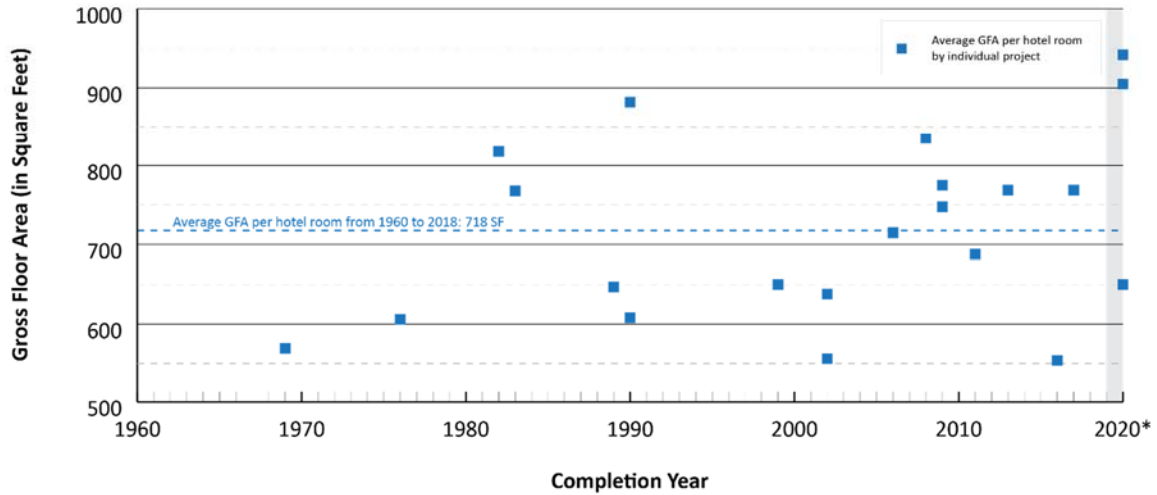
This analysis considers two new projects containing hotel rooms that were not considered in the 2013 analysis<sup>1</sup>: Hyatt Place in Courthouse, which was approved in 2014 and completed in 2016; and Rosslyn Plaza PDSP which was approved in 2016. The complete list of hotel projects considered in this analysis is included at the end of this memo.

Figure 2 shows the average GFA per hotel room by individual project by completion year for a sample of hotel projects since the 1960s. As was observed in 2013, since 1968, the average GFA per hotel room to date for a sample of individual projects has remained at an average of a little over 700 SF per room. Ratios vary due to type, amount of conference space, and whether or not the hotel is part of a vertical mixed use project.

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<sup>1</sup> Apart from Hyatt Place and Rosslyn Plaza PDSP, since this analysis was last completed in 2013, there have been no new hotel by-right, site plan, form-based code, or use permit projects that have either been approved, completed, or started construction for which there is hotel GFA data available to calculate a GFA-to-room ratio.

Figure 2: Average Gross Floor Area (GFA) Per Hotel Room by Project by Completion Year



\*These years show approved hotel projects that have not yet started construction

Source: Site Plan Summaries, Development Tracking Database, and Real Estate Assessments Database.

**Recommendation:**

Given currently available data, there have been no dramatic changes in GFA-to-room values for hotel development since this analysis was last completed in 2013. Therefore, the Planning Division will continue to use a hotel room conversion factor of 725 SF per room for both the existing estimate and the forecast assumptions for hotel room GFA assumptions.

# Multi-Family Residential Projects

Development Name	Site Plan Number	Status	Completion Year	Approval Year	Under Construction Year	Residential GFA	Residential Units from Dev Tracking	GFA to Unit Ratio	Area	Corridor	House Type
Dominion Heights	395	C	2013	2005	2012	68,717	66	1,041	LEE HIGHWAY	Other Area	G
Mosaic at Clarendon	406	C	2013	2008	2011	215,943	188	1,149	OUTSIDE METRO	Other Area	G
Sedona (Rosslyn Commons, Building 1)/Slate (Rosslyn Commons, Building 2)	412	C	2013	2008	2011	450,425	474	950	ROSSLYN	Rosslyn-Ballston Corridor	H
Beacon at Clarendon West	392	C	2014	2005	2013	206,004	195	1,056	CLARENDON	Rosslyn-Ballston Corridor	H
The View (Founder's Square - North Residential)	413	C	2014	2008	2012	213,205	256	833	BALLSTON	Rosslyn-Ballston Corridor	H
Arlington Mill (Residential)	FBC/UP	C	2014	2008	2012	131,100	122	1,075	COLUMBIA PIKE	Columbia Pike	H
The Tellus	403	C	2014	2009	2013	240,530	254	947	COURT HOUSE	Rosslyn-Ballston Corridor	H
ARC 3409 (previously AKA VA Square- use conversion)	377	C	2014	-	-	121,766	87	1,400	VIRGINIA SQUARE	Rosslyn-Ballston Corridor	H
The Acadia (Three Metropolitan Park)	105	C	2015	2009	2013	471,205	411	1,146	PENTAGON CITY	US 1 Corridor	H
Columbia Place	FBC/UP	C	2015	2009	2013	19,854	22	902	COLUMBIA PIKE	Columbia Pike	G/TH
Virginia Square Towers	416	C	2015	2011	2013	508,022	534	951	VIRGINIA SQUARE	Rosslyn-Ballston Corridor	H
Maxwell Apartments	72	C	2015	2012	2013	136,868	163	840	BALLSTON	Rosslyn-Ballston Corridor	H
Pike 3400 (North Block)	FBC/UP	C	2015	2012	2013	239,752	257	933	COLUMBIA PIKE	Columbia Pike	H
Verde Pointe (Bergmann's)	420	C	2015	2012	2014	200,400	202	992	LEE HIGHWAY	Other Area	H
The Shell	FBC	C	2015	2012	2014	97,839	83	1,179	COLUMBIA PIKE	Columbia Pike	H
The Bartlett (Met Park 4 and 5)	105	C	2016	2013	2014	741,929	649	1,143	PENTAGON CITY	US 1 Corridor	H
M.Flats	424	C	2016	2013	2015	208,899	198	1,055	CRYSTAL CITY	US 1 Corridor	H
Union on Queen	425	C	2016	2013	2015	194,182	193	1,006	ROSSLYN	Rosslyn-Ballston Corridor	H
Latitude Apartments	426	C	2016	2013	2015	263,698	265	995	VIRGINIA SQUARE	Rosslyn-Ballston Corridor	H
The Springs	430	C	2016	2014	2015	117,694	104	1,132	BALLSTON	Rosslyn-Ballston Corridor	G
WeLive (Crystal Plaza VI Conversion)	11	C	2016	2015	2014	326,626	216	1,512	CRYSTAL CITY	US 1 Corridor	H
Central Place (Residential)	335	C	2017	2007	2015	409,061	374	1,094	ROSSLYN	Rosslyn-Ballston Corridor	H
10th Street Flats	UCMUD	C	2017	2014	2016	131,431	144	913	CLARENDON	Rosslyn-Ballston Corridor	G
Transitional Shelter (part of SP #432)	432	C	2017	2015	2016	16,500	14	1,179	COURT HOUSE	Rosslyn-Ballston Corridor	H
672 Flats	437	C	2018	2015	2017	179,804	173	1,039	BALLSTON	Rosslyn-Ballston Corridor	H
Key & Nash	439	C	2018	2016	2017	126,888	63	2,014	ROSSLYN	Rosslyn-Ballston Corridor	H/TH
The Spire/Fairmont	331	A	-	2006	-	237,310	237	1,001	BALLSTON	Rosslyn-Ballston Corridor	H
Potomac Yard - Land Bay D - West (Brittany West)	346	U	-	2007	2018	401,693	342	1,175	CRYSTAL CITY	US 1 Corridor	H
Potomac Yard - Land Bay D-East (Brittany East)	346	A	-	2007	-	429,433	360	1,193	CRYSTAL CITY	US 1 Corridor	H
Axumite Village	FBC/UP	A	-	2009	-	43,459	36	1,207	COLUMBIA PIKE	Columbia Pike	G
Wakefield Manor	417	A	-	2011	-	105,400	104	1,013	COURT HOUSE	Rosslyn-Ballston Corridor	H
Rosslyn Gateway PDSP - FSP (Phase 1 - Residential/Hotel Building)	419	A	-	2012	-	172,663	133	1,298	ROSSLYN	Rosslyn-Ballston Corridor	H
Rosslyn Gateway PDSP (Phase 2 - Remaining Allocation)	419	A	-	2012	-	136,223	140	973	ROSSLYN	Rosslyn-Ballston Corridor	H
1401 Wilson Blvd	429	A	-	2014	-	347,596	274	1,269	ROSSLYN	Rosslyn-Ballston Corridor	H
Gables N. Rolfe St.	432	U	-	2015	2016	374,869	395	949	COURT HOUSE	Rosslyn-Ballston Corridor	H
Ballston Quarter Residential Building	193	U	-	2015	2017	388,395	406	957	BALLSTON	Rosslyn-Ballston Corridor	H
The Altaire	2	U	-	2015	2017	491,936	453	1,086	CRYSTAL CITY	US 1 Corridor	H
Pentagon Centre PDSP - Phase I A (FSP)	297	U	-	2015	2017	538,268	440	1,223	PENTAGON CITY	US 1 Corridor	N/A
4000 Fairfax Drive	46	A	-	2015	-	321,160	330	973	BALLSTON	Rosslyn-Ballston Corridor	H
Pentagon Centre PDSP - Phase IB (FSP)	297	A	-	2015	-	258,002	253	1,020	PENTAGON CITY	US 1 Corridor	N/A
Red Top Cab Site	438	A	-	2015	-	577,404	580	996	CLARENDON	Rosslyn-Ballston Corridor	H
4040 Wilson Blvd (Founder's Square - North Office)	413	U	-	2016	2018	213,205	250	853	BALLSTON	Rosslyn-Ballston Corridor	H
The Waycroft	440	U	-	2016	2018	484,785	491	987	BALLSTON	Rosslyn-Ballston Corridor	H
Columbia Pike Village Center	FBC/UP	U	-	2016	2018	354,140	365	970	COLUMBIA PIKE	Columbia Pike	H
Metropolitan Park Six	105	A	-	2016	-	565,309	590	958	PENTAGON CITY	US 1 Corridor	H
Rosslyn Plaza PDSP	422	A	-	2016	-	546,487	550	994	ROSSLYN	Rosslyn-Ballston Corridor	H
The Berkeley	431	A	-	2016	-	263,900	257	1,027	OUTSIDE METRO	Other Area	G
2000 Clarendon Blvd	441	A	-	2016	-	104,814	90	1,165	COURT HOUSE	Rosslyn-Ballston Corridor	H
2400 Columbia Pike	FBC/UP	A	-	2016	-	116,347	105	1,108	COLUMBIA PIKE	Columbia Pike	H
Crystal Houses III	13	A	-	2017	-	260,212	252	1,033	CRYSTAL CITY	US 1 Corridor	H
New Century Center Residential	442	A	-	2017	-	312,014	308	1,013	CRYSTAL CITY	US 1 Corridor	H
Ballston Station Ballston Central United Methodist Church	443	A	-	2017	-	133,222	119	1,120	BALLSTON	Rosslyn-Ballston Corridor	H
1801 N Quinn St	444	A	-	2017	-	270,165	249	1,085	ROSSLYN	Rosslyn-Ballston Corridor	H
1555 Wilson Blvd	445	A	-	2017	-	1,153,050	892	1,293	ROSSLYN	Rosslyn-Ballston Corridor	N/A
Red Cross/Trenton St. Residential	446	A	-	2018	-	108,900	131	831	Outside Metro	Other Area	G/TH
11th and Vermont Residences	447	A	-	2018	-	125,734	84	1,497	BALLSTON	Rosslyn-Ballston Corridor	G

## Comments and Assumptions

- 1) This list represents site plan, form-based code, and use permit projects containing Multi-Family units which were either completed in 2013 or later, or are currently under construction or approved as of August 2018 . Site Plans from 2000 or later have site plan summaries (typically word files) in the site plan summary folder provided by Current Planning.
- 2) Residential GFAs and Residential Units were obtained from the Site Plan Summaries. If not present, these site plans were omitted from the sample.
- 3) Site Plan Summaries from the early 2000s do not consistently list the residential GFA for the site plan. This plans are underrepresented in this sample.
- 4) Site Plans whose GLUP or zoning category rely on a units per acre calculation instead of an FAR calculation often did not display residential GFA for the project.
- 5) Final calculations relied on the residential GFA listed in the site plan summary, and the number of units provided by development tracking. The number of units from development tracking often differed from the number of units in the Site Plan Summary. Development tracking numbers were cross checked with the Real Estate database, ATRACK, major site plan amendments, and admin changes.
- 6) This sample is for garden and high-rise multifamily housing only. Townhouse projects that were part of the same site plan number but had separate parcels were removed from this sample. Townhouses that were integrated into a project, shared the same parcel, and shared the same parking structure were included. These townhouse units simply reflect part of the unit mix for a multifamily project.
- 7) House Type Key: H = High-rise; G = Garden; TH = Townhome, N/A = Commercial/Mixed Use

## By-Right Multi-Family Residential Projects

Development Name	Site Plan Number	Status	Completion Year	Approval Year	Under Construction Year	Residential GFA	Residential Units from Dev Tracking	GFA to Unit Ratio	Area	Corridor	House Type
Henderson Park Apartments	B-R	C	2013	-	2012	95,830	67	1,430	BALLSTON	Rosslyn-Ballston Corridor	G
Avery Row (formerly Grayson Flats)	B-R	C	2013	-	2012	121,126	67	1,808	ROSSLYN	Rosslyn-Ballston Corridor	H
Archstone Parkland Gardens	B-R	C	2014	-	2012	367,022	227	1,617	LEE HIGHWAY	Other Area	H
905 N Jackson St	B-R	C	2014	-	2013	20,902	13	1,608	CLARENDON	Rosslyn-Ballston Corridor	G
The Hyde	B-R	C	2015	-	2013	32,696	18	1,816	CLARENDON	Rosslyn-Ballston Corridor	G
The Skyler	B-R	C	2015	-	2014	10,800	9	1,200	COURT HOUSE	Rosslyn-Ballston Corridor	G
Cherry Hill Apartments	-	U	-	-	2017	149,873	93	1,612	LEE HIGHWAY	Other Area	G
1245 N Pierce St	-	U	-	-	2017	15,500	12	1,292	ROSSLYN	Rosslyn-Ballston Corridor	G
Gaslight Square Phase III	B-R	C	2017	2007	2016	N/A	37	N/A	ROSSLYN	Rosslyn-Ballston Corridor	H

### Comments and Assumptions

- 1) This list represents by-right multi-family residential development which were either completed in 2013 or later, or are currently under construction as of August 2018 .
- 2) Residential GFAs were obtained from commercial new construction building permits.
- 3) Final calculations relied on the residential GFA listed in the building permit, and the number of units provided by development tracking. Residential GFA listed in the building permit was validated by GFA data included in the Approved Plan Set to ensure that the area excludes residential parking square footage.
- 4) House Type Key: H = High-rise; G = Garden; TH = Townhome, N/A = Commercial/Mixed Use

# Hotel Projects

Development Name	Site Plan Number	Status	Completion Year	Approval Year	Office	Retail	Other	Residential	Hotel Rooms from Dev Tracking	Approved Hotel GFA	GFA to Unit Ratio	Area	Corridor
Crowne Plaza Washington National Airport	51	C	1969	1966	-	19,958	-	-	308	175,263	569	CRYSTAL CITY	US 1 Corridor
Hyatt Hotel	92	C	1976		-	-	-	-	317	192,000	606	ROSSLYN	Rosslyn-Ballston Corridor
Hyatt Regency Crystal City	121	C	1982	1979	-	-	-	-	685	560,500	818	CRYSTAL CITY	US 1 Corridor
Sheraton Crystal City	78	C	1983	1979	-	-	-	-	223	171,343	768	CRYSTAL CITY	US 1 Corridor
Hilton Hotel Ballston	240	C	1989		-	-	-	-	209	135,289	647	BALLSTON	Rosslyn-Ballston Corridor
Marriott Courtyard Crystal City	189	C	1990	1982	-	-	-	-	272	165,267	608	CRYSTAL CITY	US 1 Corridor
Ritz-Carlton Hotel	105	C	1990	-	-	-	-	-	366	322,932	882	PENTAGON CITY	US 1 Corridor
Rosslyn Courtyard Marriott Hotel	219	C	1990		-	-	-	-	162	98,500	608	ROSSLYN	Rosslyn-Ballston Corridor
Marriott Residence Inn	260	C	1999	1990	-	-	-	-	176	114,471	650	ROSSLYN	Rosslyn-Ballston Corridor
Hilton Garden Inn	262	C	2002	1998	-	2,400	-	-	189	105,000	556	COURT HOUSE	Rosslyn-Ballston Corridor
Hampton Inn	55	C	2002	1999	-	-	-	-	161	102,760	638	CRYSTAL CITY	US 1 Corridor
Westin Hotel	331	C	2006	1999	-	10,436	-	-	336	240,160	715	BALLSTON	Rosslyn-Ballston Corridor
Waterview	25	C	2008	2002	620,576	10,110	-	133	154	128,639	835	ROSSLYN	Rosslyn-Ballston Corridor
Marriott Residence Inn (Courthouse Plaza Hotel)	231	C	2009	2006	-	9,455	-	-	176	131,655	748	COURT HOUSE	Rosslyn-Ballston Corridor
Hilton Garden Inn (formerly Shirlington Hotel)	106	C	2009	2007	-	-	-	-	142	110,000	775	SHIRLINGTON	Other Area
Marriott Renaissance Hotel & Residence Inn (Potomac Yard - Land Bay B)	346	C	2011	2007	-	10,000	-	-	625	430,000	688	CRYSTAL CITY	US 1 Corridor
Marriott Residence Inn, Founder's Square - South Hotel	413	C	2013	2008	-	1,880	-	-	183	140,720	769	BALLSTON	Rosslyn-Ballston Corridor
Hyatt Place	404	C	2016	2014	0	1,280	-	-	168	93,115	554	COURT HOUSE	Rosslyn-Ballston Corridor
Hilton Homewood Suites	423	C	2017	2013	-	-	-	-	168	129,182	769	ROSSLYN	Rosslyn-Ballston Corridor
Rosslyn Gateway PDSP - FSP (Phase 1 - Residential/Hotel Building)	419	A	-	2012	-	10,001	-	133	148	133,952	905	ROSSLYN	Rosslyn-Ballston Corridor
PenPlace (Pentagon City PDSP Parcel 1D - Remaining Allocation)	105	A	-	2013	1,809,000	50,000	-	-	300	282,600	942	PENTAGON CITY	US 1 Corridor
Rosslyn Plaza PDSP	422	A	-	2016	1,810,173	45,000	0	550	200	130,000	650	ROSSLYN	Rosslyn-Ballston Corridor

## Comments and Assumptions

- 1) This list represents all site plan development containing hotel rooms as of August 2018 . Site Plans from 2000 or later have site plan summaries (typically word files) in the site plan summary folder provided by Current Planning.
- 2) Hotel GFAs and Hotel Rooms were obtained from the Site Plan Summaries. If not present, these site plans were omitted from the sample.
- 3) Site Plan Summaries from the early 2000s do not consistently list the hotel GFA for the site plan. This plans are underrepresented in this sample.
- 4) Final calculations relied on the hotel GFA listed in the site plan summary, and the number of rooms provided by development tracking. The number of rooms from development tracking sometimes differed from the number of rooms in the Site Plan Summary. Development tracking numbers were cross checked with the Real Estate database, ATRACK,