## Traffic Impact Study and Transportation Management Plan

# West Rosslyn Development

## Arlington County, VA

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## EXECUTIVE SUMMARY

This report presents findings of a transportation impact study conducted for the proposed development in West Rosslyn in Arlington, Virginia. This study was developed in accordance with VDOT and Arlington County transportation impact analysis guidelines.

### *Site Location and Study Area*

The site is located in the West Rosslyn area of Arlington, Virginia, south of 18th Street N, north of Wilson Boulevard, east of N Quinn Street, and west of N Oak Street. Regional access to the site is provided via I-66/US29 and the George Washington Memorial Parkway from the north and east, US 50 (Arlington Blvd) to the south and Wilson Boulevard/Clarendon Boulevard to the west. Immediate vehicular access to the site will be provided via a new north-south street which will bisect the site and connect Wilson Boulevard to 18th Street N.

### *Description of Proposed Development*

According to Arlington County's General Land Use Plan (GLUP), this site is currently listed as "High Office-Apartment-Hotel" and "Public Space." The new development will be divided in two parts, the eastern parcel will include one residential tower and space for ground-floor retail. The eastern parcel will also include the redevelopment of the existing fire station. The western parcel will include a tower with office space and ground floor retail, and the redevelopment of the existing Rosslyn Highlands Park. The proposed project build-out year is 2019.

### *Principal Findings, Conclusions, and Recommendations*

The analysis presented in this report supports the following major conclusions:

**Existing Conditions (2016)**

- The subject site is well-served by transit:
  - The site is approximately less than one-half mile walking distance from the Rosslyn Metro station, which serve the Blue, Orange, and Silver lines.
  - There are four bus stops within one block of the site. These stops are directly served by WMATA (Metrobus) and Arlington Transit (ART) routes.
- Vehicular traffic operations in the study area are good overall. All intersection movements within the study area operate at the target Level of Service (LOS) D or better during the AM, PM, and Saturday peak hours, with the exception of the following:
  - N Quinn Street and Wilson Boulevard
    - Southbound right lane (AM peak hour)
  - N Oak Street and Key Boulevard
    - Northbound left/right lane (AM peak hour)
  - N Oak Street and Wilson Boulevard
    - Northbound left/thru lane (AM peak hour)
  - N Nash Street (east) and Key Boulevard (AM peak hour)

        - Eastbound left lane (AM and PM peak hour)
    - N Nash Street and Lee Highway
        - Southbound left lane (AM peak hour)
- None of the movements listed above cause the intersection to operate below acceptable LOS thresholds with the exception of the intersection of N Nash Street (east) and Key Boulevard in the AM peak hour. Signalization as mitigation at this intersection is considered with a signal warrant analysis.

**Future Conditions without Development (2019)**

- Historical roadway volumes indicate negative growth has occurred in the study area; however, a conservative 0.5% annual background growth was applied at the study intersections as per agreement with VDOT and Arlington County. Ten planned background developments in the vicinity of the site were also taken into consideration. The trips generated by these sites were added to the roadway network to reflect future conditions without the proposed development in 2019.
- Under future without development conditions, all movements at the study intersections operate at acceptable levels of service consistent with the Existing Conditions scenario, with the exception of the following:
    - N Quinn Street and Key Boulevard
        - Southbound left/thru lane (AM peak hour)
    - N Pierce Street and Clarendon Boulevard
        - Southbound left/thru lane (AM peak hour)
    - N Oak Street and Clarendon Boulevard
        - Eastbound left lane (AM peak hour)
    - N Nash Street (east) and Key Boulevard (PM peak hour)
    - N Nash Street and Lee Highway
        - Southbound left lane (PM peak hour)
- None of the movements listed above cause the intersection to operate below acceptable LOS thresholds with the exception of the intersection of N Nash Street (east) and Key Boulevard in the PM peak hour. Signalization as mitigation at this intersection is considered with a signal warrant analysis.

**Future Conditions with Development (2019)**

- The proposed mixed-use development will generate approximately 268 net trips in the AM peak hour, 348 net trips in the PM peak hour, and 287 net trips in the Saturday peak hour.
- Under future with development conditions, all intersection movements within the study area operate at acceptable levels of service consistent with the Future without Development scenario, with the exception of the following:
    - N Quinn Street and Key Boulevard (AM peak hour)
        - Southbound left/thru lanes (AM peak hour)
    - N Pierce Street and Clarendon Boulevard

        - Southbound left/thru lane (PM peak hour)
    - N Oak Street and Wilson Boulevard (AM peak hour)
        - Northbound left/thru lane (PM and Saturday peak hour)
    - N Oak Street and Clarendon Boulevard
        - Eastbound left lane (PM peak hour)
- All movements caused to operate below acceptable LOS thresholds by the proposed development have been mitigated with signal timing adjustments. No additional mitigations are required.

**Future Conditions with Development (2025)**

- There are no additional site-added trips between 2019 and 2025. A regional growth rate of 0.5% annually has been applied between the 2019 and 2025 scenarios
- Under future (2025) with development conditions, all intersection movements within the study area continue to operate consistent with future (2019) with development results with the exception of the following:
    - N Quinn Street and Key Boulevard
        - Westbound left/thru/right lane (AM peak hour)
        - Southbound left/thru lane (AM peak hour)
- Other movements caused to operate below acceptable LOS thresholds by the proposed development have been mitigated with signal timing adjustments. Although movements at the intersection of N Quinn Street and Key Boulevard exceeds County standards, the 2025 analysis was done as a planning scenario; therefore, no mitigation is proposed at this intersection.

**Transportation Management Plan**

- A TMP will be required for the project based on the County's requirements. The initial framework for a TMP is included in this report. The ultimate TMP will be determined per the approved site plan conditions.

## INTRODUCTION AND SUMMARY

This report presents the findings of a traffic impact study conducted for the proposed West Rosslyn mixed use development in Arlington, VA. The site is currently occupied by a park, fire station, and office building with a parking garage. The new development will be developed in two parts. The east side will include one residential tower, and space for ground-floor retail. The eastern development will also include the redevelopment of the existing Fire Station #10. The western parcel will include a tower with approximately 400,000 square feet of office, additional ground floor retail space, and redevelopment of existing Rosslyn Highlands Park. Access to the development will be provided from a newly created street bisecting the site connecting Wilson Boulevard to 18th Street N. The east parcel will have loading areas off of 18th Street N or an alley from 18th Street N that is shared with the fire station. The fire station will also have access to Wilson Boulevard for a pull through configuration from 18th Street. The western development parcel will have loading access provided off of the new street connection. The proposed project build-out year is 2019.

### *Study Objectives*

The objectives of this study are to evaluate the transportation network in the vicinity of the site and identify any potential transportation impacts that may result from the proposed redevelopment. Elements of this report include a description of the proposed development, an evaluation of the existing transportation network, and evaluations of the future transportation network with and without the proposed development.

### *Study Tasks*

The following tasks were completed as part of this study.

- A scoping meeting was conducted on March 15, 2016, and a scope dated March 31, 2016 was agreed upon by Gorove/Slade, VDOT, and representatives from Arlington County. This scope includes discussions about the parameters of the study and relevant background information. A copy of the scoping document confirming the agreed upon parameters and assumptions is included in Appendix A.
- Field reconnaissance in the vicinity of the site was performed to collect information related to the existing traffic controls, roadway geometry, and traffic flow characteristics.
- Traffic counts at the study area intersections were conducted on Wednesday, April 1, 2015, Tuesday, February 23, 2016, Thursday, March 10th, 2016, Tuesday, March 29th, 2016, and Thursday, April 14th, 2016 during the weekday morning and evening peak periods. Traffic counts at the study area intersections were conducted on Saturday, March 5, 2016 and Saturday, April 2nd, 2016 during the Saturday peak period. All counts were collected during typical conditions.
- As outlined in the scoping document, 10 planned developments in the vicinity of the proposed project were also assumed to be in place for the future conditions analysis. As determined based on historical traffic patterns and projected traffic volumes, a growth rate of 0.5 percent per year was applied to account for a regional increase in background traffic.
- Proposed site traffic volumes were generated based on the methodology outlined in Trip Generation, 9th Edition published by the Institute of Transportation Engineers (ITE).
- Intersection capacity analyses were performed using the software package Synchro, Version 9.1 based on the Highway Capacity Manual (HCM) 2000 and 2010 methodology. Traffic analyses were performed for the existing

conditions (2016), future (2019) with and without development conditions, and future (2025) with development conditions.

- An initial Transportation Management Plan framework was developed as a TMP will be necessary to meet County requirements.

## *Data Sources*

Sources of data for this study include Arlington County, the Virginia Department of Transportation (VDOT), the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition, Penzance, Hickok Cole Architects, and the office files and field reconnaissance efforts of Gorove/Slade Associates, Inc.

# PROPOSED DEVELOPMENT AND CONTEXT

## *Site Description*

### *Site Location*

The site is located in the Rosslyn area of Arlington, Virginia between 18th Street N, Wilson Boulevard, N Quinn Street, and N Oak Street. Vehicular access to the development will be provided via a newly created street bisecting the east and west parcels and connecting Wilson Boulevard to 18th Street N. The site location is shown in Figure 1.

The site location falls within the bounds of the Western Rosslyn Area Planning Study (WRAPS), the Rosslyn Coordinated Redevelopment District (RCRD), and the Rosslyn Metro Station Area (RMSA). WRAPS was a study undertaken in 2015 by the Arlington County Board to consider the various uses of the redevelopment of the area surrounding the Rosslyn Highlands Park, school, and firehouse. Due to the proximity of the development's location in the WRAPS area, coordination between the West Rosslyn development and WRAPS was undertaken to make sure the Board's goals were met. The County Board set out goals for reinvigorating the area in a public-private partnership designed to facilitate the rebuilding of the firehouse and public park as well as making the West Rosslyn area a destination day and night for students, residents, and office workers of all income levels. The proposed West Rosslyn development will meet the Board's goal of creating privately-developed office, residential, and retail space.

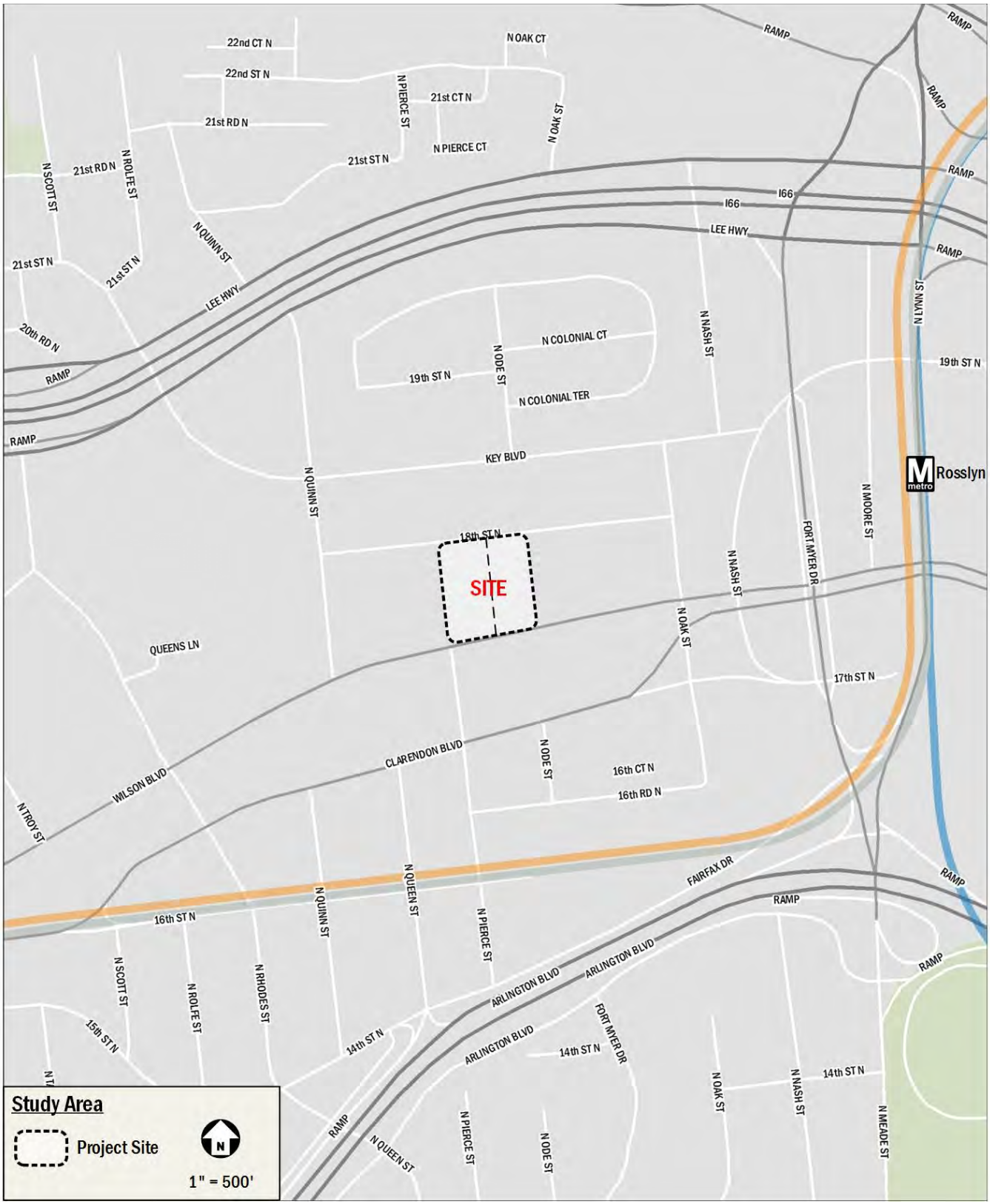



**Figure 1: Site Map**

## *Parcel Information*

The existing parcels are owned by the Penzance Company and the County Board of Arlington. The site consists of the Rosslyn Highlands Park and Fire Station #10 in the western parcels (owned by the County) and contains approximately 54,000 sf of gross floor area. 1555 Wilson Boulevard in the eastern parcels and contains approximately 156,825 sf of gross floor area. A parcel map showing the location of the property is presented in Figure 2. The various parcels owned by Penzance and the County Board add up to a total of approximately 2.7 acres.

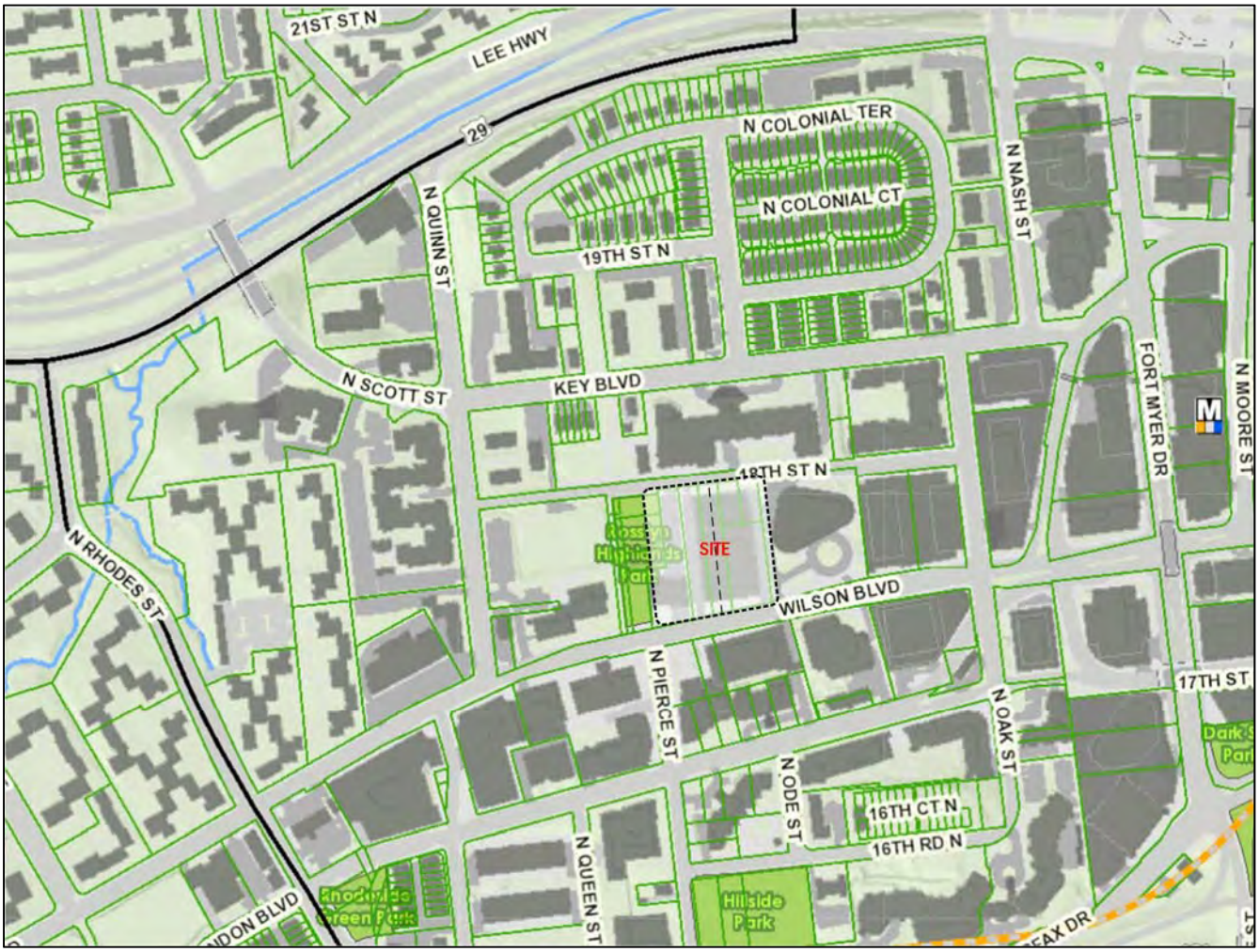



**Figure 2: Parcel Map (Source: Arlington County Real Estate Map, September 2015)**

## *General Land Use Plan Recommendations*

According to Arlington County's General Land Use Plan (GLUP), this site is currently listed as "High Office-Apartment-Hotel" and "Public Space." The GLUP map for the site is shown in Figure 3. The West Rosslyn Area Planning Study (WRAPS) recommends in the short-term to change the portion of public space where the western parcel of development is to be built to "High Office-Apartment-Hotel." The Arlington Zoning Map shows the site falling within the C-2 (Service Commercial-Community Business Districts), C-3 (Office), RA6-15 (Apartment Dwelling Districts), and S-3A (Special Districts) zones, as seen in Figure 4.

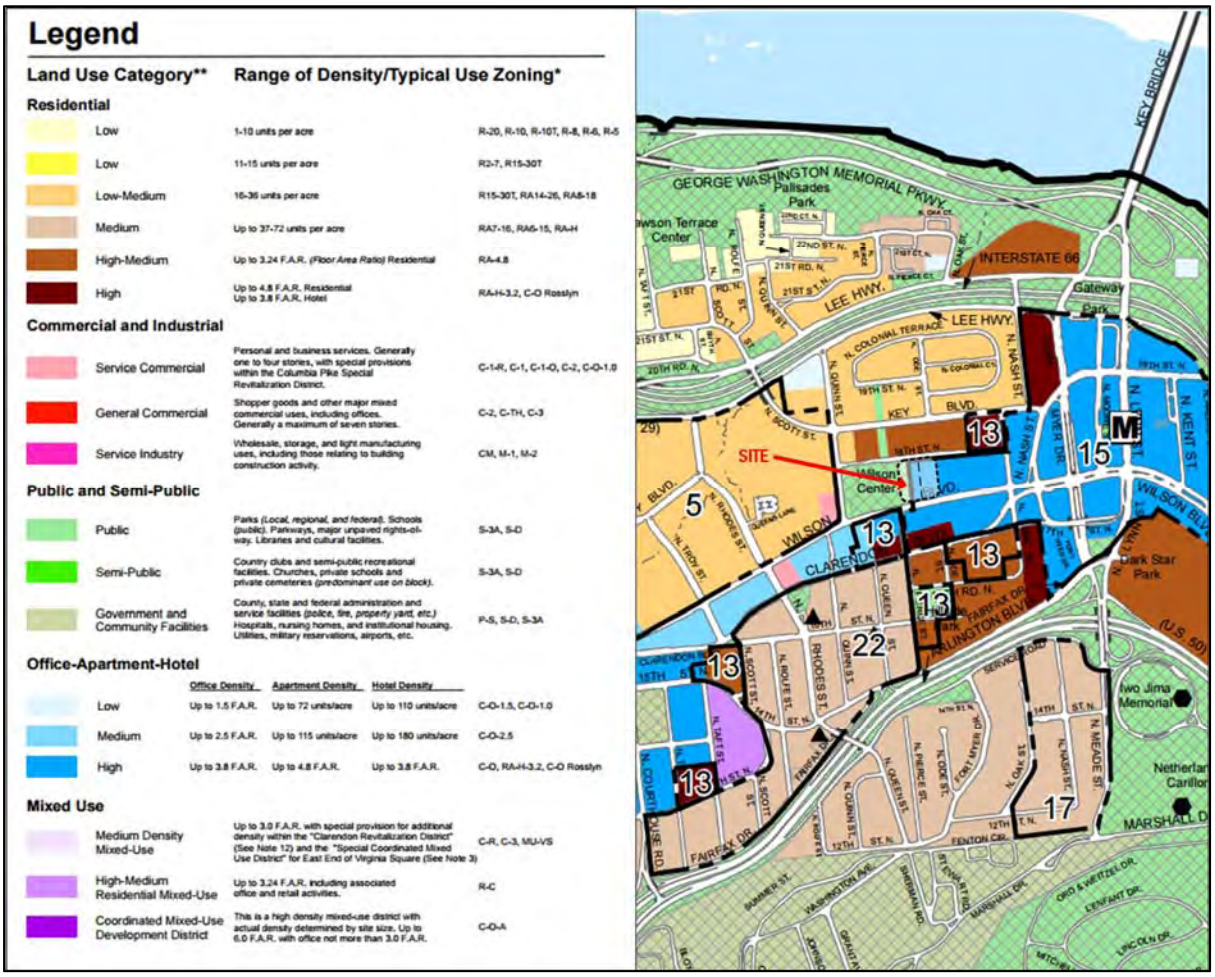



**Figure 3: Planned Land Uses (Source: Arlington General Land Use Plan (GLUP), July 2015)**

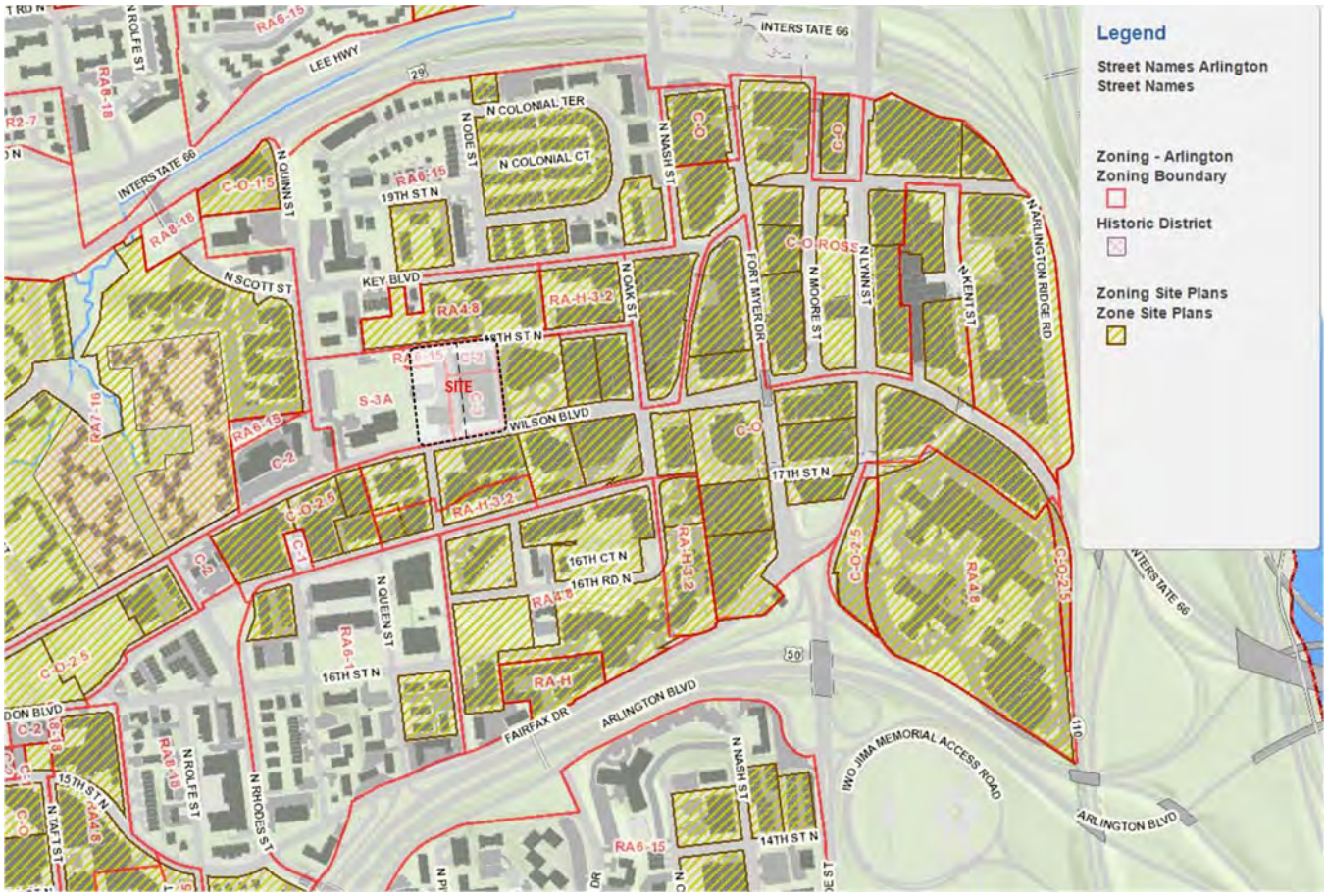



**Figure 4: Zoning Map (Source: Arlington County)**

## *Proposed Site Plan*

The proposed West Rosslyn development will be divided in two parts, with the eastern parcel will include one residential tower and space for ground-floor retail. The eastern parcel will also include the redevelopment of the existing fire station. The western parcel will include a tower with office space and ground floor retail, and the redevelopment of the existing Rosslyn Highlands Park. The proposed site plan is presented in Figure 5. Vehicular access to the site will be provided via a new north-south street connecting Wilson Boulevard with 18th Street N.


**Figure 5: Site Plan**

## *Scope and Limits of the Study Area*

The study area is bound by 18th Street N, Wilson Boulevard, N Quinn Street, and N Oak Street. Regional access to the site is provided via I-66/US-29 and George Washington Memorial Parkway from the north and east, US 50 (Arlington Blvd) to the south and Wilson Boulevard/Clarendon Boulevard to the west. The following intersections were identified for inclusion in this study, as shown in Figure 6.

1. N Quinn Street and Key Boulevard and N Scott Street
2. N Quinn Street and 18th Street N
3. N Quinn Street and Wilson Boulevard
4. N Pierce Street and Wilson Boulevard
5. N Pierce Street and Clarendon Boulevard
6. Wilson Boulevard and New Street
7. 18th Street N and New Street
8. N Oak Street and Key Boulevard
9. N Oak Street and 18th Street N
10. N Oak Street and Wilson Boulevard
11. N Oak Street and Clarendon Boulevard
12. N Nash Street and Key Boulevard
13. N Nash Street/19th Street N and Key Boulevard
14. N Nash Street and Key Highway
15. N Fort Myer Drive and Lee Highway

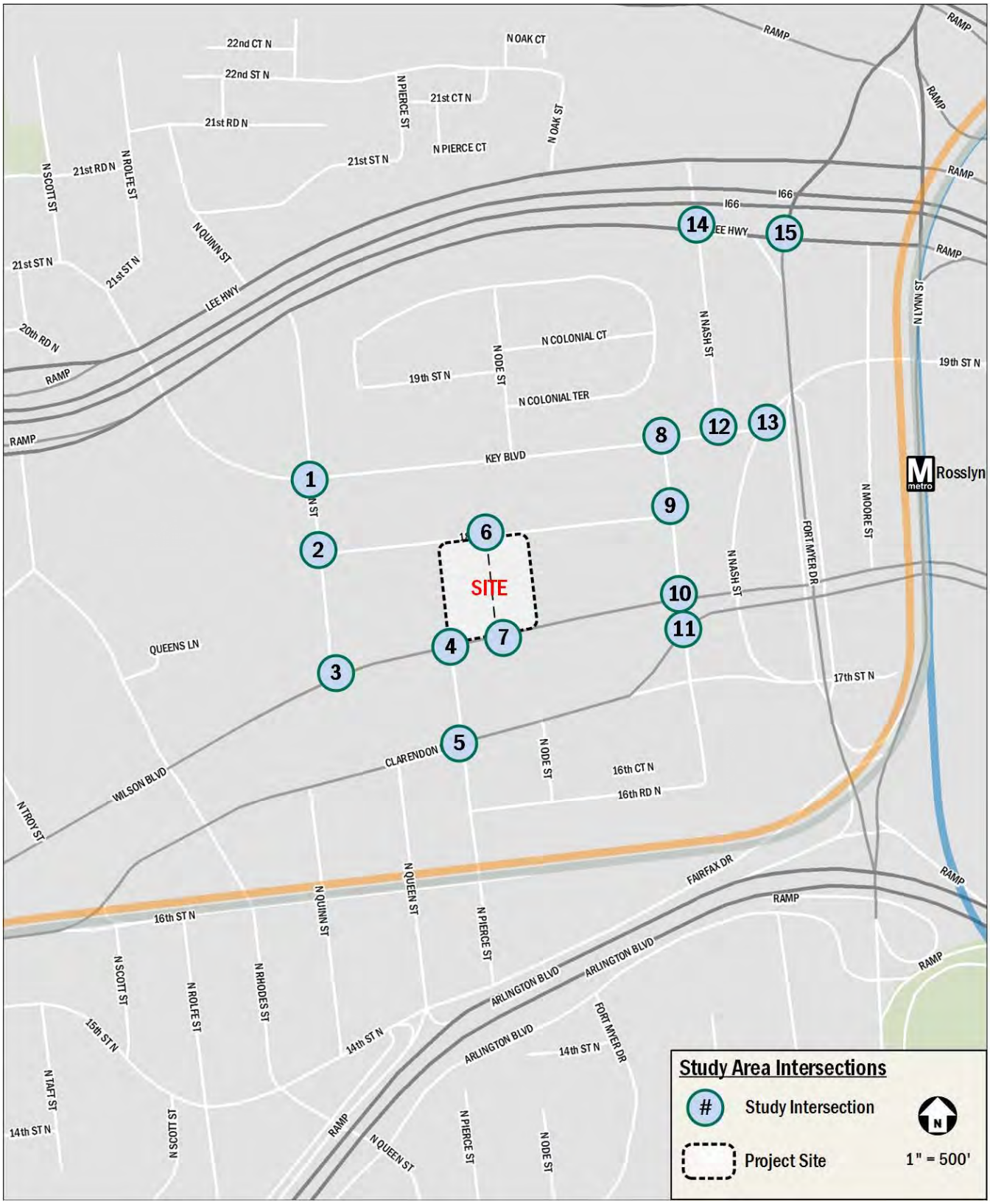



**Figure 6: Study Area**

## EXISTING CONDITIONS (2016)

### *Existing Transit Service*

The study area is served by numerous transit options under existing conditions as shown in Figure 7 and described in the following sections.

#### *Metrorail*

There are two Metro stations within one-half mile walking distance of the site:

- **Rosslyn Metro Station**– The Rosslyn Metro station is located between 19th Street N and Wilson Blvd on N Moore Street, with the closest entrance on N Fort Myer Drive between 19th Street N and Wilson Blvd. The station is located within a ¼ mile walking distance from the site via Wilson Boulevard to N Fort Myer Drive to the station entrance on N Fort Myer Drive. The Rosslyn Metro serves the Blue, Orange, and Silver lines and is a major transfer point for locations to the south (Arlington County, City of Alexandria), west (Fairfax County), and north (Washington, D.C.). Daily ridership at this station in 2015 was approximately 14,800 boardings on weekdays according to the publication *Metrorail Average Weekday Passenger Boardings* (WMATA, December 2015). Based on the *Metro Station Access & Capacity Analysis* report dated April 2008, neither the Rosslyn nor Court House Metro Station are currently or predicted to have capacity issues.

  The Rosslyn Metro station is served by 16 bus routes including routes provided by WMATA (Metrobus), Arlington County Transit (ART), Loudoun County Transit, DC Circulator, and Georgetown University. The majority of the routes are bidirectional and have service throughout the day; however, some of these routes are rush hour only. A list of the routes, frequencies, and destinations are provided in Figure 7 and Table 1.

- **Court House Metro Station** - The Court House Metro station is located southwest of the development site at the intersection of Clarendon Boulevard and 15th Street N on N Uhle Street. It can be reached by walking south from the site on Wilson Boulevard to N Uhle Street. There are sidewalks along this route. The Court House Metro serves Orange and Silver lines, and average daily ridership at the station in 2015 was approximately 7,448 boardings on weekdays according to the publication *Metrorail Average Weekday Passenger Boardings* (WMATA, December 2015).

  The Court House Metro station is the further of the two Metro stations. It is expected that many of the tenants, customers, and employees of the propose development will utilize the closer Rosslyn Metro Station. The station is served by ten bus routes including four routes provided by WMATA (Metrobus) and six routes provided by ART.

Based on the *Metro Station Access & Capacity Analysis* report dated April 2008, neither the Rosslyn nor Court House Metro Station are currently or predicted to have capacity issues.

#### *Bus*

There are four bus stops within one block of the site, represented in Figure 7. These stops are served by the following routes:

- **WMATA (Metrobus)** – Two Metrobus routes directly serve the bus stops closest to the site: 4B and 38B. These lines run westbound on Wilson Boulevard, outbound from Rosslyn Station. One block further south, the inbound lines run along Clarendon Boulevard. These routes, along with the other nearby Metrobus routes and their destinations and frequencies are presented in Table 1.

- **ART (Arlington Transit)** – The 43, 45, 61A, and 61B ART bus routes directly serves the bus stops closest to the site. The 61A and 61B routes form a loop connecting the Rosslyn and Court House Metro stations and the 43 and 45 lines provide connection to Crystal City and Columbia Pike corridor, respectively. All nearby ART Routes and their frequencies are presented in Table 1.


**Figure 7: Existing Transit Service**

**Table 1: Bus Routes from Rosslyn Metro**

| Route Number | Route Name | Service Hours | Headway | Walking Distance to Nearest Bus Stop |
|---|---|---|---|---|
| 3Y (WMATA) | Lee Highway-Farragut Square Line | Weekdays: 6:52 AM – 7:32 PM | 14-30 minutes | 0.3 miles, 5 minutes |
| 4A, 4B (WMATA) | Pershing Dr.-Arlington Blvd. Line | Weekdays: 5:50 AM – 12:25 AM<br>Weekends: 6:45 AM – 11:05 PM | 4-75 minutes | <0.1 miles, 1 minute |
| 5A (WMATA) | D.C.-Dulles Line | Weekdays: 5:00 AM – 12:06 AM<br>Weekends: 5:45 AM – 12:10 AM | 57-63 minutes | 0.3 miles, 8 minutes |
| 10R, 10S (WMATA) | Hunting Point-Pentagon Line | Weekdays: 6:44 AM – 6:15 PM | 28-33 minutes | 0.2 miles, 4 minutes |
| 15K, 15L (WMATA) | Chain Bridge Road Line | Weekdays: 5:40 AM – 8:05 PM | 22-40 minutes | 0.3 miles, 8 minutes |
| 38B (WMATA) | Ballston-Farragut Square Line | Weekdays: 5:32 AM – 1:36 AM<br>Weekends: 5:46 AM – 1:38 AM | 10-40 minutes | <0.1 miles, 1 minute |
| 43 (ART) | Crystal City-Rosslyn-Courthouse Line | Weekdays: 6:21 AM – 7:39 PM | 9-28 minutes | 0.1 miles, 2 minutes |
| 45 (ART) | Columbia Pike-DHS/Sequoia-Rosslyn Line | Weekdays: 6:20 AM – 10:43 PM<br>Weekends: 7:28 AM – 11:33 PM | 20-43 minutes | <0.1 miles, 1 minute |
| 55 (ART) | East Falls Church-Lee Highway-Rosslyn Line | Weekdays: 5:26 AM – 1:15 AM<br>Weekends: 6:13 AM – 12:35 AM | 12-35 minutes | 0.4 miles, 7 minutes |
| 61A, 61B (ART) | Rosslyn-Court House Metro Shuttle Line | Weekdays: 6:28 AM – 6:58 PM | 25 minutes | 0.1 miles, 2 minutes |
| Loudoun County Transit | Loudoun to Washington, D.C. Line | Weekdays: 6:10 AM – 7:00 PM | 2-41 minutes | 0.4 miles, 7 minutes |
| GUTS (Georgetown University) | Rosslyn GUTS Line | Weekdays: 5:00 AM – 12:00 AM<br>Saturdays: 11:45 AM – 5:35 PM | 10-110 minutes | 0.4 miles, 7 minutes |
| DC Circulator | Dupont Circle-Rosslyn Line | Sunday-Thursday: 7:00 AM – 12:00 AM<br>Friday-Saturday 7:00 AM – 2:00 AM | 10 minutes | 0.4 miles, 7 minutes |

### *Existing Bicycle and Pedestrian Facilities*

The West Rosslyn development site is situated within an urban transportation network, with quality pedestrian and bicycle access. Figure 8 shows the existing pedestrian peak hour volumes at all study area intersections. Figure 9 shows the existing conditions for bicycle travel and bicycle facilities within the study area.

There are existing sidewalks on one or both sides of the roadways within the study area. There is significant pedestrian activity within the study area as shown in Figure 8. The most heavily-used crosswalk is across Wilson Boulevard and N Oak Street, with approximately 553 pedestrians crossing at this location during the weekday AM peak hour, approximately 614 during the weekday PM peak hour, and approximately 292 in the Saturday peak hour.

The Arlington County Bike Map (Bike Arlington, July 2015) shows on-street signed routes on N Fort Myer Drive, Fairfax Drive, N Meade Street, and N Nash Street between N Fort Myer Drive and Wilson Boulevard. Bicycle lanes are provided along the majority of Wilson Boulevard (westbound) and Clarendon Boulevard (eastbound), N Quinn Street between Lee Highway and Wilson Boulevard, N Lynn Street between Lee Highway and N Fort Myer Boulevard, and Key Boulevard between Lee Highway and N Nash Street. These on-street bike routes link up to the Custis trail, which leads eastward to the Potomac Heritage and Mt. Vernon trails that connect Rosslyn to areas such as Ballston, the Memorial Bridge, the Tidal Basin, Fairfax, and Potomac Park.

Bike racks are available at the Rosslyn Metro station. There is a Capital Bikeshare station one block south of the site at the northwest corner of N Pierce Street and Clarendon Boulevard; several other Capital Bikeshare stations around the site vicinity are presented in Figure 9.

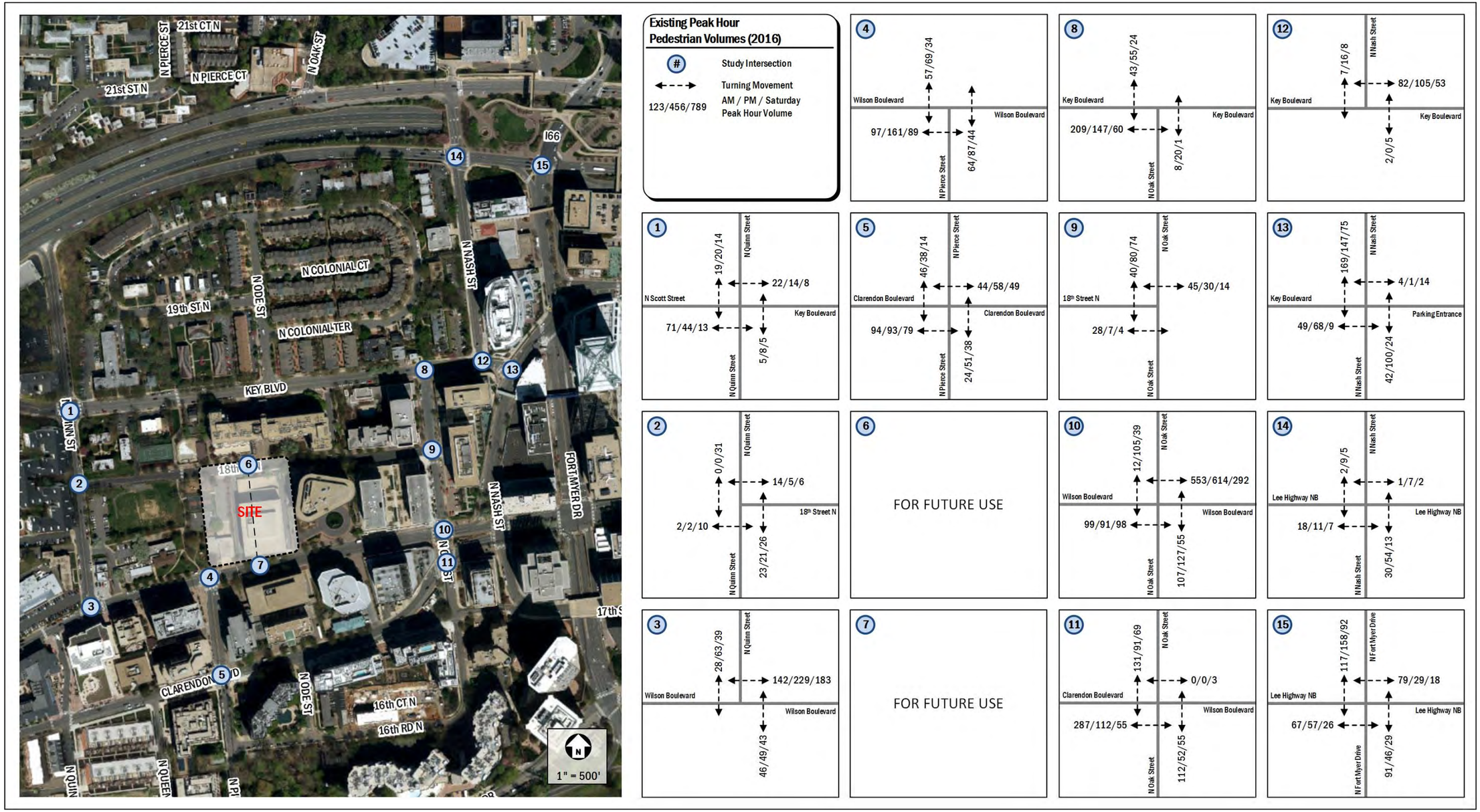



**Figure 8: Existing Pedestrian Peak Hour Volumes**


**Figure 9: Nearby Bicycle Facilities (Information from Arlington County Bike Map, July 2015)**

## *Existing Roadway Network*

A description of the roadways within the study area is presented below in Table 2. The existing local roadway network including lane configurations and intersection control is detailed in and illustrated in Figure 10.

**Table 2: Existing Roadway Network**

| Roadway | Classification* | Lanes | Speed | On-Street Parking | ADT** |
|---|---|---|---|---|---|
| Wilson Boulevard | Other Principal Arterial (VDOT)<br>Other Principal Arterial (Arlington) | 2-3 | 25 mph | Yes | 11,000 |
| Clarendon Boulevard | Other Principal Arterial (VDOT)<br>Other Principal Arterial (Arlington) | 2 | 25 mph | Yes | 12,000 |
| N Nash Street | Major Collector (VDOT)<br>Minor Arterial (Arlington) | 2-4 | Not Posted | Yes | 6,800 |
| Key Boulevard | Major Collector (VDOT)<br>Neighborhood Principal (Arlington) | 2 | Not Posted | Yes | 3,800 |
| N Pierce Street | Major Collector (VDOT)<br>Neighborhood Principal (Arlington) | 2 | Not Posted | Yes | 5,000 |
| N Quinn Street | Major Collector (VDOT)<br>Minor Arterial (Arlington) | 2 | Not Posted | Yes | 4,300 |
| 18th Street N | Not Classified (VDOT)<br>Neighborhood Minor (Arlington) | 2 | Not Posted | Yes | 1,220*** |
| N Oak Street | Minor Arterial (VDOT)<br>Neighborhood Principal (Arlington) | 2 | Not Posted | Yes | 2,510*** |
| N Fort Myer Drive | Minor Arterial (VDOT)<br>Other Principal Arterial (Arlington) | 2-4 | 30 mph | Yes | 13,000 |
| Lee Highway (NB leg) | Other Principal Arterial (VDOT)<br>Other Principal Arterial (Arlington) | 3 | 30 mph | No | 16,000 |
| N Scott Street | Not Classified (VDOT)<br>Minor Arterial (Arlington) | 2 | Not Posted | No | 4,000*** |

*Information supplied from VDOT and Arlington GIS
**VDOT ADT Data from 2014
***ADT calculated using a k factor of 0.10

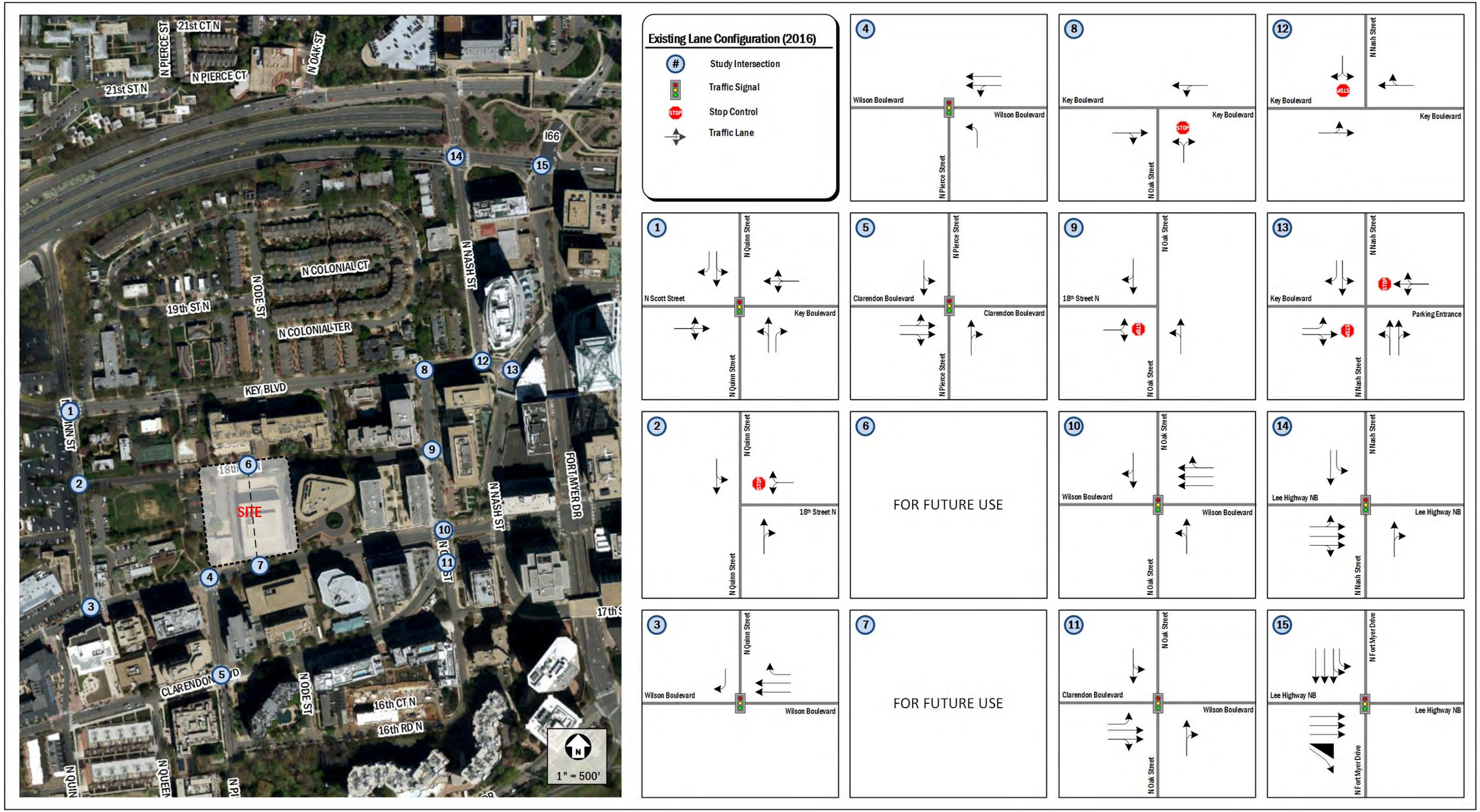
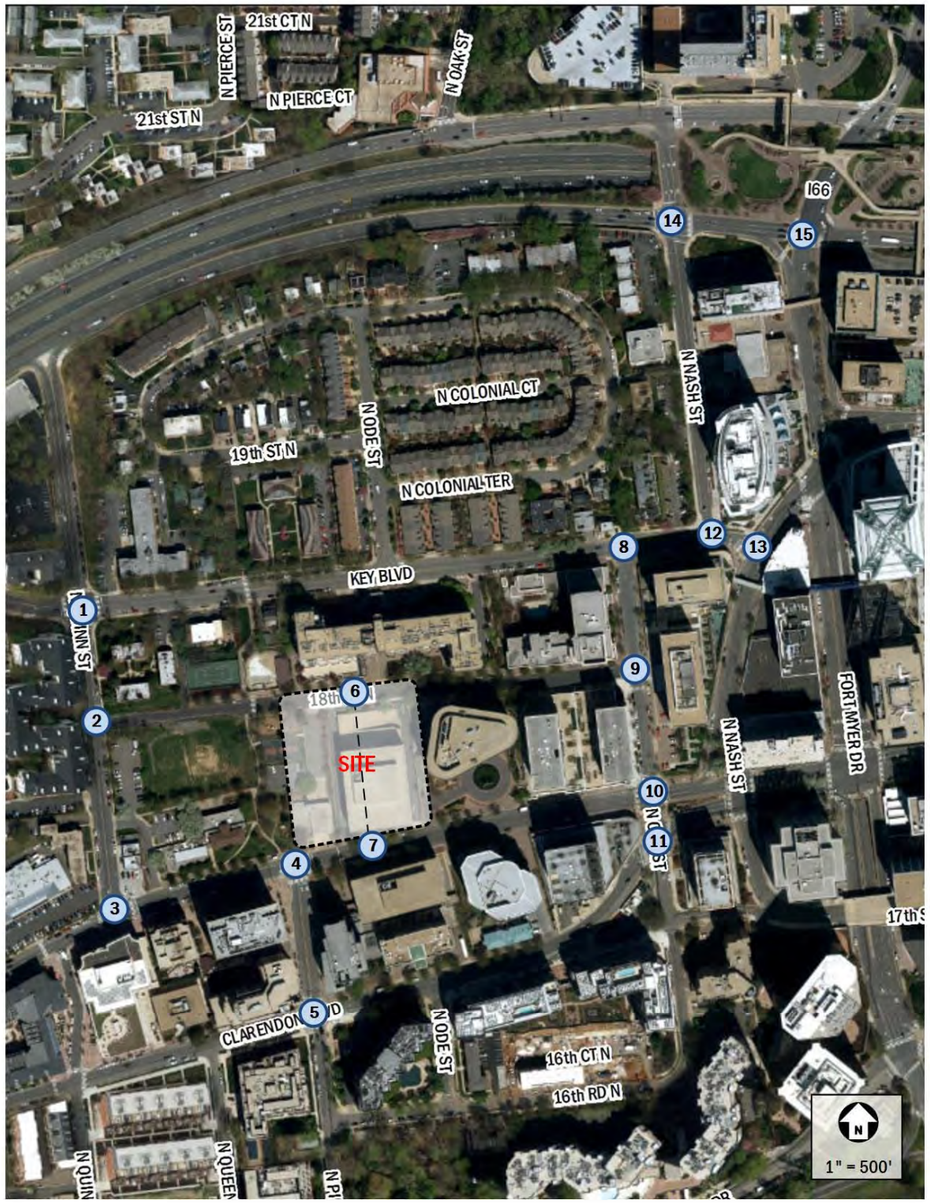



**Figure 10: Existing (2016) Local Roadway Network**

### *Existing Traffic Volumes*

Weekday AM and PM peak hour traffic counts were conducted at the study area intersections on Tuesday, February 23, 2016, Thursday, April 14, 2016, and Tuesday, April 19, 2016. Counts were collected previously at the intersections of N Quinn Street & Wilson Boulevard, N Pierce Street & Wilson Boulevard, and N Oak Street & Wilson Boulevard on Wednesday, April 1, 2015. Saturday counts were taken on March 5, 2016 and Saturday, April 2, 2016. Based on these traffic counts, the weekday system peak hours occurred from 8:15 AM to 9:15 AM and 5:00 PM to 6:00 PM, with the Saturday system peak hour occurring from 1:00 PM to 2:00 PM. It should be noted that there are locations where existing volumes do not balance due to driveways located between intersections. The existing peak hour traffic volumes for the intersections within the study area are shown in Figure 11. The existing turning movement counts are included in the Appendix B.




**Existing (2016) Peak Hour Volumes**

| | |
|---|---|
| # | Study Intersection |
| → | Turning Movement |
| 123/456/789 | AM / PM / Saturday Peak Hour Volume |

**4**
Wilson Boulevard: ← 389/733/438, ← 133/222/85
N Pierce Street: 187/192/180
Wilson Boulevard

**8**
Key Boulevard: ← 85/207/77, ← 56/61/53
522/77/71 →, 58/12/20 →
N Oak Street: 23/57/37, 154/87/44
Key Boulevard

**12**
Key Boulevard: 40/59/37, 20/76/30
N Nash Street: 55/84/32, 115/224/76
198/53/36 →, 486/129/75 →
Key Boulevard

**1**
N Scott Street: 26/27/35, 173/102/86, 423/45/27
N Quinn Street: 6/9/8, 92/169/55, 54/65/44
19/15/22 →, 82/18/15 →, 69/25/34 →
N Quinn Street: 136/146/97, 19/113/47, 32/52/40
Key Boulevard

**5**
Clarendon Boulevard: 25/95/42, 62/157/53
N Pierce Street
203/131/150 →, 1137/580/486 →, 23/54/26 →
N Pierce Street: 111/55/32, 70/32/11
Clarendon Boulevard

**9**
18th Street N: 28/14/11, 88/53/63
N Oak Street
59/30/11 →, 105/49/10 →
N Oak Street: 64/31/28, 126/115/72

**13**
Key Boulevard: 121/200/77, 283/195/120, 9/6/5
N Nash Street: 0/5/1, 0/4/1, 0/1/1
352/127/69 →, 3/4/5 →, 151/74/31 →
N Nash Street: 49/108/30, 271/258/80, 7/14/8
Parking Entrance

**2**
160/180/163 →, 145/14/5 →
N Quinn Street: 16/25/11, 7/18/7
18th Street N
N Quinn Street: 160/288/170, 40/10/8

**6**
FOR FUTURE USE

**10**
53/31/34 →, 127/78/36 →
N Oak Street: 52/55/42, 586/621/392
Wilson Boulevard
N Oak Street: 80/74/66, 139/95/48
Wilson Boulevard

**14**
30/23/14 →, 101/78/57 →
N Nash Street
Lee Highway NB
22/41/35 →, 1196/908/821 →, 18/61/48 →
N Nash Street: 30/43/20, 171/105/50
Lee Highway NB

**3**
Wilson Boulevard: 161/169/181 →
N Quinn Street: 152/231/187, 334/579/392
Wilson Boulevard

**7**
FOR FUTURE USE

**11**
Clarendon Boulevard: 49/36/17 →, 78/42/19 →
N Oak Street
151/115/77 →, 804/626/412 →, 3/3/4 →
N Oak Street: 68/54/37, 45/47/34
Wilson Boulevard

**15**
Lee Highway NB: 807/816/573 →, 295/520/383 →
N Fort Myer Drive
1352/902/742 →, 116/189/186 →
N Fort Myer Drive
Lee Highway NB

Figure 11: Existing (2016) Traffic Volumes

## *Existing Capacity Analysis*

Capacity analyses were performed for the intersections within the study area during the weekday AM, weekday PM, and Saturday peak hours under existing conditions. *Synchro, Version 9.1* was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology and include level of service, delay, and queue length comparisons for the turning movements analyzed.

Peak hour factors were applied in accordance with *Traffic Impact Analysis Regulations Administrative Guidelines* prepared by VDOT and *Traffic Operations and Safety Analysis Manual (TOSAM)* prepared by VODOT dated July 2012 and November 2015, respectively. As such, peak hour factors by approach between 0.85 and 1.00 were used for the existing year analysis. Where the calculated peak hour factor based on the existing turning movement counts was greater than 0.85, the calculated factor was applied. Where the calculated PHF was 0.85 or less, a factor of 0.85 was used.

Existing signal timings were provided by Arlington County for signalized intersections in the study area.

The results of the intersection capacity analyses are presented in Table 3, and are expressed in level of service (LOS) and delay (seconds per vehicle) per lane group and presented in Figure 12. The 95% and 50% queue results for each intersection are also presented in Table 3, and are expressed in feet. The detailed analysis worksheets are included in Appendix C.

For the purpose of this analysis, it is desirable to achieve a level of service (LOS) of D or better for each lane group at the intersections. The capacity analysis results indicate that all movements operate at acceptable LOS under existing conditions with the exception of the following:

- N Quinn Street and Wilson Boulevard
  - Southbound right lane (AM peak hour)
- N Oak Street and Key Boulevard
  - Northbound left/right lane (AM peak hour)
- N Oak Street and Wilson Boulevard
  - Northbound left/thru lane (AM peak hour)
- N Nash Street (east) and Key Boulevard (AM peak hour)
  - Eastbound left lane (AM and PM peak hour)
- N Nash Street and Lee Highway
  - Southbound left lane (AM peak hour)

None of the movements listed above cause the intersections to operate below acceptable LOS thresholds with the exception of the intersection of N Nash Street (east) and Key Boulevard in the AM peak hour. Signalization as mitigation at this intersection is considered in the signal warrant analysis section.

## Table 3: Existing Capacity Analysis

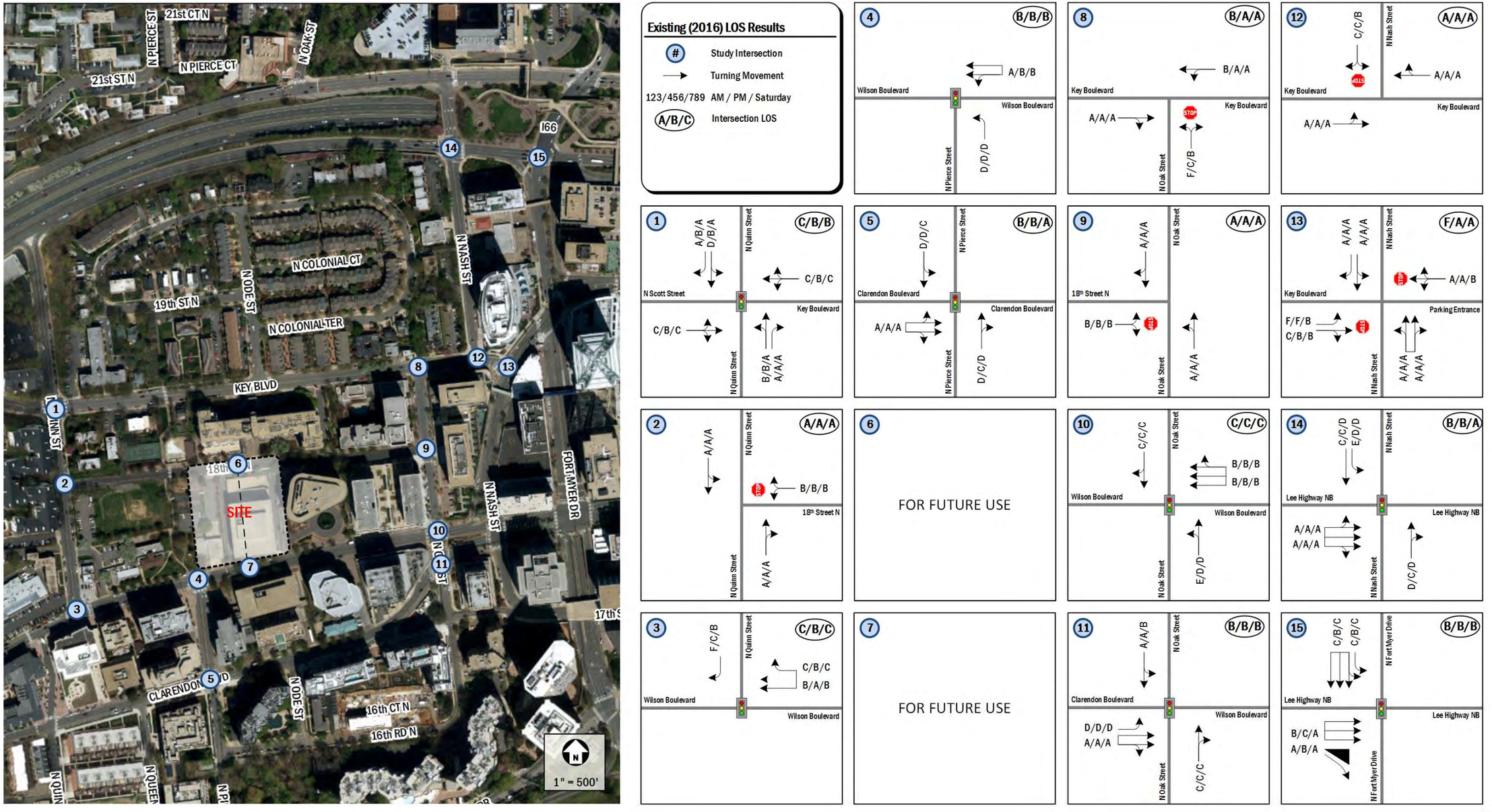
| | Intersection (Movement) | Storage Length (ft) | Existing 2016 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | PM Peak | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th | 95th | LOS | Delay | Queue 50th | 95th | LOS | Delay | Queue 50th | 95th |
| 1 | **N Quinn Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **32.4** | | | **B** | **15.5** | | | **B** | **13.6** | | |
| | Eastbound Left/Thru/Right | 500 | C | 31.0 | 77 | 132 | B | 15.6 | 13 | 35 | C | 26.3 | 19 | 51 |
| | Westbound Left/Thru/Right | 315 | C | 32.9 | 82 | 143 | B | 19.6 | 106 | 164 | C | 28.7 | 55 | 98 |
| | Northbound Left/Thru | 200 | B | 17.6 | 60 | 98 | B | 13.0 | 70 | 194 | A | 5.1 | 28 | 29 |
| | Northbound Right | 50 | A | 2.3 | 0 | 4 | A | 3.7 | 2 | m9 | A | 1.5 | 0 | m2 |
| | Southbound Left/Thru | 525 | D | 39.1 | 340 | #550 | B | 17.2 | 56 | 99 | A | 8.3 | 30 | 53 |
| | Southbound Right | 75 | A | 7.6 | 0 | 7 | B | 14.9 | 0 | 11 | A | 7.6 | 0 | 11 |
| 2 | **N Quinn Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **2.8** | | | **A** | **1.2** | | | **A** | **0.6** | | |
| | Westbound Left/Right | 315 | B | 12.3 | -- | 5 | B | 11.8 | -- | 8 | B | 10.7 | -- | 3 |
| | Northbound Thru/Right | 375 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Left/Thru | 200 | A | 8.2 | -- | 13 | A | 8.0 | -- | 0 | A | 7.7 | -- | 0 |
| 3 | **N Quinn Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **34.4** | | | **B** | **14.6** | | | **C** | **21.3** | | |
| | Westbound Thru | 325 | B | 10.0 | 60 | 61 | A | 9.1 | 100 | 76 | B | 18.2 | 111 | 100 |
| | Westbound Right | 85 | C | 23.8 | 9 | 28 | B | 18.1 | 10 | 18 | C | 34.7 | 39 | 35 |
| | Southbound Right | 375 | F | 93.8 | 9 | m15 | C | 29.3 | 44 | 107 | B | 14.5 | 79 | 128 |
| 4 | **N Pierce Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **12.5** | | | **B** | **17.8** | | | **B** | **19.8** | | |
| | Westbound Left/Thru | 675 | A | 3.9 | 41 | 58 | B | 13.6 | 245 | 317 | B | 12.3 | 123 | 181 |
| | Northbound Left | 250 | D | 37.7 | 96 | 162 | D | 36.2 | 108 | 161 | D | 40.0 | 117 | 170 |
| 5 | **N Pierce Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **13.6** | | | **B** | **18.4** | | | **A** | **8.6** | | |
| | Eastbound Left/Thru | 500 | A | 8.1 | 189 | 339 | A | 9.1 | 115 | 154 | A | 3.6 | 58 | 99 |
| | Eastbound Thru/Right | 500 | A | 8.1 | 189 | 339 | A | 9.1 | 115 | 154 | A | 3.6 | 58 | 99 |
| | Northbound Thru/Right | 185 | D | 39.5 | 92 | 147 | C | 26.6 | 31 | 66 | D | 36.6 | 20 | 46 |
| | Southbound Left/Thru | 250 | D | 41.1 | 24 | 64 | D | 41.1 | 160 | #271 | C | 30.6 | 21 | 48 |
| 8 | **N Oak Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **B** | **13.6** | | | **A** | **5.5** | | | **A** | **4.4** | | |
| | Eastbound Thru/Right | 285 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Westbound Left/Thru | 150 | B | 10.8 | -- | 8 | A | 8.1 | -- | 5 | A | 7.8 | -- | 3 |
| | Northbound Left/Right | 200 | F | 65.1 | -- | 165 | C | 16.0 | -- | 35 | B | 11.2 | -- | 13 |
| 9 | **N Oak Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **5.7** | | | **A** | **3.8** | | | **A** | **2.2** | | |
| | Eastbound Left/Right | 850 | B | 13.1 | -- | 33 | B | 10.8 | -- | 10 | B | 10.0 | -- | 3 |
| | Northbound Left/Thru | 200 | A | 7.8 | -- | 8 | A | 7.7 | -- | 3 | A | 7.7 | -- | 3 |
| | Southbound Thru/Right | 200 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| 10 | **N Oak Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **30.2** | | | **C** | **25.9** | | | **C** | **23.2** | | |
| | Westbound Thru | 125 | B | 19.7 | 106 | 130 | B | 19.1 | 109 | 138 | B | 16.0 | 56 | 81 |
| | Westbound Thru/Right | 75 | B | 19.7 | 106 | 130 | B | 19.1 | 109 | 138 | B | 16.0 | 56 | 81 |
| | Northbound Left/Thru | 25 | E | 58.4 | 147 | m#228 | D | 50.2 | 116 | 176 | D | 47.6 | 64 | 130 |
| | Southbound Thru/Right | 200 | C | 34.9 | 95 | m144 | C | 29.0 | 50 | 93 | C | 25.7 | 19 | 51 |
| 11 | **N Oak Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **14.6** | | | **B** | **14.4** | | | **B** | **15.6** | | |
| | Eastbound Left | 75 | D | 52.7 | 78 | m#171 | D | 47.7 | 70 | m119 | D | 51.1 | 49 | 95 |
| | Eastbound Thru/Right | 550 | A | 6.2 | 66 | 64 | A | 6.9 | 64 | m90 | A | 7.3 | 45 | 58 |
| | Northbound Thru/Right | 825 | C | 29.2 | 45 | 88 | C | 28.2 | 33 | 72 | C | 27.3 | 20 | 52 |
| | Southbound Left/Thru | 25 | A | 8.1 | 8 | 10 | A | 7.0 | 8 | 9 | B | 11.4 | 9 | 11 |
| 12 | **N Nash Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **3.1** | | | **A** | **4.4** | | | **A** | **3.4** | | |
| | Eastbound Left/Thru | 135 | A | 8.5 | -- | 15 | A | 8.5 | -- | 6 | A | 7.7 | -- | 3 |
| | Westbound Thru/Right | 65 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Left/Right | 650 | C | 19.0 | -- | 20 | C | 15.7 | -- | 35 | B | 10.3 | -- | 8 |
| 13 | **N Nash Street (east) and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **F** | **102.1** | | | **A** | **8.8** | | | **A** | **3.6** | | |
| | Eastbound Left | 65 | F | 351.4 | -- | 658 | F | 50.4 | -- | 105 | B | 12.3 | -- | 13 |
| | Eastbound Thru/Right | 65 | C | 19.7 | -- | 53 | B | 14.7 | -- | 18 | B | 10.5 | -- | 5 |
| | Westbound Left/Thru/Right | 25 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | B | 11.2 | -- | 0 |

| | Intersection (Movement) | Storage Length (ft) | Existing 2016 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | | PM Peak | | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th |
| | Northbound Left/Thru | 400 | A | 9.0 | -- | 5 | A | 8.7 | -- | 10 | A | 7.8 | -- | 3 |
| | Northbound Thru/Right | 400 | A | 0.2 | -- | 0 | A | 0.3 | -- | 0 | A | 0.1 | -- | 0 |
| | Southbound Left/Thru | 150 | A | 8.7 | -- | 0 | A | 8.6 | -- | 0 | A | 7.6 | -- | 0 |
| | Southbound Right | 150 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| **14** | **N Nash Street and Lee Highway** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **16.2** | | | **B** | **11.8** | | | **A** | **9.1** | | |
| | Eastbound Left/Thru | 1450 | A | 6.9 | 113 | 172 | A | 4.8 | 66 | 113 | A | 3.3 | 49 | 79 |
| | Eastbound Thru | 1450 | A | 6.9 | 113 | 172 | A | 4.8 | 66 | 113 | A | 3.3 | 49 | 79 |
| | Eastbound Thru/Right | 1450 | A | 6.9 | 113 | 172 | A | 4.8 | 66 | 113 | A | 3.3 | 49 | 79 |
| | Northbound Thru/Right | 650 | D | 45.7 | 103 | m134 | C | 34.1 | 28 | 76 | D | 45.3 | 14 | 51 |
| | Southbound Left | 125 | E | 64.9 | 65 | 111 | D | 46.6 | 50 | 87 | D | 42.5 | 36 | 69 |
| | Southbound Thru | 125 | C | 30.6 | 17 | 36 | C | 33.5 | 14 | 32 | D | 37.1 | 8 | 24 |
| **15** | **N Fort Myer Drive and Lee Highway NB** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **17.5** | | | **B** | **17.9** | | | **B** | **17.1** | | |
| | Eastbound Thru | 225 | B | 10.8 | 129 | 136 | C | 20.1 | 180 | 126 | A | 9.0 | 52 | 66 |
| | Eastbound Right | 70 | A | 7.4 | 18 | 29 | B | 17.8 | 49 | 79 | A | 8.2 | 14 | 44 |
| | Southbound Left | 250 | C | 31.9 | 134 | 239 | B | 18.0 | 141 | 219 | C | 24.4 | 46 | 122 |
| | Southbound Left/Thru | 250 | C | 26.3 | 154 | 198 | B | 16.0 | 160 | 188 | C | 25.1 | 121 | 161 |

m - Volume for 95th percentile queue is metered by upstream signal

# - 95th percentile volume exceeds capacity, queue may be longer

~ - Volume exceeds capacity, queue is theoretically infinite




**Existing (2016) LOS Results**

- (#) Study Intersection
- → Turning Movement
- 123/456/789 AM / PM / Saturday
- (A/B/C) Intersection LOS




**Figure 12: Existing (2016) LOS Results**

## FUTURE CONDITIONS WITHOUT DEVELOPMENT (2019)

### *Planned Transportation Network Improvements*

Three projects are planned in the vicinity of the subject site in the near future may impact some of the study area intersections. As stated in the *Rosslyn Sector Plan* adopted in July 2015 by the County of Arlington, the county plans to extend 18th Street east from N Quinn Street in order to create a central spine and link together destinations such as the Metro Station and Potomac River across Rosslyn. The 18th Street Corridor will offer a protected pedestrian environment with amenities typical found along a street frontage.

N Fort Myer Drive is planned to undergo a transformation with the current one-way configuration being converted into a two-way street. Included in this transformation is the removal of the N Fort Myer Drive tunnel that currently runs under Wilson Boulevard. It is thought that these improvements will enhance the walkablility of these streets. The timeline and funding for these two improvement projects are unknown at this time; therefore, not included in this study.

A planned improvement included in the Rosslyn Sector plan is included with the opening of the West Rosslyn development. A new street will bisect the development into an eastern and western parcel and create a connection between 18th Street N and Wilson Boulevard.

### *Future without Development Traffic Volumes*

The proposed mixed use development is anticipated to be completed in 2019. According to historical data provided by VDOT, there has been negative or no growth along streets within the study areas in recent years. As a conservative measure, a regional growth rate of 0.5% annually has been applied for 2019 and 2025 scenarios. Additional traffic volumes added to the network from the background growth rate are presented in Figure 14.

In addition to the regional background growth, ten developments in the vicinity of the site were taken into consideration. As discussed at the scoping meeting, the following ten developments were included in the analysis and their locations relative to West Rosslyn can be found in Figure 13:

- **Rosslyn Gateway**: The site is bounded by Lee Highway to the north, N Moore Street to the east, 19th Street N to the south and N Fort Myer Drive to the west. It is a mixed-use development that will consist of approximately 500,000 square feet of office space, a hotel with 148 rooms, 273 multi-family units, and 26,000 square feet of retail. The project is expected to generate 536 weekday AM peak hour vehicle trips, 647 PM peak hour vehicle trips, and 455 Saturday peak hour vehicle trips.
- **Central Place**: Central Place is located adjacent to N Moore Street and N Lynn Street and bordered by 19th Street N on the north. The mixed-used development consists of 350 condominium units, 45,000 square feet of retail, and approximately 570,000 square feet of office space. The project is expected to generate 444 weekday AM peak hour vehicle trips, 463 PM peak hour vehicle trips, and 233 Saturday peak hour vehicle.
- **Rosslyn Plaza**: Rosslyn Plaza is located between N. Kent Street and N. Arlington Ridge Road in the southeast corner of Rosslyn. Phase one will be completed by 2018 and full build-out for the site was anticipated for 2021 and will include 1,900,000 square feet of office space, 50,000 square feet of retail space, 300 hotel rooms, and 600 multi-family units. The project is expected to generate 556 net weekday AM peak hour vehicle trips, 678 net weekday PM peak hour vehicle trips, and 471 net Saturday peak hour vehicle trips based on the Traffic Impact Study prepared by Wells & Associates dated December 24, 2015.

- **1411 Key Boulevard:** 1411 Key Boulevard is located in on the north side of Key Boulevard, west of N Nash Street. The project will redevelop existing property that consists of 32 rental apartments and one single-family residence into 63 residential dwelling units that include 57 residential condominiums and six townhomes. With an expected build-out date of 2019, the project is expected to generate 20 net weekday AM peak hour vehicle trips, 24 net weekday PM peak hour vehicle trips, and 31 Saturday peak hour vehicle trips based on the Traffic Impact Analysis Report prepared by Wells & Associates dated October 6, 2014.
- **1401 Wilson Boulevard:** The site is by bounded by Key Boulevard on the north, Wilson Boulevard by the south, and by N Oak Street on the west. The current two 12-story buildings on the property would be razed to create a mixed-use development with over 500,000 square feet of office space, a 40,000 square foot grocery store, 18,000 square feet of retail, and 288 residential units. It is expected to be open by 2019. The project is expected to generate 353 net weekday AM peak hour vehicle trips, 485 weekday PM peak hour vehicle trips, and 430 Saturday peak hour vehicle trips.
- **Colony House:** The site is located in at the southwest corner of Lee Highway and N Quinn Street (1700 Lee Highway). It will replace a 31,644 square foot furniture store with a 168-room all-suites, extended-stay hotel. The project is expected to generate 38 net weekday AM peak hour vehicle trips, 40 net weekday PM peak hour vehicle trips, and 73 net Saturday peak hour vehicle trips based on the Traffic Impact Study prepared by Gorove/Slade Associates dated January 31, 2012.
- **Pierce Queen Apartments:** The development is located in Rosslyn bound by 15th Street N, Fairfax Drive, N Pierce Street, and N Queen Street. It is expected to be open by late 2016 and will consist of 196 residential units. The project is expected to generate 61 weekday AM peak hour vehicle trips and 77 weekday PM peak hour vehicle trips based on the Traffic Impact Analysis Report prepared by Wells & Associates dated July 13, 2012.
- **APAH Queens Court:** The development is located on N Quinn Street between 18th Street N and Key Boulevard. This project will see the redevelopment of an existing affordable housing complex containing 39 residential units into a larger residential property containing 251 residential units. It is expected to be open by 2020 and will consist of 251 residential units. The project is expected to generate 28 net weekday AM peak hour vehicle trips, 23 net weekday PM peak hour vehicle trips, and 14 net Saturday peak hour vehicle trips based on the Scoping Form prepared by Gorove/Slade Associates dated March 1, 2016.
- **1812 N Moore Street**: This development is located along N Moore Street between 19th Street N and Wilson Boulevard. It will consist of 570,000 square feet of office space and 11,000 square feet of retail. The project is expected to generate 382 weekday AM peak hour vehicle trips, 372 weekday PM peak hour vehicle trips, and 144 Saturday peak hour vehicle trips.
- **Wilson School:** The school, located at 1601 Wilson Boulevard will be razed and redeveloped into a larger school serving more students. The school will serve approximately 950 students from grades 6-12, along with visitors and staff. The project is expected to generate 364 weekday AM peak hour vehicle trips, 295 weekday PM peak hour vehicle trips, and 44 Saturday peak hour vehicle trips based on the Trip Generation and Trip assignment prepared by Toole Design Group dated March 30, 2016. Due to the Wilson School's PM peak hour falling outside of the PM study peak hour, PM school trips were reduced to 60%.

The total traffic generated by the background developments are presented in Figure 15. Diagrams showing the trips generated by each background development are presented in Appendix D.

Trips generated by the approved background developments were added to the existing traffic volume with approved growth rates in order to generate future conditions without development (2019) traffic volumes. The Future without Development (2019) traffic volumes are shown in Figure 16.

**Table 4: Traffic Generated by Background Developments**

| Land Use | ITE Code | Size | Weekday | | | | | | | Weekend | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | Daily | Sat Peak Hour | | Daily |
| | | | *In* | *Out* | *Total* | *In* | *Out* | *Total* | *Total* | *In* | *Out* | *Total* |
| Rosslyn Gateway [1] | | | | | | | | | | | | |
| Total New Vehicle-Trips | | | 407 | 129 | 536 | 213 | 434 | 647 | | 240 | 215 | 455 |
| Central Place [2] | | | | | | | | | | | | |
| Total New Vehicle-Trips | | | 348 | 96 | 444 | 124 | 339 | 463 | | 125 | 108 | 233 |
| Rosslyn Plaza [3] | | | | | | | | | | | | |
| Total Development Trips | | | 1,992 | 585 | 2,577 | 889 | 2,245 | 3,134 | | 985 | 868 | 1853 |
| Total New External Trips | | | 388 | 168 | 556 | 232 | 446 | 678 | | 263 | 208 | 471 |
| 1411 Key Boulevard [4] | | | | | | | | | | | | |
| Net New Residential Site Trips | | | 4 | 17 | 21 | 17 | 8 | 20 | 249 | 19 | 12 | 31 |
| 1401 Wilson Boulevard and 1400 Key Boulevard [5] | | | | | | | | | | | | |
| Total Net New Vehicle-Trips | | | 266 | 87 | 353 | 150 | 335 | 485 | | 223 | 207 | 430 |
| Colony House [6] | | | | | | | | | | | | |
| Total Trips | | | 21 | 16 | 38 | 18 | 22 | 40 | 494 | 41 | 32 | 73 |
| Pierce Queen Apartments [7] | | | | | | | | | | | | |
| Total Trips | | | 12 | 49 | 61 | 50 | 27 | 77 | 803 | 31 | 30 | 61 |
| APAH Queens Court [8] | | | | | | | | | | | | |
| Proposed Residential | | | | | | | | | | | | |
| *Net New Trips* | | | 5 | 23 | 28 | 0 15 | 8 | 23 | 298 | 6 | 8 | 14 |
| 1812 North Moore Street [9] | | | | | | | | | | | | |
| Total New Vehicle-Trips | | | 335 | 47 | 382 | 68 | 304 | 372 | | 77 | 67 | 144 |
| Wilson School [10] | | | | | | | | | | | | |
| Total | | | 227 | 137 | 364 | 104 | 191 | 295 | | 27 | 17 | 44 |
| Total Background Trips | | | 2,013 | 769 | 2,783 | 991 | 2,114 | 3,100 | 1,844 | 1,052 | 909 | 1,941 |

(1), (2), (5), (9): Extracted from Rosslyn Plaza TIA (Updated TIA Submission 12.24.15) prepared by Wells + Associates

(6) Extracted from 1700 Lee Highway (1.31.12) TIA prepared by Gorove Slade Associates

(7): Extracted from Pierce Queen Apartments TIA (07.13.2012) prepared by Wells + Associates

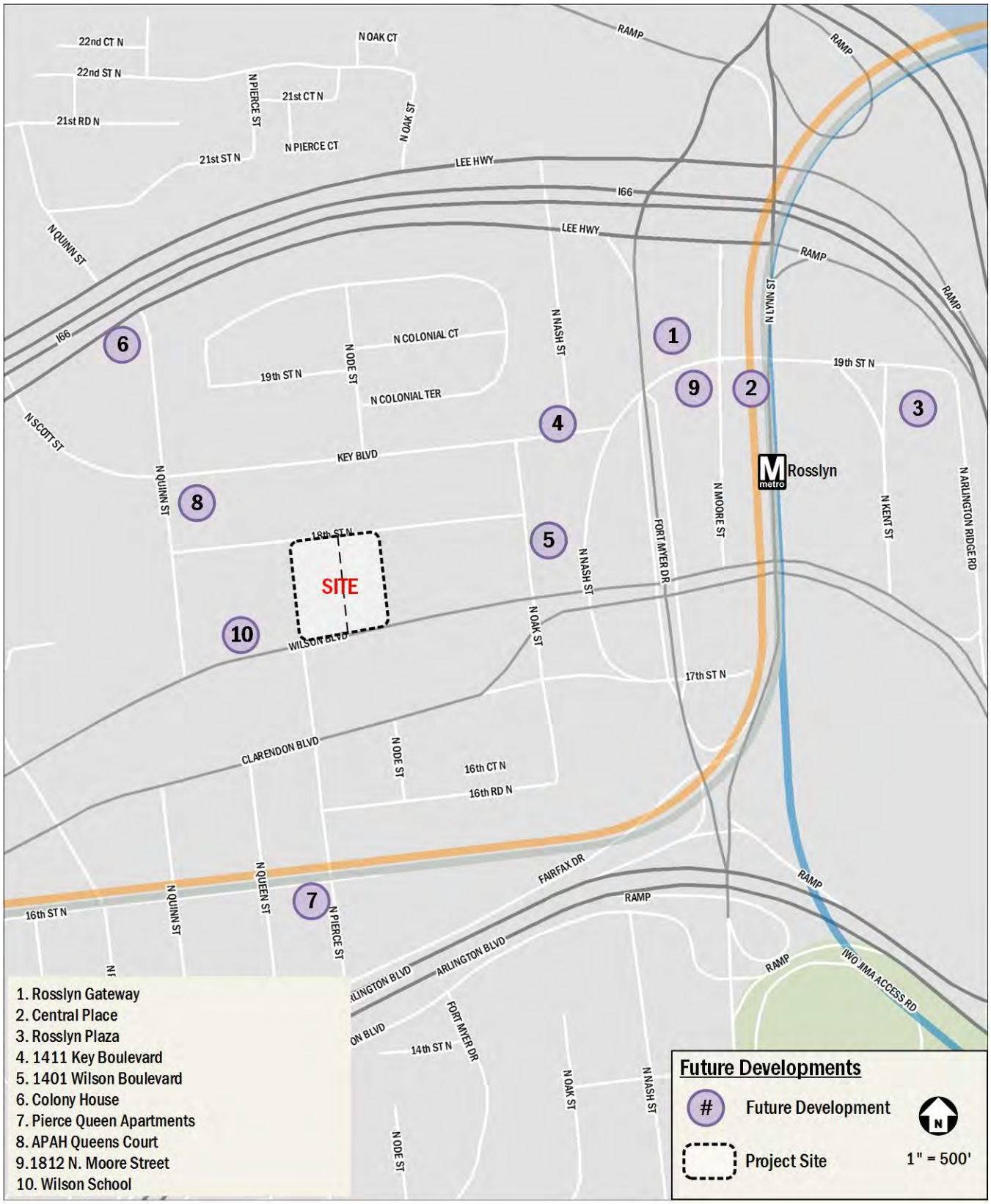
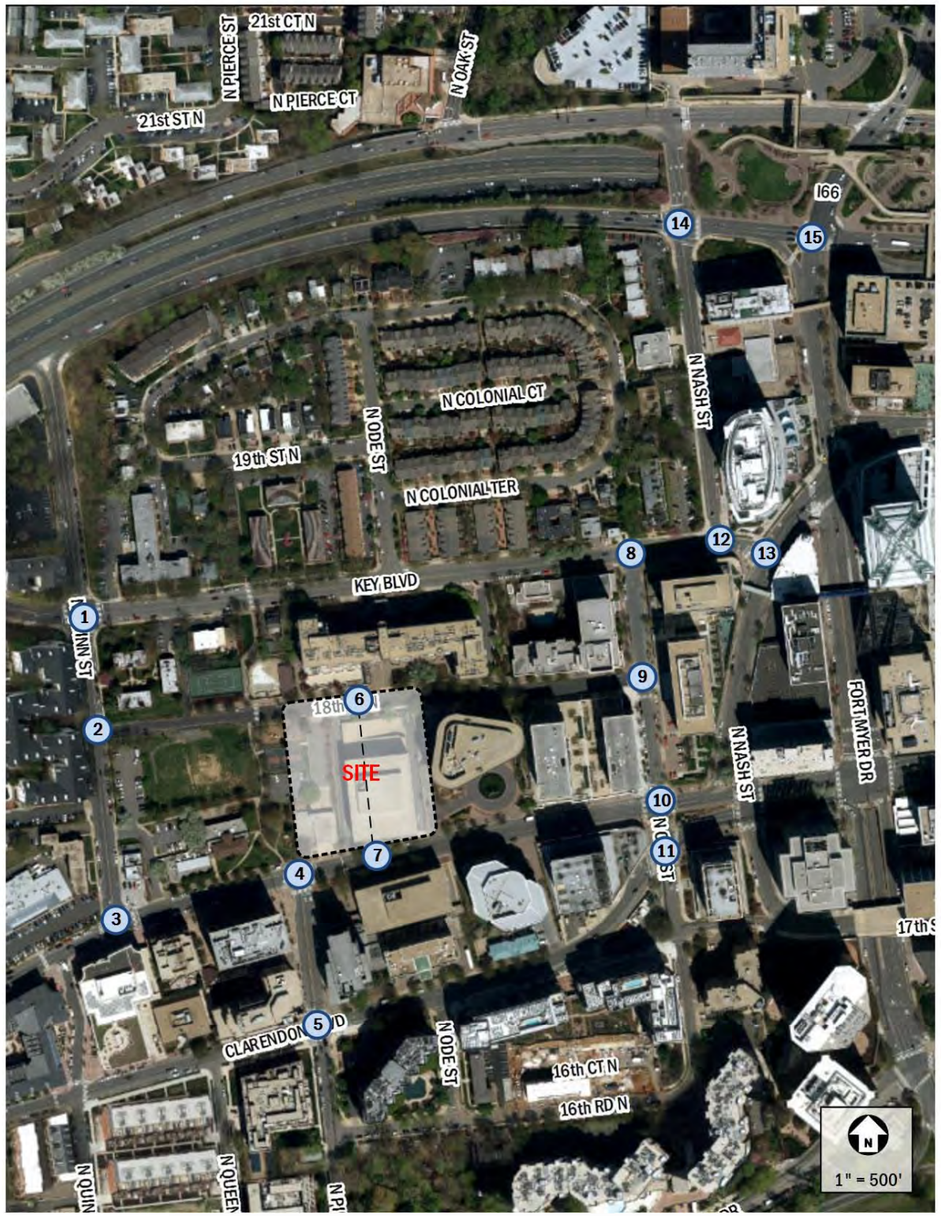



**Figure 13: Future Background Developments**




**Background Growth (2019) Peak Hour Volumes**

| | |
|---|---|
| # | Study Intersection |
| → | Turning Movement |
| 123/456/789 | AM / PM / Saturday Peak Hour Volume |

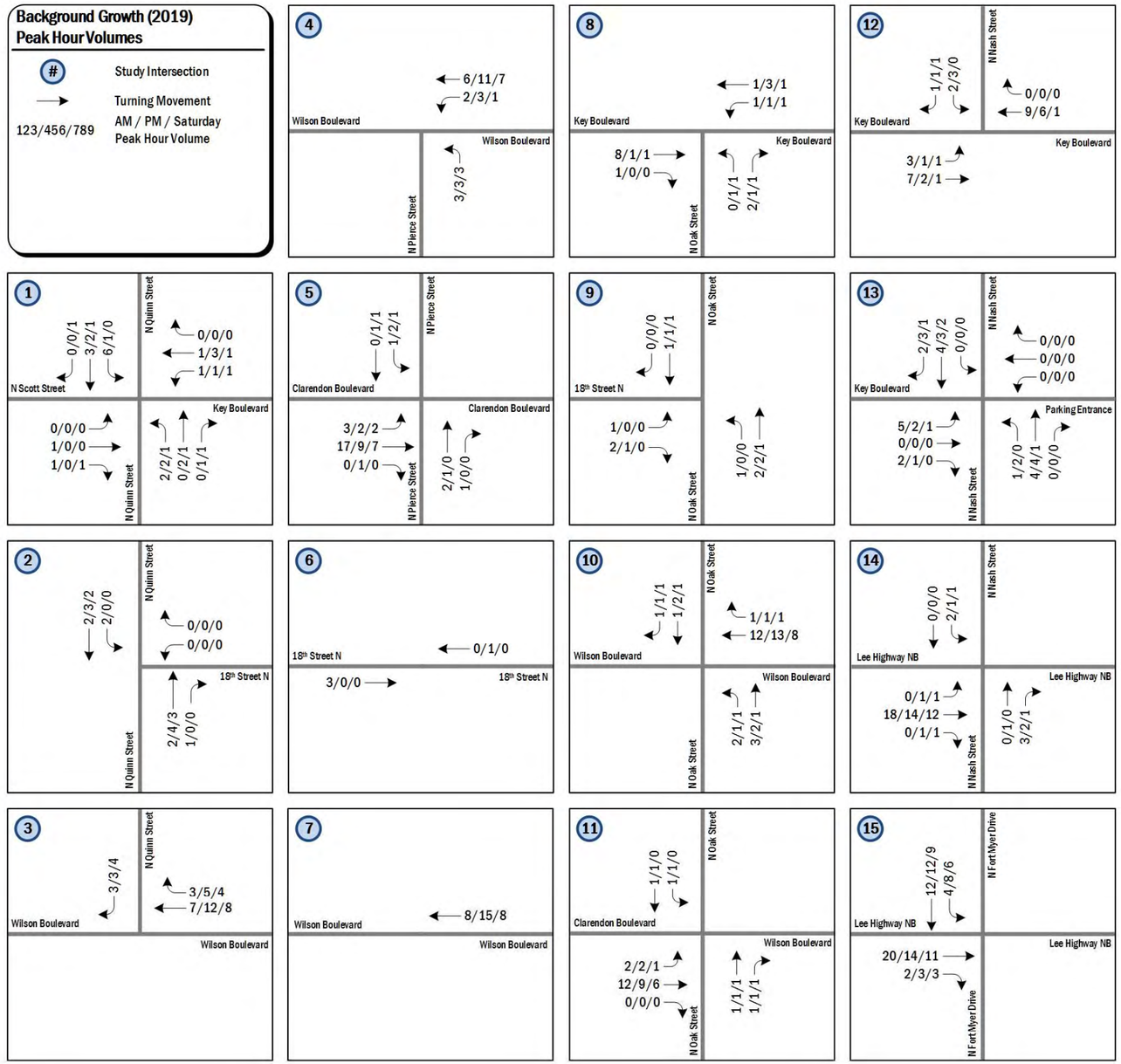



**Figure 14: Background Growth (2019) Traffic Volumes**

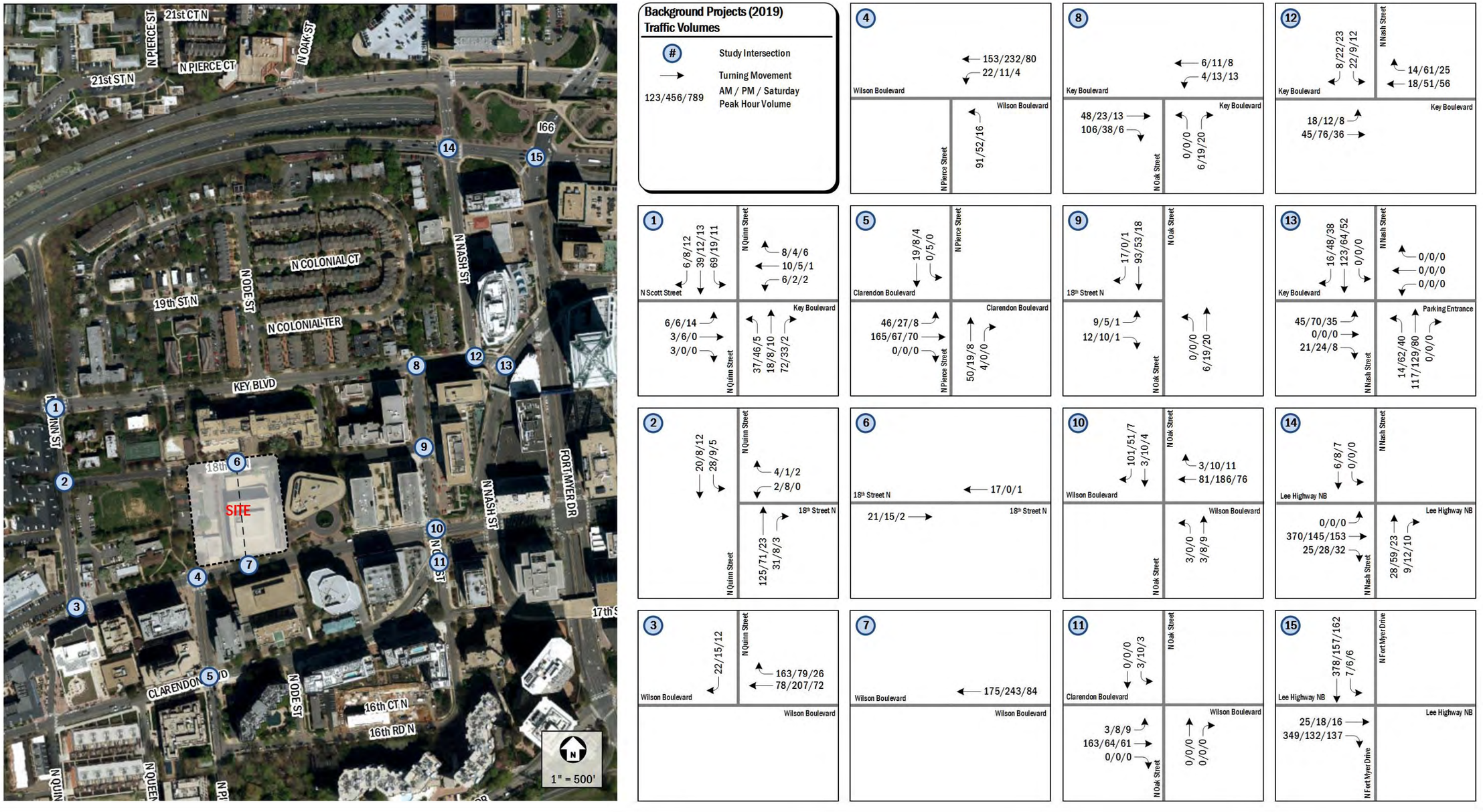



**Figure 15: Background Development (2019) Traffic Volumes**

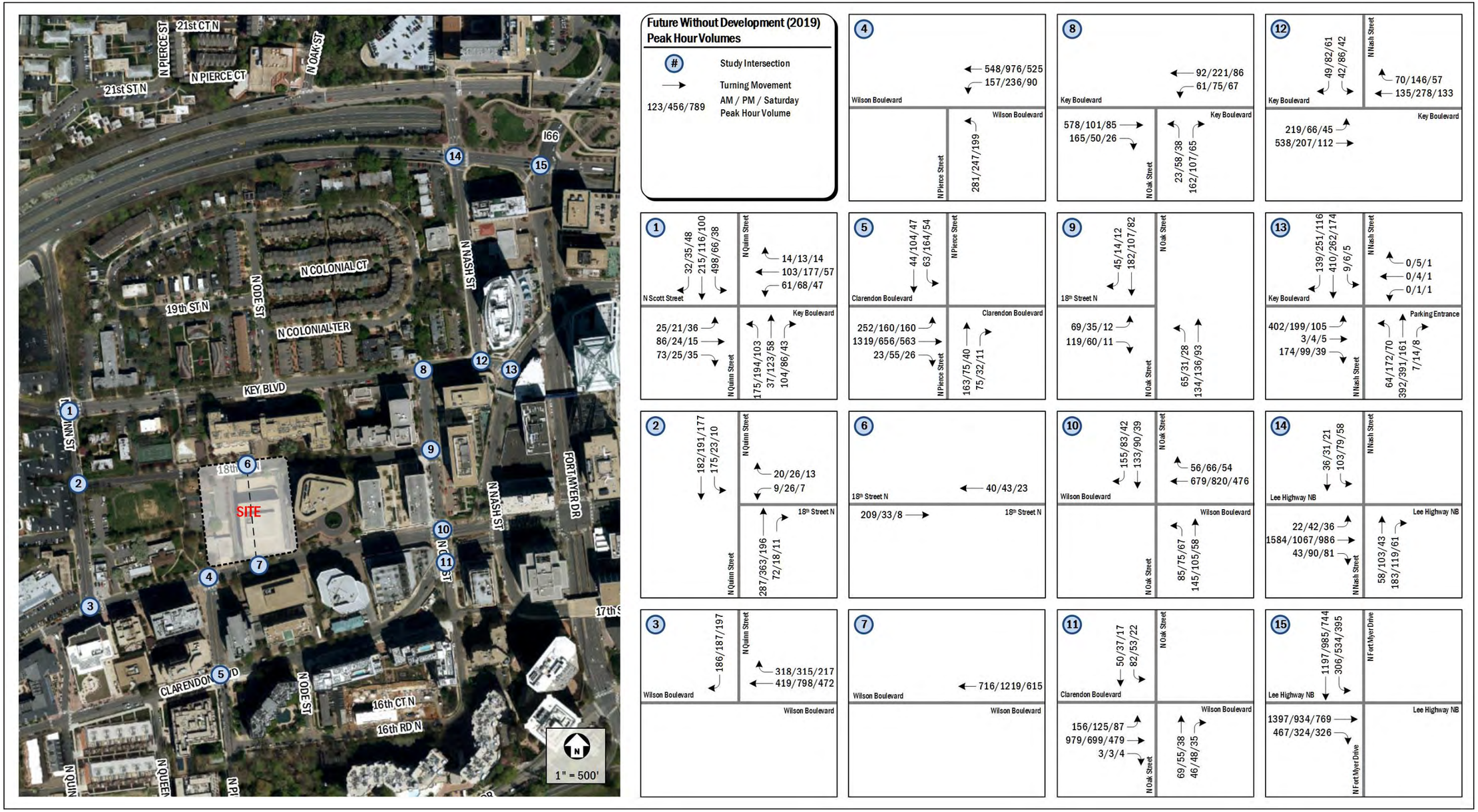



**Figure 16: Future without Development (2019) Traffic Volumes**

### *Future without Development Capacity Analysis*

Capacity analyses were performed at the intersections within the study area during the weekday AM, weekday PM, and Saturday peak hours for the future conditions without development scenario. *Synchro, Version 9.1* was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology and include level of service, delay, and queue length comparisons for the turning movements analyzed.

Peak hour factors were applied in accordance with *Traffic Impact Analysis Regulations Administrative Guidelines* prepared by VDOT dated July 2012. As such, peak hour factors by approach between 0.92 and 1.00 were used for all future scenarios. Where the calculated peak hour factor based on the existing turning movement counts was greater than 0.92, the calculated factor was applied. Where the calculated factor was 0.92 or less, a factor of 0.92 was applied.

The results of the intersection capacity analysis are presented in Table 5, and are expressed in level of service (LOS) and delay (seconds per vehicle) per lane group. The 95% and 50% queue results for each intersection are also presented in Table 5, and are expressed in feet. The detailed analysis worksheets are contained in Appendix E.

For the purpose of this analysis, it is desirable to achieve a level of service (LOS) of D or better for each lane group at the intersections. All movements at the study intersections operate at acceptable levels of service consistent with the Existing Conditions scenario, with the exception of the following:

- N Quinn Street and Key Boulevard
  - Southbound left/thru lane (AM peak hour)
- N Pierce Street and Clarendon Boulevard
  - Southbound left/thru lane (AM peak hour)
- N Oak Street and Clarendon Boulevard
  - Eastbound left lane (AM peak hour)
- N Nash Street (east) and Key Boulevard (PM peak hour)
- N Nash Street and Lee Highway
  - Southbound left lane (PM peak hour)

None of the movements listed above cause the intersections to operate below acceptable LOS thresholds with the exception of the intersection of N Nash Street (east) and Key Boulevard in the PM peak hour. Signalization as mitigation at this intersection is considered in the signal warrant analysis section.

## Table 5: Future without Development (2019) Capacity Results

| | Intersection (Movement) | Storage Length | Future Without Development (2019) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | PM Peak | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th 95th | LOS | Delay | Queue 50th 95th | LOS | Delay | Queue 50th 95th | |
| 1 | **N Quinn Street and Key Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **D** | **54.1** | | **B** | **16.9** | | **B** | **13.6** | | |
| | Eastbound Left/Thru/Right | 500 | C | 31.3 | 77 144 | B | 15.7 | 16 43 | C | 26.8 | 25 64 | |
| | Westbound Left/Thru/Right | 315 | C | 34.6 | 92 162 | B | 19.6 | 106 172 | C | 28.8 | 55 105 | |
| | Northbound Left/Thru | 200 | D | 49.6 | 85 #274 | B | 17.0 | 91 195 | A | 5.0 | 28 31 | |
| | Northbound Right | 50 | A | 1.8 | 0 5 | A | 6.7 | 3 m18 | A | 1.5 | 0 m1 | |
| | Southbound Left/Thru | 525 | E | 75.9 | ~497 717 | B | 18.6 | 72 125 | A | 8.5 | 35 62 | |
| | Southbound Right | 75 | A | 7.6 | 0 10 | B | 15.0 | 0 16 | A | 7.7 | 0 14 | |
| 2 | **N Quinn Street and 18th Street N** | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **2.6** | | **A** | **1.4** | | **A** | **0.7** | | |
| | Westbound Left/Right | 315 | B | 14.8 | -- 8 | B | 13.4 | -- 10 | B | 10.7 | -- 3 | |
| | Northbound Thru/Right | 375 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | |
| | Southbound Left/Thru | 200 | A | 8.8 | -- 15 | A | 8.3 | -- 3 | A | 7.8 | -- 0 | |
| 3 | **N Quinn Street and Wilson Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **23.4** | | **B** | **12.0** | | **C** | **21.2** | | |
| | Westbound Thru | 325 | A | 9.5 | 56 79 | A | 8.1 | 102 100 | B | 18.5 | 130 112 | |
| | Westbound Right | 85 | C | 29.4 | 28 m50 | B | 11.3 | 8 12 | C | 33.7 | 22 33 | |
| | Southbound Right | 375 | D | 44.4 | 15 m22 | C | 30.0 | 69 138 | B | 13.8 | 81 138 | |
| 4 | **N Pierce Street and Wilson Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **16.1** | | **C** | **20.9** | | **B** | **19.9** | | |
| | Westbound Left/Thru | 675 | A | 6.1 | 77 m97 | B | 17.2 | 335 428 | B | 13.4 | 154 218 | |
| | Northbound Left | 250 | D | 41.8 | 151 m#228 | D | 38.0 | 130 210 | D | 40.2 | 120 185 | |
| 5 | **N Pierce Street and Clarendon Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **18.2** | | **B** | **17.1** | | **A** | **9.1** | | |
| | Eastbound Left/Thru | 500 | B | 12.0 | 300 482 | A | 9.5 | 138 183 | A | 3.8 | 66 115 | |
| | Eastbound Thru/Right | 500 | B | 12.0 | 300 482 | A | 9.5 | 138 183 | A | 3.8 | 66 115 | |
| | Northbound Thru/Right | 185 | D | 41.9 | 126 195 | C | 27.1 | 41 85 | D | 36.5 | 22 53 | |
| | Southbound Left/Thru | 250 | E | 55.6 | 39 #142 | D | 37.3 | 125 #280 | C | 34.4 | 22 56 | |
| 8 | **N Oak Street and Key Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **B** | **14.3** | | **A** | **5.7** | | **A** | **4.6** | | |
| | Eastbound Thru/Right | 285 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | |
| | Westbound Left/Thru | 150 | B | 11.7 | -- 10 | A | 8.3 | -- 5 | A | 7.8 | -- 5 | |
| | Northbound Left/Right | 200 | F | 79.8 | -- 183 | C | 17.4 | -- 45 | B | 11.4 | -- 15 | |
| 9 | **N Oak Street and 18th Street N** | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **5.6** | | **A** | **3.5** | | **A** | **1.9** | | |
| | Eastbound Left/Right | 850 | C | 15.3 | -- 43 | B | 11.4 | -- 15 | B | 10.1 | -- 3 | |
| | Northbound Left/Thru | 200 | A | 8.1 | -- 5 | A | 7.8 | -- 3 | A | 7.7 | -- 3 | |
| | Southbound Thru/Right | 200 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | |
| 10 | **N Oak Street and Wilson Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **D** | **46.0** | | **C** | **26.8** | | **C** | **23.2** | | |
| | Westbound Thru | 125 | B | 20.0 | 115 150 | C | 20.5 | 145 184 | B | 16.5 | 71 100 | |
| | Westbound Thru/Right | 75 | B | 20.0 | 115 150 | C | 20.5 | 145 184 | B | 16.5 | 71 100 | |
| | Northbound Left/Thru | 25 | F | 133.2 | ~169 m#286 | D | 53.6 | 116 188 | D | 49.3 | 70 138 | |
| | Southbound Thru/Right | 200 | D | 42.7 | 136 m200 | C | 30.6 | 67 132 | C | 25.6 | 19 57 | |
| 11 | **N Oak Street and Clarendon Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **14.1** | | **B** | **15.1** | | **B** | **15.6** | | |
| | Eastbound Left | 75 | E | 56.5 | 85 m126 | D | 48.4 | 77 m130 | D | 52.7 | 53 105 | |
| | Eastbound Thru/Right | 550 | A | 6.0 | 60 91 | A | 8.0 | 76 m122 | A | 7.4 | 50 67 | |
| | Northbound Thru/Right | 825 | C | 29.1 | 45 93 | C | 28.0 | 30 73 | C | 27.1 | 18 54 | |
| | Southbound Left/Thru | 25 | B | 10.8 | 14 m21 | A | 9.3 | 12 15 | B | 11.9 | 10 13 | |
| 12 | **N Nash Street and Key Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **4.5** | | **A** | **4.9** | | **A** | **3.4** | | |
| | Eastbound Left/Thru | 135 | A | 8.6 | -- 18 | A | 8.9 | -- 5 | A | 7.9 | -- 3 | |
| | Westbound Thru/Right | 65 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | A | 0.0 | -- 0 | |
| | Southbound Left/Right | 650 | D | 30.7 | -- 48 | C | 21.1 | -- 58 | B | 11.5 | -- 15 | |
| 13 | **N Nash Street (east) and Key Boulevard** | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **F** | **189.0** | | **F** | **61.3** | | **A** | **4.2** | | |
| | Eastbound Left | 65 | F | 738.5 | -- 933 | F | 414.1 | -- 408 | C | 16.6 | -- 28 | |
| | Eastbound Thru/Right | 65 | D | 25.9 | -- 75 | C | 17.0 | -- 28 | B | 11.2 | -- 5 | |
| | Westbound Left/Thru/Right | 25 | A | 0.0 | -- 0 | D | 29.0 | -- 5 | B | 13.3 | -- 0 | |

| | Intersection (Movement) | Storage Length | Future Without Development (2019) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | | PM Peak | | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th |
| | Northbound Left/Thru | 400 | A | 9.5 | -- | 8 | A | 9.2 | -- | 18 | A | 8.0 | -- | 5 |
| | Northbound Thru/Right | 400 | A | 0.4 | -- | 0 | A | 0.6 | -- | 0 | A | 0.1 | -- | 0 |
| | Southbound Left/Thru | 150 | A | 9.0 | -- | 0 | A | 9.0 | -- | 0 | A | 7.8 | -- | 0 |
| | Southbound Right | 150 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| **14** | **N Nash Street and Lee Highway** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **16.2** | | | **B** | **14.3** | | | **A** | **9.2** | | |
| | Eastbound Left/Thru | 1450 | A | 8.9 | 178 | 250 | A | 6.2 | 92 | 154 | A | 3.5 | 63 | 100 |
| | Eastbound Thru | 1450 | A | 8.9 | 178 | 250 | A | 6.2 | 92 | 154 | A | 3.5 | 63 | 100 |
| | Eastbound Thru/Right | 1450 | A | 8.9 | 178 | 250 | A | 6.2 | 92 | 154 | A | 3.5 | 63 | 100 |
| | Northbound Thru/Right | 650 | D | 46.9 | 135 | m174 | D | 40.2 | 94 | 154 | D | 44.2 | 26 | 74 |
| | Southbound Left | 125 | E | 56.6 | 60 | #131 | E | 56.4 | 47 | 92 | D | 42.2 | 34 | 71 |
| | Southbound Thru | 125 | C | 29.2 | 18 | 42 | C | 31.6 | 17 | 38 | D | 37.4 | 12 | 33 |
| **15** | **N Fort Myer Drive and Lee Highway** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **20.2** | | | **B** | **18.0** | | | **B** | **18.3** | | |
| | Eastbound Thru | 225 | A | 9.4 | 115 | 125 | B | 18.2 | 116 | 122 | A | 9.1 | 52 | 66 |
| | Eastbound Right | 70 | B | 11.8 | 96 | 130 | C | 21.9 | 86 | 125 | B | 10.8 | 53 | 80 |
| | Southbound Left | 250 | C | 32.9 | 143 | 251 | B | 18.7 | 156 | 260 | C | 26.5 | 77 | 170 |
| | Southbound Left/Thru | 250 | C | 33.0 | 258 | 319 | B | 16.4 | 174 | 216 | C | 26.6 | 158 | 203 |

m - Volume for 95th percentile queue is metered by upstream signal

# - 95th percentile volume exceeds capacity, queue may be longer

~ - Volume exceeds capacity, queue is theoretically infinite

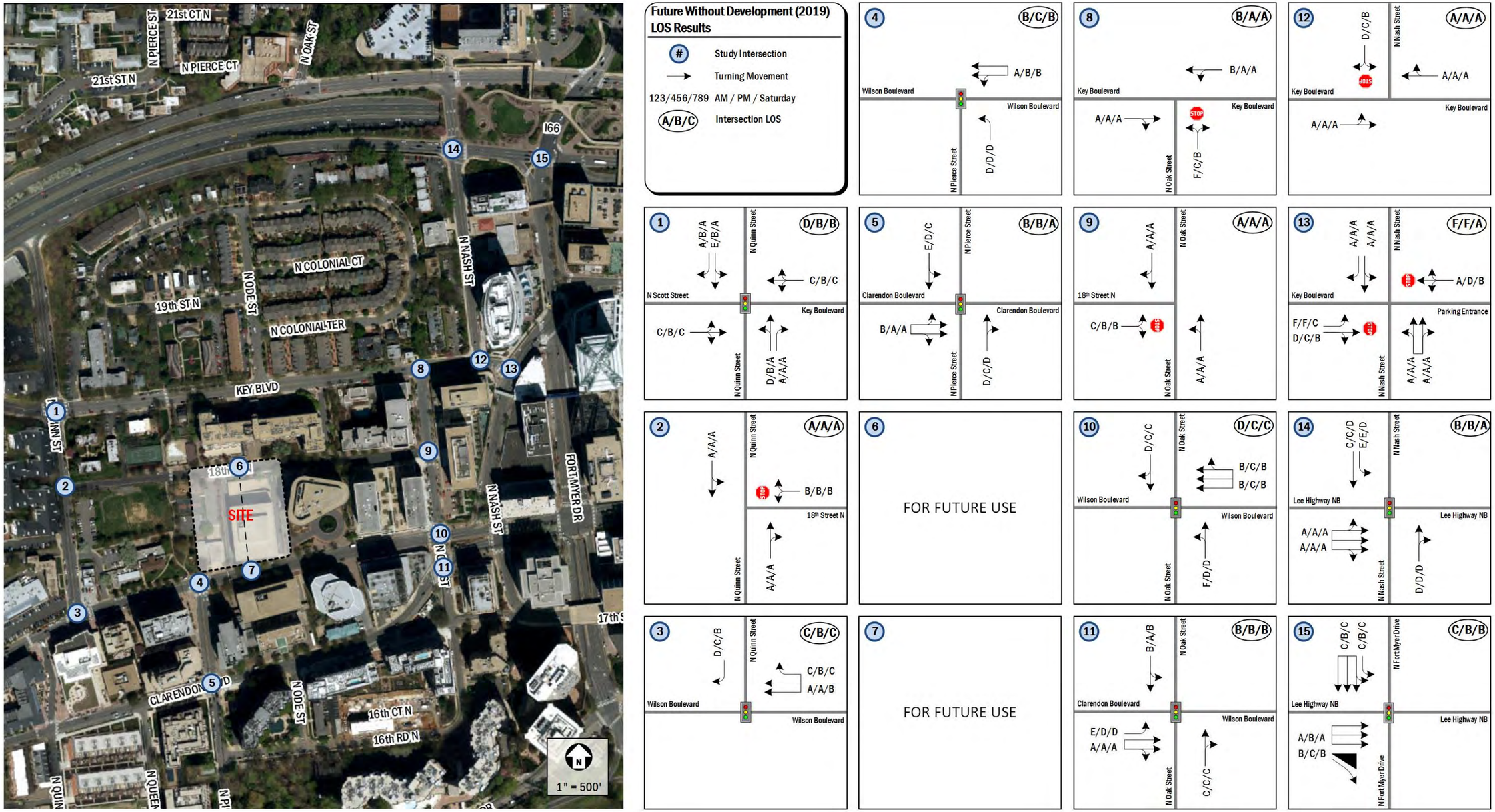



Figure 17: Future without Development (2019) LOS Results

## FUTURE CONDITIONS WITH DEVELOPMENT (2019)

The proposed development will consist of approximately 700 residential units, 400,000 square feet of office space, 22,000 square feet of retail, 20,000 square feet of grocery space, a 25,000 square foot reconstruction of Rosslyn Highlands Park, and a redevelopment of the existing fire station. The existing 50,000 square feet office building, existing fire station, and City Park will be replaced by the proposed development.

### *Site Access*

The proposed site is located between 18th Street N and Wilson Boulevard, with the western border of the site near the northern terminus of N Pierce Street. The site location is shown in Figure 1. The proposed site plan for the redevelopment is shown in Figure 5.

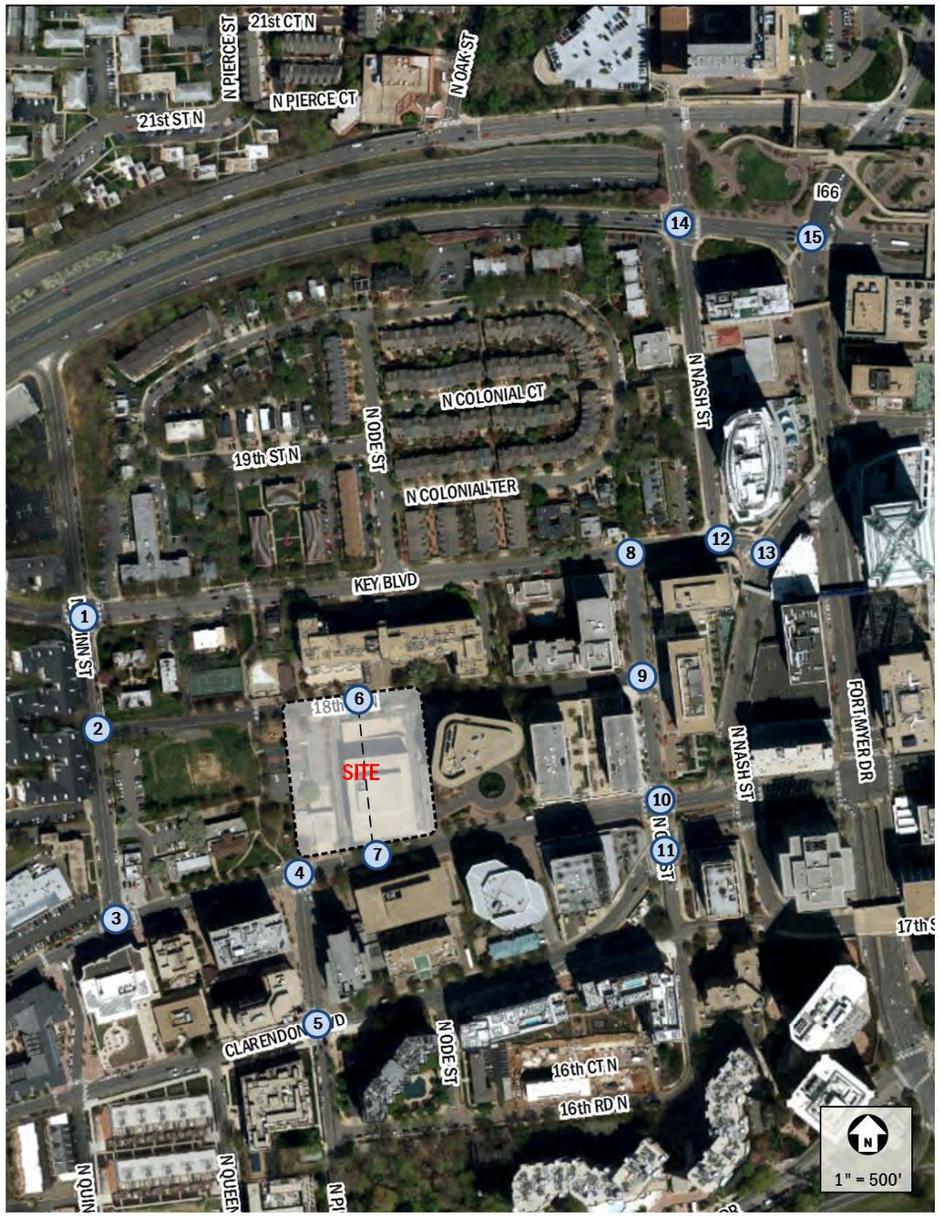
Entry to the site on the new street will be accessible from Wilson Boulevard (traveling westbound) and 18th Street N (traveling westbound and eastbound). The proposed western parcel site driveway off the new street will provide direct access to the parking garage as shown on Figure 6. Loading access will be provided to the eastern parcel off of 18th Street N, with western parcel loading available off the new street. The relocation of the fire station to the southeast corner of the site will include a driveway from 18th Street N, in addition to the front entrance along Wilson Boulevard. The roadway configuration for the future with development scenario is shown in Figure 18.

### *Site Generated Traffic*

The Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition, was used to determine the future trips generated by the proposed development.

The site has multiple bus stops surrounding the site and a Metro stations within one-half mile of the site. It is expected that a significant portion of those accessing the site will travel by Metrorail, bus, cab, or on foot/by bicycle during the peak hours, rather than by personal vehicle. Based on data from Table S-3 and Table S-4 of the WMATA Development-Related Ridership Survey (WMATA, 2005), the Arlington County Commercial Building Research Topline Report, and the Arlington County Residential Building Transportation Performance Monitoring study, a TDM/transit mode split reduction of 60% for residential, 40% for office, and 50% of retail was applied to the peak hour vehicular trip generation for the residential land use to reflect the non-auto modes for the proposed development. The retail space planned for the site is envisioned to be primarily neighborhood-serving retail site, justifying the 50% TDM/transit mode split reduction assumed. Table 6 shows the vehicular trips expected to be generated by the proposed project.

Driveway counts were taken at the existing office building, park, and fire station driveways to determine trip generation for the existing uses. The existing office park generated 184 AM peak hour trips, 130 PM peak hour trips, and 26 Saturday peak hour trips. The existing fire station generated 5 AM peak hour trips, 9 PM peak hour trips, and 8 Saturday peak hour trips. The park indicated no peak hour trip generation.




**Future With Development Lane Configuration (2019)**

- (#) Study Intersection
- Traffic Signal
- STOP Stop Control
- Traffic Lane

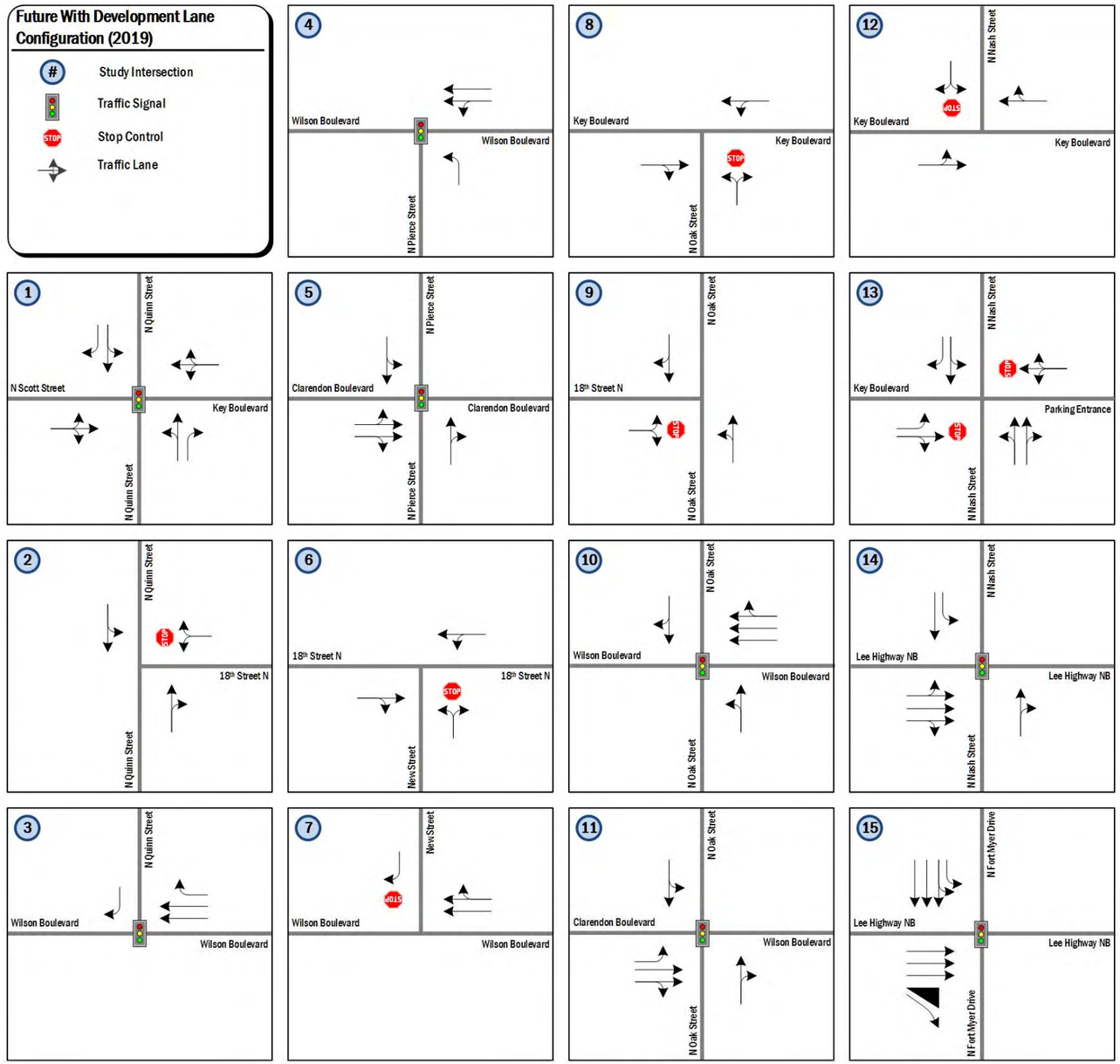



**Figure 18: Future with Development (2019) Local Roadway Network**

**Table 6: Trip Generation**

| Land Use | ITE Code | Size | | Weekday AM Peak Hour In | Weekday AM Peak Hour Out | Weekday AM Peak Hour Total | Weekday PM Peak Hour In | Weekday PM Peak Hour Out | Weekday PM Peak Hour Total | Weekday Daily Total | Saturday Sat Peak Hour In | Saturday Sat Peak Hour Out | Saturday Sat Peak Hour Total | Saturday Daily Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Existing Use*** | | | | | | | | | | | | | | |
| General Office | 710 | 143 | ksf | 178 | 6 | 184 | 19 | 111 | 130 | - | 2 | 24 | 26 | - |
| Specialty Retail | 826 | 14 | ksf | | | | | | | | | | | |
| Fire Station | - | | | 3 | 2 | 5 | 6 | 3 | 9 | - | 4 | 4 | 8 | - |
| City Park | - | 25 | *ksf* | - | - | - | - | - | - | - | - | - | - | - |
| | | | *Existing Trips* | *181* | *8* | *189* | *25* | *114* | *139* | *0* | *6* | *28* | *34* | *0* |
| **Proposed Residential** | | | | | | | | | | | | | | |
| High-Rise Apartment | 222 | 700 | DU | 53 | 157 | 210 | 144 | 92 | 236 | 2,800 | 147 | 111 | 258 | 3,506 |
| *Transit Reduction (Residential)*** | | | *60%* | *-32* | *-94* | *-126* | *-86* | *-56* | *-142* | *-1,680* | *-88* | *-67* | *-155* | *-2,104* |
| *Subtotal (Residential vehicle trips)* | | | | *21* | *63* | *84* | *58* | *36* | *94* | *1,120* | *59* | *44* | *103* | *1,402* |
| *Internal Trip Reduction - (5% AM, 10% PM and Sat, 15% Weekday)* | | | | *-1* | *-3* | *-4* | *-6* | *-3* | *-9* | *-168* | *-6* | *-4* | *-10* | *-210* |
| | | | *Total Retail External Trips* | *20* | *60* | *80* | *52* | *33* | *85* | *952* | *53* | *40* | *93* | *1,192* |
| **Proposed Retail** | | | | | | | | | | | | | | |
| Fire Station | - | | | 3 | 2 | 5 | 6 | 3 | 9 | - | 4 | 4 | 8 | - |
| City Park | - | 25 | *ksf* | - | - | - | - | - | - | - | - | - | - | - |
| Specialty Retail | 826 | 22 | ksf | 19 | 18 | 37 | 33 | 41 | 74 | 979 | 55 | 55 | 110 | 925 |
| *Transit Reduction (Retail)*** | | | *50%* | *-10* | *-9* | *-19* | *-17* | *-20* | *-37* | *-490* | *-28* | *-27* | *-55* | *-463* |
| *Retial Pass-by Trips* | | | *25%* | *-2* | *-3* | *-5* | *-4* | *-5* | *-9* | *-122* | *-7* | *-7* | *-14* | *-116* |
| Super Market | 850 | 20 | ksf | 42 | 26 | 68 | 121 | 116 | 237 | 2,731 | 184 | 177 | 361 | 3,552 |
| *Transit Reduction (Supermarket)**** | | | *50%* | *-21* | *-13* | *-34* | *-61* | *-58* | *-119* | *-1,366* | *-92* | *-89* | *-181* | *-1,776* |
| *Supermarket Pass-by Trips* | | | *25%* | *-5* | *-4* | *-9* | *-15* | *-15* | *-30* | *-341* | *-23* | *-22* | *-45* | *-444* |
| General Office | 710 | 400 | ksf | 510 | 70 | 580 | 89 | 437 | 526 | 3,765 | 93 | 79 | 172 | 844 |
| *Transit Reduction (Office) ** | | | *40%* | *-204* | *-28* | *-232* | *-36* | *-174* | *-210* | *-1,506* | *-37* | *-32* | *-69* | *-338* |
| | | | *Total Retail External Trips* | *332* | *59* | *391* | *116* | *325* | *441* | *3,650* | *149* | *138* | *287* | *2,184* |
| | | | *Total Site External Trips* | *352* | *119* | *471* | *168* | *358* | *526* | *4,602* | *202* | *178* | *380* | *3,376* |
| | | | *Total Pass-by Trips* | *-7* | *-7* | *-14* | *-19* | *-20* | *-39* | *-463* | *-30* | *-29* | *-59* | *-560* |
| | | | *Total Site Trips* | *345* | *112* | *457* | *149* | *338* | *487* | *4,139* | *172* | *149* | *321* | *2,816* |
| | | | ***Net New Trips*** | ***164*** | ***104*** | ***268*** | ***124*** | ***224*** | ***348*** | ***4,139*** | ***166*** | ***121*** | ***287*** | ***2,816*** |

* Existing trip generation to be based on existing site trips based on intersection counts

**Table S-3 and S-4 from WMATA Survey, Arlington County Commercial Building Research Topline Report, and Arlington County Residential Building Transportation Performance Monitoring Study

***Final Mode split based on consultation with Arlington County and review of comparable sites

The proposed residential and retail development will generate approximately 268 net trips in the AM peak hour, 348 net trips in the PM peak hour, and 287 net trips in the Saturday peak hour.

## *Site Trip Distribution*

The distribution of site trips was based primarily on existing volumes, anticipated traffic patterns and other recent studies conducted in the area. The peak hour trips were calculated and assigned to the roadway network based on the traffic distribution shown in Figure 19. The trips generated by the site are presented in Figure 20. Site Pass-By volumes are presented in Figure 21.

## *Future with Development Traffic Volumes*

The West Rosslyn development provides a new street which will connect the eastern and western parcels of the development while providing a north-south connection between 18th Street N and Wilson Boulevard. In order to determine the traffic volumes on the roadways in the vicinity of the development under the 2019 build condition, the site generated traffic volumes were added to the Future without Development (2019) peak hour traffic volumes. The traffic volumes for the Future with Development (2019) conditions are presented in Figure 22.

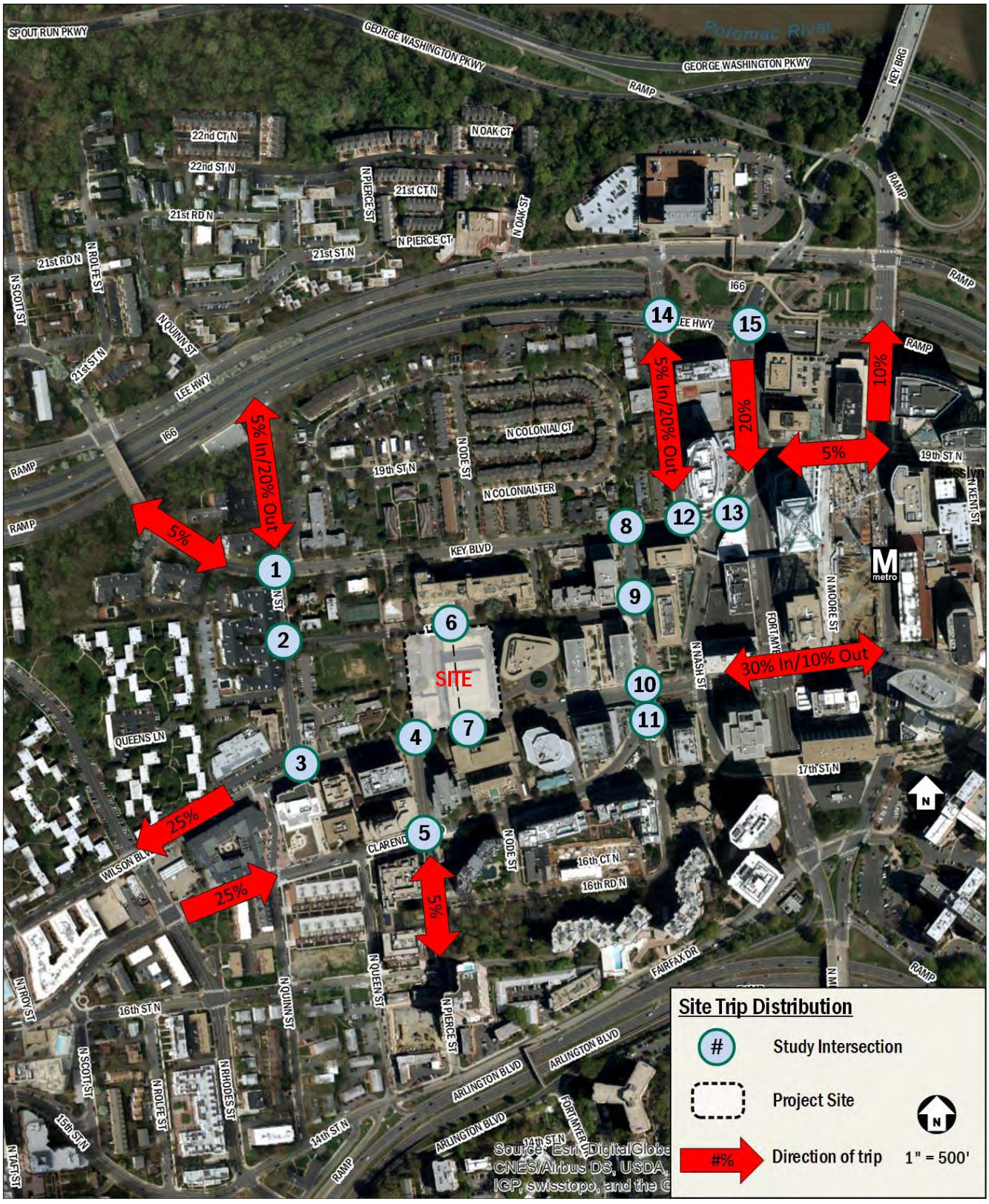



**Figure 19: Direction of Approach**

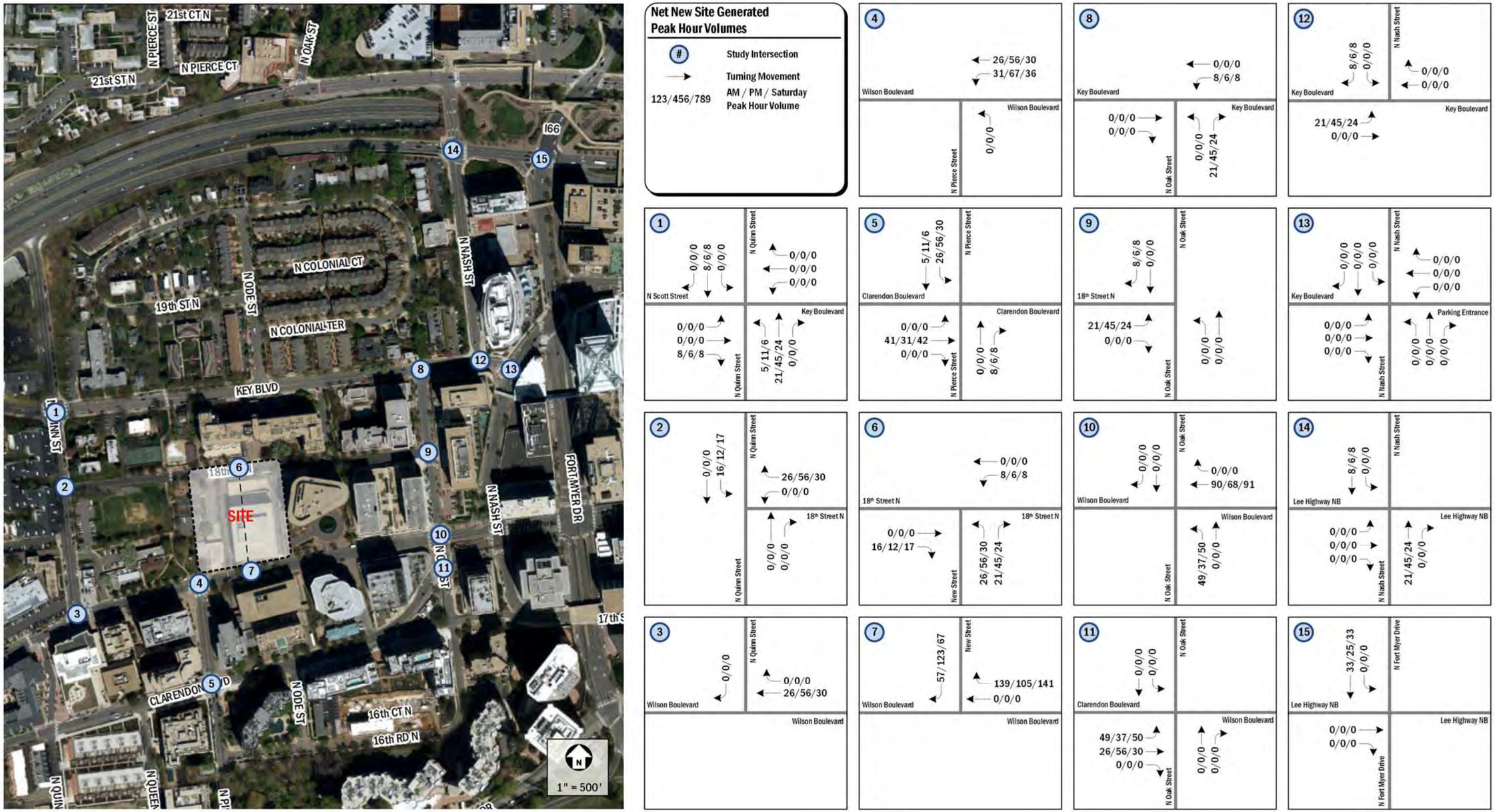



**Figure 20: Net New Site Generated Peak Hour Volumes**

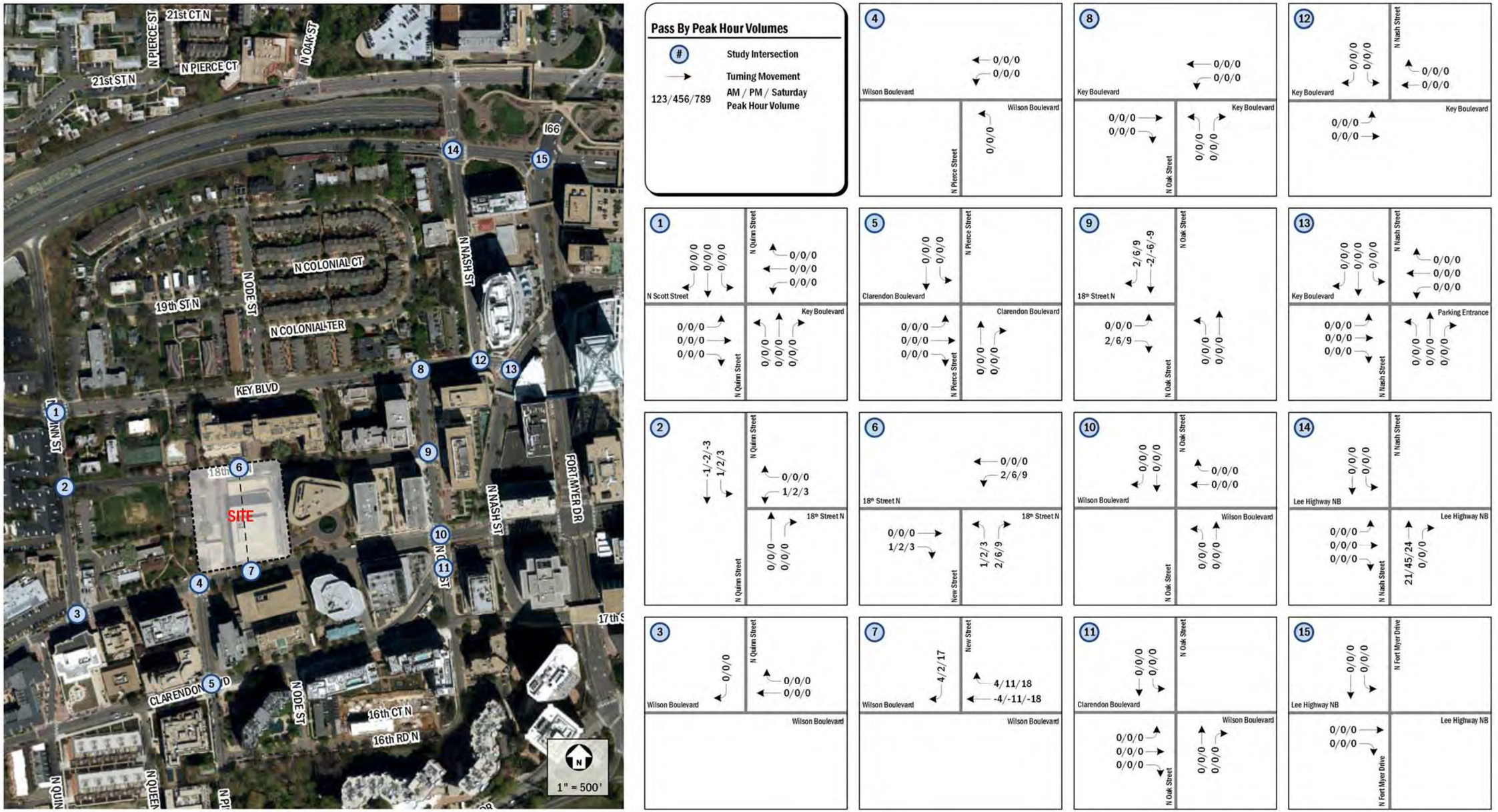
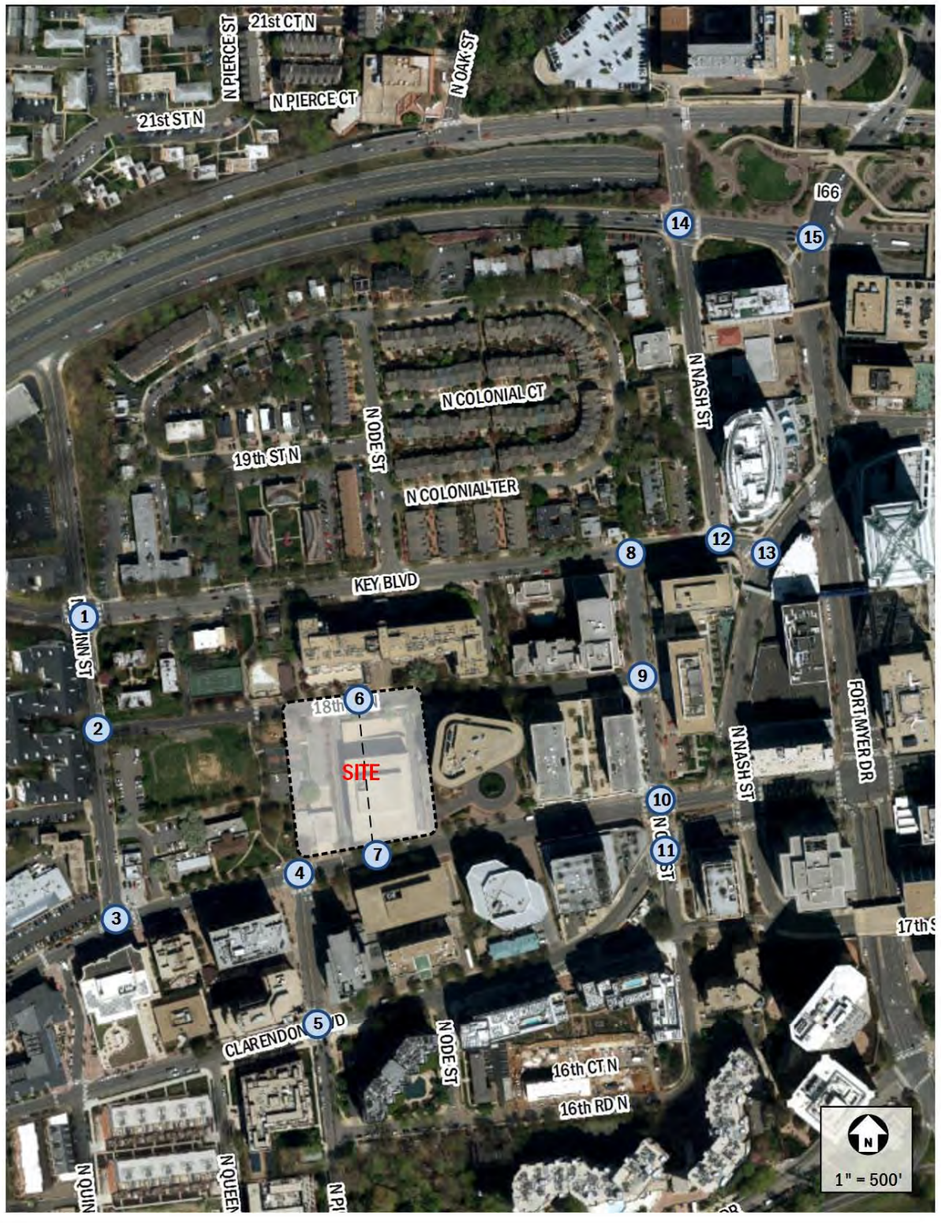



**Figure 21: Pass-By Peak Hour Volumes**




**Future With Development (2019) Peak Hour Volumes**

- (#) Study Intersection
- → Turning Movement
- 123/456/789 AM / PM / Saturday Peak Hour Volume

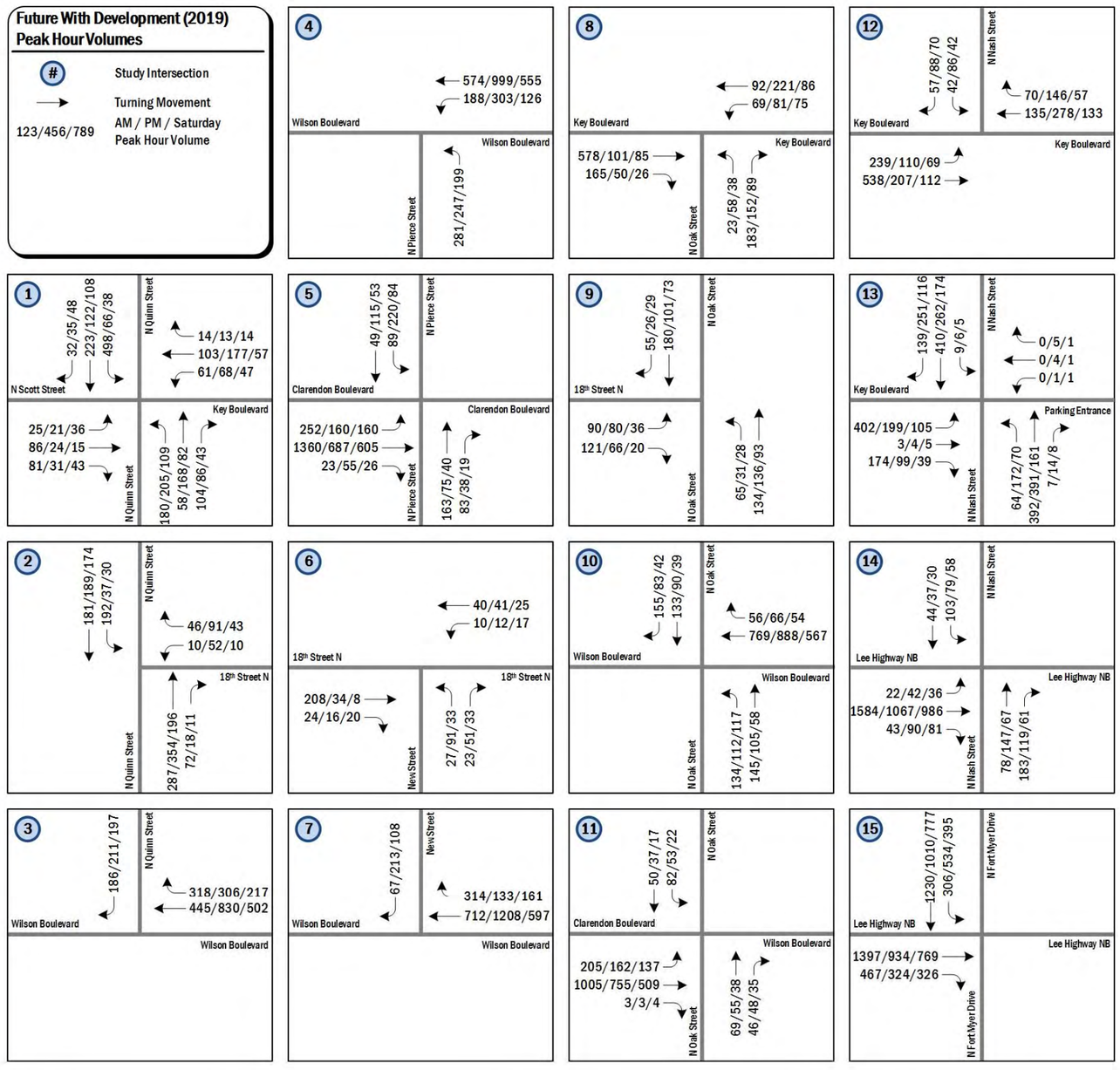



**Figure 22: Future with Development (2019) Traffic Volumes**

### *Future with Development Capacity Analysis*

Capacity analyses were performed at the intersections within the study area during the weekday AM, weekday PM, and Saturday peak hours, for the future conditions with development scenario. *Synchro, Version 9.1* was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology and include level of service, delay, and queue length comparisons for the turning movements analyzed. As previously described, a peak hour factor of 0.92 to 1.00 was used in the analysis of the future traffic conditions, consistent with VDOT practice.

The results of the intersection capacity analysis are presented in Table 7 and are expressed in level of service (LOS) and delay (seconds per vehicle) per lane group as shown in Figure 22. The 95% and 50% queue results for each intersection are also presented in Table 7, and are expressed in feet. The detailed analysis worksheets are included in Appendix F.

For the purpose of this analysis, it is desirable to achieve a level of service (LOS) of D or better for each lane group at the intersections. All movements at the study intersections operate at acceptable levels of service consistent with the Future without Development scenario, with the exception of the following:

- N Quinn Street and Key Boulevard (AM peak hour)
  - Southbound left/thru lanes (AM peak hour)
- N Pierce Street and Clarendon Boulevard
  - Southbound left/thru lane (PM peak hour)
- N Oak Street and Wilson Boulevard (AM peak hour)
  - Northbound left/thru lane (PM and Saturday peak hour)
- N Oak Street and Clarendon Boulevard
  - Eastbound left lane (PM peak hour)

All movements caused to operate below acceptable LOS thresholds by the proposed development have been mitigated with signal timing adjustments. These results are shaded and included in Table 7. The intersection of N Nash Street (east) and Key Boulevard currently operates below acceptable LOS thresholds. Historical counts and a field visit indicate vehicles are getting off Lee Highway at Quinn Street and using Key Boulevard as a cut-through to Rosslyn. Analysis of a signalized intersection has been included in Table 7 and a signal warrant analysis is included in later in the report.

## Table 7: Future with Development (2019) Capacity Results

| | Intersection (Movement) | Storage Length | Future With Development (2019) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | | PM Peak | | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th |
| 1 | **N Quinn Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **E** | **63.1** | | | **B** | **19.5** | | | **B** | **13.5** | | |
| | Eastbound Left/Thru/Right | 500 | C | 31.7 | 80 | 149 | B | 15.8 | 16 | 44 | C | 26.9 | 25 | 65 |
| | Westbound Left/Thru/Right | 315 | C | 34.8 | 92 | 163 | B | 19.6 | 106 | 172 | C | 28.8 | 55 | 105 |
| | Northbound Left/Thru | 200 | E | 68.5 | 150 | #311 | C | 22.8 | 143 | 275 | A | 5.5 | 37 | 44 |
| | Northbound Right | 50 | A | 1.9 | 0 | 6 | A | 9.4 | 4 | m29 | A | 1.8 | 0 | m2 |
| | Southbound Left/Thru | 525 | F | 87.9 | ~515 | #735 | B | 19.5 | 76 | 132 | A | 8.5 | 37 | 65 |
| | Southbound Right | 75 | A | 7.6 | 0 | 10 | B | 15.0 | 0 | 16 | A | 7.7 | 0 | 14 |
| 1 | **N Quinn Street and Key Boulevard (Mitigated)** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **D** | **41.8** | | | - | - | - | - | - | - | - | - |
| | Eastbound Left/Thru/Right | 500 | D | 40.1 | 89 | 163 | - | - | - | - | - | - | - | - |
| | Westbound Left/Thru/Right | 315 | D | 53.3 | 98 | #211 | - | - | - | - | - | - | - | - |
| | Northbound Left/Thru | 200 | C | 23.9 | 95 | #266 | - | - | - | - | - | - | - | - |
| | Northbound Right | 50 | A | 1.3 | 0 | 4 | - | - | - | - | - | - | - | - |
| | Southbound Left/Thru | 525 | D | 52.9 | ~432 | #696 | - | - | - | - | - | - | - | - |
| | Southbound Right | 75 | A | 5.7 | 0 | 8 | - | - | - | - | - | - | - | - |
| 2 | **N Quinn Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **3.2** | | | **A** | **3.4** | | | **A** | **1.8** | | |
| | Westbound Left/Right | 315 | B | 14.0 | -- | 13 | C | 15.1 | -- | 23 | B | 10.8 | -- | 8 |
| | Northbound Thru/Right | 375 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Left/Thru | 200 | A | 8.9 | -- | 18 | A | 8.3 | -- | 3 | A | 7.8 | -- | 3 |
| 3 | **N Quinn Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **21.8** | | | **B** | **11.5** | | | **C** | **20.5** | | |
| | Westbound Thru | 325 | A | 9.3 | 58 | 81 | A | 7.8 | 101 | 101 | C | 20.3 | 146 | 135 |
| | Westbound Right | 85 | C | 27.3 | 25 | m47 | A | 7.8 | 7 | 11 | C | 27.4 | 14 | 26 |
| | Southbound Right | 375 | D | 42.3 | 15 | m24 | C | 31.9 | 85 | 159 | B | 13.4 | 80 | 139 |
| 4 | **N Pierce Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **15.9** | | | **C** | **20.3** | | | **B** | **18.4** | | |
| | Westbound Left/Thru | 675 | A | 6.2 | 91 | m108 | B | 16.8 | 341 | 452 | B | 12.6 | 156 | 220 |
| | Northbound Left | 250 | D | 43.0 | 159 | m217 | D | 37.4 | 129 | 206 | D | 38.4 | 119 | 185 |
| 5 | **N Pierce Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **21.4** | | | **C** | **27.7** | | | **B** | **10.1** | | |
| | Eastbound Left/Thru | 500 | B | 15.3 | 387 | 511 | B | 10.9 | 145 | 192 | A | 5.5 | 84 | 146 |
| | Eastbound Thru/Right | 500 | B | 15.3 | 387 | 511 | B | 10.9 | 145 | 192 | A | 5.5 | 84 | 146 |
| | Northbound Thru/Right | 185 | D | 36.0 | 120 | 201 | C | 25.6 | 42 | 87 | C | 32.6 | 21 | 52 |
| | Southbound Left/Thru | 250 | E | 67.2 | 69 | #191 | E | 72.7 | ~228 | #389 | C | 26.8 | 30 | 57 |
| 5 | **N Pierce Street and Clarendon Boulevard (Mitigated)** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | - | - | - | - | **C** | **22.7** | | | - | - | - | - |
| | Eastbound Left/Thru | 500 | - | - | - | - | B | 12.1 | 155 | 205 | - | - | - | - |
| | Eastbound Thru/Right | 500 | - | - | - | - | B | 12.1 | 155 | 205 | - | - | - | - |
| | Northbound Thru/Right | 185 | - | - | - | - | C | 24.1 | 40 | 83 | - | - | - | - |
| | Southbound Left/Thru | 250 | - | - | - | - | D | 50.1 | 166 | #371 | - | - | - | - |
| 6 | **New Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **1.8** | | | **A** | **6.0** | | | **A** | **5.3** | | |
| | Eastbound Thru/Right | | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Westbound Left/Thru | | A | 7.8 | -- | 0 | A | 7.3 | -- | 0 | A | 7.3 | -- | 0 |
| | Northbound Left/Right | | B | 10.3 | -- | 5 | A | 9.7 | -- | 13 | A | 9.0 | -- | 5 |
| 7 | **New Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **0.9** | | | **A** | **4.2** | | | **A** | **1.6** | | |
| | Westbound Thru/Right | | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Right | | B | 14.0 | -- | 13 | D | 30.3 | -- | 140 | B | 12.6 | -- | 18 |
| 8 | **N Oak Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **C** | **20.1** | | | **A** | **7.0** | | | **A** | **5.1** | | |
| | Eastbound Thru/Right | 285 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Westbound Left/Thru | 150 | B | 11.8 | -- | 10 | A | 8.4 | -- | 5 | A | 7.8 | -- | 5 |
| | Northbound Left/Right | 200 | F | 104.6 | -- | 230 | C | 19.0 | -- | 63 | B | 11.6 | -- | 18 |
| 9 | **N Oak Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **6.3** | | | **A** | **4.7** | | | **A** | **2.9** | | |
| | Eastbound Left/Right | 850 | C | 16.7 | -- | 53 | B | 12.5 | -- | 25 | B | 10.5 | -- | 8 |
| | Northbound Left/Thru | 200 | A | 8.2 | -- | 5 | A | 7.8 | -- | 3 | A | 7.7 | -- | 3 |

| | Intersection (Movement) | Storage Length | Future With Development (2019) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | | PM Peak | | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th |
| | Southbound Thru/Right | 200 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| 10 | **N Oak Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **E** | **75.2** | | | **C** | **29.7** | | | **C** | **27.2** | | |
| | Westbound Thru | 125 | C | 21.0 | 133 | 171 | C | 21.6 | 159 | 201 | B | 18.6 | 89 | 118 |
| | Westbound Thru/Right | 75 | C | 21.0 | 133 | 171 | C | 21.6 | 159 | 201 | B | 18.6 | 89 | 118 |
| | Northbound Left/Thru | 25 | F | 268.4 | ~247 | m#296 | E | 64.5 | 143 | m#207 | E | 57.3 | 115 | m178 |
| | Southbound Thru/Right | 200 | D | 42.5 | 136 | m200 | C | 30.6 | 67 | 132 | C | 26.1 | 19 | 57 |
| 10 | **N Oak Street and Wilson Boulevard (Mitigated)** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **31.9** | | | **C** | **28.4** | | | **C** | **25.0** | | |
| | Westbound Thru | 125 | C | 27.5 | 153 | 197 | C | 24.0 | 172 | 218 | B | 17.2 | 85 | 113 |
| | Westbound Thru/Right | 75 | C | 27.5 | 153 | 197 | C | 24.0 | 172 | 218 | B | 17.2 | 85 | 113 |
| | Northbound Left/Thru | 25 | D | 52.2 | 181 | m240 | D | 52.6 | 140 | 217 | D | 53.3 | 114 | m177 |
| | Southbound Thru/Right | 200 | C | 24.9 | 102 | m163 | C | 22.4 | 52 | 103 | C | 21.7 | 18 | 53 |
| 11 | **N Oak Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **19.8** | | | **B** | **17.2** | | | **B** | **17.9** | | |
| | Eastbound Left | 75 | F | 88.2 | 123 | m#191 | E | 58.7 | 102 | m#167 | D | 54.9 | 85 | #165 |
| | Eastbound Thru/Right | 550 | A | 5.9 | 67 | 99 | A | 7.8 | 77 | m120 | A | 7.1 | 51 | 67 |
| | Northbound Thru/Right | 825 | C | 29.2 | 46 | 94 | C | 28.0 | 30 | 73 | C | 27.1 | 18 | 54 |
| | Southbound Left/Thru | 25 | B | 10.8 | 14 | m21 | A | 9.4 | 12 | 15 | B | 11.9 | 10 | 13 |
| 11 | **N Oak Street and Clarendon Boulevard (Mitigated)** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **16.5** | - | - | **B** | **14.9** | | | **-** | **-** | - | - |
| | Eastbound Left | 75 | D | 50.7 | 112 | m#174 | D | 41.0 | 96 | m144 | - | - | - | - |
| | Eastbound Thru/Right | 550 | B | 10.6 | 142 | 122 | A | 9.1 | 92 | m137 | - | - | - | - |
| | Northbound Thru/Right | 825 | B | 18.8 | 41 | 80 | C | 23.0 | 25 | 64 | - | - | - | - |
| | Southbound Left/Thru | 25 | A | 6.1 | 14 | 17 | A | 7.7 | 12 | 15 | - | - | - | - |
| 12 | **N Nash Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **5.0** | | | **A** | **6.0** | | | **A** | **3.9** | | |
| | Eastbound Left/Thru | 135 | A | 8.7 | -- | 20 | A | 9.1 | -- | 10 | A | 8.0 | -- | 5 |
| | Westbound Thru/Right | 65 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Left/Right | 650 | D | 33.3 | -- | 58 | D | 25.5 | -- | 73 | B | 11.9 | -- | 18 |
| 13 | **N Nash Street (east) and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **F** | **189.0** | | | **F** | **61.3** | | | **A** | **4.2** | | |
| | Eastbound Left | 65 | F | 738.5 | -- | 933 | F | 414.1 | -- | 408 | C | 16.6 | -- | 28 |
| | Eastbound Thru/Right | 65 | D | 25.9 | -- | 75 | C | 17.0 | -- | 28 | B | 11.2 | -- | 5 |
| | Westbound Left/Thru/Right | 25 | A | 0.0 | -- | 0 | D | 29.0 | -- | 5 | B | 13.3 | -- | 0 |
| | Northbound Left/Thru | 400 | A | 9.5 | -- | 8 | A | 9.2 | -- | 18 | A | 8.0 | -- | 5 |
| | Northbound Thru/Right | 400 | A | 0.4 | -- | 0 | A | 0.6 | -- | 0 | A | 0.1 | -- | 0 |
| | Southbound Left/Thru | 150 | A | 9.0 | -- | 0 | A | 9.0 | -- | 0 | A | 7.8 | -- | 0 |
| | Southbound Right | 150 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| 13 | **N Nash Street (east) and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **20.3** | | | **B** | **13.8** | | | **B** | **12.2** | | |
| | Eastbound Left | 65 | C | 34.8 | 230 | m251 | D | 42.2 | 117 | 166 | D | 48.2 | 62 | 111 |
| | Eastbound Thru/Right | 65 | C | 21.5 | 36 | m67 | C | 33.9 | 4 | 39 | D | 39.9 | 3 | 32 |
| | Westbound Left/Thru/Right | 25 | A | 0.0 | 0 | 0 | C | 27.8 | 2 | 14 | C | 34.4 | 1 | 8 |
| | Northbound Left/Thru | 400 | B | 14.0 | 87 | 152 | A | 7.0 | 70 | 136 | A | 2.7 | 16 | 35 |
| | Northbound Thru/Right | 400 | B | 14.0 | 87 | 152 | A | 7.0 | 70 | 136 | A | 2.7 | 16 | 35 |
| | Southbound Left/Thru | 150 | B | 15.6 | 161 | 295 | A | 5.8 | 54 | 116 | A | 2.8 | 24 | 55 |
| | Southbound Right | 150 | B | 12.3 | 0 | 36 | A | 6.6 | 0 | 31 | A | 2.7 | 0 | 15 |
| 14 | **N Nash Street and Lee Highway** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **17.4** | | | **B** | **16.3** | | | **B** | **10.2** | | |
| | Eastbound Left/Thru | 1450 | A | 9.2 | 186 | 250 | A | 7.3 | 107 | 155 | A | 4.0 | 64 | 104 |
| | Eastbound Thru | 1450 | A | 9.2 | 186 | 250 | A | 7.3 | 107 | 155 | A | 4.0 | 64 | 104 |
| | Eastbound Thru/Right | 1450 | A | 9.2 | 186 | 250 | A | 7.3 | 107 | 155 | A | 4.0 | 64 | 104 |
| | Northbound Thru/Right | 650 | D | 48.2 | 146 | m188 | D | 42.3 | 128 | 205 | D | 43.1 | 50 | 104 |
| | Southbound Left | 125 | E | 65.4 | 60 | #140 | E | 56.0 | 46 | #107 | D | 40.1 | 34 | 71 |
| | Southbound Thru | 125 | C | 28.9 | 22 | 49 | C | 29.5 | 19 | 42 | D | 36.3 | 17 | 42 |
| 15 | **N Fort Myer Drive and Lee Highway** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **20.6** | | | **B** | **17.6** | | | **B** | **18.4** | | |
| | Eastbound Thru | 225 | A | 9.2 | 114 | 122 | B | 17.3 | 103 | 123 | A | 8.8 | 54 | 67 |
| | Eastbound Right | 70 | B | 11.6 | 96 | 130 | C | 20.7 | 86 | 126 | B | 10.5 | 55 | 81 |
| | Southbound Left | 250 | C | 32.9 | 143 | 251 | B | 18.9 | 160 | 265 | C | 26.9 | 83 | 177 |

| Intersection (Movement) | Storage Length | Future With Development (2019) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | | | PM Peak | | | | Saturday Peak | | | |
| | | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th |
| Southbound Left/Thru | 250 | C | 34.0 | 268 | 331 | B | 16.5 | 178 | 221 | C | 26.9 | 164 | 210 |

m - Volume for 95th percentile queue is metered by upstream signal
# - 95th percentile volume exceeds capacity, queue may be longer
~ - Volume exceeds capacity, queue is theoretically infinite

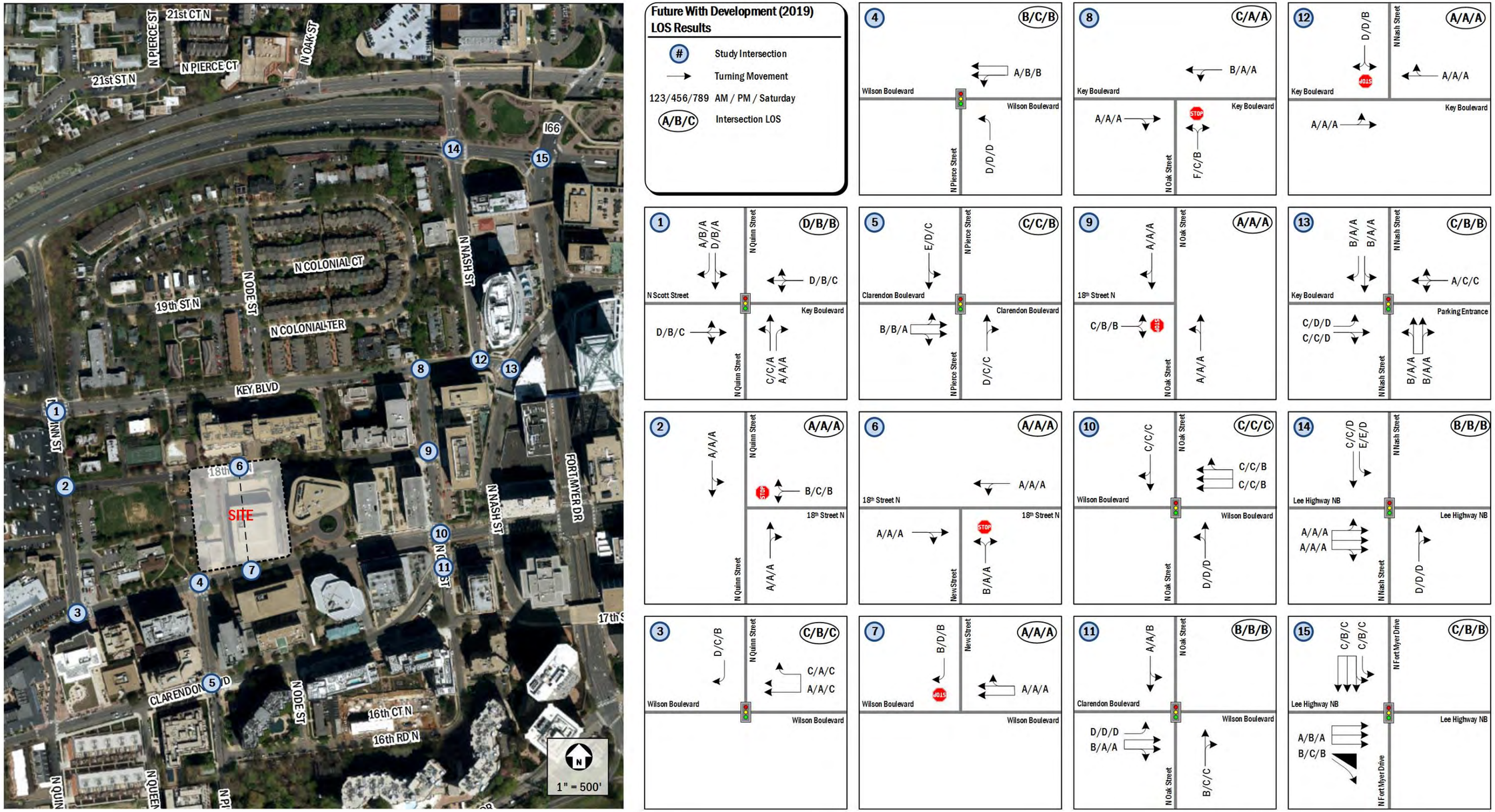



Figure 23: Future with Development (2019) LOS Results

## FUTURE CONDITIONS WITH DEVELOPMENT (2025)

As requested by VDOT, a future with development scenario for 2025 has been analyzed. A regional growth rate of 0.5% annually has been applied for 2025 analysis scenario. Additional traffic volumes added to the network from the background growth are presented in Figure 24. Increase in traffic volumes for the full buildout of the background development projects identified is shown in Figure 25. Only the Rosslyn Plaza background development will see an increase in site trips from 2019 to 2025.

### *Future with Development Traffic Volumes*

With no definitive changes to the roadway network between 2019 and 2025, there are no considerations for a rerouting of site trips. In order to determine the traffic volumes on the roadways in the vicinity of the development under the 2025 build condition, the future with development (2019) roadway volumes were added to the projected background growth and background development trips. The traffic volumes for the total future with development conditions in 2025 are presented in Figure 26.

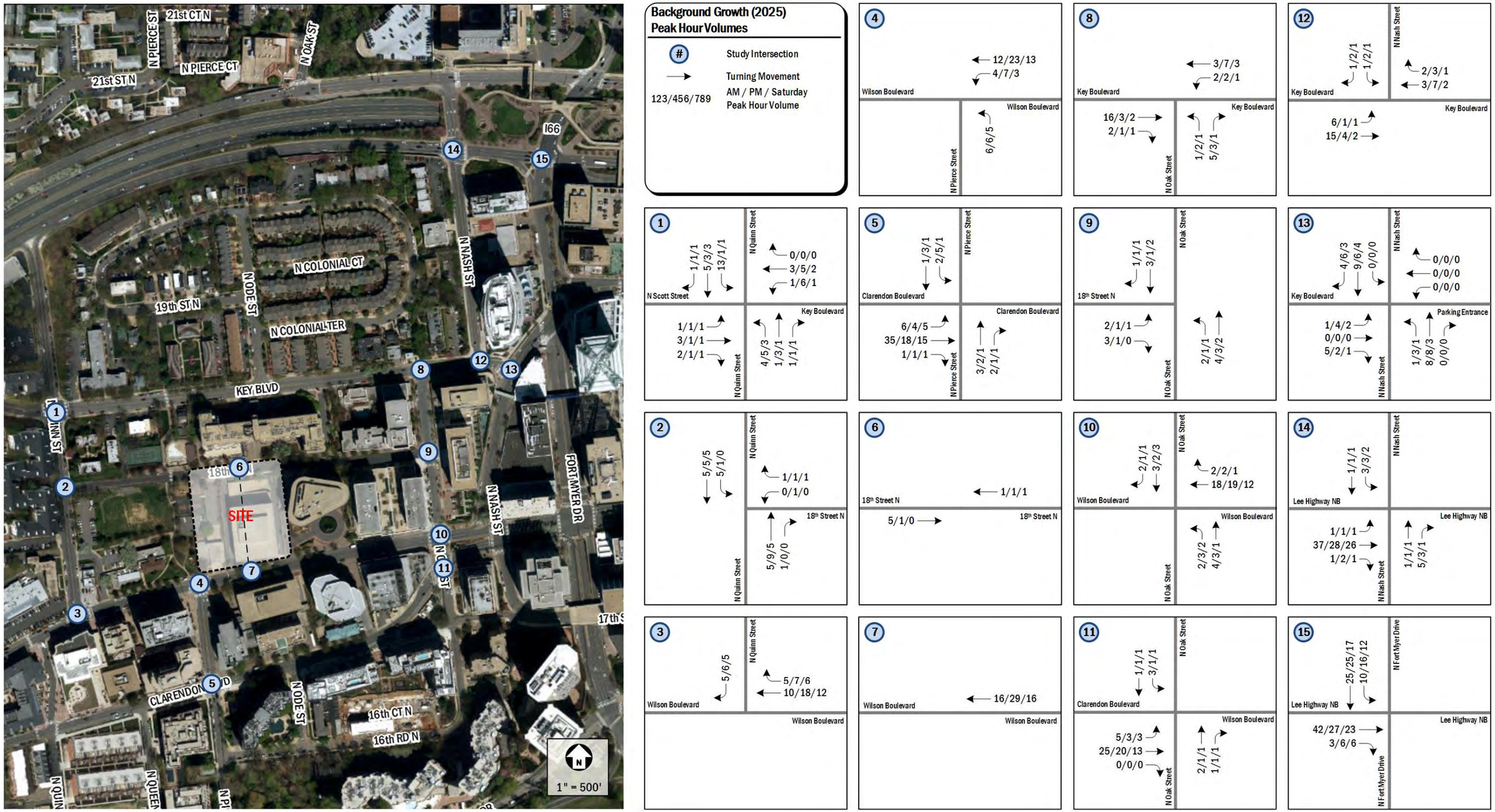
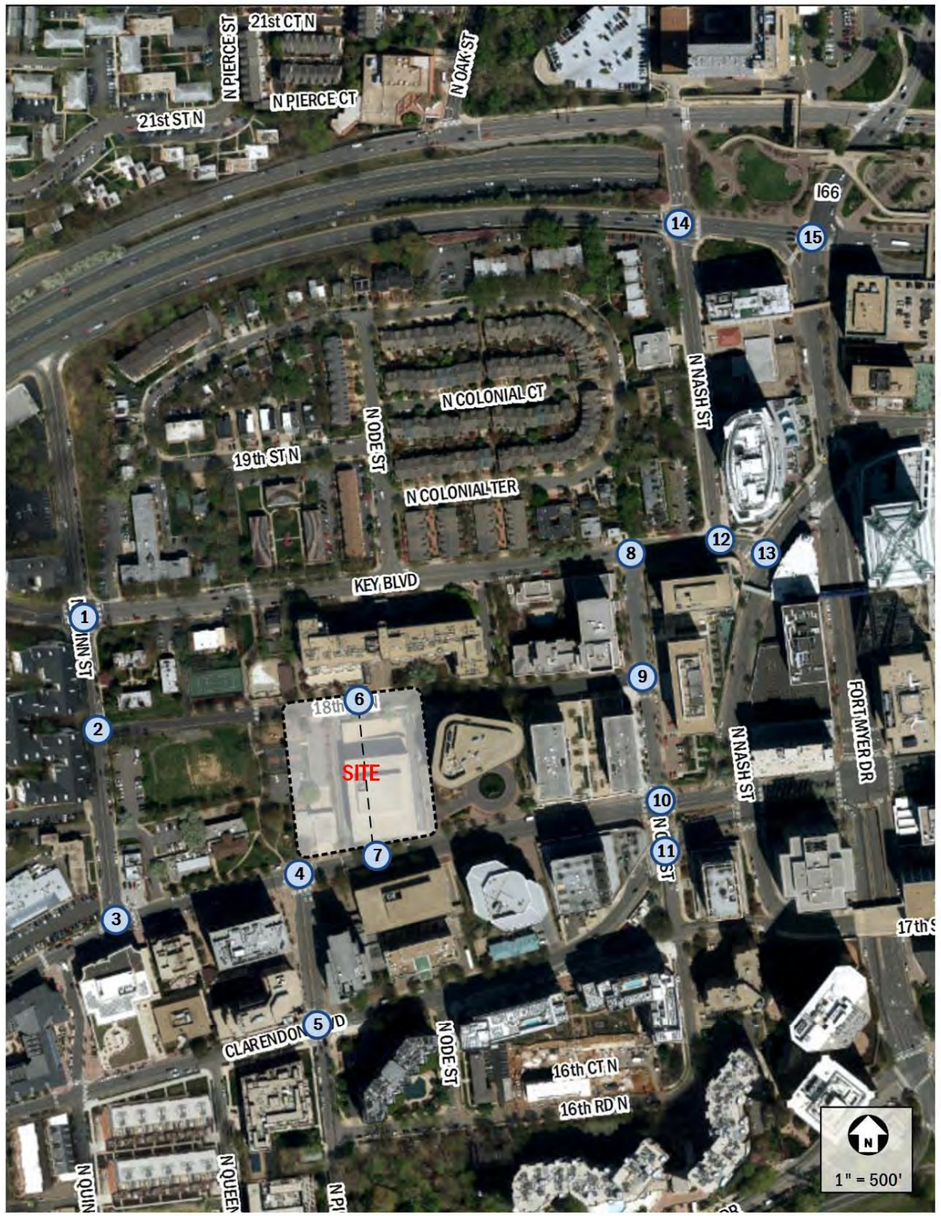



**Figure 24: Background Growth (2025) Traffic Volumes**




**Background Projects (2025) Traffic Volumes**

(#) Study Intersection

→ Turning Movement

123/456/789 AM / PM / Saturday Peak Hour Volume

**4**
Wilson Boulevard: ← 13/42/22, 0/0/0
N Pierce Street: 0/0/0
Wilson Boulevard

**8**
Key Boulevard: ← 0/0/0, 3/8/3
N Oak Street: 0/0/0 →, 0/0/0 →; 0/0/0, 0/0/0
Key Boulevard

**12**
Key Boulevard: 0/0/0, 0/0/0
N Nash Street: 0/0/0, ← 3/8/3
Key Boulevard: 0/0/0 →, 0/0/0 →

**1**
N Scott Street: 0/0/0, 0/0/0, 0/0/0
N Quinn Street: 0/0/0, ← 0/0/0, ← 0/0/0
Key Boulevard: 0/0/0 →, 0/0/0 →, 0/0/0 →; 0/0/0, 0/0/0, 0/0/0
N Quinn Street

**5**
Clarendon Boulevard: 0/0/0, 0/0/0
N Pierce Street
Clarendon Boulevard: 0/0/0 →, 30/14/19 →, 0/0/0 →; 0/0/0, 0/0/0
N Pierce Street

**9**
18th Street N: 0/0/0, 3/8/3
N Oak Street
18th Street N: 0/0/0 →, 0/0/0 →; 0/0/0, 0/0/0
N Oak Street

**13**
Key Boulevard: 3/8/3, 0/0/0, 0/0/0
N Nash Street: 0/0/0, ← 0/0/0, ← 0/0/0
Parking Entrance
Key Boulevard: 0/0/0 →, 0/0/0 →, 0/0/0 →; 0/0/0, 0/0/0, 0/0/0
N Nash Street

**2**
0/0/0, 0/0/0
N Quinn Street: 0/0/0, ← 0/0/0
18th Street N: 0/0/0, 0/0/0
N Quinn Street

**6**
18th Street N: ← 0/0/0
18th Street N: 0/0/0 →

**10**
Wilson Boulevard: 3/8/3, 0/0/0
N Oak Street: 0/0/0, ← 10/34/19
Wilson Boulevard: 0/0/0, 0/0/0
N Oak Street

**14**
Lee Highway NB: 0/0/0, 0/0/0
N Nash Street
Lee Highway NB: 0/0/0 →, 91/44/57 →, 0/0/0 →; 0/0/0, 0/0/0
N Nash Street

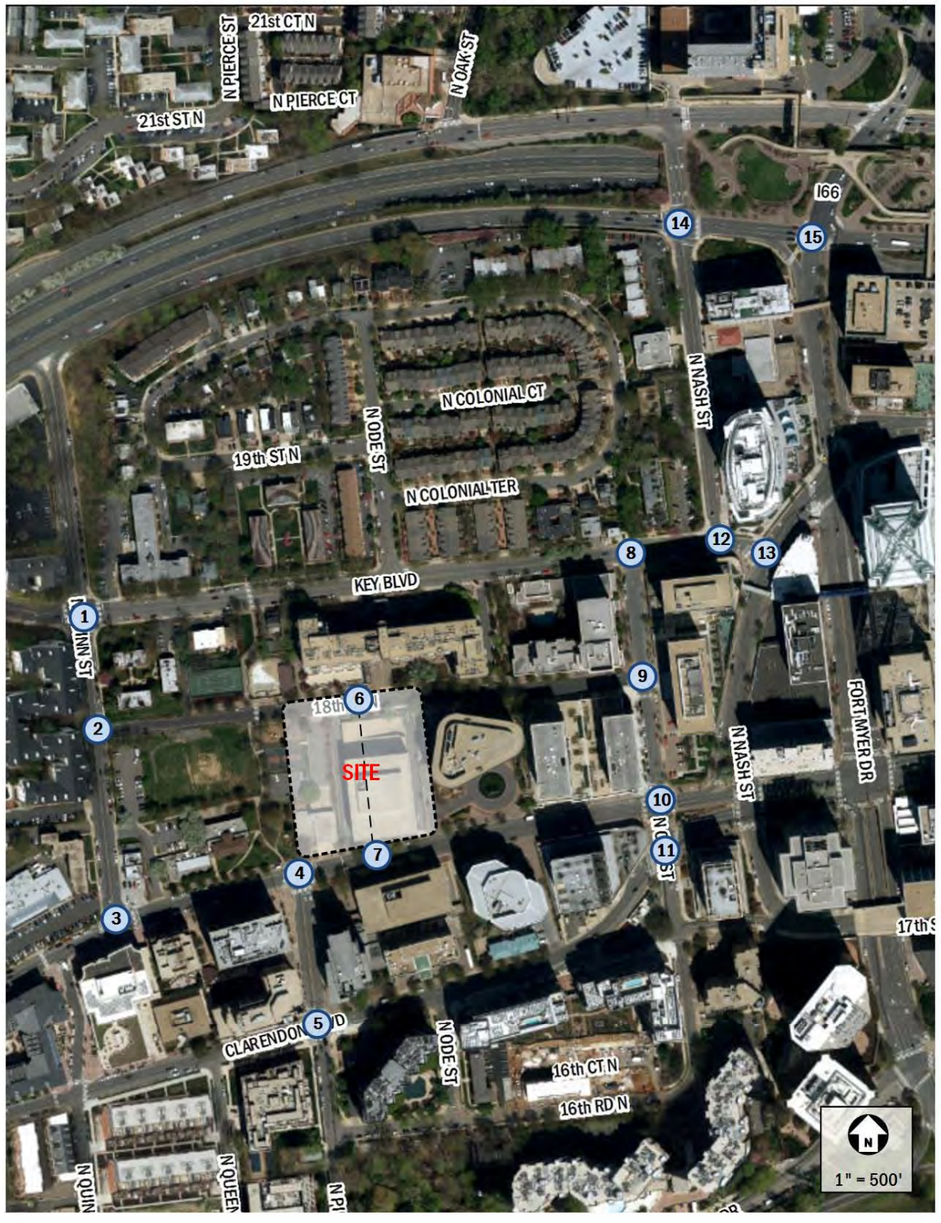
**3**
Wilson Boulevard: 0/0/0
N Quinn Street: 0/0/0, ← 13/42/22
Wilson Boulevard

**7**
Wilson Boulevard: ← 13/42/22
Wilson Boulevard

**11**
Clarendon Boulevard: 0/0/0, 0/0/0
N Oak Street
Wilson Boulevard: 0/0/0 →, 30/14/19 →, 0/0/0 →; 0/0/0, 0/0/0
N Oak Street

**15**
Lee Highway NB: 89/42/55, 2/1/1
N Fort Myer Drive
Lee Highway NB: 5/3/4 →, 86/41/53 →
N Fort Myer Drive

**Figure 25: Background Developments (2025) Traffic Volumes**




**Future With Development (2025) Peak Hour Volumes**

(#) Study Intersection

→ Turning Movement

123/456/789 AM / PM / Saturday Peak Hour Volume

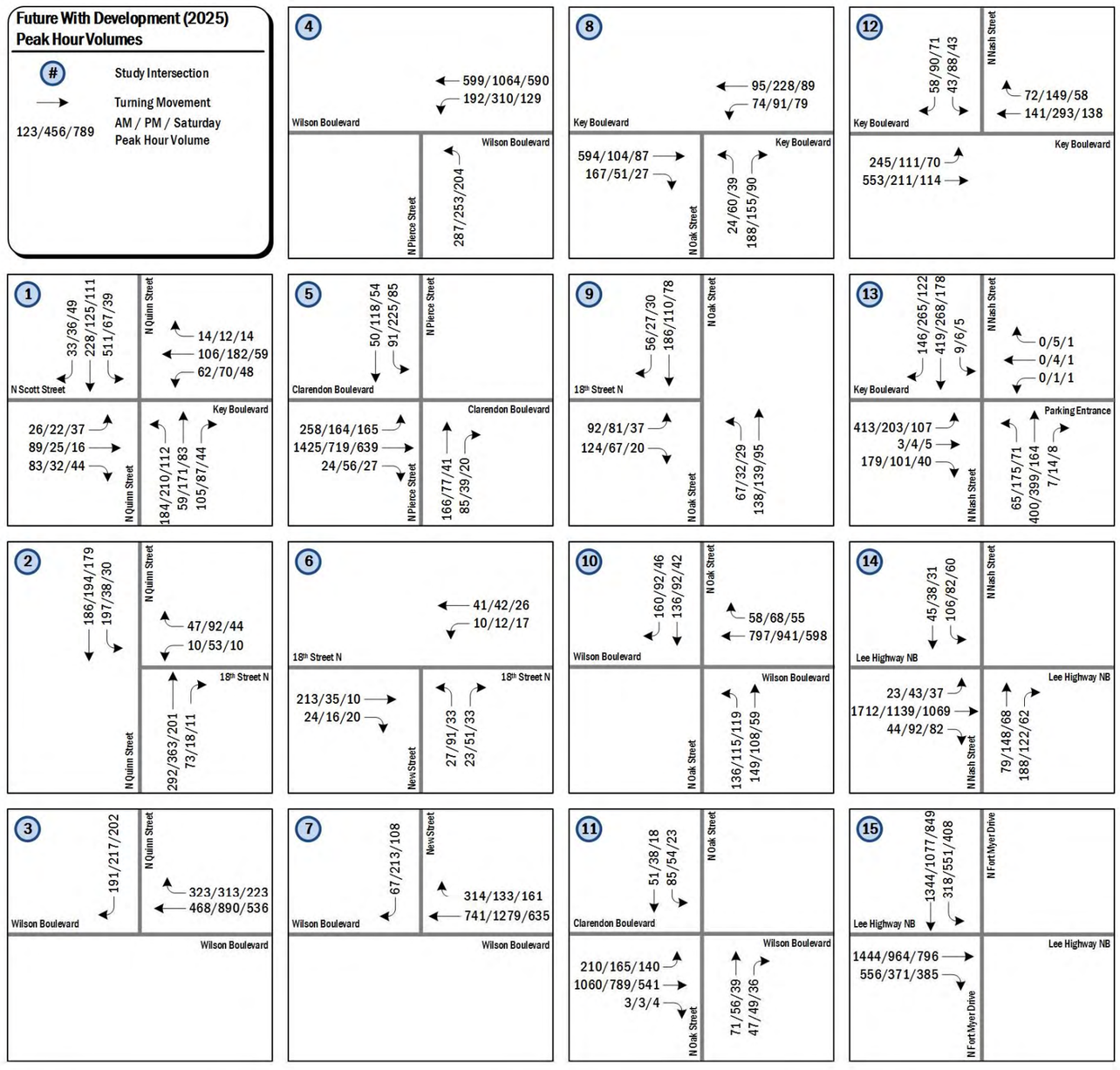



**Figure 26: Future with Development (2025) Traffic Volumes**

### *Future with Development Capacity Analysis*

Capacity analyses were performed at the intersections within the study area during the weekday AM, weekday PM, and Saturday peak hours, for the future conditions with development scenario. *Synchro, Version 9.1* was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology and include level of service, delay, and queue length comparisons for the turning movements analyzed. As previously described, a peak hour factor of 0.92 to 1.00 was used in the analysis of the future traffic conditions, consistent with VDOT practice.

The results of the intersection capacity analysis are presented in Table 8 and are expressed in level of service (LOS) and delay (seconds per vehicle) per lane group as shown in Figure 27. The 95% and 50% queue results for each intersection are also presented in Table 8 and are expressed in feet. The detailed analysis worksheets are included in Appendix F.

Under future with development (2025) conditions, all intersection movements within the study area continue to operate consistent with future with development (2019) results with the exception of the following:

- N Quinn Street and Key Boulevard
  - Westbound left/thru/right lane (AM peak hour)
  - Southbound left/thru lane (AM peak hour)

Other movements caused to operate below acceptable LOS thresholds by the proposed development in 2019 have been mitigated with signal timing adjustments. These results are shaded and included in Table 8. Although movements at the intersection of N Quinn Street and Key Boulevard exceeds County standards, the 2025 analysis was done as a planning scenario; therefore, no mitigation is proposed at this intersection.

## Table 8: Future with Development (2025) Capacity Results

| | Intersection (Movement) | Storage Length | Future With Development (2025) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | | PM Peak | | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th |
| 1 | **N Quinn Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **D** | **47.7** | | | **C** | **21.0** | | | **B** | **13.5** | | |
| | Eastbound Left/Thru/Right | 500 | D | 41.1 | 93 | 171 | B | 15.8 | 17 | 45 | C | 27.0 | 26 | 68 |
| | Westbound Left/Thru/Right | 315 | E | 56.2 | 99 | #221 | C | 23.2 | 118 | 210 | C | 28.4 | 54 | 97 |
| | Northbound Left/Thru | 200 | C | 30.1 | 98 | #284 | C | 24.1 | 144 | #294 | A | 5.5 | 38 | 45 |
| | Northbound Right | 50 | A | 1.3 | 0 | 4 | B | 10.4 | 4 | m32 | A | 1.8 | 0 | m2 |
| | Southbound Left/Thru | 525 | E | 61.6 | ~502 | #723 | B | 19.7 | 78 | 136 | A | 8.6 | 38 | 67 |
| | Southbound Right | 75 | A | 5.7 | 0 | 8 | B | 15.0 | 0 | 17 | A | 7.7 | 0 | 14 |
| 2 | **N Quinn Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **3.2** | | | **A** | **3.4** | | | **A** | **1.7** | | |
| | Westbound Left/Right | 315 | B | 14.2 | -- | 13 | B | 15.4 | -- | 33 | B | 10.9 | -- | 8 |
| | Northbound Thru/Right | 375 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Left/Thru | 200 | A | 9.0 | -- | 18 | A | 8.3 | -- | 3 | A | 7.9 | -- | 3 |
| 3 | **N Quinn Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **21.5** | | | **B** | **11.3** | | | **C** | **20.1** | | |
| | Westbound Thru | 325 | A | 9.2 | 58 | 84 | A | 7.6 | 104 | 105 | C | 20.3 | 149 | 141 |
| | Westbound Right | 85 | C | 25.8 | 24 | m45 | A | 6.6 | 6 | m7 | C | 25.6 | 12 | 25 |
| | Southbound Right | 375 | D | 44.3 | 22 | m34 | C | 33.3 | 94 | 168 | B | 13.5 | 82 | 142 |
| 4 | **N Pierce Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **15.9** | | | **C** | **22.2** | | | **B** | **18.5** | | |
| | Westbound Left/Thru | 675 | A | 6.3 | 95 | m111 | B | 19.2 | 406 | 497 | B | 12.8 | 165 | 232 |
| | Northbound Left | 250 | D | 43.1 | 156 | m217 | D | 37.8 | 131 | 209 | D | 38.6 | 122 | 190 |
| 5 | **N Pierce Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **20.4** | | | **C** | **24.0** | | | **B** | **10.4** | | |
| | Eastbound Left/Thru | 500 | B | 15.1 | 351 | #705 | B | 12.5 | 165 | 217 | A | 5.7 | 90 | 157 |
| | Eastbound Thru/Right | 500 | B | 15.1 | 351 | #705 | B | 12.5 | 165 | 217 | A | 5.7 | 90 | 157 |
| | Northbound Thru/Right | 185 | C | 34.1 | 131 | 185 | C | 24.1 | 42 | 86 | C | 32.6 | 22 | 54 |
| | Southbound Left/Thru | 250 | E | 60.5 | 45 | #165 | D | 55.0 | 160 | m#369 | C | 28.4 | 30 | 60 |
| 6 | **New Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **1.8** | | | **A** | **5.9** | | | **A** | **5.2** | | |
| | Eastbound Thru/Right | | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Westbound Left/Thru | | A | 7.8 | -- | 0 | A | 7.3 | -- | 0 | A | 7.3 | -- | 0 |
| | Northbound Left/Right | | B | 10.4 | -- | 5 | A | 9.7 | -- | 15 | A | 9.0 | -- | 5 |
| 7 | **New Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **0.8** | | | **A** | **4.5** | | | **A** | **1.5** | | |
| | Westbound Thru/Right | | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Right | | B | 14.2 | -- | 15 | D | 34.3 | -- | 115 | B | 12.9 | -- | 20 |
| 8 | **N Oak Street and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **C** | **23.8** | | | **A** | **7.4** | | | **A** | **5.2** | | |
| | Eastbound Thru/Right | 285 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Westbound Left/Thru | 150 | B | 12.0 | -- | 13 | A | 8.4 | -- | 8 | A | 7.8 | -- | 5 |
| | Northbound Left/Right | 200 | F | 123.9 | -- | 253 | C | 20.1 | -- | 68 | B | 11.7 | -- | 20 |
| 9 | **N Oak Street and 18th Street N** | | | | | | | | | | | | | |
| | **Overall Intersection (Unsignalized)** | | **A** | **6.4** | | | **A** | **4.7** | | | **A** | **2.9** | | |
| | Eastbound Left/Right | 850 | C | 17.2 | -- | 58 | B | 12.8 | -- | 25 | B | 10.6 | -- | 8 |
| | Northbound Left/Thru | 200 | A | 8.2 | -- | 5 | A | 7.9 | -- | 3 | A | 7.7 | -- | 3 |
| | Southbound Thru/Right | 200 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| 10 | **N Oak Street and Wilson Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **32.5** | | | **C** | **29.0** | | | **C** | **25.0** | | |
| | Westbound Thru | 125 | C | 27.9 | 160 | 205 | C | 24.7 | 185 | 234 | B | 17.4 | 90 | 120 |
| | Westbound Thru/Right | 75 | C | 27.9 | 160 | 205 | C | 24.7 | 185 | 234 | B | 17.4 | 90 | 120 |
| | Northbound Left/Thru | 25 | D | 54.2 | 186 | m240 | D | 54.0 | 144 | 224 | D | 53.5 | 116 | m177 |
| | Southbound Thru/Right | 200 | C | 25.1 | 107 | m169 | C | 22.8 | 55 | 108 | C | 21.9 | 19 | 56 |
| 11 | **N Oak Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **16.8** | | | **B** | **15.2** | | | **B** | **18.0** | | |
| | Eastbound Left | 75 | D | 51.9 | 116 | m#157 | D | 41.0 | 98 | m148 | D | 47.5 | 87 | 151 |
| | Eastbound Thru/Right | 550 | B | 11.0 | 144 | 127 | A | 9.7 | 102 | m149 | A | 7.7 | 56 | 76 |
| | Northbound Thru/Right | 825 | B | 18.9 | 43 | 83 | C | 23.0 | 26 | 66 | C | 26.4 | 18 | 54 |
| | Southbound Left/Thru | 25 | A | 6.1 | 14 | 17 | A | 7.8 | 13 | 16 | B | 12.8 | 11 | 15 |
| 12 | **N Nash Street and Key Boulevard** | | | | | | | | | | | | | |

| | Intersection (Movement) | Storage Length | Future With Development (2025) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak | | | | PM Peak | | | | Saturday Peak | | | |
| | | | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th | LOS | Delay | Queue 50th | Queue 95th |
| | **Overall Intersection (Unsignalized)** | | **A** | **5.3** | | | **A** | **6.4** | | | **A** | **3.9** | | |
| | Eastbound Left/Thru | 135 | A | 8.8 | -- | 20 | A | 9.2 | -- | 10 | A | 8.0 | -- | 5 |
| | Westbound Thru/Right | 65 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 | A | 0.0 | -- | 0 |
| | Southbound Left/Right | 650 | E | 37.4 | -- | 65 | D | 27.4 | -- | 80 | B | 12.0 | -- | 18 |
| **13** | **N Nash Street (east) and Key Boulevard** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **20.8** | | | **B** | **13.9** | | | **B** | **11.4** | | |
| | Eastbound Left | 65 | D | 35.5 | 234 | m261 | D | 42.3 | 120 | 168 | D | 42.3 | 63 | 112 |
| | Eastbound Thru/Right | 65 | C | 21.7 | 40 | m71 | C | 33.2 | 4 | 39 | D | 37.9 | 3 | 32 |
| | Westbound Left/Thru/Right | 25 | A | 0.0 | 0 | 0 | C | 27.6 | 2 | 14 | C | 33.0 | 1 | 8 |
| | Northbound Left/Thru | 400 | B | 14.5 | 93 | 153 | A | 7.2 | 73 | 142 | A | 3.2 | 16 | 36 |
| | Northbound Thru/Right | 400 | B | 14.5 | 93 | 153 | A | 7.2 | 73 | 142 | A | 3.2 | 16 | 36 |
| | Southbound Left/Thru | 150 | B | 16.2 | 170 | 296 | A | 5.9 | 56 | 120 | A | 3.2 | 25 | 56 |
| | Southbound Right | 150 | B | 12.7 | 0 | 37 | A | 6.9 | 0 | 32 | A | 3.1 | 0 | 16 |
| **14** | **N Nash Street and Lee Highway** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **B** | **17.8** | | | **B** | **17.3** | | | **B** | **10.5** | | |
| | Eastbound Left/Thru | 1450 | B | 10.0 | 215 | 282 | A | 7.6 | 117 | 168 | A | 4.1 | 71 | 115 |
| | Eastbound Thru | 1450 | B | 10.0 | 215 | 282 | A | 7.6 | 117 | 168 | A | 4.1 | 71 | 115 |
| | Eastbound Thru/Right | 1450 | B | 10.0 | 215 | 282 | A | 7.6 | 117 | 168 | A | 4.1 | 71 | 115 |
| | Northbound Thru/Right | 650 | D | 48.4 | 142 | m201 | D | 47.1 | 132 | 222 | D | 48.0 | 51 | 111 |
| | Southbound Left | 125 | E | 67.8 | 62 | #147 | E | 60.9 | 48 | #114 | D | 40.5 | 35 | 72 |
| | Southbound Thru | 125 | C | 28.6 | 22 | 50 | C | 29.3 | 19 | 43 | D | 36.3 | 18 | 43 |
| **15** | **N Fort Myer Drive and Lee Highway** | | | | | | | | | | | | | |
| | **Overall Intersection (Signalized)** | | **C** | **23.5** | | | **B** | **18.3** | | | **B** | **19.1** | | |
| | Eastbound Thru | 225 | A | 9.2 | 116 | 125 | B | 17.3 | 105 | 126 | A | 8.8 | 55 | 68 |
| | Eastbound Right | 70 | B | 14.7 | 115 | 150 | C | 23.9 | 100 | 141 | B | 11.6 | 65 | 92 |
| | Southbound Left | 250 | C | 34.1 | 151 | 265 | B | 19.8 | 175 | 290 | C | 28.4 | 104 | 208 |
| | Southbound Left/Thru | 250 | D | 40.0 | 304 | #407 | B | 16.9 | 191 | 237 | C | 27.6 | 180 | 229 |

m - Volume for 95th percentile queue is metered by upstream signal
# - 95th percentile volume exceeds capacity, queue may be longer
~ - Volume exceeds capacity, queue is theoretically infinite

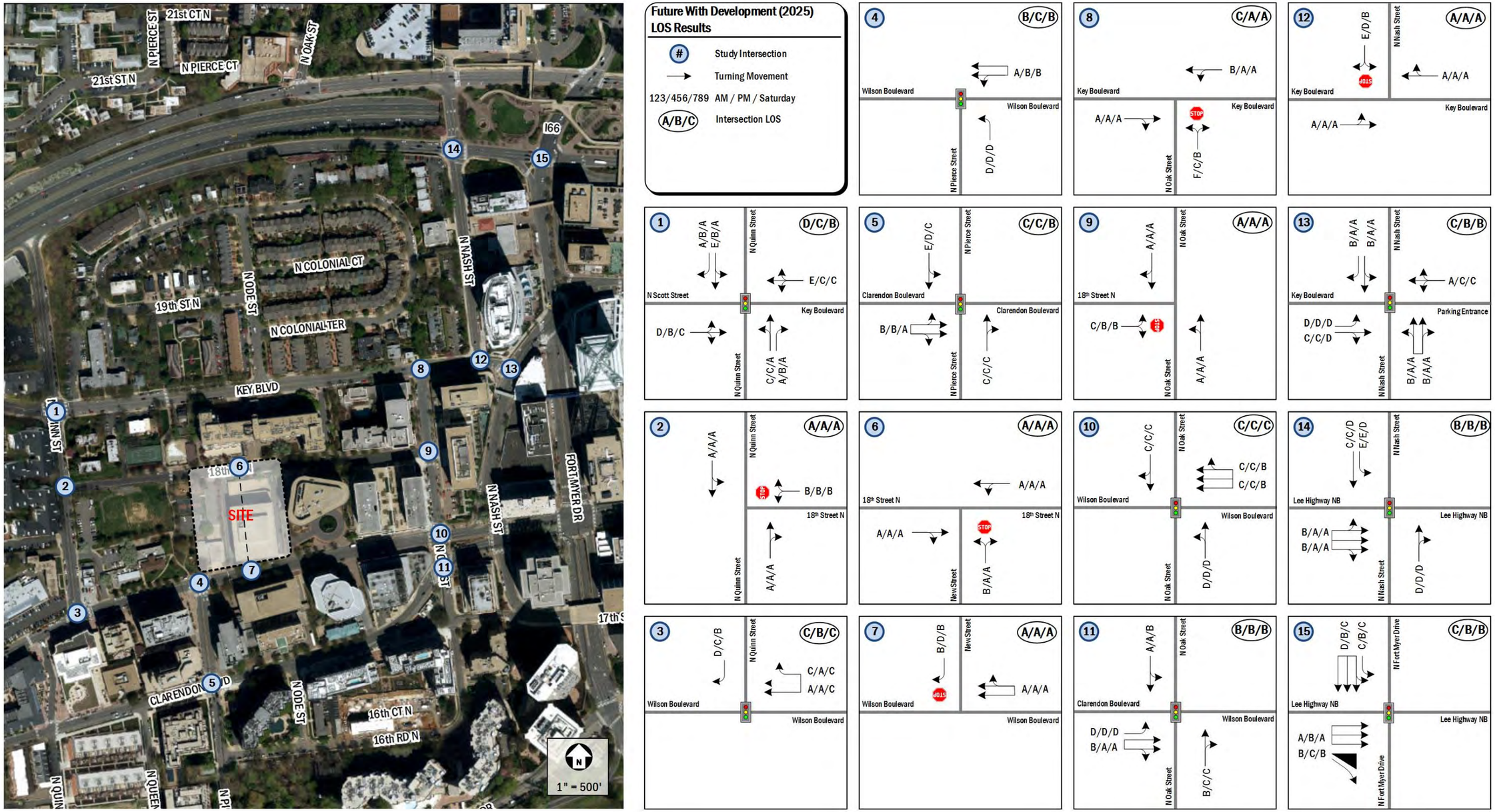



Figure 27: Future with Development (2025) LOS Results

## SUMMARY OF VEHICULAR CAPACITY ANALYSIS

As described in the previous sections, vehicular capacity analysis was performed for the following three scenarios:

- **Existing (2016) Conditions –** based on existing turning movement counts.
- **Future without Development (2019) Conditions** –assumes approved developments in the vicinity of the subject project and growth on the road network.
- **Future with Development (2019) Conditions** – assumes approved developments in the vicinity of the subject project with growth and new traffic generated by the subject project.
- **Future with Development (2025) Conditions** – assumes approved developments in the vicinity of the subject project with growth and new traffic generated by the subject project.

A comparison of the LOS and delay results for the four scenarios is presented in Table 9. No mitigation beyond adjustment of signal timing is proposed for the study area intersections. All movements caused to operate below acceptable LOS thresholds by the proposed development have been mitigated with signal timing adjustments. These results are shaded in the table below.

**Table 9: AM Peak Hour Comparison of Capacity Analysis Results**

| Intersection (Movement) | | Existing 2016 | | | Future Without Development (2019) | | | Future With Development (2019) | | | Future With Development (2025) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | | AM Peak | | | AM Peak | | | AM Peak | | |
| | | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue |
| **1) N Quinn Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **C** | **32.4** | | **D** | **54.1** | | **E** | **63.1** | | - | - | |
| Eastbound Left/Thru/Right | 500 | C | 31 | 132 | C | 31.3 | 144 | C | 31.7 | 149 | - | - | - |
| Westbound Left/Thru/Right | 315 | C | 32.9 | 143 | C | 34.6 | 162 | C | 34.8 | 163 | - | - | - |
| Northbound Left/Thru | 200 | B | 17.6 | 98 | D | 49.6 | #274 | E | 68.5 | #311 | - | - | - |
| Northbound Right | 50 | A | 2.3 | 4 | A | 1.8 | 5 | A | 1.9 | 6 | - | - | - |
| Southbound Left/Thru | 525 | D | 39.1 | #550 | E | 75.9 | 717 | F | 87.9 | #735 | - | - | - |
| Southbound Right | 75 | A | 7.6 | 7 | A | 7.6 | 10 | A | 7.6 | 10 | - | - | - |
| **1) N Quinn Street and Key Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **D** | **41.8** | | **D** | **47.7** | |
| Eastbound Left/Thru/Right | 500 | - | - | - | - | - | - | D | 40.1 | 163 | D | 41.1 | 171 |
| Westbound Left/Thru/Right | 315 | - | - | - | - | - | - | D | 53.3 | #211 | E | 56.2 | #221 |
| Northbound Left/Thru | 200 | - | - | - | - | - | - | C | 23.9 | #266 | C | 30.1 | #284 |
| Northbound Right | 50 | - | - | - | - | - | - | A | 1.3 | 4 | A | 1.3 | 4 |
| Southbound Left/Thru | 525 | - | - | - | - | - | - | D | 52.9 | #696 | E | 61.6 | #723 |
| Southbound Right | 75 | - | - | - | - | - | - | A | 5.7 | 8 | A | 5.7 | 8 |
| **2) N Quinn Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **2.8** | | **A** | **2.6** | | **A** | **3.2** | | **A** | **3.2** | |
| Westbound Left/Right | 315 | B | 12.3 | 5 | B | 14.8 | 8 | B | 14 | 13 | B | 14.2 | 13 |
| Northbound Thru/Right | 375 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Southbound Left/Thru | 200 | A | 8.2 | 13 | A | 8.8 | 15 | A | 8.9 | 18 | A | 9 | 18 |
| **3) N Quinn Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **C** | **34.4** | | **C** | **23.4** | | **C** | **21.8** | | **C** | **21.5** | |
| Westbound Thru | 325 | B | 10 | 61 | A | 9.5 | 79 | A | 9.3 | 81 | A | 9.2 | 84 |
| Westbound Right | 85 | C | 23.8 | 28 | C | 29.4 | m50 | C | 27.3 | m47 | C | 25.8 | m45 |
| Southbound Right | 375 | F | 93.8 | m15 | D | 44.4 | m22 | D | 42.3 | m24 | D | 44.3 | m34 |
| **4) N Pierce Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **12.5** | | **B** | **16.1** | | **B** | **15.9** | | **B** | **15.9** | |

| Intersection (Movement) | | Existing 2016 AM Peak | | | Future Without Development (2019) AM Peak | | | Future With Development (2019) AM Peak | | | Future With Development (2025) AM Peak | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue |
| Westbound Left/Thru | 675 | A | 3.9 | 58 | A | 6.1 | m97 | A | 6.2 | m108 | A | 6.3 | m111 |
| Northbound Left | 250 | D | 37.7 | 162 | D | 41.8 | m#228 | D | 43 | m217 | D | 43.1 | m217 |
| **5) N Pierce Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **13.6** | | **B** | **18.2** | | **C** | **21.4** | | **C** | **20.4** | |
| Eastbound Left/Thru | 500 | A | 8.1 | 339 | B | 12 | 482 | B | 15.3 | 511 | B | 15.1 | #705 |
| Eastbound Thru/Right | 500 | A | 8.1 | 339 | B | 12 | 482 | B | 15.3 | 511 | B | 15.1 | #705 |
| Northbound Thru/Right | 185 | D | 39.5 | 147 | D | 41.9 | 195 | D | 36 | 201 | C | 34.1 | 185 |
| Southbound Left/Thru | 250 | D | 41.1 | 64 | E | 55.6 | #142 | E | 67.2 | #191 | E | 60.5 | #165 |
| **6) New Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | - | - | | - | - | | **A** | **1.8** | | **A** | **1.8** | |
| Eastbound Thru/Right | | - | - | - | - | - | - | A | 0 | 0 | A | 0 | 0 |
| Westbound Left/Thru | | - | - | - | - | - | - | A | 7.8 | 0 | A | 7.8 | 0 |
| Northbound Left/Right | | - | - | - | - | - | - | B | 10.3 | 5 | B | 10.4 | 5 |
| **7) New Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | - | - | | - | - | | **A** | **0.9** | | **A** | **0.8** | |
| Westbound Thru/Right | | - | - | - | - | - | - | A | 0 | 0 | A | 0 | 0 |
| Southbound Right | | - | - | - | - | - | - | B | 14 | 13 | B | 14.2 | 15 |
| **8) N Oak Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **B** | **13.6** | | **B** | **14.3** | | **C** | **20.1** | | **C** | **23.8** | |
| Eastbound Thru/Right | 285 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Westbound Left/Thru | 150 | B | 10.8 | 8 | B | 11.7 | 10 | B | 11.8 | 10 | B | 12 | 13 |
| Northbound Left/Right | 200 | F | 65.1 | 165 | F | 79.8 | 183 | F | 104.6 | 230 | F | 123.9 | 253 |
| **9) N Oak Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **5.7** | | **A** | **5.6** | | **A** | **6.3** | | **A** | **6.4** | |
| Eastbound Left/Right | 850 | B | 13.1 | 33 | C | 15.3 | 43 | C | 16.7 | 53 | C | 17.2 | 58 |
| Northbound Left/Thru | 200 | A | 7.8 | 8 | A | 8.1 | 5 | A | 8.2 | 5 | A | 8.2 | 5 |
| Southbound Thru/Right | 200 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| **10) N Oak Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **C** | **30.2** | | **D** | **46** | | **E** | **75.2** | | - | - | |
| Westbound Thru | 125 | B | 19.7 | 130 | B | 20 | 150 | C | 21 | 171 | - | - | - |
| Westbound Thru/Right | 75 | B | 19.7 | 130 | B | 20 | 150 | C | 21 | 171 | - | - | - |
| Northbound Left/Thru | 25 | E | 58.4 | m#228 | F | 133.2 | m#286 | F | 268.4 | m#296 | - | - | - |
| Southbound Thru/Right | 200 | C | 34.9 | m144 | D | 42.7 | m200 | D | 42.5 | m200 | - | - | - |
| **10) N Oak Street and Wilson Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **C** | **31.9** | | **C** | **32.5** | |
| Westbound Thru | 125 | - | - | - | - | - | - | C | 27.5 | 197 | C | 27.9 | 205 |
| Westbound Thru/Right | 75 | - | - | - | - | - | - | C | 27.5 | 197 | C | 27.9 | 205 |
| Northbound Left/Thru | 25 | - | - | - | - | - | - | D | 52.2 | m240 | D | 54.2 | m240 |
| Southbound Thru/Right | 200 | - | - | - | - | - | - | C | 24.9 | m163 | C | 25.1 | m169 |
| **11) N Oak Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **14.6** | | **B** | **14.1** | | **B** | **19.8** | | - | - | |
| Eastbound Left | 75 | D | 52.7 | m#171 | E | 56.5 | m126 | F | 88.2 | m#191 | - | - | - |
| Eastbound Thru/Right | 550 | A | 6.2 | 64 | A | 6 | 91 | A | 5.9 | 99 | - | - | - |
| Northbound Thru/Right | 825 | C | 29.2 | 88 | C | 29.1 | 93 | C | 29.2 | 94 | - | - | - |
| Southbound Left/Thru | 25 | A | 8.1 | 10 | B | 10.8 | m21 | B | 10.8 | m21 | - | - | - |
| **11) N Oak Street and Clarendon Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **B** | **16.5** | - | **B** | **16.8** | |
| Eastbound Left | 75 | - | - | - | - | - | - | D | 50.7 | m#174 | D | 51.9 | m#157 |
| Eastbound Thru/Right | 550 | - | - | - | - | - | - | B | 10.6 | 122 | B | 11 | 127 |

| Intersection (Movement) | | Existing 2016 | | | Future Without Development (2019) | | | Future With Development (2019) | | | Future With Development (2025) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | | AM Peak | | | AM Peak | | | AM Peak | | |
| | | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue |
| Northbound Thru/Right | 825 | - | - | - | - | - | - | B | 18.8 | 80 | B | 18.9 | 83 |
| Southbound Left/Thru | 25 | - | - | - | - | - | - | A | 6.1 | 17 | A | 6.1 | 17 |
| **12) N Nash Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **3.1** | | **A** | **4.5** | | **A** | **5** | | **A** | **5.3** | |
| Eastbound Left/Thru | 135 | A | 8.5 | 15 | A | 8.6 | 18 | A | 8.7 | 20 | A | 8.8 | 20 |
| Westbound Thru/Right | 65 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Southbound Left/Right | 650 | C | 19 | 20 | D | 30.7 | 48 | D | 33.3 | 58 | E | 37.4 | 65 |
| **13) N Nash Street (east) and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **F** | **102.1** | | **F** | **189** | | **F** | **189** | | - | - | |
| Eastbound Left | 65 | F | 351.4 | 658 | F | 738.5 | 933 | F | 738.5 | 933 | - | - | - |
| Eastbound Thru/Right | 65 | C | 19.7 | 53 | D | 25.9 | 75 | D | 25.9 | 75 | - | - | - |
| Westbound Left/Thru/Right | 25 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | - | - | - |
| Northbound Left/Thru | 400 | A | 9 | 5 | A | 9.5 | 8 | A | 9.5 | 8 | - | - | - |
| Northbound Thru/Right | 400 | A | 0.2 | 0 | A | 0.4 | 0 | A | 0.4 | 0 | - | - | - |
| Southbound Left/Thru | 150 | A | 8.7 | 0 | A | 9 | 0 | A | 9 | 0 | - | - | - |
| Southbound Right | 150 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | - | - | - |
| **13) N Nash Street (east) and Key Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **C** | **20.3** | | **C** | **20.8** | |
| Eastbound Left | 65 | - | - | - | - | - | - | C | 34.8 | m251 | D | 35.5 | m261 |
| Eastbound Thru/Right | 65 | - | - | - | - | - | - | C | 21.5 | m67 | C | 21.7 | m71 |
| Westbound Left/Thru/Right | 25 | - | - | - | - | - | - | A | 0 | 0 | A | 0 | 0 |
| Northbound Left/Thru | 400 | - | - | - | - | - | - | B | 14 | 152 | B | 14.5 | 153 |
| Northbound Thru/Right | 400 | - | - | - | - | - | - | B | 14 | 152 | B | 14.5 | 153 |
| Southbound Left/Thru | 150 | - | - | - | - | - | - | B | 15.6 | 295 | B | 16.2 | 296 |
| Southbound Right | 150 | - | - | - | - | - | - | B | 12.3 | 36 | B | 12.7 | 37 |
| **14) N Nash Street and Lee Highway** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **16.2** | | **B** | **16.2** | | **B** | **17.4** | | **B** | **17.8** | |
| Eastbound Left/Thru | 1450 | A | 6.9 | 172 | A | 8.9 | 250 | A | 9.2 | 250 | B | 10 | 282 |
| Eastbound Thru | 1450 | A | 6.9 | 172 | A | 8.9 | 250 | A | 9.2 | 250 | B | 10 | 282 |
| Eastbound Thru/Right | 1450 | A | 6.9 | 172 | A | 8.9 | 250 | A | 9.2 | 250 | B | 10 | 282 |
| Northbound Thru/Right | 650 | D | 45.7 | m134 | D | 46.9 | m174 | D | 48.2 | m188 | D | 48.4 | m201 |
| Southbound Left | 125 | E | 64.9 | 111 | E | 56.6 | #131 | E | 65.4 | #140 | E | 67.8 | #147 |
| Southbound Thru | 125 | C | 30.6 | 36 | C | 29.2 | 42 | C | 28.9 | 49 | C | 28.6 | 50 |
| **15) N Fort Myer Drive and Lee Highway NB** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **17.5** | | **C** | **20.2** | | **C** | **20.6** | | **C** | **23.5** | |
| Eastbound Thru | 225 | B | 10.8 | 136 | A | 9.4 | 125 | A | 9.2 | 122 | A | 9.2 | 125 |
| Eastbound Right | 70 | A | 7.4 | 29 | B | 11.8 | 130 | B | 11.6 | 130 | B | 14.7 | 150 |
| Southbound Left | 250 | C | 31.9 | 239 | C | 32.9 | 251 | C | 32.9 | 251 | C | 34.1 | 265 |
| Southbound Left/Thru | 250 | C | 26.3 | 198 | C | 33 | 319 | C | 34 | 331 | D | 40 | #407 |

m - Volume for 95th percentile queue is metered by upstream signal
# - 95th percentile volume exceeds capacity, queue may be longer
~ - Volume exceeds capacity, queue is theoretically infinite

## Table 10: PM Peak Hour Comparison of Capacity Analysis Results

| Intersection (Movement) | Storage (ft) | Existing 2016 PM Peak | | | Future Without Development (2019) PM Peak | | | Future With Development (2019) PM Peak | | | Future With Development (2025) PM Peak | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue |
| **1) N Quinn Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **15.5** | | **B** | **16.9** | | **B** | **19.5** | | - | - | |
| Eastbound Left/Thru/Right | 500 | B | 15.6 | 35 | B | 15.7 | 43 | B | 15.8 | 44 | - | - | - |
| Westbound Left/Thru/Right | 315 | B | 19.6 | 164 | B | 19.6 | 172 | B | 19.6 | 172 | - | - | - |
| Northbound Left/Thru | 200 | B | 13 | 194 | B | 17 | 195 | C | 22.8 | 275 | - | - | - |
| Northbound Right | 50 | A | 3.7 | m9 | A | 6.7 | m18 | A | 9.4 | m29 | - | - | - |
| Southbound Left/Thru | 525 | B | 17.2 | 99 | B | 18.6 | 125 | B | 19.5 | 132 | - | - | - |
| Southbound Right | 75 | B | 14.9 | 11 | B | 15 | 16 | B | 15 | 16 | - | - | - |
| **1) N Quinn Street and Key Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | - | - | - | **C** | **21** | |
| Eastbound Left/Thru/Right | 500 | - | - | - | - | - | - | - | - | - | B | 15.8 | 45 |
| Westbound Left/Thru/Right | 315 | - | - | - | - | - | - | - | - | - | C | 23.2 | 210 |
| Northbound Left/Thru | 200 | - | - | - | - | - | - | - | - | - | C | 24.1 | #294 |
| Northbound Right | 50 | - | - | - | - | - | - | - | - | - | B | 10.4 | m32 |
| Southbound Left/Thru | 525 | - | - | - | - | - | - | - | - | - | B | 19.7 | 136 |
| Southbound Right | 75 | - | - | - | - | - | - | - | - | - | B | 15 | 17 |
| **2) N Quinn Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **1.2** | | **A** | **1.4** | | **A** | **3.4** | | **A** | **3.4** | |
| Westbound Left/Right | 315 | B | 11.8 | 8 | B | 13.4 | 10 | C | 15.1 | 23 | B | 15.4 | 33 |
| Northbound Thru/Right | 375 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Southbound Left/Thru | 200 | A | 8 | 0 | A | 8.3 | 3 | A | 8.3 | 3 | A | 8.3 | 3 |
| **3) N Quinn Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **14.6** | | **B** | **12** | | **B** | **11.5** | | **B** | **11.3** | |
| Westbound Thru | 325 | A | 9.1 | 76 | A | 8.1 | 100 | A | 7.8 | 101 | A | 7.6 | 105 |
| Westbound Right | 85 | B | 18.1 | 18 | B | 11.3 | 12 | A | 7.8 | 11 | A | 6.6 | m7 |
| Southbound Right | 375 | C | 29.3 | 107 | C | 30 | 138 | C | 31.9 | 159 | C | 33.3 | 168 |
| **4) N Pierce Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **17.8** | | **C** | **20.9** | | **C** | **20.3** | | **C** | **22.2** | |
| Westbound Left/Thru | 675 | B | 13.6 | 317 | B | 17.2 | 428 | B | 16.8 | 452 | B | 19.2 | 497 |
| Northbound Left | 250 | D | 36.2 | 161 | D | 38 | 210 | D | 37.4 | 206 | D | 37.8 | 209 |
| **5) N Pierce Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **18.4** | | **B** | **17.1** | | **C** | **22.7** | | **C** | **24** | |
| Eastbound Left/Thru | 500 | A | 9.1 | 154 | A | 9.5 | 183 | B | 12.1 | 205 | B | 12.5 | 217 |
| Eastbound Thru/Right | 500 | A | 9.1 | 154 | A | 9.5 | 183 | B | 12.1 | 205 | B | 12.5 | 217 |
| Northbound Thru/Right | 185 | C | 26.6 | 66 | C | 27.1 | 85 | C | 24.1 | 83 | C | 24.1 | 86 |
| Southbound Left/Thru | 250 | D | 41.1 | #271 | D | 37.3 | #280 | D | 50.1 | #371 | D | 55 | m#369 |
| **6) New Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | - | - | | - | - | | **A** | **6** | | **A** | **5.9** | |
| Eastbound Thru/Right | | - | - | - | - | - | - | A | 0 | 0 | A | 0 | 0 |
| Westbound Left/Thru | | - | - | - | - | - | - | A | 7.3 | 0 | A | 7.3 | 0 |
| Northbound Left/Right | | - | - | - | - | - | - | A | 9.7 | 13 | A | 9.7 | 15 |
| **7) New Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | - | - | | - | - | | **A** | **4.2** | | **A** | **4.5** | |
| Westbound Thru/Right | | - | - | - | - | - | - | A | 0 | 0 | A | 0 | 0 |
| Southbound Right | | - | - | - | - | - | - | D | 30.3 | 140 | D | 34.3 | 115 |
| **8) N Oak Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **5.5** | | **A** | **5.7** | | **A** | **7** | | **A** | **7.4** | |

| Intersection (Movement) | Storage (ft) | Existing 2016 PM Peak LOS | Delay | 95th Queue | Future Without Development (2019) PM Peak LOS | Delay | 95th Queue | Future With Development (2019) PM Peak LOS | Delay | 95th Queue | Future With Development (2025) PM Peak LOS | Delay | 95th Queue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eastbound Thru/Right | 285 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Westbound Left/Thru | 150 | A | 8.1 | 5 | A | 8.3 | 5 | A | 8.4 | 5 | A | 8.4 | 8 |
| Northbound Left/Right | 200 | C | 16 | 35 | C | 17.4 | 45 | C | 19 | 63 | C | 20.1 | 68 |
| **9) N Oak Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **3.8** | | **A** | **3.5** | | **A** | **4.7** | | **A** | **4.7** | |
| Eastbound Left/Right | 850 | B | 10.8 | 10 | B | 11.4 | 15 | B | 12.5 | 25 | B | 12.8 | 25 |
| Northbound Left/Thru | 200 | A | 7.7 | 3 | A | 7.8 | 3 | A | 7.8 | 3 | A | 7.9 | 3 |
| Southbound Thru/Right | 200 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| **10) N Oak Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **C** | **25.9** | | **C** | **26.8** | | **C** | **29.7** | | - | - | |
| Westbound Thru | 125 | B | 19.1 | 138 | C | 20.5 | 184 | C | 21.6 | 201 | - | - | - |
| Westbound Thru/Right | 75 | B | 19.1 | 138 | C | 20.5 | 184 | C | 21.6 | 201 | - | - | - |
| Northbound Left/Thru | 25 | D | 50.2 | 176 | D | 53.6 | 188 | E | 64.5 | m#207 | - | - | - |
| Southbound Thru/Right | 200 | C | 29 | 93 | C | 30.6 | 132 | C | 30.6 | 132 | - | - | - |
| **10) N Oak Street and Wilson Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **C** | **28.4** | | **C** | **29** | |
| Westbound Thru | 125 | - | - | - | - | - | - | C | 24 | 218 | C | 24.7 | 234 |
| Westbound Thru/Right | 75 | - | - | - | - | - | - | C | 24 | 218 | C | 24.7 | 234 |
| Northbound Left/Thru | 25 | - | - | - | - | - | - | D | 52.6 | 217 | D | 54 | 224 |
| Southbound Thru/Right | 200 | - | - | - | - | - | - | C | 22.4 | 103 | C | 22.8 | 108 |
| **11) N Oak Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **14.4** | | **B** | **15.1** | | **B** | **17.2** | | - | - | |
| Eastbound Left | 75 | D | 47.7 | m119 | D | 48.4 | m130 | E | 58.7 | m#167 | - | - | - |
| Eastbound Thru/Right | 550 | A | 6.9 | m90 | A | 8 | m122 | A | 7.8 | m120 | - | - | - |
| Northbound Thru/Right | 825 | C | 28.2 | 72 | C | 28 | 73 | C | 28 | 73 | - | - | - |
| Southbound Left/Thru | 25 | A | 7 | 9 | A | 9.3 | 15 | A | 9.4 | 15 | - | - | - |
| **11) N Oak Street and Clarendon Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **B** | **14.9** | | **B** | **15.2** | |
| Eastbound Left | 75 | - | - | - | - | - | - | D | 41 | m144 | D | 41 | m148 |
| Eastbound Thru/Right | 550 | - | - | - | - | - | - | A | 9.1 | m137 | A | 9.7 | m149 |
| Northbound Thru/Right | 825 | - | - | - | - | - | - | C | 23 | 64 | C | 23 | 66 |
| Southbound Left/Thru | 25 | - | - | - | - | - | - | A | 7.7 | 15 | A | 7.8 | 16 |
| **12) N Nash Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **4.4** | | **A** | **4.9** | | **A** | **6** | | **A** | **6.4** | |
| Eastbound Left/Thru | 135 | A | 8.5 | 6 | A | 8.9 | 5 | A | 9.1 | 10 | A | 9.2 | 10 |
| Westbound Thru/Right | 65 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Southbound Left/Right | 650 | C | 15.7 | 35 | C | 21.1 | 58 | D | 25.5 | 73 | D | 27.4 | 80 |
| **13) N Nash Street (east) and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **8.8** | | **F** | **61.3** | | **F** | **61.3** | | - | - | |
| Eastbound Left | 65 | F | 50.4 | 105 | F | 414.1 | 408 | F | 414.1 | 408 | - | - | - |
| Eastbound Thru/Right | 65 | B | 14.7 | 18 | C | 17 | 28 | C | 17 | 28 | - | - | - |
| Westbound Left/Thru/Right | 25 | A | 0 | 0 | D | 29 | 5 | D | 29 | 5 | - | - | - |
| Northbound Left/Thru | 400 | A | 8.7 | 10 | A | 9.2 | 18 | A | 9.2 | 18 | - | - | - |
| Northbound Thru/Right | 400 | A | 0.3 | 0 | A | 0.6 | 0 | A | 0.6 | 0 | - | - | - |
| Southbound Left/Thru | 150 | A | 8.6 | 0 | A | 9 | 0 | A | 9 | 0 | - | - | - |
| Southbound Right | 150 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | - | - | - |
| **13) N Nash Street (east) and Key Boulevard (Mitigated)** | | | | | | | | | | | | | |

| Intersection (Movement) | Storage (ft) | Existing 2016 PM Peak LOS | Existing 2016 PM Peak Delay | Existing 2016 PM Peak 95th Queue | Future Without Development (2019) PM Peak LOS | Future Without Development (2019) PM Peak Delay | Future Without Development (2019) PM Peak 95th Queue | Future With Development (2019) PM Peak LOS | Future With Development (2019) PM Peak Delay | Future With Development (2019) PM Peak 95th Queue | Future With Development (2025) PM Peak LOS | Future With Development (2025) PM Peak Delay | Future With Development (2025) PM Peak 95th Queue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **B** | **13.8** | | **B** | **13.9** | |
| Eastbound Left | 65 | - | - | - | - | - | - | D | 42.2 | 166 | D | 42.3 | 168 |
| Eastbound Thru/Right | 65 | - | - | - | - | - | - | C | 33.9 | 39 | C | 33.2 | 39 |
| Westbound Left/Thru/Right | 25 | - | - | - | - | - | - | C | 27.8 | 14 | C | 27.6 | 14 |
| Northbound Left/Thru | 400 | - | - | - | - | - | - | A | 7 | 136 | A | 7.2 | 142 |
| Northbound Thru/Right | 400 | - | - | - | - | - | - | A | 7 | 136 | A | 7.2 | 142 |
| Southbound Left/Thru | 150 | - | - | - | - | - | - | A | 5.8 | 116 | A | 5.9 | 120 |
| Southbound Right | 150 | - | - | - | - | - | - | A | 6.6 | 31 | A | 6.9 | 32 |
| **14) N Nash Street and Lee Highway** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **11.8** | | **B** | **14.3** | | **B** | **16.3** | | **B** | **17.3** | |
| Eastbound Left/Thru | 1450 | A | 4.8 | 113 | A | 6.2 | 154 | A | 7.3 | 155 | A | 7.6 | 168 |
| Eastbound Thru | 1450 | A | 4.8 | 113 | A | 6.2 | 154 | A | 7.3 | 155 | A | 7.6 | 168 |
| Eastbound Thru/Right | 1450 | A | 4.8 | 113 | A | 6.2 | 154 | A | 7.3 | 155 | A | 7.6 | 168 |
| Northbound Thru/Right | 650 | C | 34.1 | 76 | D | 40.2 | 154 | D | 42.3 | 205 | D | 47.1 | 222 |
| Southbound Left | 125 | D | 46.6 | 87 | E | 56.4 | 92 | E | 56 | #107 | E | 60.9 | #114 |
| Southbound Thru | 125 | C | 33.5 | 32 | C | 31.6 | 38 | C | 29.5 | 42 | C | 29.3 | 43 |
| **15) N Fort Myer Drive and Lee Highway NB** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **17.9** | | **B** | **18** | | **B** | **17.6** | | **B** | **18.3** | |
| Eastbound Thru | 225 | C | 20.1 | 126 | B | 18.2 | 122 | B | 17.3 | 123 | B | 17.3 | 126 |
| Eastbound Right | 70 | B | 17.8 | 79 | C | 21.9 | 125 | C | 20.7 | 126 | C | 23.9 | 141 |
| Southbound Left | 250 | B | 18 | 219 | B | 18.7 | 260 | B | 18.9 | 265 | B | 19.8 | 290 |
| Southbound Left/Thru | 250 | B | 16 | 188 | B | 16.4 | 216 | B | 16.5 | 221 | B | 16.9 | 237 |

m - Volume for 95th percentile queue is metered by upstream signal
# - 95th percentile volume exceeds capacity, queue may be longer
~ - Volume exceeds capacity, queue is theoretically infinite

## Table 11: Saturday Peak Hour Comparison of Capacity Analysis Results

| Intersection (Movement) | Storage (ft) | Existing 2016 Saturday Peak LOS | Existing 2016 Saturday Peak Delay | Existing 2016 Saturday Peak 95th Queue | Future Without Development (2019) Saturday Peak LOS | Future Without Development (2019) Saturday Peak Delay | Future Without Development (2019) Saturday Peak 95th Queue | Future With Development (2019) Saturday Peak LOS | Future With Development (2019) Saturday Peak Delay | Future With Development (2019) Saturday Peak 95th Queue | Future With Development (2025) Saturday Peak LOS | Future With Development (2025) Saturday Peak Delay | Future With Development (2025) Saturday Peak 95th Queue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1) N Quinn Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **13.6** | | **B** | **13.6** | | **B** | **13.5** | | - | - | |
| Eastbound Left/Thru/Right | 500 | C | 26.3 | 51 | C | 26.8 | 64 | C | 26.9 | 65 | - | - | - |
| Westbound Left/Thru/Right | 315 | C | 28.7 | 98 | C | 28.8 | 105 | C | 28.8 | 105 | - | - | - |
| Northbound Left/Thru | 200 | A | 5.1 | 29 | A | 5 | 31 | A | 5.5 | 44 | - | - | - |
| Northbound Right | 50 | A | 1.5 | m2 | A | 1.5 | m1 | A | 1.8 | m2 | - | - | - |
| Southbound Left/Thru | 525 | A | 8.3 | 53 | A | 8.5 | 62 | A | 8.5 | 65 | - | - | - |
| Southbound Right | 75 | A | 7.6 | 11 | A | 7.7 | 14 | A | 7.7 | 14 | - | - | - |
| **1) N Quinn Street and Key Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | - | - | - | **B** | **13.5** | |
| Eastbound Left/Thru/Right | 500 | - | - | - | - | - | - | - | - | - | C | 27 | 68 |
| Westbound Left/Thru/Right | 315 | - | - | - | - | - | - | - | - | - | C | 28.4 | 97 |
| Northbound Left/Thru | 200 | - | - | - | - | - | - | - | - | - | A | 5.5 | 45 |
| Northbound Right | 50 | - | - | - | - | - | - | - | - | - | A | 1.8 | m2 |
| Southbound Left/Thru | 525 | - | - | - | - | - | - | - | - | - | A | 8.6 | 67 |
| Southbound Right | 75 | - | - | - | - | - | - | - | - | - | A | 7.7 | 14 |

| Intersection (Movement) | Storage (ft) | Existing 2016 Saturday Peak | | | Future Without Development (2019) Saturday Peak | | | Future With Development (2019) Saturday Peak | | | Future With Development (2025) Saturday Peak | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue | LOS | Delay | 95th Queue |
| **2) N Quinn Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **0.6** | | **A** | **0.7** | | **A** | **1.8** | | **A** | **1.7** | |
| Westbound Left/Right | 315 | B | 10.7 | 3 | B | 10.7 | 3 | B | 10.8 | 8 | B | 10.9 | 8 |
| Northbound Thru/Right | 375 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Southbound Left/Thru | 200 | A | 7.7 | 0 | A | 7.8 | 0 | A | 7.8 | 3 | A | 7.9 | 3 |
| **3) N Quinn Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **C** | **21.3** | | **C** | **21.2** | | **C** | **20.5** | | **C** | **20.1** | |
| Westbound Thru | 325 | B | 18.2 | 100 | B | 18.5 | 112 | C | 20.3 | 135 | C | 20.3 | 141 |
| Westbound Right | 85 | C | 34.7 | 35 | C | 33.7 | 33 | C | 27.4 | 26 | C | 25.6 | 25 |
| Southbound Right | 375 | B | 14.5 | 128 | B | 13.8 | 138 | B | 13.4 | 139 | B | 13.5 | 142 |
| **4) N Pierce Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **19.8** | | **B** | **19.9** | | **B** | **18.4** | | **B** | **18.5** | |
| Westbound Left/Thru | 675 | B | 12.3 | 181 | B | 13.4 | 218 | B | 12.6 | 220 | B | 12.8 | 232 |
| Northbound Left | 250 | D | 40 | 170 | D | 40.2 | 185 | D | 38.4 | 185 | D | 38.6 | 190 |
| **5) N Pierce Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **A** | **8.6** | | **A** | **9.1** | | **B** | **10.1** | | **B** | **10.4** | |
| Eastbound Left/Thru | 500 | A | 3.6 | 99 | A | 3.8 | 115 | A | 5.5 | 146 | A | 5.7 | 157 |
| Eastbound Thru/Right | 500 | A | 3.6 | 99 | A | 3.8 | 115 | A | 5.5 | 146 | A | 5.7 | 157 |
| Northbound Thru/Right | 185 | D | 36.6 | 46 | D | 36.5 | 53 | C | 32.6 | 52 | C | 32.6 | 54 |
| Southbound Left/Thru | 250 | C | 30.6 | 48 | C | 34.4 | 56 | C | 26.8 | 57 | C | 28.4 | 60 |
| **6) New Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | - | - | | - | - | | **A** | **5.3** | | **A** | **5.2** | |
| Eastbound Thru/Right | | - | - | - | - | - | - | A | 0 | 0 | A | 0 | 0 |
| Westbound Left/Thru | | - | - | - | - | - | - | A | 7.3 | 0 | A | 7.3 | 0 |
| Northbound Left/Right | | - | - | - | - | - | - | A | 9 | 5 | A | 9 | 5 |
| **7) New Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | - | - | | - | - | | **A** | **1.6** | | **A** | **1.5** | |
| Westbound Thru/Right | | - | - | - | - | - | - | A | 0 | 0 | A | 0 | 0 |
| Southbound Right | | - | - | - | - | - | - | B | 12.6 | 18 | B | 12.9 | 20 |
| **8) N Oak Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **4.4** | | **A** | **4.6** | | **A** | **5.1** | | **A** | **5.2** | |
| Eastbound Thru/Right | 285 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Westbound Left/Thru | 150 | A | 7.8 | 3 | A | 7.8 | 5 | A | 7.8 | 5 | A | 7.8 | 5 |
| Northbound Left/Right | 200 | B | 11.2 | 13 | B | 11.4 | 15 | B | 11.6 | 18 | B | 11.7 | 20 |
| **9) N Oak Street and 18th Street N** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **2.2** | | **A** | **1.9** | | **A** | **2.9** | | **A** | **2.9** | |
| Eastbound Left/Right | 850 | B | 10 | 3 | B | 10.1 | 3 | B | 10.5 | 8 | B | 10.6 | 8 |
| Northbound Left/Thru | 200 | A | 7.7 | 3 | A | 7.7 | 3 | A | 7.7 | 3 | A | 7.7 | 3 |
| Southbound Thru/Right | 200 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| **10) N Oak Street and Wilson Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **C** | **23.2** | | **C** | **23.2** | | **C** | **27.2** | | - | - | |
| Westbound Thru | 125 | B | 16 | 81 | B | 16.5 | 100 | B | 18.6 | 118 | - | - | - |
| Westbound Thru/Right | 75 | B | 16 | 81 | B | 16.5 | 100 | B | 18.6 | 118 | - | - | - |
| Northbound Left/Thru | 25 | D | 47.6 | 130 | D | 49.3 | 138 | E | 57.3 | m178 | - | - | - |
| Southbound Thru/Right | 200 | C | 25.7 | 51 | C | 25.6 | 57 | C | 26.1 | 57 | - | - | - |
| **10) N Oak Street and Wilson Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **C** | **25** | | **C** | **25** | |
| Westbound Thru | 125 | - | - | - | - | - | - | B | 17.2 | 113 | B | 17.4 | 120 |
| Westbound Thru/Right | 75 | - | - | - | - | - | - | B | 17.2 | 113 | B | 17.4 | 120 |
| Northbound Left/Thru | 25 | - | - | - | - | - | - | D | 53.3 | m177 | D | 53.5 | m177 |
| Southbound Thru/Right | 200 | - | - | - | - | - | - | C | 21.7 | 53 | C | 21.9 | 56 |

| Intersection (Movement) | Storage (ft) | Existing 2016 Saturday Peak LOS | Existing 2016 Saturday Peak Delay | Existing 2016 Saturday Peak 95th Queue | Future Without Development (2019) Saturday Peak LOS | Future Without Development (2019) Saturday Peak Delay | Future Without Development (2019) Saturday Peak 95th Queue | Future With Development (2019) Saturday Peak LOS | Future With Development (2019) Saturday Peak Delay | Future With Development (2019) Saturday Peak 95th Queue | Future With Development (2025) Saturday Peak LOS | Future With Development (2025) Saturday Peak Delay | Future With Development (2025) Saturday Peak 95th Queue |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11) N Oak Street and Clarendon Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **15.6** | | **B** | **15.6** | | **B** | **17.9** | | - | - | |
| Eastbound Left | 75 | D | 51.1 | 95 | D | 52.7 | 105 | D | 54.9 | #165 | - | - | - |
| Eastbound Thru/Right | 550 | A | 7.3 | 58 | A | 7.4 | 67 | A | 7.1 | 67 | - | - | - |
| Northbound Thru/Right | 825 | C | 27.3 | 52 | C | 27.1 | 54 | C | 27.1 | 54 | - | - | - |
| Southbound Left/Thru | 25 | B | 11.4 | 11 | B | 11.9 | 13 | B | 11.9 | 13 | - | - | - |
| **11) N Oak Street and Clarendon Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | - | - | - | **B** | **18** | |
| Eastbound Left | 75 | - | - | - | - | - | - | - | - | - | D | 47.5 | 151 |
| Eastbound Thru/Right | 550 | - | - | - | - | - | - | - | - | - | A | 7.7 | 76 |
| Northbound Thru/Right | 825 | - | - | - | - | - | - | - | - | - | C | 26.4 | 54 |
| Southbound Left/Thru | 25 | - | - | - | - | - | - | - | - | - | B | 12.8 | 15 |
| **12) N Nash Street and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **3.4** | | **A** | **3.4** | | **A** | **3.9** | | **A** | **3.9** | |
| Eastbound Left/Thru | 135 | A | 7.7 | 3 | A | 7.9 | 3 | A | 8 | 5 | A | 8 | 5 |
| Westbound Thru/Right | 65 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 |
| Southbound Left/Right | 650 | B | 10.3 | 8 | B | 11.5 | 15 | B | 11.9 | 18 | B | 12 | 18 |
| **13) N Nash Street (east) and Key Boulevard** | | | | | | | | | | | | | |
| **Overall Intersection (Unsignalized)** | | **A** | **3.6** | | **A** | **4.2** | | **A** | **4.2** | | - | - | |
| Eastbound Left | 65 | B | 12.3 | 13 | C | 16.6 | 28 | C | 16.6 | 28 | - | - | - |
| Eastbound Thru/Right | 65 | B | 10.5 | 5 | B | 11.2 | 5 | B | 11.2 | 5 | - | - | - |
| Westbound Left/Thru/Right | 25 | B | 11.2 | 0 | B | 13.3 | 0 | B | 13.3 | 0 | - | - | - |
| Northbound Left/Thru | 400 | A | 7.8 | 3 | A | 8 | 5 | A | 8 | 5 | - | - | - |
| Northbound Thru/Right | 400 | A | 0.1 | 0 | A | 0.1 | 0 | A | 0.1 | 0 | - | - | - |
| Southbound Left/Thru | 150 | A | 7.6 | 0 | A | 7.8 | 0 | A | 7.8 | 0 | - | - | - |
| Southbound Right | 150 | A | 0 | 0 | A | 0 | 0 | A | 0 | 0 | - | - | - |
| **13) N Nash Street (east) and Key Boulevard (Mitigated)** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | - | - | | - | - | | **B** | **12.2** | | **B** | **11.4** | |
| Eastbound Left | 65 | - | - | - | - | - | - | D | 48.2 | 111 | D | 42.3 | 112 |
| Eastbound Thru/Right | 65 | - | - | - | - | - | - | D | 39.9 | 32 | D | 37.9 | 32 |
| Westbound Left/Thru/Right | 25 | - | - | - | - | - | - | C | 34.4 | 8 | C | 33 | 8 |
| Northbound Left/Thru | 400 | - | - | - | - | - | - | A | 2.7 | 35 | A | 3.2 | 36 |
| Northbound Thru/Right | 400 | - | - | - | - | - | - | A | 2.7 | 35 | A | 3.2 | 36 |
| Southbound Left/Thru | 150 | - | - | - | - | - | - | A | 2.8 | 55 | A | 3.2 | 56 |
| Southbound Right | 150 | - | - | - | - | - | - | A | 2.7 | 15 | A | 3.1 | 16 |
| **14) N Nash Street and Lee Highway** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **A** | **9.1** | | **A** | **9.2** | | **B** | **10.2** | | **B** | **10.5** | |
| Eastbound Left/Thru | 1450 | A | 3.3 | 79 | A | 3.5 | 100 | A | 4 | 104 | A | 4.1 | 115 |
| Eastbound Thru | 1450 | A | 3.3 | 79 | A | 3.5 | 100 | A | 4 | 104 | A | 4.1 | 115 |
| Eastbound Thru/Right | 1450 | A | 3.3 | 79 | A | 3.5 | 100 | A | 4 | 104 | A | 4.1 | 115 |
| Northbound Thru/Right | 650 | D | 45.3 | 51 | D | 44.2 | 74 | D | 43.1 | 104 | D | 48 | 111 |
| Southbound Left | 125 | D | 42.5 | 69 | D | 42.2 | 71 | D | 40.1 | 71 | D | 40.5 | 72 |
| Southbound Thru | 125 | D | 37.1 | 24 | D | 37.4 | 33 | D | 36.3 | 42 | D | 36.3 | 43 |
| **15) N Fort Myer Drive and Lee Highway NB** | | | | | | | | | | | | | |
| **Overall Intersection (Signalized)** | | **B** | **17.1** | | **B** | **18.3** | | **B** | **18.4** | | **B** | **19.1** | |
| Eastbound Thru | 225 | A | 9 | 66 | A | 9.1 | 66 | A | 8.8 | 67 | A | 8.8 | 68 |
| Eastbound Right | 70 | A | 8.2 | 44 | B | 10.8 | 80 | B | 10.5 | 81 | B | 11.6 | 92 |
| Southbound Left | 250 | C | 24.4 | 122 | C | 26.5 | 170 | C | 26.9 | 177 | C | 28.4 | 208 |

| Intersection (Movement) | Storage (ft) | Existing 2016 | | Future Without Development (2019) | | Future With Development (2019) | | Future With Development (2025) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Saturday Peak | | Saturday Peak | | Saturday Peak | | Saturday Peak | |
| | | LOS Delay | 95th Queue | LOS Delay | 95th Queue | LOS Delay | 95th Queue | LOS Delay | 95th Queue |
| Southbound Left/Thru | 250 | C 25.1 | 161 | C 26.6 | 203 | C 26.9 | 210 | C 27.6 | 229 |

m - Volume for 95th percentile queue is metered by upstream signal
# - 95th percentile volume exceeds capacity, queue may be longer
~ - Volume exceeds capacity, queue is theoretically infinite

## TRAFFIC SIGNAL WARRANT ANALYSIS

This section presents the evaluation of the traffic signal control warrant for the intersection of N Nash Street (east) and Key Boulevard. The signal warrant analyses were performed following the procedures outlined in the 2009 Manual on Uniform Traffic Control Devices (MUTCD) for Warrant 3 (peak-hour vehicular volume).

A signal is not needed at the intersection of N Nash Street (east) and Key Boulevard under existing conditions; however, a considerable number of vehicle trips will be added to the study area and this intersection with the 10 planned developments near the West Rosslyn development. Therefore, the future without development (2019) conditions traffic volumes were analyzed. The data points consider the traffic on Key Boulevard as the minor street traffic and the total traffic on N Nash Street as the major street traffic. The major street (N Nash Street) is analyzed as two lanes, and the minor street (Key Boulevard) is analyzed as two lanes. According to the MUTCD, only one warrant needs to be satisfied to allow for the installation of a traffic control signal.

### *Warrant 3: 4 Hour Vehicular Volume*

Typically, hourly traffic volumes of an average day are plotted on the MUTCD Figure 4C-3 and, if any point is above the appropriate curve, the warrant criterion is met. As noted in the MUTCD Figure 4C-3, 150 vehicles per hour apply as the lower threshold volume for a minor-street approach with two lanes.

The future without development traffic conditions are plotted on Figure 28. As shown in **Figure 28**, one of the points lie above the curve for 2 lanes on the major and 2 lanes on the minor streets. The requirement for the warrant to be satisfied is data points for any hour in an average day that lie above the corresponding curve in Figure 4C-3. **Therefore, Warrant 3 is satisfied.**

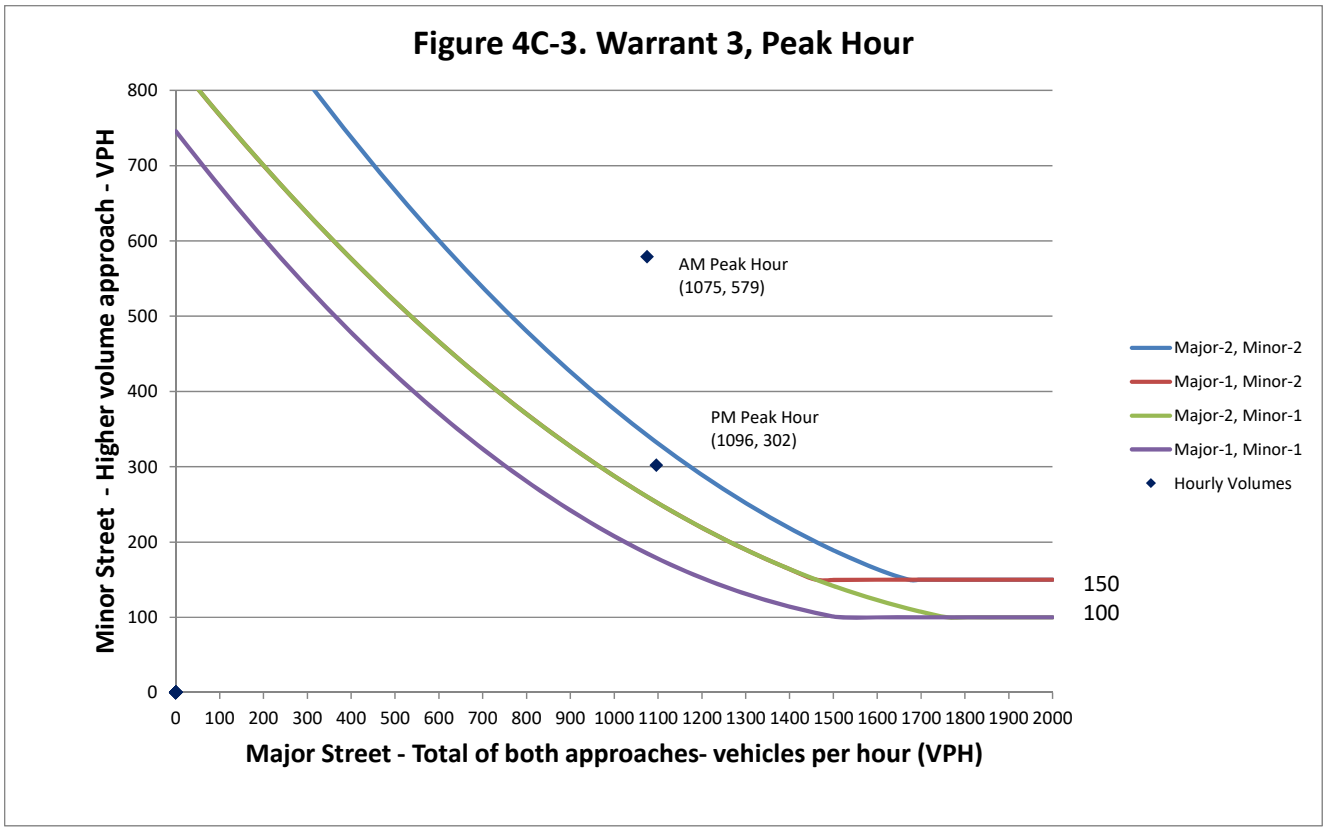



**Figure 28: Peak Hour Signal Warrant**

## TRANSPORTATION MANAGEMENT PLAN

A Transportation Management Plan (TMP) has many components that are tailored to accommodate a given facility with the goal being the reduction of automobile trips by encouraging alternative forms of transportation. A few of the typical TMP components include the establishment of a TMP coordinator, the distribution of transit literature, the establishment of ride-sharing programs, and the on-site sale of discounted fare media. Management measures taken by the West Rosslyn project can be monitored and adjusted as needed to continually create opportunities to reduce the amount of vehicular traffic generated by the site.

The TMP will include a schedule and details of implementation and continued operation of the elements in the plan. The location of the site near the Rosslyn Metro Station allows for a TMP that may include, but not be limited to, the following:

### *Participation and Funding*

a. The Applicant will maintain an active membership in Arlington Transportation Partners (ATP), or successor entity at no cost to the developer, on behalf of the property management company.

b. The Applicant will designate a member(s) of the building management team as Property Transportation Coordinator (PTC) who will be the primary point of contact with the County and undertake the responsibility for coordinating and completing all TMP obligations.

c. Provide contributions for Arlington County Commuter Services (ACCS) as negotiated with Arlington County staff during the 4.1 Site Plan process.

### *Facilities and Improvements*

a. Provide in the new building one information display with transportation related information for residents, employees and visitors, the content/design/location of which shall be mutually agreeable to ACCS and Applicant.

b. Comply with requirements of the Site Plan conditions to provide bicycle parking/storage facilities and construction worker parking.

### *Parking Management Plan*

a. Prepare a Parking Management Plan to show how adjacent curb space to the site will be designated for parking and potential on-street loading zones.

b. Provide effective directional signage to direct residents and visitors to appropriate location on the property, to include provision for the items specified in the Parking Management Plan.

### *Promotions, Services, Policies*

a. Provide one time, per person, at initial lease-up, to residents and on-site property management employees, the choice of one of the following:

   i. $65 Metro fare on a SmarTrip card

   ii. A one year bikeshare membership

   iii. A one year carshare membership

b. Provide website hotlinks to CommuterPage.com™ under a "transportation information" heading from the property manager's websites regarding this development.

c. Distribute new-resident and new-employee packages, materials provided by Arlington County including site-specific transit-related information to all residents and all on-site employees of the building management company.

d. Place a reference to the Rosslyn Metro and nearby bus routes in promotional materials and advertisements.

e. Cooperate, at no cost to the Applicant, with Arlington County to assist the County in implementing a transit-advertising program that will distribute information four times per year to all residents and employees.

f. Participate in regionally sponsored clean air, transit, and traffic mitigation promotions by posting notice of such promotions in locations within the building.

g. Provide marketing support to encourage ridesharing.

### *Performance and Monitoring*

a. Reimburse the County, for a specified amount subject to CPI, for and participate in a transportation performance monitoring study at two years, five years, and at each subsequent five years (at the County's option) after issuance of first Certificate of Occupancy.

b. During the first year of startup of the TMP and on an annual basis thereafter for a duration of years to be determined, the Applicant will submit an annual letter to the County Manager describing the TDM related activities of the site.

## CONCLUSION

The site is located in the West Rosslyn area of Arlington, Virginia, south of 18th Street N, north of Wilson Boulevard, east of N Quinn Street, and west of N Oak Street. The vehicular study area includes three (3) intersections along N Quinn Street, 18th Street N, Key Boulevard, and N Nash Street, four (4) intersections along N Oak Street and Wilson Boulevard, and two (2) intersections along Lee Highway NB and N Pierce Street. Regional access to the site is provided via I-66/US29 and the George Washington Memorial Parkway from the north and east, US 50 (Arlington Blvd) to the south and Wilson Boulevard/Clarendon Boulevard to the west. Immediate vehicular access to the site will be provided via a new north-south street which will bisect the site and connect Wilson Boulevard to 18th Street N.

According to Arlington County's General Land Use Plan (GLUP), this site is currently listed as "High Office-Apartment-Hotel" and "Public Space." The new development will be divided in two parts, with the eastern parcel including one residential tower and space for ground-floor retail while the western parcel will include a tower with office space, additional ground floor retail, and the redevelopment of the existing Rosslyn Highlands Park. The proposed project build-out year is 2019.

The analysis presented in this report supports the following major conclusions:

**Existing Conditions (2016)**

- The subject site is well-served by transit:
  - The site is approximately less than one-half mile walking distance from the Rosslyn Metro station, which serve the Blue, Orange, and Silver lines.
  - There are four bus stops within one block of the site. These stops are directly served by WMATA (Metrobus) and Arlington Transit (ART) routes.
- Vehicular traffic operations in the study area are good overall. All intersection movements within the study area operate at the target Level of Service (LOS) D or better during the AM, PM, and Saturday peak hours, with the exception of the following:
  - N Quinn Street and Wilson Boulevard
    - Southbound right lane (AM peak hour)
  - N Oak Street and Key Boulevard
    - Northbound left/right lane (AM peak hour)
  - N Oak Street and Wilson Boulevard
    - Northbound left/thru lane (AM peak hour)
  - N Nash Street (east) and Key Boulevard (AM peak hour)
    - Eastbound left lane (AM and PM peak hour)
  - N Nash Street and Lee Highway
    - Southbound left lane (AM peak hour)
- None of the movements listed above cause the intersections to operate below acceptable LOS thresholds with the exception of the intersection of N Nash Street (east) and Key Boulevard in the AM peak hour. Signalization as mitigation at this intersection is considered.

**Future Conditions without Development (2019)**

- Historical roadway volumes indicate negative growth has occurred in the study area; however a 0.5% annual background growth was applied at the study intersections as per agreement with VDOT and Arlington County. Ten planned background developments in the vicinity of the site were also taken into consideration. The trips generated by these sites were added to the roadway network to reflect future conditions without the proposed development in 2019.
- Under future without development conditions, all movements at the study intersections operate at acceptable levels of service consistent with the Existing Conditions scenario, with the exception of the following:
  - N Quinn Street and Key Boulevard
    - Southbound left/thru lane (AM peak hour)
  - N Pierce Street and Clarendon Boulevard
    - Southbound left/thru lane (AM peak hour)
  - N Oak Street and Clarendon Boulevard
    - Eastbound left lane (AM peak hour)
  - N Nash Street (east) and Key Boulevard (PM peak hour)
  - N Nash Street and Lee Highway
    - Southbound left lane (PM peak hour)
- None of the movements listed above cause the intersections to operate below acceptable LOS thresholds with the exception of the intersection of N Nash Street (east) and Key Boulevard in the PM peak hour. Signalization as mitigation at this intersection is considered.

**Future Conditions with Development (2019)**

- The proposed mixed-use development will generate approximately 268 net trips in the AM peak hour, 348 net trips in the PM peak hour, and 287 net trips in the Saturday peak hour.
- Under future with development conditions, all intersection movements within the study area operate at acceptable levels of service consistent with the Future without Development scenario, with the exception of the following:
  - N Quinn Street and Key Boulevard (AM peak hour)
    - Southbound left/thru lanes (AM peak hour)
  - N Pierce Street and Clarendon Boulevard
    - Southbound left/thru lane (PM peak hour)
  - N Oak Street and Wilson Boulevard (AM peak hour)
    - Northbound left/thru lane (PM and Saturday peak hour)
  - N Oak Street and Clarendon Boulevard
    - Eastbound left lane (PM peak hour)

- All movements caused to operate below acceptable LOS thresholds by the proposed development have been mitigated with signal timing adjustments. No additional mitigations are required.

**Future Conditions with Development (2025)**

- There are no additional site-added trips between 2019 and 2025.
- Under future (2025) with development conditions, all intersection movements within the study area continue to operate consistent with future (2019) with development results with the exception of the following:
  - N Quinn Street and Key Boulevard
    - Westbound left/thru/right lane (AM peak hour)
    - Southbound left/thru lane (AM peak hour)
- Other movements caused to operate below acceptable LOS thresholds by the proposed development have been mitigated with signal timing adjustments. Although movements at the intersection of N Quinn Street and Key Boulevard exceeds County standards, the 2025 analysis was done as a planning scenario; therefore, no mitigation is proposed at this intersection.

**Transportation Management Plan**

- A TMP will be required for the project based on the County's requirements. The initial framework for a TMP is included in this report. The ultimate TMP will be determined per the approved site plan conditions.