County of Loudoun

Department of Transportation and Capital Infrastructure

MEMORANDUM

DATE: September 2, 2016

TO: Jacqueline Marsh, Project Manager
Department of Planning and Zoning

FROM: Marc Dreyfuss, Transportation Planner MZD
DTCI, Transportation Planning & Operations Division

SUBJECT: **ZMAP 2016-0006, ZMOD 2016-0010, SPEX 2016-0025 & SPEX 2016-0026 – Ashburn Village Development**
First Referral

Background

These Zoning Map Amendment (ZMAP), Zoning Modification (ZMOD), and Special Exception (SPEX) applications propose to rezone a 52.3 acre parcel zoned PD-IP (Planned Development – Industrial Park) under the *Revised 1993 Zoning Ordinance* as follows: approximately 21.4 acres to PD-OP (Planned Development – Office Park), approximately 5.9 acres to PD-CC(NC) (Planned Development – Commercial Center – Neighborhood Center), and approximately 25 acres to R-24 (Residential – 24 units per acre); reduce minimum setbacks from VA Route 7; permit a use in excess of 5,000 SF (up to 15,000 SF); and permit development of any compatible use which serves the immediate neighborhood and is not already a use listed for any district in the Zoning Ordinance. The subject property is located on the southwest corner of Harry Byrd Highway (VA Route 7) and Ashburn Village Boulevard (VA Route 2020), north of Russell Branch Parkway (VA Route 1061). The site is currently undeveloped and has no existing site access driveways. Access is proposed via a full movement intersection with Ashburn Village Boulevard opposite the existing Ashbrook Commons Plaza, via a right-in right-out access point along Ashburn Village Boulevard opposite the right-in right-out access point approved with the Ashbrook Marketplace (ZMAP 2005-0018) rezoning, and via an interparcel connection to a full movement intersection with Russell Branch Parkway via the adjacent parcel to the west of the site (PIN #083-29-4511). The site is subject to the proffers of Ashburn Village (ZMAP 1984-0007). A vicinity map and proposed site layout are provided as ***Attachment 1***.

Department of Transportation and Capital Infrastructure (DTCI) review of these applications is based on materials received from the Department of Planning and Zoning on July 13, 2016, including (1) an Information Sheet, dated July 11, 2016; (2) a Statement of Justification prepared by the Applicant, dated June 28, 2016; (3) a Traffic Impact Study (TIS) prepared by Gorove / Slade, dated June 2, 2016; and (4) a Concept Development Plan (CDP) prepared by Bowman Consulting, dated June 10, 2016.

Compliance with the Countywide Transportation Plan

The subject property lies within the Suburban Policy Area (Ashburn Community). The transportation network is specifically governed by the policies of the *Countywide Transportation Plan (2010 CTP)* and the *Bicycle & Pedestrian Mobility Master Plan (2003 Bike & Ped Plan).*

DTCI's assessment of the transportation network is based on review of existing, planned, and programmed transportation facilities, review of the Applicant's traffic study, and applicable County policies.

Existing, Planned, and Programmed Transportation Facilities

The subject property is located on the southwest corner of VA Route 7 and Ashburn Village Boulevard, north of Russell Branch Parkway. Roadways serving the site are described below. Descriptions for planned conditions of CTP roads are taken from Appendix 1 of the *2010 CTP*; descriptions of planned bicycle and pedestrian facilities on CTP roads are taken from Appendix 6 of the *2010 CTP* and the *2003 Bike & Ped Plan*.

Harry Byrd Highway (VA Route 7) (segment from Algonkian Parkway (VA Route 1582) to Leesburg Bypass (US Route 15)) is currently a six-lane divided principal arterial (U6M) road with a posted speed limit of 55 MPH that travels in an east-west direction along the northern edge of the subject property. VA Route 7 is planned to ultimately be widened to an eight-lane median divided principal arterial (U8M) limited access road with interchanges at and Ashburn Village Boulevard and Claiborne Parkway (VA Route 901) in the vicinity of the subject property. According to 2015 traffic volume estimates published by VDOT, VA Route 7 carries approximately 91,000 vehicles per day in the vicinity of the site. Direct site access is not proposed from VA Route 7 to the subject property. Bicycle and pedestrian facilities are not envisioned along limited access roads such as VA Route 7 in the vicinity of the subject property, per *Appendix 6* of the *2010 CTP*.

Ashburn Village Boulevard (VA Route 2020) (segment from Harry Byrd Highway (VA Route 7) to Courtland Drive (VA Route 2021)) is currently a four-lane median divided (U4M) major collector road that travels in a north-south direction along the eastern edge of the subject property. It is built to its ultimate condition per the *2010 CTP* and has a posted speed limit of 40 MPH. Traffic signals are currently in place at VA Route 7, Ashbrook Commons Plaza, and Russell Branch Parkway. Construction by One Loudoun north of the subject property is under way to convert the at-grade intersection of Ashburn Village Boulevard and VA Route 7 to a grade-separated interchange per approved CPAP 2007-0081. According to 2015 traffic volume estimates published by VDOT, Ashburn Village Boulevard carries approximately 12,000 vehicles per day in the vicinity of the site. Direct access to Ashburn Village Boulevard from the subject property does not currently exist, but a full movement intersection opposite Ashburn Commons Plaza and a right-in / right-out intersection from Ashburn Village Boulevard to the subject property, approximately 500 feet north of Russell Branch Parkway, are proposed to be installed by the Applicant.

The *2003 Bike & Ped Plan* categorizes Ashburn Village Boulevard as a "Baseline Connecting Road" along which bicycle and pedestrian facilities are envisioned. For four-lane roads,

Appendix 6 of the *2010 CTP* calls for a 10-foot wide shared use path (within the ROW or a 14-foot easement), one six-foot wide sidewalk, and where feasible, on-road bicycle facilities. Bicycle and pedestrian facilities currently do not exist along Ashburn Village Boulevard in the vicinity of the subject property. However, these facilities are planned to be constructed between Riverside Parkway and Ashbrook Commons Plaza as part of the Ashburn Village Boulevard / VA Route 7 grade-separated interchange project and are proffered to be installed on the east side of Ashburn Village Boulevard between Ashbrook Commons Plaza and Russell Branch Parkway as part of the Ashbrook Marketplace Rezoning (ZMAP 2005-0018).

Russell Branch Parkway (VA Route 1061) (segment from Ashburn Road (VA Route 641) to Atwater Drive (VA Route 3001)) is a four-lane median divided major collector (U4M) road that travels in an east-west direction along the southern edge of the subject property. The County recently completed construction of the four-lane segment of Russell Branch Parkway between Ashburn Road and Ashburn Village Boulevard, with the roadway opening to traffic in early August 2016. Russell Branch Parkway has a 35 MPH posted speed limit in the vicinity of the site. A traffic signal is in place at the intersection with Ashburn Village Boulevard. In its ultimate condition per the *2010 CTP*, Russell Branch Parkway is planned to be widened to a six-lane median divided (U6M) major collector road between Claiborne Parkway and George Washington Boulevard (existing Richfield Way), with four-lane sections eventually extending west to Battlefield Parkway in the Town of Leesburg and east to connect with Pacific Boulevard. According to 2015 traffic volume estimates published by VDOT, Russell Branch Parkway carries approximately 5,800 vehicles per day in the vicinity of the site (east of Ashburn Village Boulevard). Direct access to Russell Branch Parkway from the subject property is proposed via an interparcel connection with the adjacent property to the west. The Applicant proposes to use this connection to provide a direct road between a full-movement access point at Russell Branch Parkway and the subject property.

The *2003 Bike & Ped Plan* categorizes Russell Branch Parkway as a "Baseline Connecting Road" along which bicycle and pedestrian facilities are envisioned. For ultimate six-lane roads, Appendix 6 of the *2010 CTP* calls for two 10-foot wide shared use paths (within the ROW or a 14-foot wide easement) on opposite sides of the roadway. Bicycle and pedestrian facilities are currently in place along both sides of Russell Branch Parkway between Ashburn Road and Ashburn Village Boulevard, with a 10-foot wide shared use path in place on the south side of the roadway and a six-foot wide sidewalk in place on the north side.

Ashbrook Commons Plaza is a four-lane median divided (U4M) privately-maintained roadway that travels in an east-west direction and provides access to the Ashburn Commons Shopping Center via a signalized intersection at Ashburn Village Boulevard. The Applicant's TIS estimates that in 2016 there are 6,200 trips per day on Ashbrook Commons Plaza. The Applicant is proposing to construct the fourth leg of the existing intersection to provide access into the subject property opposite existing Ashbrook Commons Plaza.

The *2003 Bike & Ped Plan* does not specifically include Ashbrook Commons Plaza, and does not consider the roadway as a "Baseline Connecting Road." Bicycle and pedestrian facilities currently do not exist along Ashbrook Commons Plaza.

Review of Applicant's Traffic Study (TIS)

The Applicant submitted a Traffic Impact Study (TIS) dated June 2, 2016 as part of these applications for the proposed retail, office, and residential development. The TIS analyzed the Existing (2016), Background (2024), and Total Future (2024) at the following intersections:

- Ashburn Village Boulevard / Ashbrook Commons Plaza (Intersection #1)
- Ashburn Village Boulevard / Site Entrance 2 (Intersection #2) (future conditions in TIS)
- Ashburn Village Boulevard / Russell Branch Parkway (Intersection #3)
- Russell Branch Parkway / Site Entrance 3 (Intersection #4) (future conditions in TIS)
- Russell Branch Parkway / Ashburn Road (Intersection #5)

Existing (2016) lane configurations and intersection controls for roadways and intersections in the study area are shown on ***Attachment 2*** (Figure 3). (The TIS was completed prior to the opening of Russell Branch Parkway between Ashburn Road and Ashburn Village Boulevard, therefore that segment of roadway is not included in existing conditions graphics analyses).

Existing (2016) Traffic Volumes and Levels of Service

Traffic counts were collected during the weekday AM peak period (6:00 AM to 9:00 AM), and PM peak period (4:00 PM to 7:00 PM) on Tuesday, April 19, 2016. After collecting these counts, the AM and PM peak hours were determined for the purposes of analysis as being from 7:45 AM to 8:45 AM and from 5:00 PM to 6:00 PM. Existing (2016) weekday AM, PM, and Saturday peak hour traffic volumes at the study intersections are shown on ***Attachment 3*** (Figure 4).

The TIS utilized Synchro 9 software based on the Highway Capacity Manual 2000 (HCM 2000) to determine Existing (2016) levels of service (LOS) at Intersection #1, Intersection #3, and Intersection #5 noted above based on the existing roadway network, lane uses, traffic control devices, and traffic volumes, utilizing a minimum observed peak hour factor of 0.85. Results of the LOS analysis, as shown on ***Attachment 4*** (Figure 5) indicated that all of the approaches and movements at intersections in the study area currently operate at acceptable levels of service (LOS D or better).

Background (2024) Traffic Assumptions and LOS Analysis

Background (2024) lane configurations and intersection controls for roadways and intersections in the study area are shown on ***Attachment 5*** (Figure 22). Background conditions analyzed in the TIS considered the following changes to the roadway network, as shown on ***Attachment 6*** (Figure 17):

- The connection of Russell Branch Parkway segments with a new road between Ashburn Road and Ashburn Village Boulevard (completed in August 2016), as shown;
- A grade-separated interchange at VA Route 7 / Ashburn Village Boulevard to replace the existing at-grade intersection (under construction);
- The closure of Lexington Drive (VA Route 3000) at a cul-de-sac south of the existing Lexington Drive / VA Route 7 intersection, thereby terminating access between Lexington Drive and VA Route 7; and

- The closure of the Jefferson Office Condos right-in / right-out (RI/RO) along eastbound VA Route 7 between Claiborne Parkway and Ashburn Village Boulevard.

The TIS also considered annual traffic volume growth, as shown on ***Attachment 7*** (Figure 6), and trips generated by approved background development trips, as shown on ***Attachment 8*** (Figure 19). Total Background (2020) traffic volumes for all intersection approaches are shown on ***Attachment 9*** (Figure 20).

The TIS utilized Synchro 9 software based on the Highway Capacity Manual (HCM 2000) to determine Background (2020) levels of service (LOS) at the intersections noted above based on the existing and planned roadway network, lane uses, traffic control devices, and traffic volumes, utilizing an assessed minimum peak hour factor of 0.92. For the background future condition, results of the LOS analysis are shown in ***Attachment 10*** (Figure 21). These results indicated that with the proposed improvements, all approaches and movements at intersections in the study area would operate at acceptable levels of service (LOS D or better), except the following:

- Intersection #3 – Ashburn Village Boulevard / Russell Branch Parkway – The westbound left-turning movement is forecast to operate at a failing LOS (LOS E) during the PM peak hour. All other approaches and turning movements are forecast to operate at an acceptable LOS (D or better) during all periods analyzed.

- Intersection #5 – Russell Branch Parkway / Ashburn Road – The northbound and southbound approaches are forecast to fail during the AM and PM peak periods. The TIS notes that with installation of a traffic signal at this location, all approaches and turning movements are forecast to operate at an acceptable LOS (D or better) during all periods analyzed.

Trip Generation from the Proposed Development (2024)

Trip rates from *ITE's Trip Generation Manual, 9th Edition* were used to project peak hour and daily traffic volumes for the proposed and currently approved (by-right) conditions. The Applicant's TIS indicates that the proposed development would generate fewer daily trips than the approved (by-right) development on this site. The TIS indicated that the trip generation differential (proposed minus approved), as shown in **Table 1** below, from the proposed development would generate 1,177 *fewer* morning peak hour trips, 951 *fewer* afternoon peak hour trips, and 4,448 *fewer* daily trips.

Table 1: Trip Generation Comparison for Ashburn Village Development

Development Program	ITE Trip Gen Code	AM Peak Trips	PM Peak Trips	Weekday Total Trips
Approved Use – PD-IP 1,370,000 SF Retail	710	2,043	1,850	13,334
Total Approved	-	**2,043**	**1,850**	**13,334**
Proposed Use – R-24 800 Multifamily DU (15% Internal Capture Reduction)	220	324	379	4,224
Proposed Use – PD-CC(NC) 30,000 SF Shopping Center (15% Internal Capture Reduction) (25% Pass-By Reduction)	820	18	58	770
Proposed Use – PD-CC(NC) 5,000 SF Fast Food Restaurant with Drive-Through (15% Internal Capture Reduction) (25% Pass-By Reduction	934	96	64	1,193
Proposed Use – PD-OP 325,000 SF Office (15% Internal Capture Reduction)	710	428	398	2,700
Total Proposed		**866**	**899**	**8,886**
Difference (Proposed minus Approved)		**-1,177**	**-951**	**-4,448**

Sources: DTCI Staff and Ashburn Village Development TIS, Gorove / Slade, 6/2/16, Page 38

Total Future (2024) Trip Distribution and Assignment from the Proposed Development

The TIS assumed a residential site-generated AM and PM peak-hour traffic distribution of approximately:

- 50% of trips to and from the north along Ashburn Village Boulevard
- 15% of trips to and from the south along Ashburn Village Boulevard
- 10% of trips to and from the east along Russell Branch Parkway
- 20% of trips to and from the west along Russell Branch Parkway
- 5% of trips to and from the south along Ashburn Road

The TIS assumed a non-residential site-generated AM and PM peak-hour traffic distribution of approximately:

- 15% of trips to and from the north along Ashburn Village Boulevard
- 25% of trips to and from the south along Ashburn Village Boulevard
- 15% of trips to and from the east along Russell Branch Parkway
- 30% of trips to and from the west along Russell Branch Parkway
- 15% of trips to and from the south along Ashburn Road

The TIS based these segmented distribution percentages on estimated trip generation from Total Future (2024) developments, existing travel patterns, employment centers within the region, and the judgment of traffic engineers authoring the study in consultation with DTCI staff. Applying trip distribution and generation metrics, site-generated trip assignments from the proposed development were calculated and are shown on ***Attachment 11*** (Figure 24).

Total Future (2024) Trip Reductions

A 15% internal capture reduction was taken for all proposed uses on the site, and a 25% pass-by trip reduction was applied in the TIS for retail uses.

Internal Capture Reductions

Pass-by trips do not adversely impact the public road network, as it is assumed that a mix of uses within a given site will allow some trips that would have otherwise had to depart from the site to remain on site. Internal capture assumes that some employees and shoppers will choose to live in the adjacent housing development, thereby able to complete these trips without entering the public roadway network. Accurate estimation of internal capture trips is dependent on the development of all uses on the site as proposed so that these uses become codependent and remove trips from the regional roadway network, as described in the TIS.

Pass-By Reductions

Pass-by trips do not adversely impact the public road network, excepting entrances and exists to and from the subject property, due to the trip's preexistence along the adjacent sections of either Ashburn Village Boulevard or Russell Branch Parkway. These trips were estimated as part of this TIS for the peak hours in the peak direction and are shown on ***Attachment 12*** (Figure 25).

Total Future (2024) Forecasted Traffic Volumes, Levels of Service, and Recommended Mitigation Measures

Total Future (2024) lane configurations and intersection controls for roadways and intersections in the study area are shown on ***Attachment 13*** (Figure 28). In order to determine the Total Future (2024) traffic volumes, the TIS utilized Synchro 9 based on the Highway Capacity Manual 2000 (HCM 2000) to determine levels of service (LOS) for the existing and anticipated roadway network, lane uses, traffic control devices, and traffic volumes at the five analyzed study area intersections.

Total Future (2024) traffic volumes are shown on ***Attachment 14*** (Figure 26). The results of the LOS analysis at the study intersections, as shown on ***Attachment 15*** (Figure 27) indicate that all intersections would operate at acceptable levels of service (LOS D or better) for 2024 Total Future (Build) conditions, except the following:

- Intersection #3 – Ashburn Village Boulevard / Russell Branch Parkway – The eastbound through movement is forecast to operate at a failing LOS (LOS E) in the AM peak hour and the eastbound and westbound left-turning movements are forecast to operate at a

failing LOS (LOS E) in the PM peak hour. All other approaches and turning movements are forecast to operate at an acceptable LOS (D or better) during all periods analyzed.

- Intersection #4 –Russell Branch Parkway / Site Entrance 3 – The westbound left-turning movement is forecast to operate at a failing LOS (LOS E) during the PM peak hour. All other approaches and turning movements are forecast to operate at an acceptable LOS (D or better) during all periods analyzed.

- Intersection #5 – Russell Branch Parkway / Ashburn Road – With the installation of a traffic signal at this intersection, as described in the Background (2024) condition, the TIS notes that all approaches and turning movements are forecast to operate at an acceptable LOS (D or better) during all periods analyzed.

Intersection Spacing, Weaving, and Signal Warrants

The Applicant provided an intersection spacing diagram for the intersections proposed with this application. This diagram, provided as ***Attachment 16*** (Figure 30), shows that entrance spacing exceeds minimum VDOT standards for all proposed entrance locations. The TIS further evaluated the distance between the proposed RI/RO entrance (Site Entrance #2) and Russell Branch Parkway along Ashburn Village Boulevard. This analysis, as shown on ***Attachment 17*** (Figure 31) demonstrated that the weave and merge movements for traffic departing the site to access the southbound left turn lane at Russell Branch Parkway would operate acceptably (LOS A and B).

Additionally, the Applicant provided a preliminary signal warrant analysis for the intersection of Russell Branch Parkway and Ashburn Road. This analysis demonstrated that this intersection appears to meet all warrants for a traffic signal under Background (2024) conditions. Given this condition, the Applicant completed a fair share analysis to determine the trip generation at this intersection that would be due to the proposed development. This analysis showed that the proposed development would be responsible for 10.12% of the traffic during the AM peak hour and 10.56% of the traffic during the PM peak hour, and 10.34% of the combined traffic during the AM and PM peak hours.

Transportation Comments and Recommendations

DTCI staff reviewed the Applicant's submitted materials, and has the following comments:

1. The following are issues with the Applicant's TIS that will affect the outcome of the study and which should be remedied and included in a revised analysis for additional review:

    a. Given the separation of uses on the site into separate zoning districts, DTCI is concerned about the accuracy of the Applicant's TIS, as traffic is unlikely to disperse evenly through the site. Please see Comment 2, below, for more information.

    b. Please confirm the trip reduction calculations for the fast-food with drive through use. The reductions appear to be greater than the 15% and 25% (total 40%) rates

described in the footnotes for Table 5. The total reductions appear to amount to 58% in the AM Peak, 61% in the PM Peak, and 52% for the total weekdays. Once confirmed, please update text and graphics with the TIS to meet the Applicant's scoping agreement, as needed.

2. DTCI is concerned that the Applicant's proposed separation of uses into different zoning districts on the site will limit the potential of the mix of uses related by the Applicant in its application materials, specifically in regard to internal capture trip reductions assumed in the TIS and the distribution of on-site traffic onto the public road network. As such, DTCI requests that the Applicant provide a more detailed CDP showing primary routes and general building footprints throughout the site to demonstrate conformance with the traffic distribution and trip reduction assumptions included in the Applicant's TIS, and to ensure adequate and practical access from all entrances onto all on-site uses.

3. DTCI notes that while the overall development will generate fewer daily trips than a development of by-right uses on the site, the portion of the site proposed to be rezoned from PD-IP to R-24 will also change from an AM peak hour trip attractor under PD-IP to an AM peak hour trip generator, and from a PM peak hour trip generator to a PM peak hour trip attractor under R-24.

4. The Applicant should clarify on the CDP that Site Entrance #2 is limited to right-in / right-out only access.

5. DTCI requests that the Applicant show or otherwise provide a note on the CDP, indicating that the Russell Branch Parkway interparcel site access point will provide a direct and uninhibited access road to the two western access points shown on the CDP in order to demonstrate conformance with the traffic distribution assumptions included in the Applicant's TIS.

6. DTCI notes that the Applicant's TIS states that a traffic signal is forecast to be warranted at the intersection of Russell Branch Parkway and Ashburn Road by 2024. The TIS further notes that the site is forecast to generate 10.56% of the PM Peak Hour traffic at this intersection. As such, the Applicant should commit to provide a contribution of $35,978.55 (10.56% of $340,706) toward the cost of installation of a traffic signal at this location. The cost estimate completed as part of the Applicant's Ashbrook Marketplace (ZMAP 2005-0018) rezoning is provided as ***Attachment 18***.

7. The Applicant should commit to construct a 10-foot wide shared use path within a 14-foot wide easement along the west side of Ashburn Village Boulevard between Ashbrook Commons Plaza and Russell Branch Parkway, in conformance with Appendix 6 of the *2010 CTP*.

8. The Applicant should commit to provide minimum five-foot wide sidewalks on all sides of the buildings on the site to maximize pedestrian connectivity and support the 15% internal capture reduction utilized in the Applicant's TIS.

9. DTCI requests that the Applicant commit to install any crosswalks not already in place or proffered as part of the Waltonwood Ashburn (ZMAP 2012-0003) or Ashbrook Marketplace (ZMAP 2005-0018) rezonings, subject to VDOT approval at the intersections of Ashburn Village Boulevard / Russell Branch Parkway and Ashburn Village Boulevard / Ashbrook Commons Plaza, to ensure safe pedestrian access and connectivity through the area.

10. Per *2010 CTP (Chapter 3, Pedestrian and Bicycle Facilities Policies for Roadways, Policy 10)*, bicycle parking facilities should be provided in shopping centers and at employment uses. DTCI requests that the Applicant commit to construction these facilities in conjunction with the adjacent portions of the proposed development for these uses and show the locations of these facilities on the CDP.

11. Per the *2010 CTP (Chapter 8, Proffer Policy 1)*, the County actively seeks regional road and transit contributions from rezoning applications. Recently approved residential rezoning applications have contributed $6,000 per dwelling unit towards regional road improvements and $1,000 per dwelling unit towards transit improvements. DTCI requests the Applicant provide similar contribution amounts with this application for use towards future transportation improvements in the vicinity of the site. DTCI notes that regional road and transit contribution amounts have recently been reviewed for a possible increase, but that the levels noted above have not been adopted by the Board of Supervisors. As such, the recommended contribution amounts are advisory only and are not reflective of adopted County policy at this time.

12. The *2010 CTP* states that all land development applications adjacent to any existing and/or proposed arterial or major collector roads will be designed "to ensure that no residential and other type(s) of noise sensitive use(s) will have traffic noise impacts which occur when the predicted traffic noise levels approach or exceed the noise abatement criteria (contained in the *2010 CTP*, Table 7-1), or when the predicted traffic noise levels substantially exceed the existing noise levels" *(2010 CTP*, *Chapter 7, Noise Policy 1)*. To this end, the Applicant should commit to evaluation of noise impacts along Ashburn Village Boulevard (designated as a major collector by the *2010 CTP*) and Russell Branch Parkway (designated as a major collector by the *2010 CTP*), in conjunction with the first site plan or construction plan, whichever is first in time, and commit to implementing the appropriate highway noise mitigation measures as identified in the noise study. The study shall be conducted by an acoustical consultant using the latest version of the Federal Highway Administration's Highway Traffic Noise Prediction Model. This study should be based on the ultimate setbacks per the zoning modifications requested as part of these applications.

Conclusion

DTCI has no overall recommendation on these applications at this time. DTCI staff will provide a recommendation after it has reviewed the Applicant's responses to the comments noted in this referral. Depending on the Applicant's responses, DTCI may have

additional comments. DTCI staff is available to meet with the Applicant and discuss the comments noted in this referral.

ATTACHMENTS

1. Site Vicinity Map and Proposed Site Layout
2. Existing (2016) Lane Use and Traffic Controls (Figure 3)
3. Existing (2016) AM and PM Peak Hour Traffic Volumes (Figure 4)
4. Existing (2016) AM and PM Peak Hour Levels of Service (Figure 5)
5. Background (2024) Recommended Future Lane Use and Traffic Controls (Figure 22)
6. Background (2024) Roadway Network Assumptions (Figure 17)
7. Background (2024) Annual Traffic Volume Growth (Figure 6)
8. Background (2024) AM and PM Peak Hour Trip Generation from Planned Developments (Figure 19)
9. Background (2024) AM and PM Peak Hour Total Traffic Volumes (Figure 20)
10. Background (2024) AM and PM Peak Hour Levels of Service (Figure 21)
11. Total Future (2024) AM and PM Peak Hour Site-Generated Trips (Figure 24)
12. Total Future (2024) AM and PM Peak Hour Pass-By Trips (Figure 25)
13. Total Future (2024) Recommended Future Lane Use and Traffic Controls (Figure 28)
14. Total Future (2024) AM and PM Peak Hour Traffic Volumes (Figure 26)
15. Total Future (2024) AM and PM Peak Hour Levels of Service (Figure 27)
16. Intersection Spacing Diagram Along Ashburn Village Boulevard and Russell Branch Parkway (Figure 30)
17. Weave/Merge Diagram Along Ashburn Village Boulevard Between Site Entrance #2 and Russell Branch Parkway (Figure 31)
18. Preliminary Cost Estimate for a Traffic Signal at Intersection #5 - Russell Branch Parkway and Ashburn Road

cc: Kathleen Leidich, Assistant Director, DTCI
Lou Mosurak, Senior Coordinator, DTCI

Loudoun County, Virginia

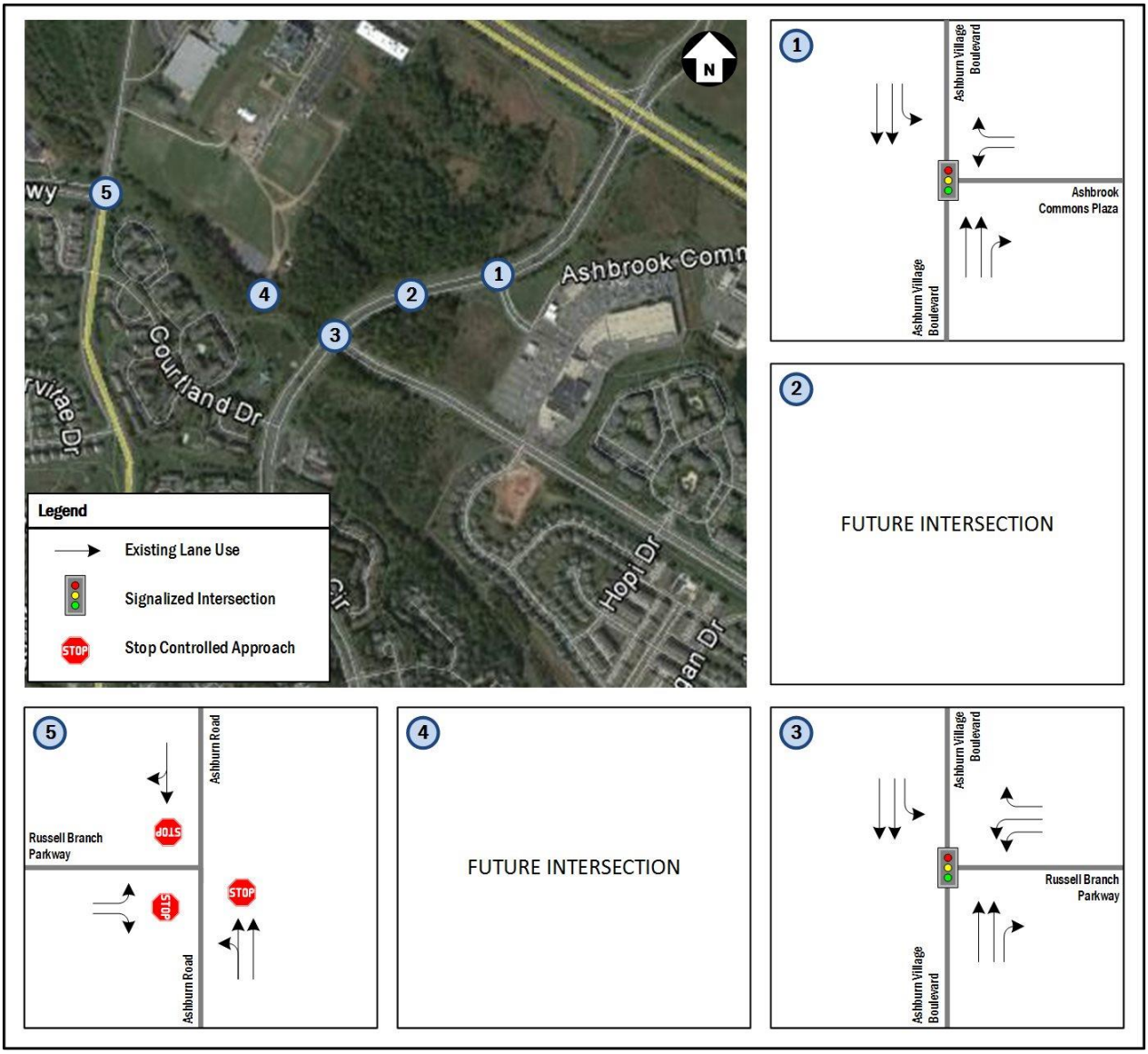
www.loudoun.gov

(map not to scale)

ZMAP 2016-0009, ZMOD 2016-0010, SPEX 2016-0025 & SPEX 2016-0026 – Ashburn Village Development

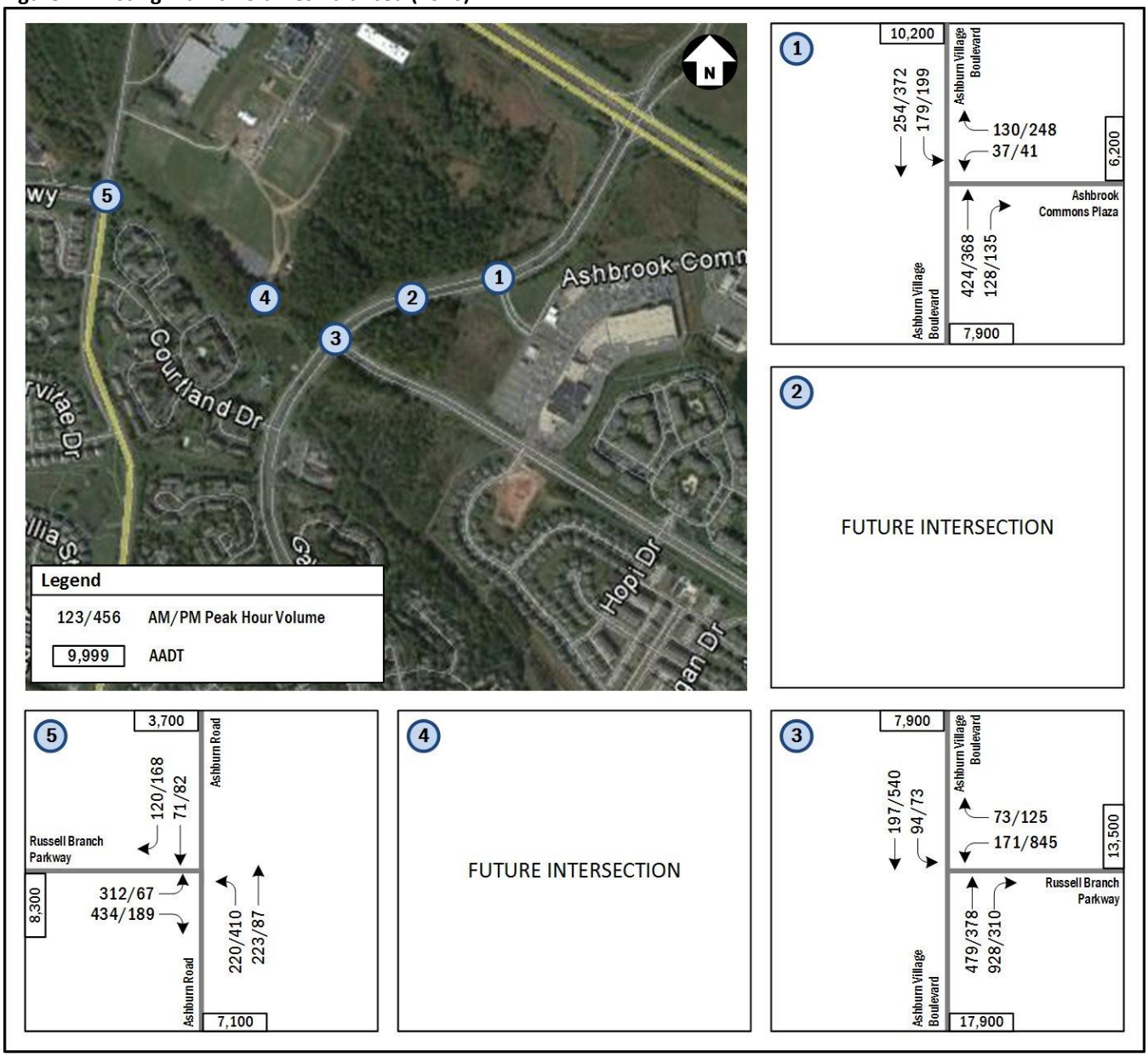
ATTACHMENT 1

Figure 3: Existing Lane Use and Traffic Control Devices (2016)



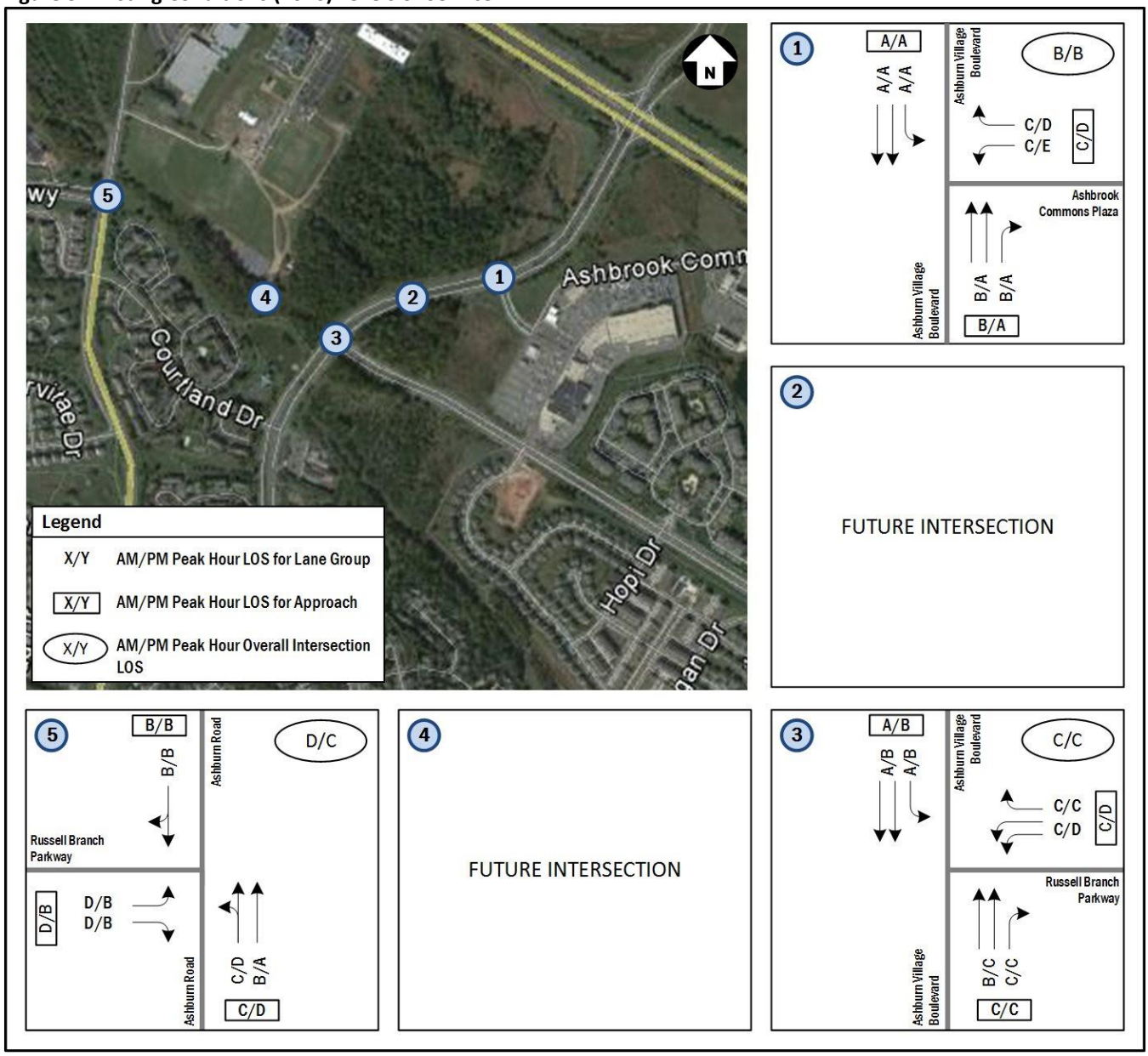
ATTACHMENT 2

Figure 4: Existing Traffic Volumes Balanced (2016)



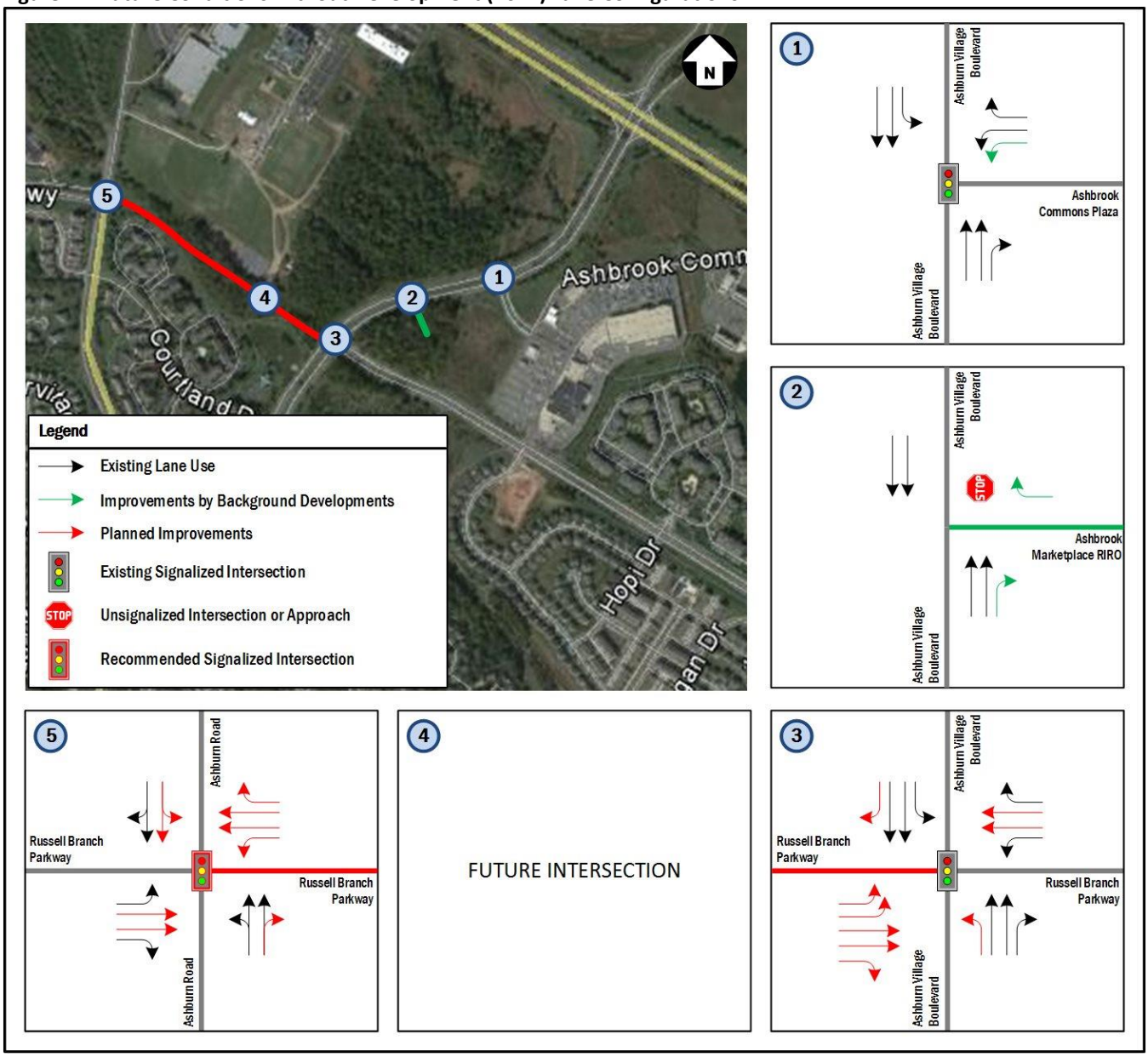
ATTACHMENT 3

Figure 5: Existing Conditions (2016) Levels of Service



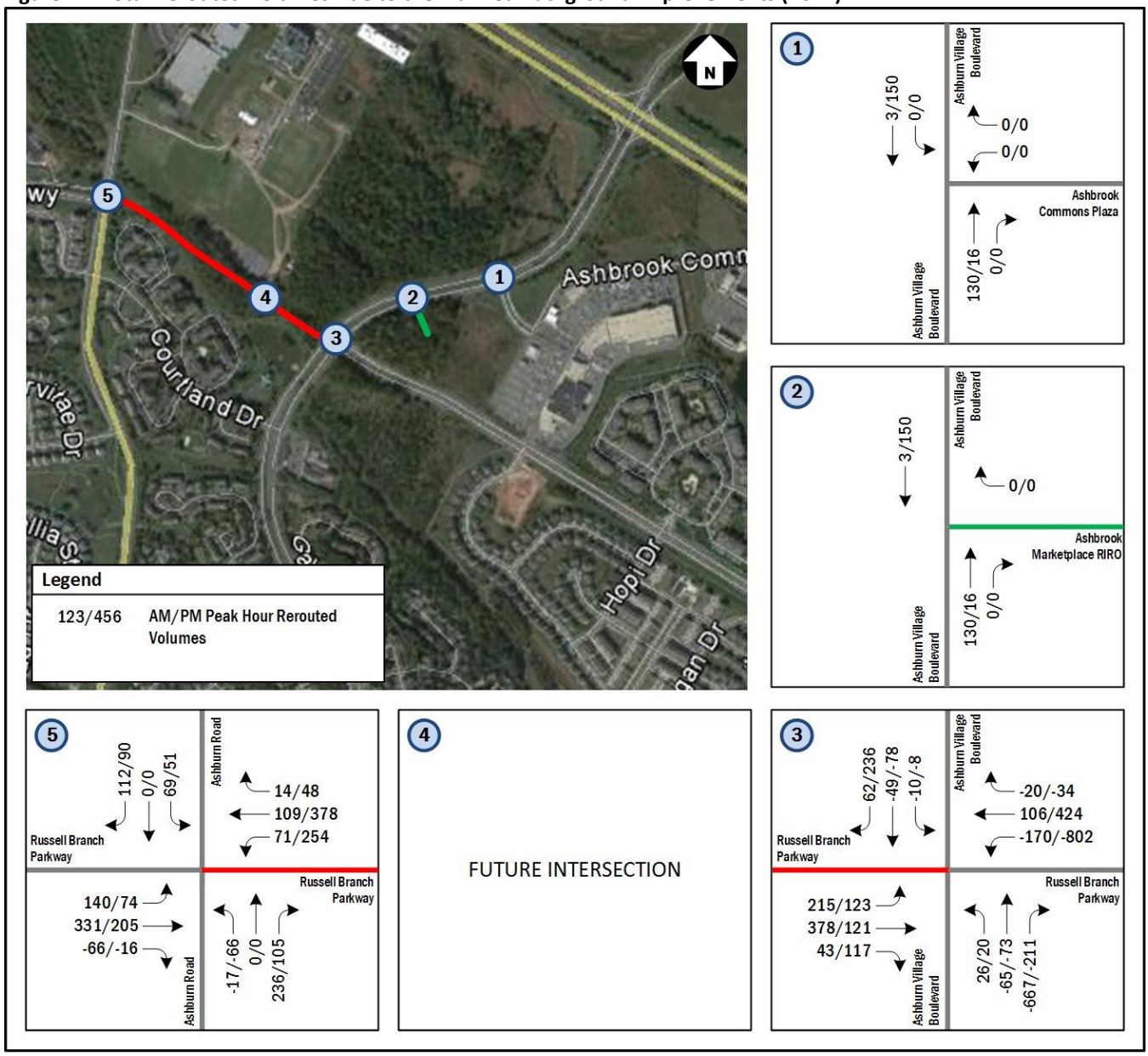
ATTACHMENT 4

Figure 22: Future Conditions without Development (2024) Lane Configurations



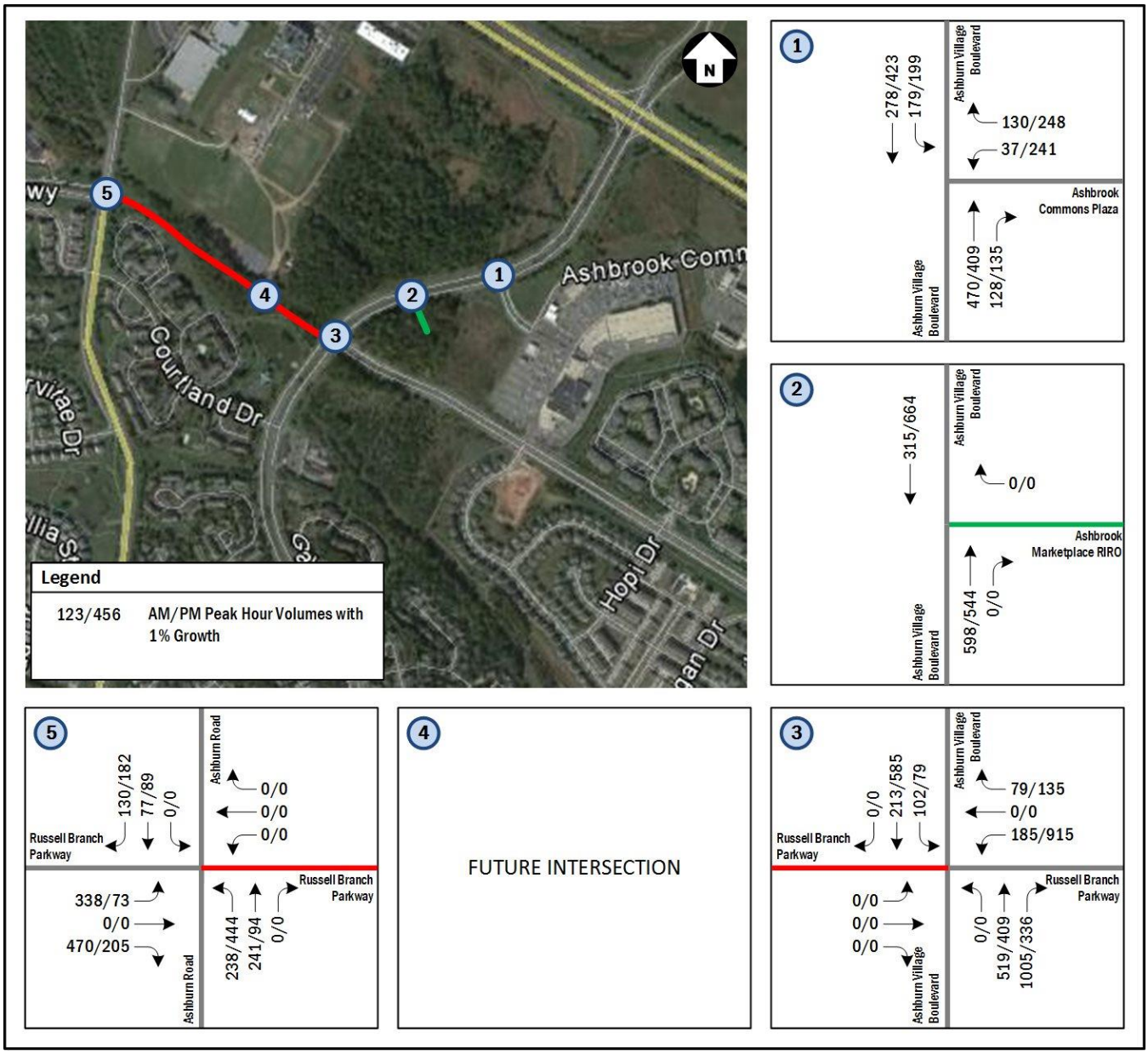
ATTACHMENT 5

Figure 17: Total Rerouted Volumes Due to the Planned Background Improvements (2024)



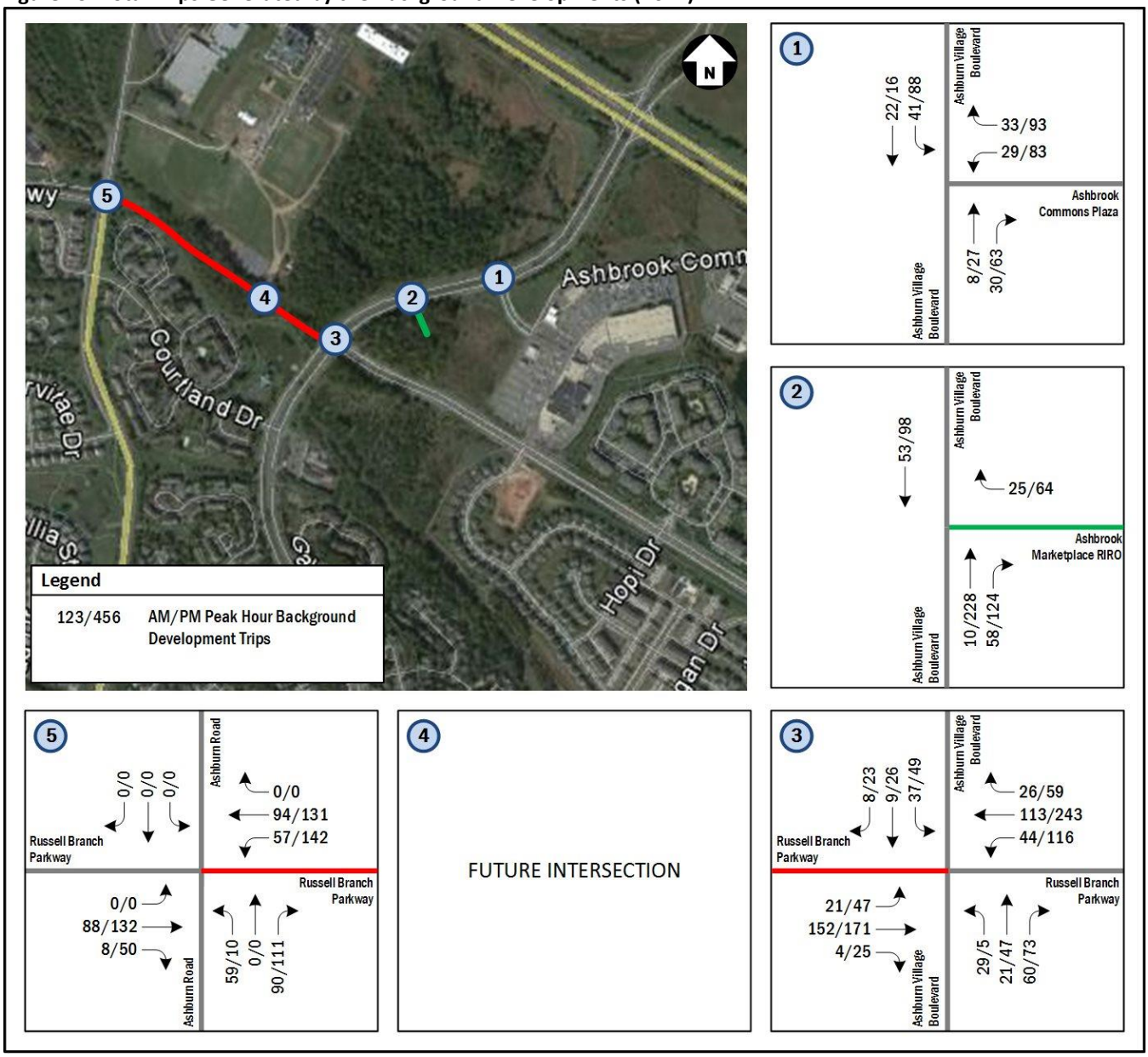
ATTACHMENT 6

Figure 6: Background Growth: Existing Volumes Plus Growth (2024)



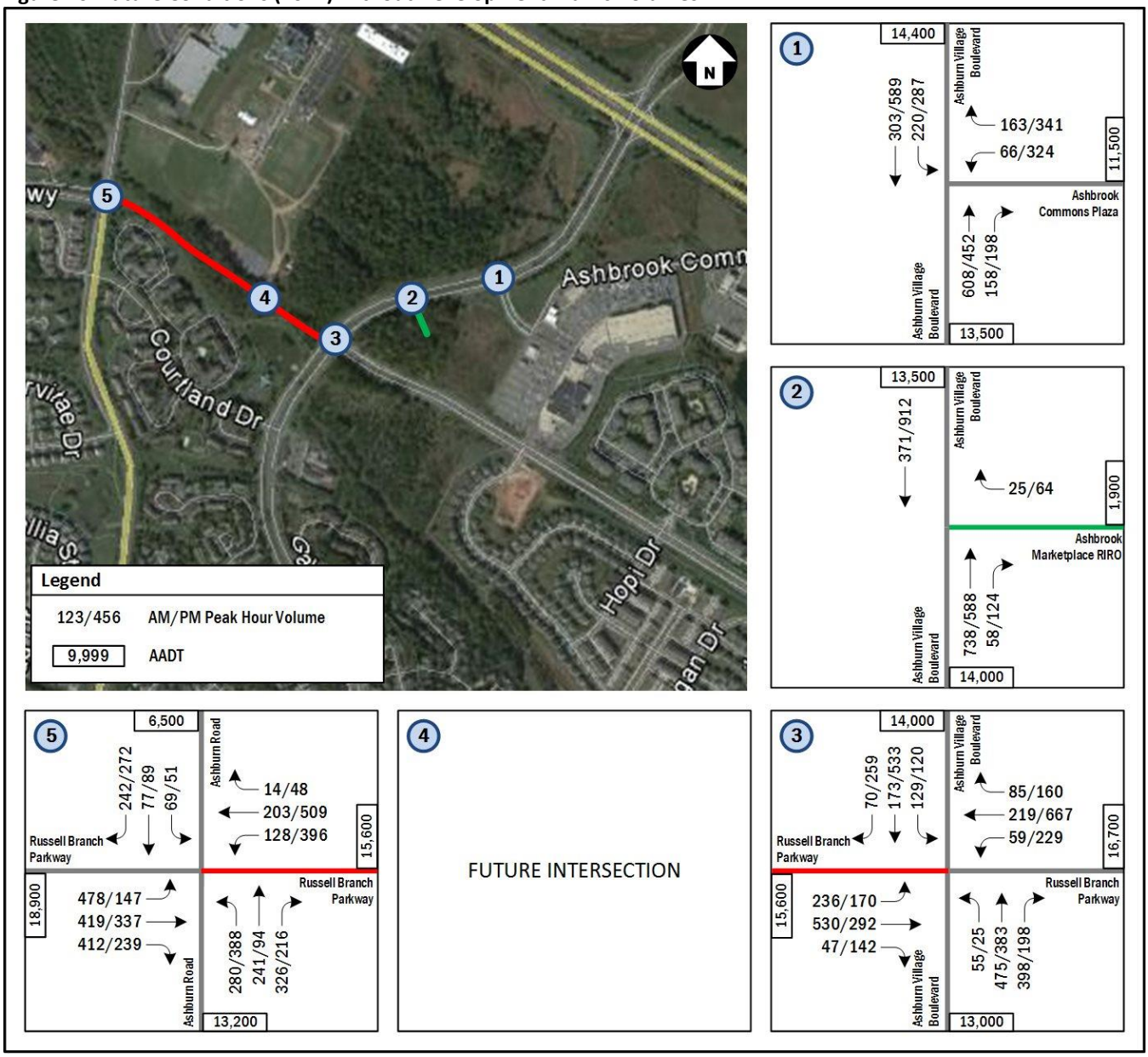
ATTACHMENT 7

Figure 19: Total Trips Generated by the Background Developments (2024)



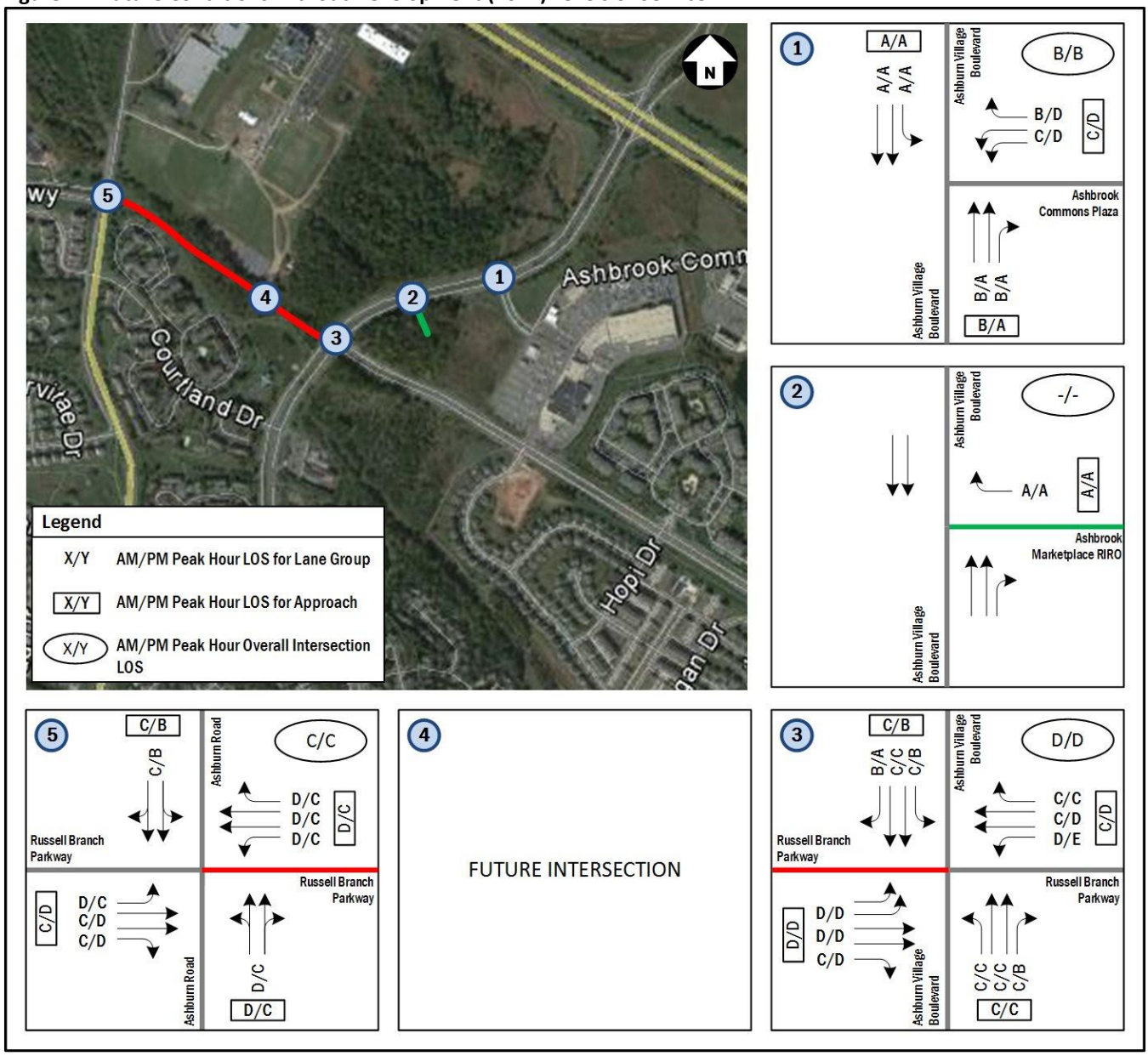
ATTACHMENT 8

Figure 20: Future Conditions (2024) without Development Traffic Volumes



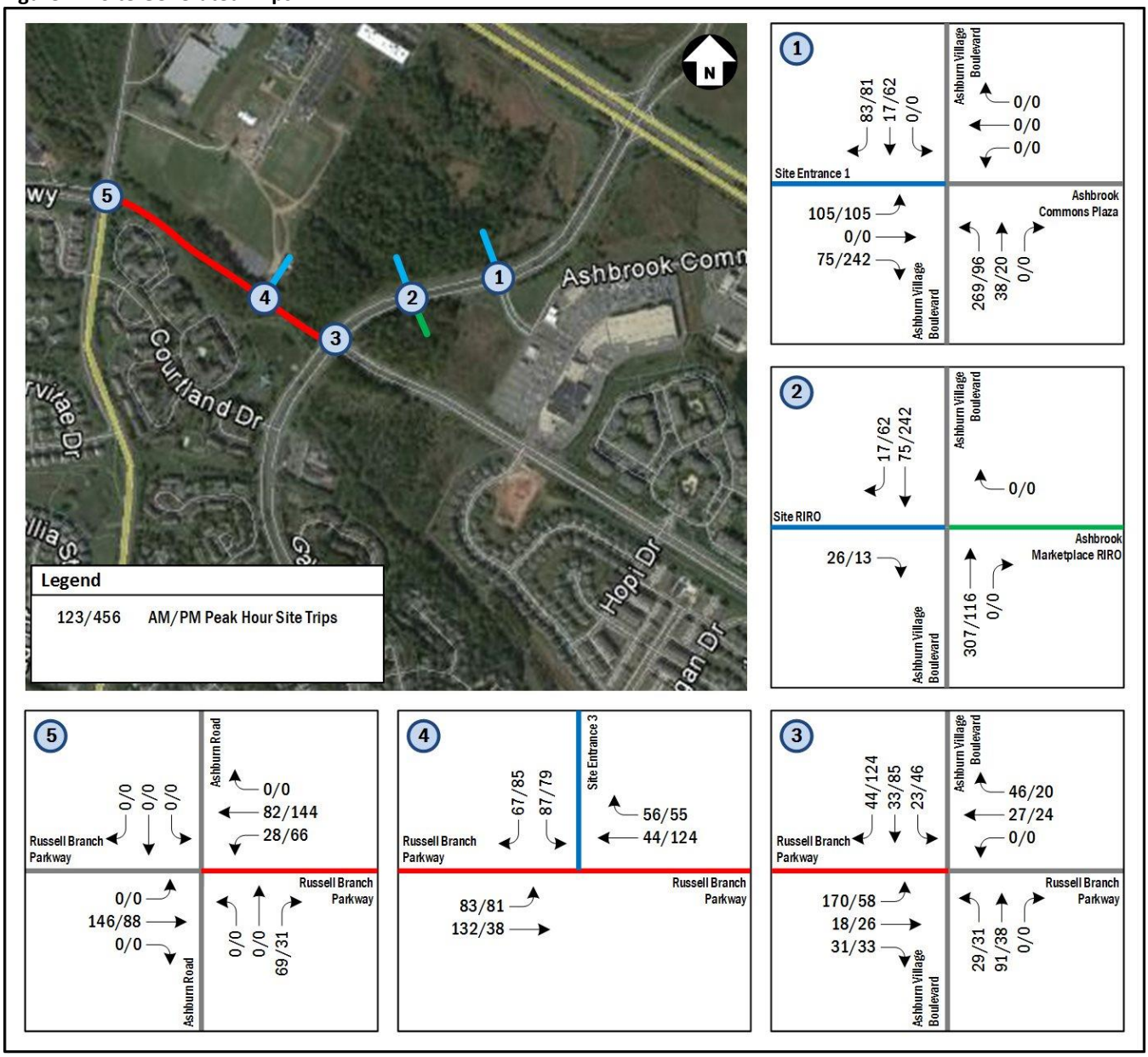
ATTACHMENT 9

Figure 21: Future Conditions without Development (2024) Levels of Service



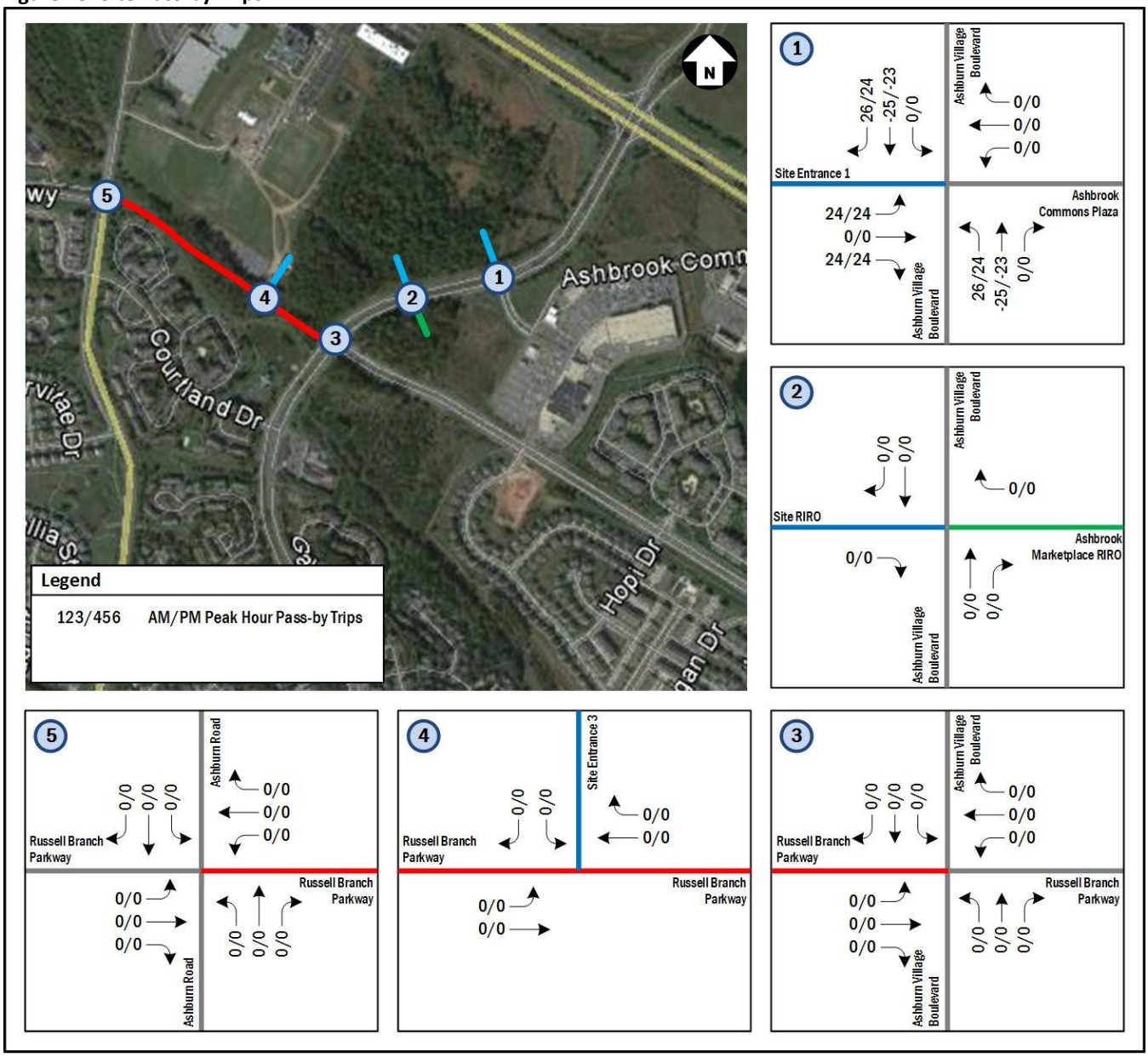
ATTACHMENT 10

Figure 24: Site Generated Trips



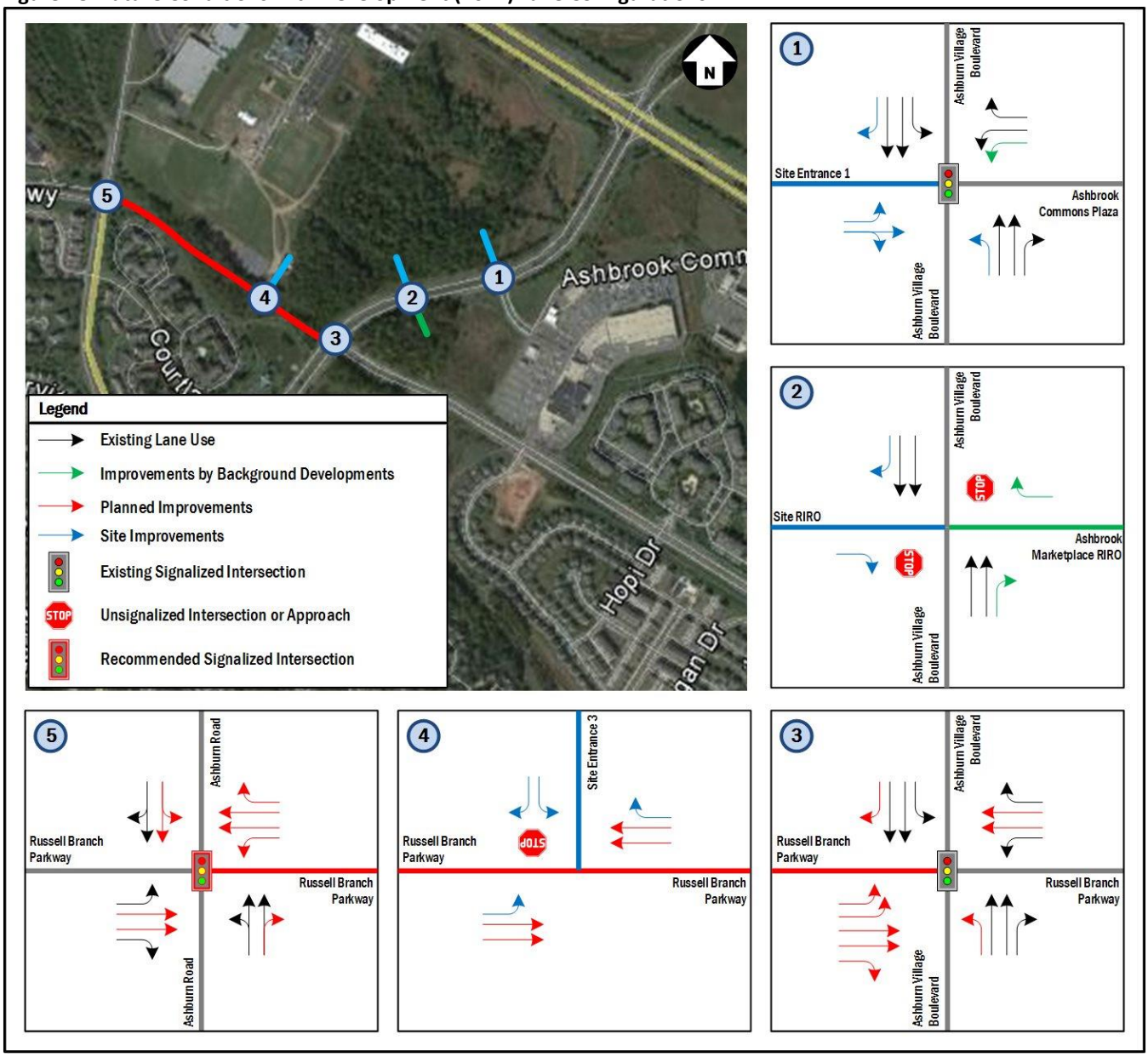
ATTACHMENT 11

Figure 25: Site Pass-by Trips



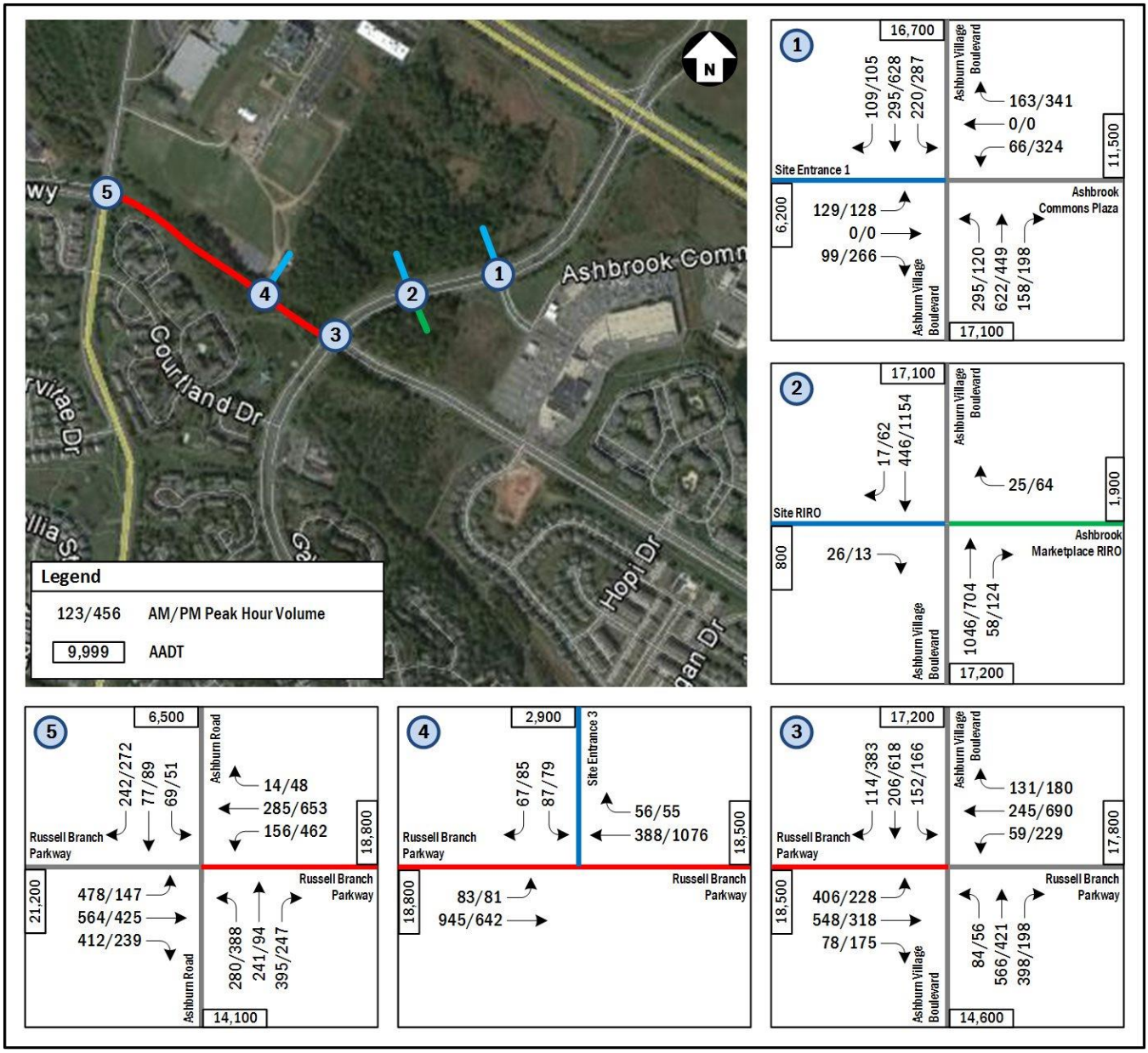
ATTACHMENT 12

Figure 28: Future Conditions with Development (2024) Lane Configurations



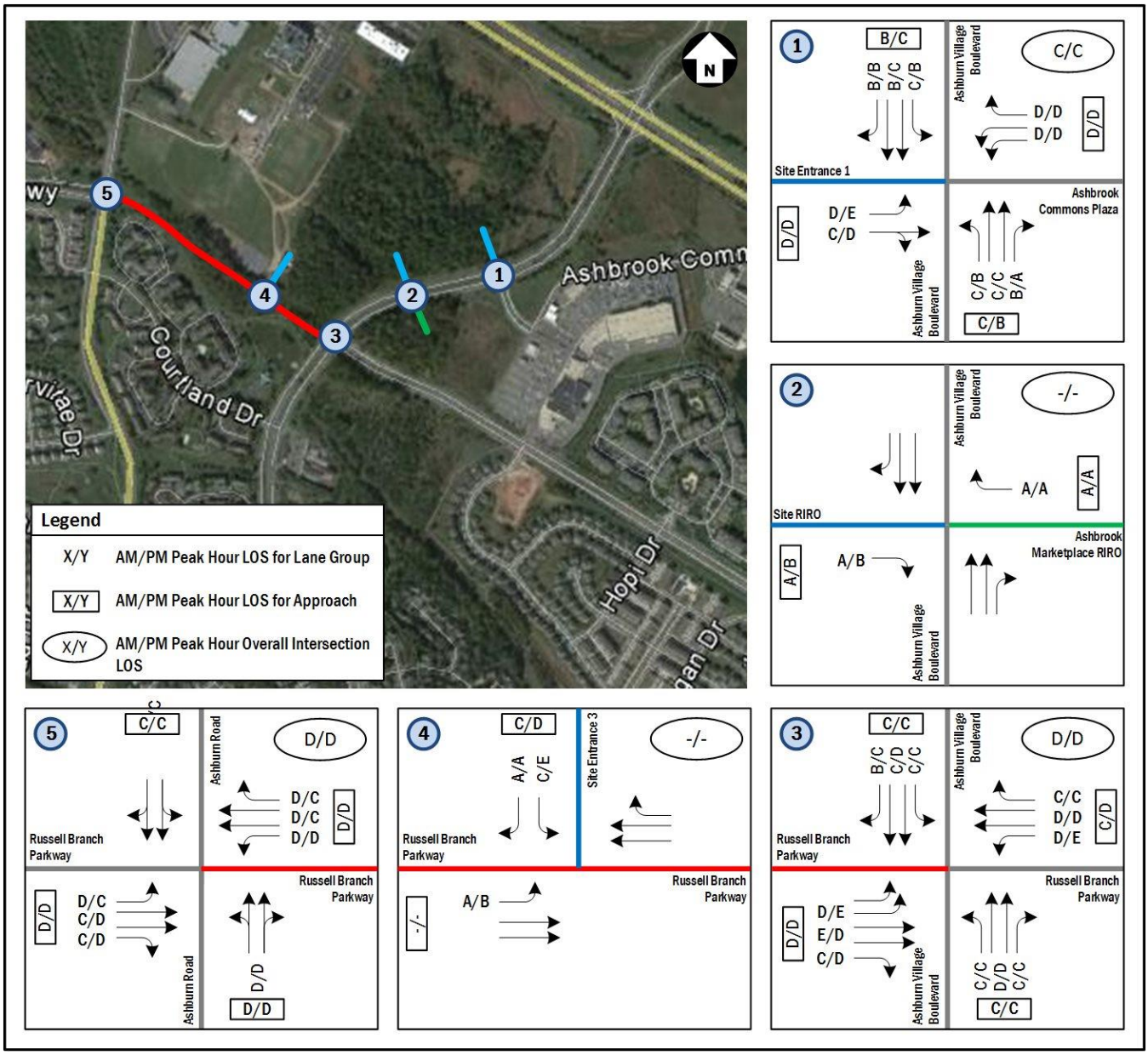
ATTACHMENT 13

Figure 26: Future with Development (2024) Traffic Volumes



ATTACHMENT 14

Figure 27: Future Conditions with Development (2024) Levels of Service



ATTACHMENT 15

Figure 30: Intersection Spacing

ATTACHMENT 16

Figure 31: Weave/Merge Volumes (2024)

Table 11: HCS Weave Analysis Results (2024)

Scenario	Weaving Segment Density (pc/mi/ln)	Level of Service
AM Peak Hour	6.6	A
PM Peak Hour	17.2	B

ATTACHMENT 17

GOROVE / SLADE

3914 Centerville Road
Suite 330
Chantilly, VA 20151
703.787.9595

SYCOLIN RD SIGNAL @ LOUDOUN C. PL.

Ashburn Road at Russell Branch Parkway
September 3, 2015

ITEM	UNIT	UNIT COST	QUANTITY	EXTENSION	
TRAFFIC SIGNAL DESIGN					
Signal Plan Preparation	LS	$10,000.00	1	$10,000.00	SEE UNATTACHED
Signal Timing Plan Preparation	LS	$3,000.00	1	$3,000.00	
Synchronization Analysis	LS	$2,000.00	1	$2,000.00	
Construction Services	LS	$2,000.00	1	$2,000.00	
Easement Plats	EA	$850.00	2	$1,700.00	
As-Built Plans	LS	$1,000.00	1	$1,000.00	
LEGAL - Preparation / Recordation of Easement Deeds & Right of Entry Agreements	EA	$600.00	2	$1,200.00	
				$ 20,900	$ 80,381
Test Boring & Foundation Designs	EA	$3,000.00	4	$12,000.00	
VDOT LAND USE PERMIT APPLICATION					
Land Use Permit Fee	LS	$400.00	1	$400.00	SEE ATTACHED BID
Land Use Permit Bond	LS	$3,000.00	1	$3,000.00	
Power Company Fee	LS	$1,500.00	1	$1,500.00	
Cable Company Fee	LS	$500.00	1	$500.00	
Traffic Signal Controller Assembly	EA	$14,100.00	1	$14,100.00	
TRAFFIC SIGNAL INSTALLATION					
Basic Signal Equipment Installation Including Street Name Signs (Per Controlled Lane)	EA	$10,000.00	11	$110,000.00	
Pedestrian Signal (Per Corner)	EA	$3,500.00	4	$14,000.00	
PAVEMENT MARKINGS					
VDOT - Type 1 Thermoplastic	LS	$8,000.00	1	$8,000.00	
Eradication of Existing Markings	LS	$2,000.00	1	$2,000.00	
				$ 155,500	244,100.90
Sub-Total				~~$186,400.00~~	324,482
5% Contingency				~~$9,320.00~~	16,224
Opinion of Probable Cost				~~$195,720.00~~	340,706

ATTACHMENT 18

SYCOWN RD & LOUDOUN CENTER PLACE SIGNAL
ENGINEERS EST. (10/2012)

Task Order Cost Proposal

We propose to undertake the work outlined above on a Not-To- Exceed (NTE) basis in accordance with our master agreement. The cost proposal per task is provided as follows:

	Task	Fee
A.	Plan Submittals - Boundary Survey (ccl)	$ 7,994
B.	Transportation Studies *(Not Proposed with this Task Order)*	$ 0
C.	Field Survey to Prepare Base Mapping – Topographic Survey (ccl)	$ 9,088
D.	Designation of Utilities and Easement (ccl)	$ 5,278
E.	Prepare Preliminary Traffic Signal and Imp. Plan Submittal (WA & ccl)	$ 7,451
F.	Prepare Easement Plats (ccl)	$ 12,161
G.	Prepare Signal Timing Plans (WA)	$ 3,094
H.	Prepare Final Signal Plan, Improvement and Pavement Marking-Signage Plan (WA & ccl)	$15,210
I.	Prepare Cost Estimate (WA & ccl)	$ 2,637
J.	Provide Construction Assistance (WA & ccl)	$ 5,375
K.	Prepare "As-Built" Plans (WA & ccl)	$ 7,373
	Total Cost	$ 75,662

Add Alternate Task

D.	Utility Test Pits (2 locations)	$ 4,720
	Total Cost w/add alternate	$ 80,381

The fee shown is based on estimated hours to perform the assignment outlined above and fixed hourly rates contained in the master agreement and adjusted October 2012. A breakdown of the hours by staff member and rate are shown in Table 1 attached.

Attachment 12 - Schedule of Bid Items (Per Plan Takeoff Qtys.)

Sycolin Rd & Loudoun Center Place Traffic Signal Installation
RFQ 134
Bid Date 1/29/2015

Biditem	Description	Bid Quantity	Unit	Bid Price	Bid Total
0001	Mobilization (including Fees & Permits)	1.000	LS	25,460.00	25,460.00
0002	SIDEWALK & ADA RAMPS	1.000	LS	35,000.00	35,000.00
0003	SIGN PANEL	138.000	SF	55.00	7,590.00
0004	CONC. FOUNDATION SIGNAL POLE PF-1	2.000	EA	15,800.00	31,600.00
0005	CONCRETE FOUNDATION PF-2	3.000	EA	1,000.00	3,000.00
0006	CONCRETE FOUNDATION CF-3	1.000	EA	1,800.00	1,800.00
0007	CONTROLLER	1.000	EA	24,000.00	24,000.00
0008	UNINTERUPTIBLE POWER SUPPLY	1.000	EA	2,875.00	2,875.00
0009	UNINTERUPTIBLE POWER SUPPLY BATTERY	6.000	EA	280.00	1,680.00
0010	UNINTERUPTIBLE POWER SUPPLY CABINET	1.000	EA	2,500.00	2,500.00
0011	ELECTRICAL SERVICE SE-5	1.000	EA	3,650.00	3,650.00
0012	TRAFFIC SIGNAL HEAD 12" LED SECT	20.000	EA	250.00	5,000.00
0013	PEDESTRIAN SIGNAL HEAD SP-9	4.000	EA	550.00	2,200.00
0014	PEDESTRIAN PUSHBUTTON	4.000	EA	350.00	1,400.00
0015	PEDESTAL POLE PF-2 12'	4.000	EA	610.00	2,440.00
0016	SIGNAL POLE MP-1 TWO ARMS 50'/50'	1.000	EA	16,750.00	16,750.00
0017	SIGNAL POLE MP-1 ONE ARM 40'	1.000	EA	9,525.00	9,525.00
0018	14/2 CONDUCTOR CABLE	520.000	LF	1.15	598.00
0019	14/7 CONDUCTOR CABLE	1,660.000	LF	1.85	3,071.00
0020	14/2 CONDUCTOR CABLE SHIELDED	1,420.000	LF	1.35	1,917.00
0021	#6 CONDUCTOR CABLE	545.000	LF	1.50	817.50
0022	HANGER ASSEMBLY SM-3 ONE WAY	5.000	EA	235.00	1,175.00
0023	HANGER ASSEMBLY SM-3 CLUSTER	1.000	EA	365.00	365.00
0024	HANGER ASSEMBLY SMB-3 ONE WAY	4.000	EA	155.00	620.00
0025	SAW CUT	568.000	LF	7.75	4,402.00
0026	14/1 ENCLOSED CONDUCTOR CABLE	1,482.000	LF	1.25	1,852.50
0027	JUNCTION BOX JB-S1	1.000	EA	1,250.00	1,250.00
0028	JUNCTION BOX JB-S2	9.000	EA	1,300.00	11,700.00
0029	JUNCTION BOX JB-S3	1.000	EA	1,600.00	1,600.00
0030	GROUND ROD (3/4"X10')	5.000	EA	145.00	725.00
0031	1" METAL CONDUIT	30.000	LF	20.00	600.00
0032	1" PVC CONDUIT	10.000	LF	17.00	170.00
0033	1-1/4" METAL CONDUIT	15.000	LF	25.00	375.00
0034	2" PVC CONDUIT	35.000	LF	12.50	437.50
0035	3" PVC CONDUIT	665.000	LF	12.00	7,980.00
0036	4" PVC CONDUIT	20.000	LF	19.00	380.00
0037	4" BORED CONDUIT	150.000	LF	80.00	12,000.00
0038	TRENCH EXCAVATION ECI-1	725.000	LF	11.00	7,975.00
0039	TEST BORE	2.000	EA	1,750.00	3,500.00
0040	TYPE B CL. I PAVE. LINE MARKING 4"	100.000	LF	1.50	150.00
0041	TYPE B CL. I PAVE. LINE MARKING 8"	468.000	LF	3.00	1,404.00
0042	TYPE B CL. I PAVE. LINE MARKING 24"	47.000	LF	10.00	470.00
0043	ERADICATION OF EXIST. PAVEMENT MARKING	120.000	LF	1.72	206.40
0044	PAVEMENT MESSAGE MARK. ELONGATED SINGLE ARROW	6.000	EA	140.00	840.00
0045	PAVEMENT MESSAGE MARK. "ONLY"	2.000	EA	525.00	1,050.00
	Total Contract Price				**244,100.90**