

Traffic Impact Study

Kincora

Loudoun County, Virginia

October 23, 2008

Prepared For:

MA Dulles Real Estate Investor, LLC
c/o TRITEC Real Estate Company, Inc.
Stony Brook Technology Center
45 Research Way
Suite 100
East Setauket, New York 11733

Prepared By:

Gorove/Slade
Associates, Inc.





GOROVE/SLADE ASSOCIATES, INC.
Transportation, Traffic and Parking

PREPARED BY:

Gorove/Slade Associates, Inc.
3914 Centreville Road
Suite 330
Chantilly, VA 20151

Tel: 703.787.9595
Fax: 703.787.9905

ADDITIONAL OFFICES:

1140 Connecticut Avenue
Suite 700
Washington, DC 20036

Tel: 202.296.8625
Fax: 202.785.1276

53 West Jackson Blvd
Suite 656
Chicago, IL 60604

Tel: 312.435.7506
Fax: 312.435.7508

Foster Plaza 5
651 Holiday Drive
Suite 300
Pittsburgh, PA 15220

Tel: 412.928.1730
Fax: 412.928.1731

www.goroveslade.com

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INTRODUCTION AND SUMMARY

Purpose and Study Objective

This report presents the findings of a traffic impact analysis for the proposed Kincora development in Loudoun County, Virginia. The site is located north of Route 847 (Severn Way), south of Route 7 (Harry Byrd Highway), east of Route 607 (Loudoun County Parkway), and west of Route 28 (Sully Road). The project site consists of approximately 9.1 million square feet of developable land designated as keynote employment under the Loudoun County's Revised General Plan and currently zoned for "flex" industrial use (PD-IP). The following tasks were completed as a part of this study:

- A scoping meeting (Per VDOT's chapter 527 regulations) was held on August 6, 2008 with representatives from Virginia Department of Transportation (VDOT) and Loudoun County, which included discussions about the parameters of the study and relevant background information. A copy of the scoping letter confirming the parameters and assumptions used in the traffic impact study is included in the Technical Appendix.
- Field reconnaissance in the vicinity of the site was performed to collect information related to existing traffic controls, roadway geometry, and traffic flow characteristics.
- Traffic counts were conducted in May and June 2008 during the morning, afternoon and Saturday peak hours at the intersections located within the study area.
- Future traffic conditions were estimated based on projected regional growth, other approved background developments located within the study area, and the proposed development plan.
- Site traffic volumes were generated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) Trip Generation, 7th Edition. Average daily traffic volumes for residential developments were estimated based on Loudoun County's trip generation rates.
- Intersection capacity analyses were performed using *Synchro, version 6.0* based on the Highway Capacity Manual data and methodology. As agreed upon in the scoping meeting, roadway link and interchange capacity analyses were not performed in this study. The HCM worksheets were included in the Technical Appendix.
- Traffic analyses were performed at the intersections contained within the study area for the existing (2008), future (2011), future (2015), and full build-out year (2025) conditions with and without the proposed Kincora development. In addition, per VDOT's request, a build-out plus five years scenario (2030) was also analyzed.
- Traffic signal warrants from the Manual on Traffic Signal Design (MTSD) and turn lane warrant analyses based on the Virginia Department of Transportation (VDOT) Road Design Manual were reviewed and included in the Technical Appendix for the intersections contained within the study area.

Sources of data for this study include Loudoun County, VDOT, and the office files and field reconnaissance efforts of Grove/Slade Associates, Inc.



Executive Summary

Site Location and Study Area

The site is located north of Route 847 (Severn Way), south of Route 7 (Harry Byrd Highway), east of Route 607 (Loudoun County Parkway), and west of Route 28 (Sully Road). The study area for the traffic study supporting the rezoning encompasses a number of intersections throughout the eastern portions of Loudoun County.

Description of Proposed Development

The proposed development is uniquely located in the epicenter of educational institutions and commercial developments in Loudoun County. The unique location coupled with the vibrant mixed use concept has resulted in an overall development mix, which will include commercial office, retail uses, hotels, recreational facilities, residential units, structured garage, street and surface parking, a baseball stadium, along with pedestrian walkways, sidewalks and alleyways, incorporating streetscape enhancements, including bicycle amenities. By providing corresponding uses on the same site, the proposed development will encourage self-contained pedestrian trips. The project will be completed in three phases with phase I in 2011, phase II in 2015 and full build-out (Phase III) of the development expected in 2025.

The project site consists of approximately 9.1 million square feet of developable land designated as keynote employment under the Loudoun County's Revised General Plan and currently zoned for "flex" industrial use (PD-IP). Consistent with the Revised General Plan, the proposed development program calls for a rezoning of the property to PD-MUB (Planned Development- Mixed Use Business District) to allow for a maximum of approximately 7.4 million square feet of mixed-use development consisting of approximately 4.7 million square feet of office use, approximately 500,000 square feet of retail development, approximately 1.8 million square feet of residential use, and a baseball stadium (5,500 seating capacity).

Principal Findings, Conclusions and Recommendations

The proposed development plan for the proposed Kincora project calls for a Special Exception to allow for a baseball stadium on the site. A rezoning of the property is also proposed to PD-MUB to allow for the proposed mixed-use development. In order to differentiate between the two applications, the conclusions and recommendations are listed separately for the sub applications:

Stadium Special Exception

- 1) The proposed baseball stadium will be constructed in the initial phase of the proposed development. The construction of the proposed stadium is scheduled to be complete by 2011
- 2) The proposed facility will compliment the current community, commercial, corporate, and



residential benefits available to residents of both the county and neighboring counties, and serve as a significant economic stimulus and destination to the overall Loudoun County economy.

- 3) The proposed baseball stadium will have a seating capacity of approximately 5, 500 and is planned to host minor league baseball games.
- 4) The traffic generated by the proposed stadium will be in the off peak hours and will not interfere with the peak commute time period. Majority of the games will be held over the weekend. Per VDOT and County staff's request, a Saturday scenario was analyzed for the traffic generated by the baseball stadium.
- 5) A half-section of Pacific Boulevard (two-lane) from Gloucester Parkway to the stadium entrance will be constructed to serve the stadium patrons.
- 6) Of note, the existing and regional traffic on the roadway network in the vicinity of the proposed development is lower during the weekends. In addition, the trips generated by the office, retail and residential components of the proposed mixed-use development on a typical weekday are higher than the trips generated by the mixed-use development and the baseball stadium over the weekend.
- 7) Hence, the analysis reveals that the proposed roadway network combined with the roadway elements recommended by other private developers and public agencies will result in a roadway network that can accommodate the traffic generated by the special exception use (baseball stadium).

Rezoning Application

According to Loudoun County, it is desirable to achieve an overall and per approach level of service (LOS) D or better. Based on these guidelines, the analysis presented in this report supports the following major conclusions:

1. The Kincora site is planned as a mixed-use community with a live work environment that provides a full range of land uses including office, retail, and residential developments.
2. The site is uniquely located adjacent to two planned limited access highways (i.e. Route 7 and Route 28), and will be served by a future grade-separated interchange at the Route 28 and Nokes Boulevard intersection.
3. Full build-out site traffic can be accommodated by the existing, planned, and proposed roadway networks with local connections of Gloucester Parkway to Route 28, Pacific Boulevard to Russell Branch Parkway, and a grade-separated interchange at the existing Route 28 and Nokes Boulevard intersection.
4. The following is a summary of the roadway elements required to accommodate existing and future regional, local, and site traffic:



- a. The Route 7 and Route 28 corridors will be required to be widened to eight lanes and have grade-separated interchanges within the vicinity of the proposed development in order to handle the commuting traffic traveling to and from eastern Loudoun County, points west, Fairfax County, and Washington, D.C.
- b. Regional roadways like Waxpool Road and Loudoun County Parkway will require major lane improvements to accommodate commuter and local traffic.
- c. Roadway and signal improvements will be required at major intersections to accommodate regional, local, and site traffic.
- d. The following mitigation measures will be required under the Phase I (2011) conditions with the proposed Kincora development considering the Route 28 and Nokes Boulevard Interchange:
 - *Roadway and Signal Improvements:*
 - Gloucester Parkway and Pacific Boulevard
 - Pacific Boulevard and Future Site Drive #2
- e. The following mitigation measures will be required under the Phase II (2015) conditions with the proposed Kincora development:
 - *Roadway and Signal Improvements:*
 - Farmwell Road and Ashburn Village Boulevard
 - Waxpool Road and Pacific Boulevard
 - Gloucester Parkway and Pacific Boulevard
 - Pacific Boulevard and all proposed site driveways
 - *Signal Improvements:*
 - Route 7 with Loudoun Tech Drive/Palisade Parkway
 - Loudoun County Parkway and Smith Switch Road
 - Nokes Boulevard with Cascade Parkway/Potomac View Road
 - Farmwell Road with Smith Switch Road
 - Chruch Road with Davis Drive and Ruritan Circle
 - Loudoun County Parkway with Russel Branch Parkway
- f. The following mitigation measures will be required under the full build out, Phase III (2025) conditions with the proposed Kincora development:
 - *Roadway and Signal Improvements:*
 - Loudoun County Parkway and Smith Switch Road/Gloucester Parkway



- Farmwell Road and Ashburn Village Boulevard
- Waxpool Road and Pacific Boulevard
- Farmwell Road and Smith Switch Road/Waxpool Road
- Gloucester Parkway and Pacific Boulevard
- Pacific Boulevard and all proposed site driveways
- *Signal Improvements:*
 - Route 7 with City Center Boulevard
 - Ashburn Village Boulevard with Gloucester Parkway
 - Waxpool Road with Pacific Boulevard

The results of the study have identified that the roadway network planned as part of this project combined with the roadway elements recommended by other private developers and public agencies will result in a roadway network that can accommodate the combination of both the proposed development and the anticipated traffic as part of future non-site related traffic.

The attached **Figures A through G** document the roadway improvements required to accommodate the existing 2008, future 2011, future 2015 and future 2025 build out of the project, respectively. The figures identify whether the improvements are required to accommodate non-site or site related traffic. **Figure H** shows the fair share percentage of the traffic generated by the proposed Kincora development on the proposed roadway network in the vicinity of the site.

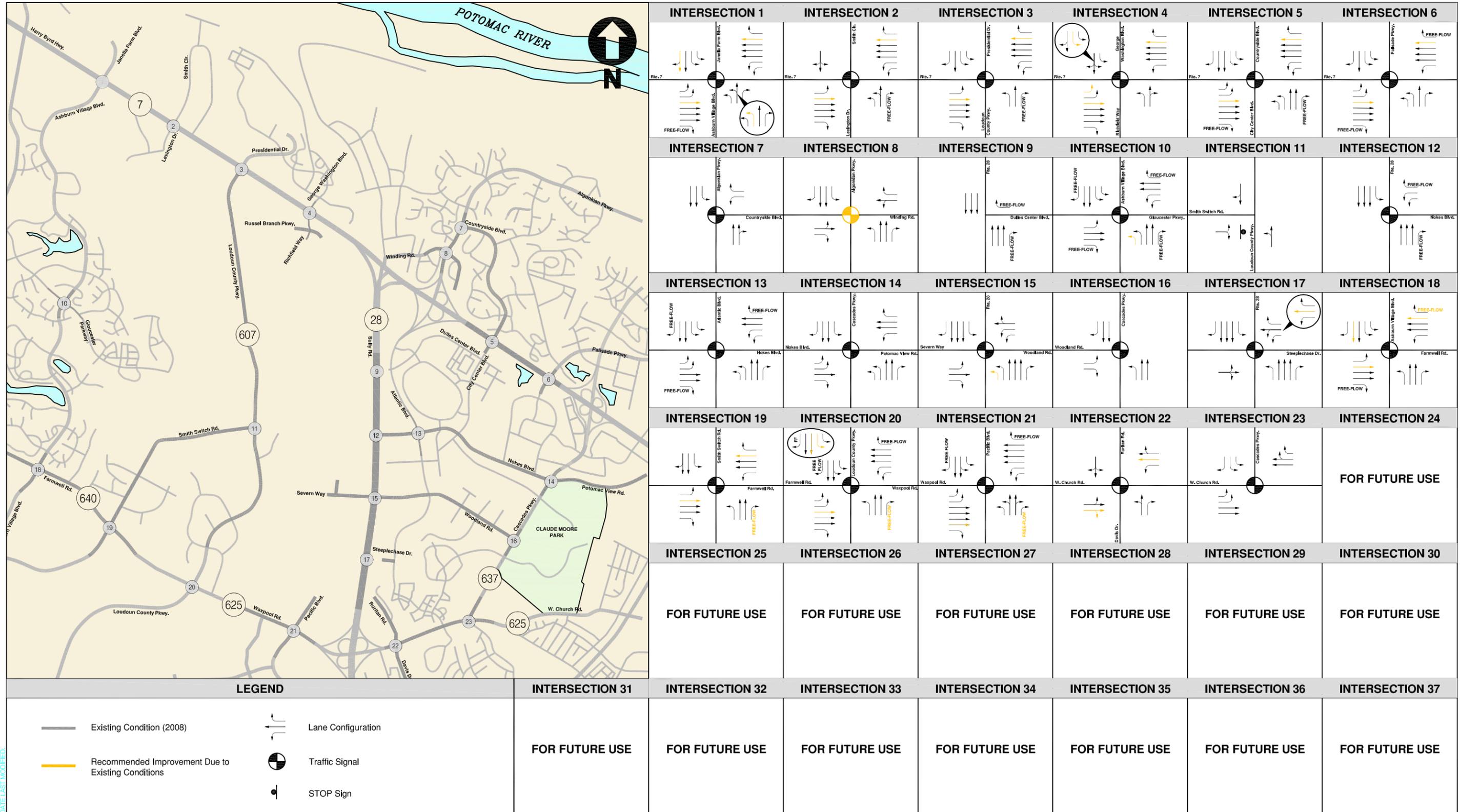


Figure A
Recommended Improvements (Existing Conditions 2008)

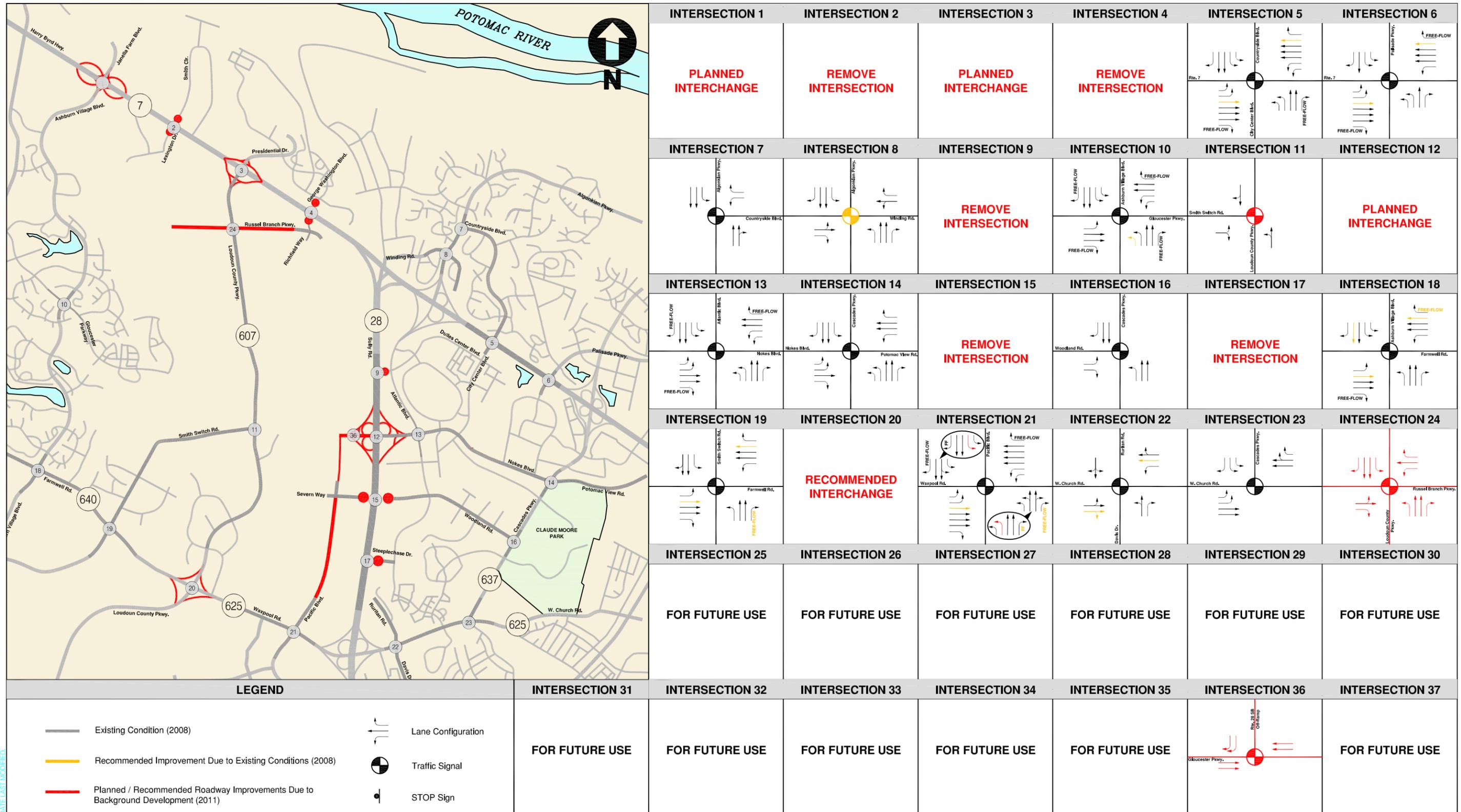


Figure B
Recommended Improvements (Future Conditions without Development -2011)

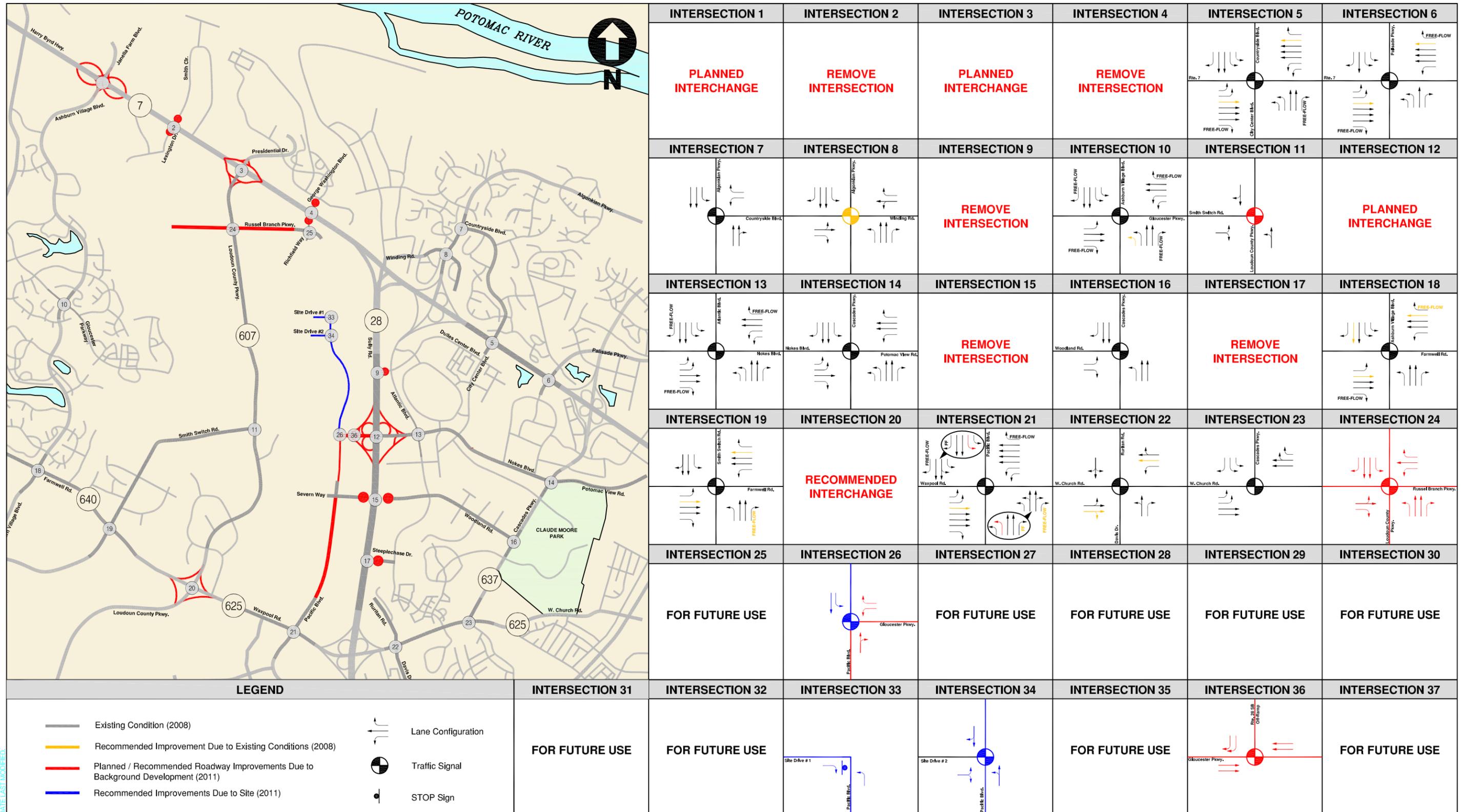


Figure C
Recommended Improvements -Stadium Special Exception-Phase I (Future Conditions with Development - 2011)

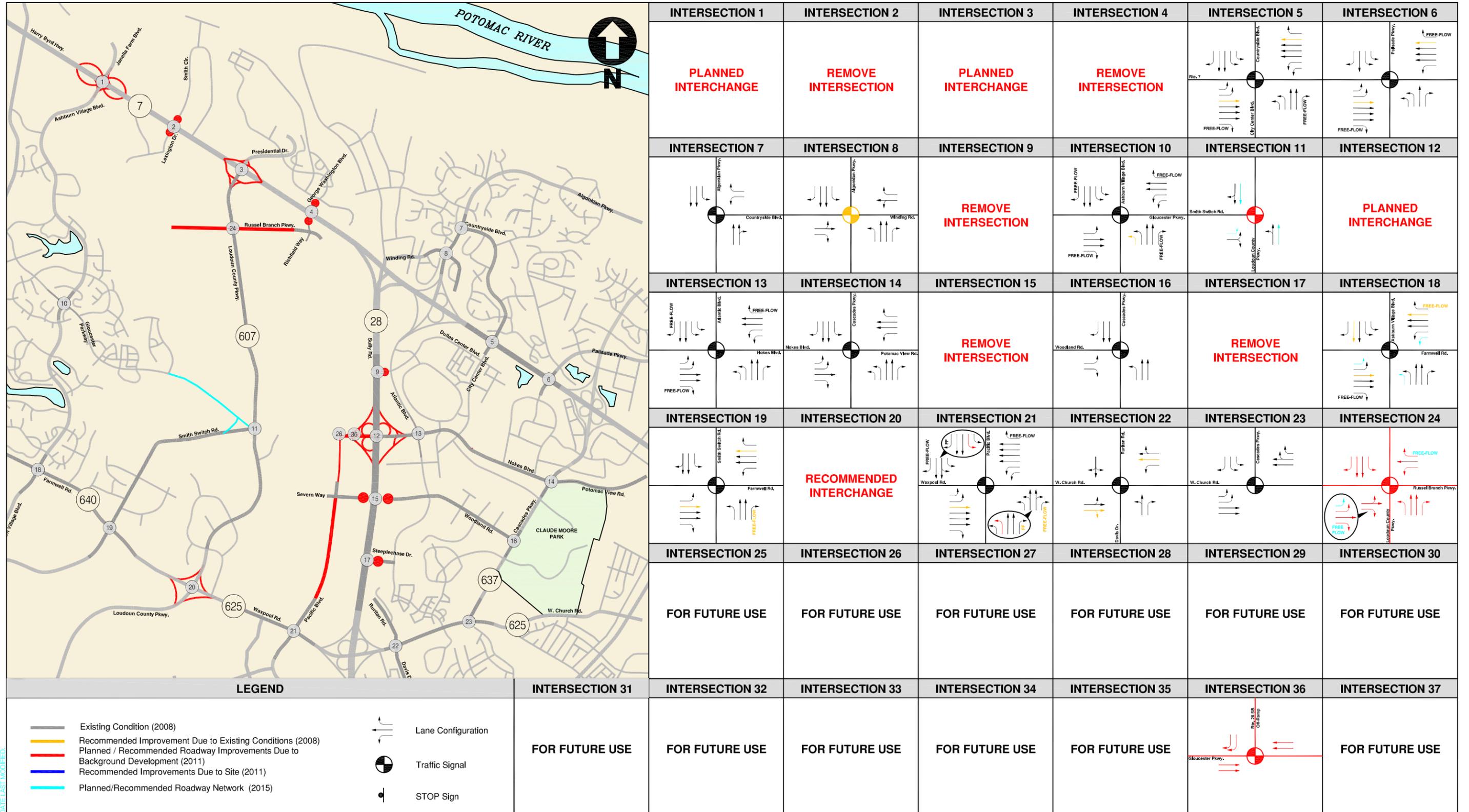


Figure D
Recommended Improvements-(Future Conditions without Development - 2015)

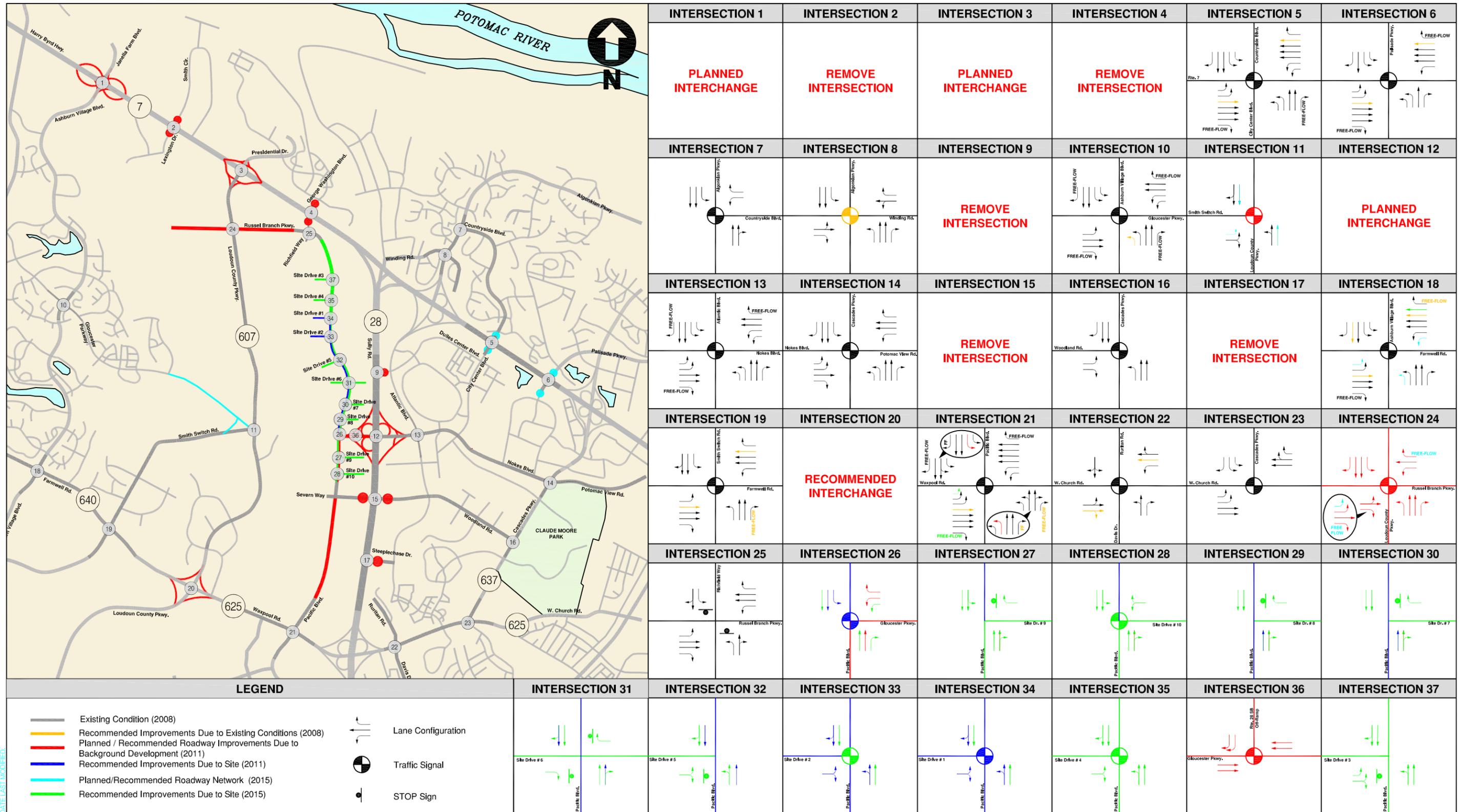


Figure E
Recommended Improvements-Phase II (Future Conditions with Development - 2015)

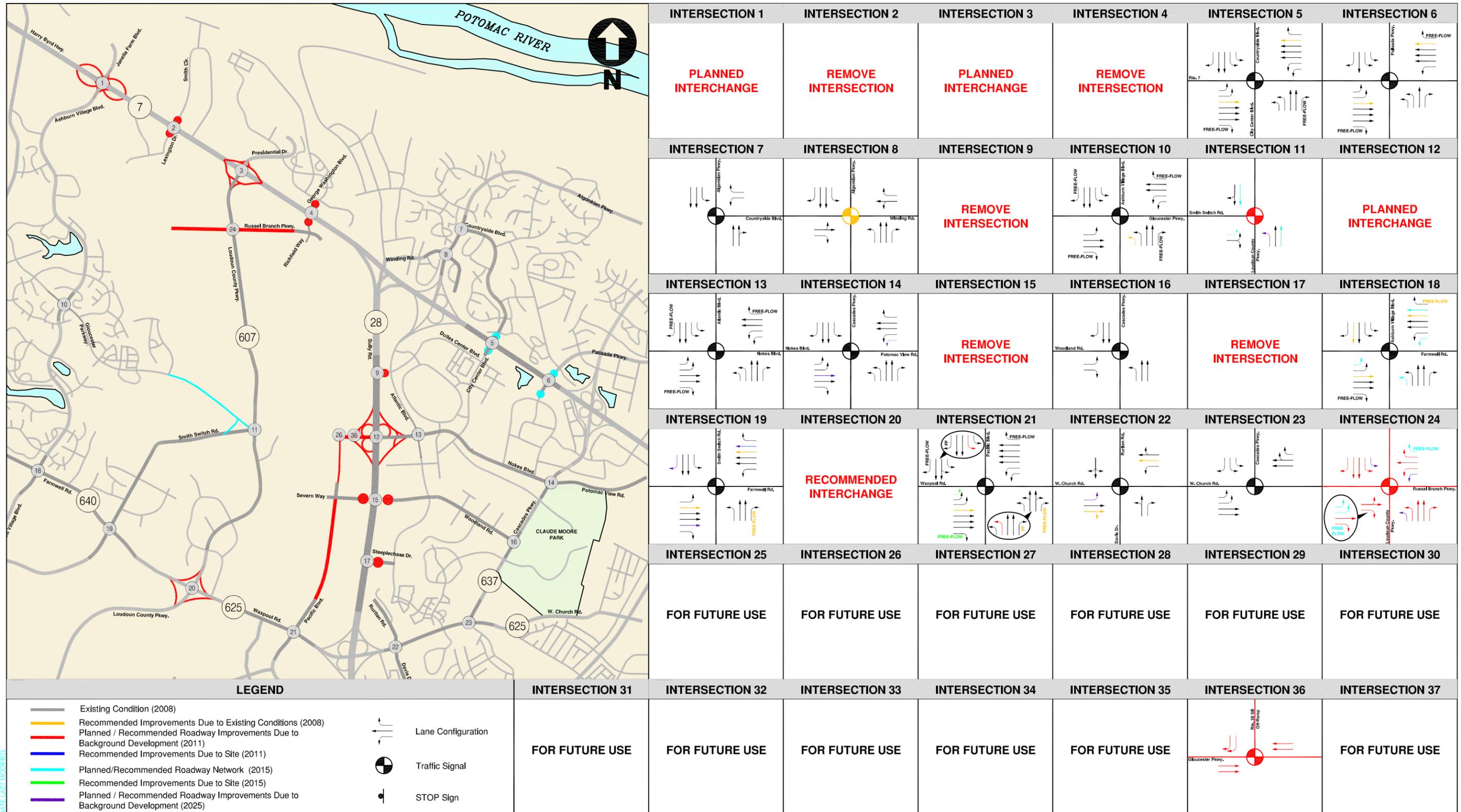


Figure F
Recommended Improvements-(Future Conditions without Development - 2025)

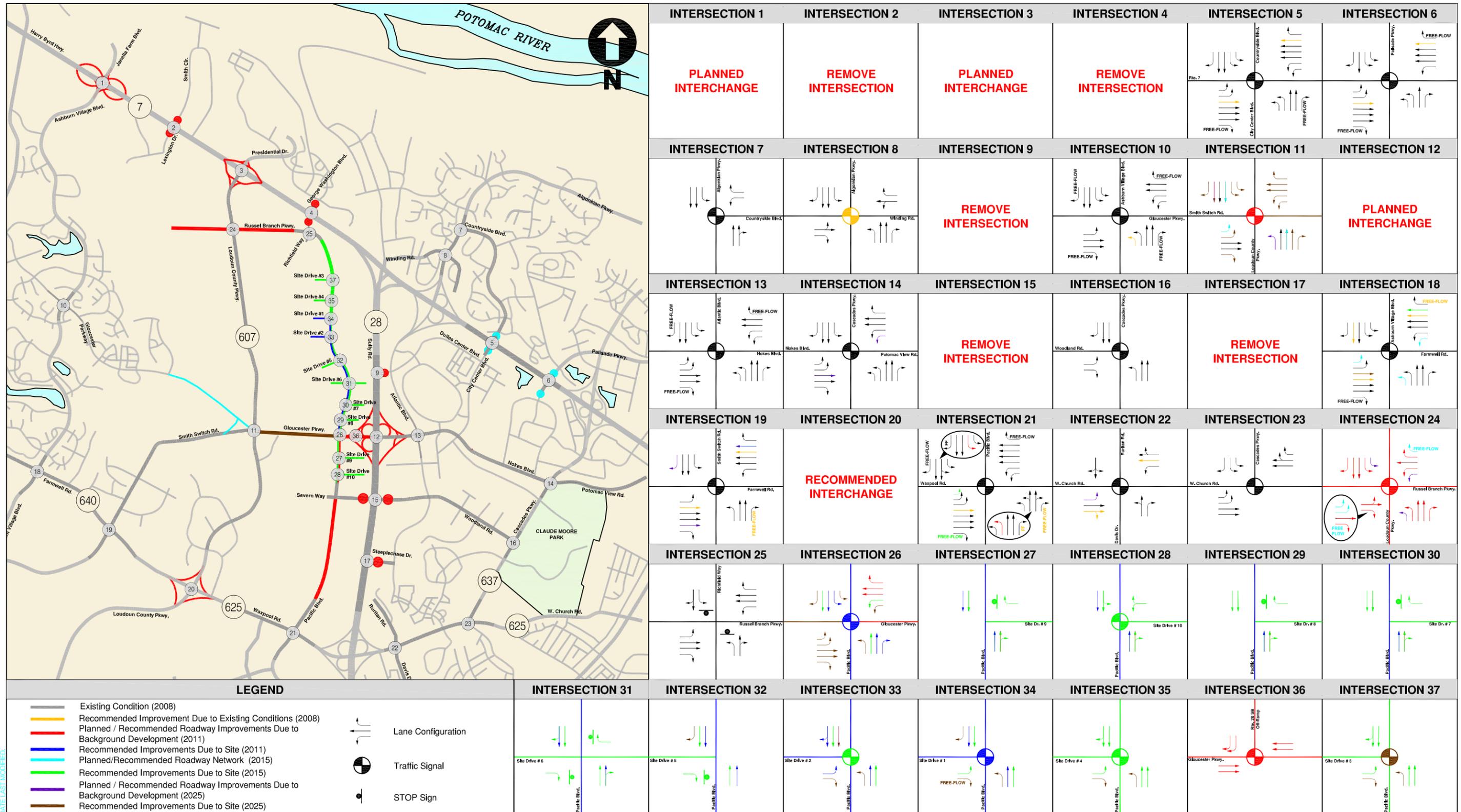
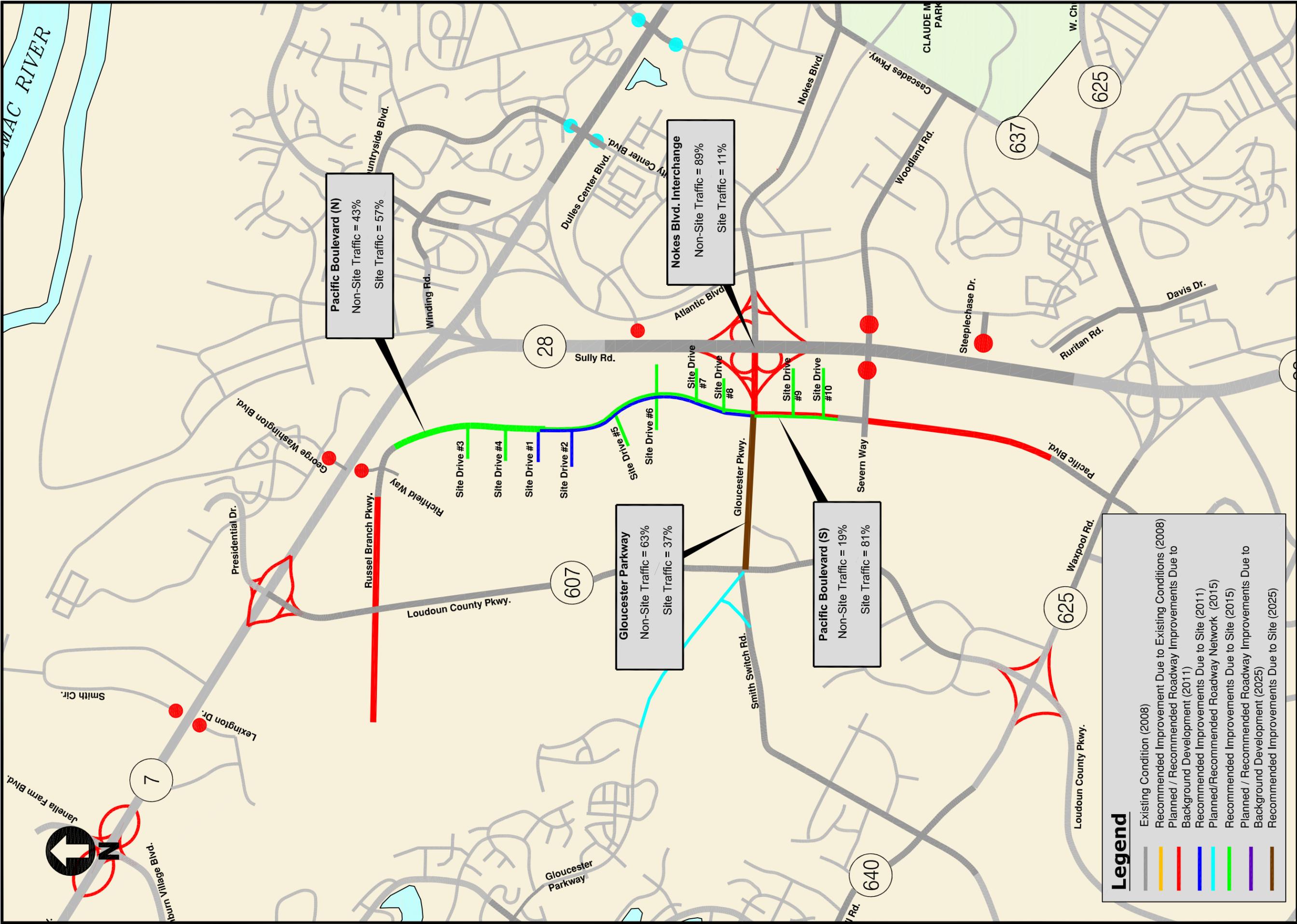


Figure G
Recommended Improvements-Full Build Out-Phase III (Future Conditions with Development - 2025)

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Kincora Development

Figure H: Fair Share Percentage of Site Traffic (2025)

October 23, 2008



GOROVE / SLADE ASSOCIATES, Inc.
 TRANSPORTATION, TRAFFIC, and PARKING CONSULTANTS

1140 Connecticut Avenue NW / Suite 700 / Washington, DC 20036 / (202) 296-8625
 3914 Centreville Road / Suite 330 / Chantilly, VA 20151 / (703) 787-9595



BACKGROUND INFORMATION: PROPOSED DEVELOPMENT (SITE AND NEARBY)

Planned Roadway/Transportation Improvements (2011)

The following planned and proposed roadway/transportation improvements in the vicinity of the site for the 2011 traffic conditions have been considered in the traffic study:

- ◆ **Route 7 (Harry Byrd Highway – from Cascade Parkway west to Algonkian Parkway)** will remain as a six-lane, controlled access, median divided, principal arterial with grade-separated interchange at Cascade Parkway. Individual site access will occur along this section.
- ◆ **Route 7 (Harry Byrd Highway – from Algonkian Parkway west to Ashburn Village Boulevard)** will remain as a six-lane, controlled access, median divided, principal arterial with grade separated interchanges at Algonkian Parkway/Atlantic Boulevard and Route 28. Left and right turn lanes will be provided at all intersections. Median crossovers will not increase from existing conditions.
- ◆ **Route 28 (Sully Road – from Route 625 north to Route 7)** will remain as a six-lane, controlled access, median divided, principal arterial with grade-separated interchanges at Route 625, Nokes Boulevard and Route 7.
- ◆ **Route 625 (Church Road – from Route 637 west to Ruritan Circle (west)/Davis Drive)** will remain as a two to four-lane, local access, undivided, major collector.
- ◆ **Route 625 (Church Road – from Ruritan Circle (west)/Atlantic Boulevard west to Route 28)** will remain as a four-lane, limited access, median divided, major collector with grade-separated interchange at Route 28. Left and right turn lanes will be provided at its intersection with Atlantic Boulevard.
- ◆ **Route 625 (Waxpool Road – from Route 28 west to Pacific Boulevard)** will remain as a six-lane, limited access, median divided, major collector with grade-separated interchange at Route 28. Left and right turn lanes will be provided at its intersection with Pacific Boulevard.
- ◆ **Route 625/Route 640 (Waxpool Road/Farmwell Road – from Pacific Boulevard west to Route 641)** will remain as a four to six-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.
- ◆ **Route 28 East Collector Road (Atlantic Boulevard – from Route 625 north to Route 7)** will remain as a four-lane, controlled access, median divided, major collector with grade-separated interchange at Route 7 with Algonkian Parkway. Left and right turn lanes will be provided at all intersections.
- ◆ **Route 28 East Collector Road (Davis Drive – south of Route 625)** will remain as a



four-lane, local access, undivided, major collector with left and right turn lanes at major intersections.

- ◆ **Route 28 West Collector Road (Pacific Boulevard – from Route 625 north to just south of W&OD trail crossing)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.
- ◆ **Route 28 West Collector Road (Pacific Boulevard – from south of W&OD trail crossing north to Gloucester Parkway)** will be a two-lane, local access, minor collector with left and right turn lanes at major intersections when the intersection of Route 28 with Nokes Boulevard becomes a grade-separated interchange.
- ◆ **Route 607 (Loudoun County Parkway – from Route 7 south to Route 625)** will remain as a four-lane, controlled access, median divided, minor arterial with left and right turn lanes at all intersections.
- ◆ **Route 607 (Loudoun County Parkway – south of Route 625)** will remain as a six-lane, controlled access, median divided, minor arterial with left and right turn lanes at all intersections.
- ◆ **Route 637 (Potomac View Road – from Route 625 north to Cascade Parkway at Nokes Boulevard)** will remain as a four-lane, controlled access, median divided, major collector with single left and right turn lanes at all intersections.
- ◆ **Route 638 Relocated (Nokes Boulevard – from Route 28 east to Route 637/Cascade Parkway at Potomac View Road)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at major intersections.
- ◆ **Route 679/Route 847 (Woodland Road/East Severn Way – from Route 28 east to Route 637)** will remain as a four-lane, local access, undivided, minor collector with left and right turn lanes at major intersections.
- ◆ **Route 1570 (Countryside Boulevard – from Route 7 to Algonkian Parkway)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.
- ◆ **Route 1582 (Algonkian Parkway – north of Route 7 at Atlantic Boulevard)** will remain as a four-lane, controlled access, median divided, minor arterial with grade-separated interchange at Route 7. Left and right turn lanes will be provided at all intersections.
- ◆ **Route 1795 (Palisade Parkway – from Route 637 west to Route 777 at Route 7)** will remain as a four-lane, controlled access, median divided, minor collector with left and right turn lanes at major intersections.



- ◆ **City Center Boulevard (Dulles Town Center Development – from Nokes Boulevard north to Route 7 at Countryside Boulevard)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.
- ◆ **Route 2020 (Ashburn Village Boulevard – from Route 7 south to Route 640)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.
- ◆ **Gloucester Parkway (from Route 659 east to existing terminus)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at all at-grade intersections.
- ◆ **Old Route 607 (Smith Switch Road – from Route 640 north and east to Loudoun County Parkway)** will remain as a two-lane, local access, unpaved/paved, secondary road within the vicinity of the project site.
- ◆ **Route 7 South Collector Road (Russell Branch Parkway – from Loudoun County Parkway east to Richfield Way)** will be a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.

Planned Roadway/Transportation Improvements (2015 and 2025)

The following planned and proposed roadway/transportation improvements in the vicinity of the site for the 2015 and 2025 traffic conditions have been considered in the traffic study:

- ◆ **Route 7 (Harry Byrd Highway – from Cascade Parkway west to Algonkian Parkway)** will be an eight-lane, limited access, median divided, principal arterial with grade separated interchange at Cascade Parkway. Individual site access will be terminated.
- ◆ **Route 7 (Harry Byrd Highway – from Algonkian Parkway west to Ashburn Village Boulevard)** will be an eight-lane, limited access, median divided, principal arterial with additional grade-separated interchanges at Route 607 and Ashburn Village Boulevard. All at-grade access will be terminated.
- ◆ **Route 28 (Sully Road – from Route 625 north to Route 7)** will be an eight-lane, limited access, median divided, principal arterial with an additional grade-separated interchange at Nokes Boulevard. All at-grade access will be terminated.
- ◆ **Route 625 (Church Road – from Route 637 west to Ruritan Circle (west)/Davis Drive)** will be a four-lane, local access, undivided, major collector with left and right turn lanes at all intersections.
- ◆ **Route 625 (Church Road – from Ruritan Circle (west)/Atlantic Boulevard west to Route 28)** will remain as a four-lane, limited access, median divided, major collector with



grade-separated interchange at Route 28. Left and right turn lanes will be provided at its intersection with Atlantic Boulevard.

- ◆ **Route 625 (Waxpool Road – from Route 28 west to Pacific Boulevard)** will remain as a six-lane, limited access, median divided, major collector with grade-separated interchange at Route 28. Left and right turn lanes will be provided at its intersection with Pacific Boulevard.
- ◆ **Route 625/Route 640 (Waxpool Road/Farmwell Road – from Pacific Boulevard west to Route 641)** will be a six-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.
- ◆ **Route 28 East Collector Road (Atlantic Boulevard – from Route 625 north to Route 7)** will remain as a four-lane, controlled access, median divided, major collector with grade-separated interchange at Route 7 with Algonkian Parkway. Left and right turn lanes will be provided at all intersections.
- ◆ **Route 28 East Collector Road (Davis Drive – south of Route 625)** will remain as a four-lane, local access, undivided, major collector with left and right turn lanes at major intersections.
- ◆ **Route 28 West Collector Road (Pacific Boulevard – from Route 625 north to just south of W&OD trail crossing)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.
- ◆ **Route 28 West Collector Road (Pacific Boulevard – from south of W&OD trail crossing north to Gloucester Parkway)** will be a four-lane, local access, undivided, minor collector with left and right turn lanes at major intersections.
- ◆ **Route 607 (Loudoun County Parkway – from Route 7 south to Route 625)** will be a six-lane, controlled access, median divided, minor arterial with grade-separated interchange at Route 7. Left and right turn lanes will be provided at all at-grade intersections.
- ◆ **Route 607 (Loudoun County Parkway – south of Route 625)** will remain as a six-lane, controlled access, median divided, minor arterial with left and right turn lanes at all intersections.
- ◆ **Route 637 (Potomac View Road – from Route 625 north to Cascade Parkway at Nokes Boulevard)** will remain as a four-lane, controlled access, median divided, major collector with single left and right turn lanes at all intersections.
- ◆ **Route 638 Relocated (Nokes Boulevard – from Route 28 east to Atlantic Boulevard)** will be a six-lane, limited access, median divided, major collector with grade-separated interchange at Route 28. Left and right turn lanes will be provided at its intersection with Atlantic Boulevard.



- ◆ **Route 638 Relocated (Nokes Boulevard – from Atlantic Boulevard east to Route 637/Cascade Parkway at Potomac View Road)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes at major intersections.
- ◆ **Route 679/Route 847 (Woodland Road/East Severn Way – from Route 28 east to Route 637)** will remain as a four-lane, local access, undivided, minor collector with left and right turn lanes provided at major intersections. When Route 28 becomes limited access, its at-grade intersection with Route 28 will be terminated.
- ◆ **Route 1570 (Countryside Boulevard – from Route 7 to Algonkian Parkway)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes provided at all intersections.
- ◆ **Route 1582 (Algonkian Parkway – north of Route 7 at Atlantic Boulevard)** will remain as a four-lane, controlled access, median divided, minor arterial with grade-separated interchange at Route 7. Left and right turn lanes will be provided at all intersections.
- ◆ **Route 1795 (Palisade Parkway – from Route 637 west to Route 777 at Route 7)** will remain as a four-lane, controlled access, median divided, minor collector with left and right turn lanes at major intersections.
- ◆ **City Center Boulevard (Dulles Town Center Development – from Nokes Boulevard north to Route 7 at Countryside Boulevard)** will remain as a four-lane, controlled access, median divided, major collector with left and right turn lanes required at all intersections.
- ◆ **Route 2020 (Ashburn Village Boulevard – from Route 7 south to Route 640)** will be a six-lane, controlled access, median divided, major collector with grade-separated interchange at Route 7. The Route 7 interchange location will be just east of the existing Ashburn Village Boulevard/Route 7 at-grade intersection. Left and right turn lanes will be provided at all intersections.
- ◆ **Gloucester Parkway (from Route 659 east to Route 607)** will be a six-lane, controlled access, median divided, major collector with left and right turn lanes at all at-grade intersections. The segment of Gloucester Parkway from the existing terminus east to Route 607 was incorporated in the 2015 analysis.
- ◆ **Old Route 607 (Smith Switch Road – from Route 640 north and east to Loudoun County Parkway)** will be a four-lane, local access, undivided, minor collector with left and right turn lanes at major intersections.
- ◆ **Route 7 South Collector Road (Russell Branch Parkway – from Pacific Boulevard west to Claiborne Parkway)** will be a six-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections.



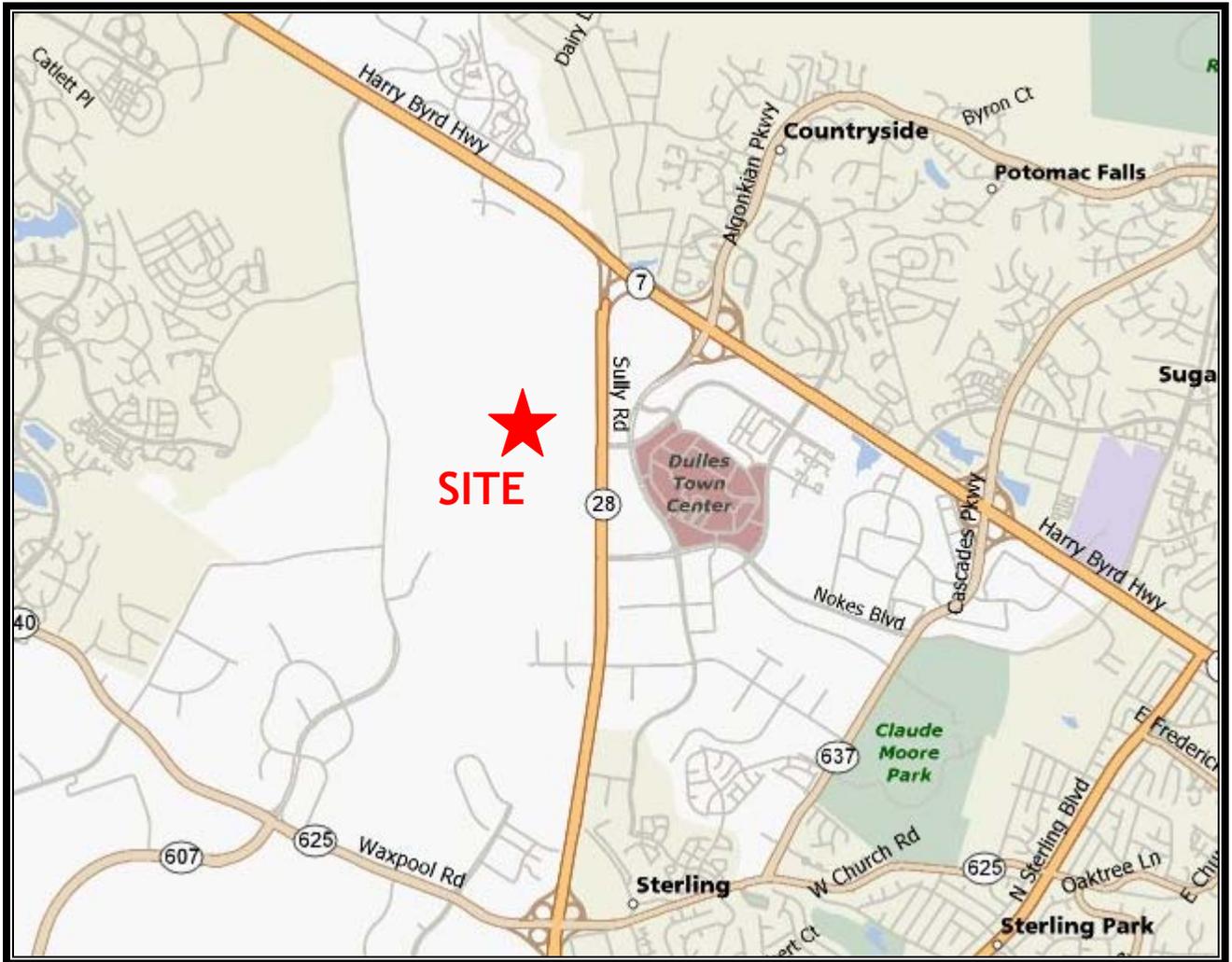
Description of On-Site Development

The site is located north of Route 847 (Severn Way), south of Route 7 (Harry Byrd Highway), east of Route 607 (Loudoun County Parkway), and west of Route 28 (Sully Road). The proposed development is located in close vicinity of major roadways such as Route 28 (Sully Road), Route 7 and Loudoun County Parkway. The site location is shown in **Figure 1**.

The project site consists of approximately 9.1 million square feet of developable land designated as keynote employment under the Loudoun County's Revised General Plan and currently zoned for "flex" industrial use (PD-IP). The parcel map is shown in **Figure 2**. Consistent with the Revised General Plan, the proposed development program calls for a rezoning of the property to PD-MUB (Planned Development- Mixed Use Business District) to allow for a maximum of approximately 7.4 million square feet of mixed-use development consisting of approximately 4.7 million square feet of office use, approximately 500,000 square feet of retail development, approximately 1.8 million square feet of residential use, and a baseball stadium (5,500 seating capacity). An image of the concept plan is shown in **Figure 3**. A scaled site plan is enclosed with the application package.



Figure 1: Site Location Map





FILE PATH:
DATE LAST MODIFIED:

Figure 3
Site Plan



Scope of Study

In accordance with a scoping agreement between Gorove/Slade Associates, Inc. and VDOT/Loudoun County staff shown in the Technical Appendix, the following intersections were identified for inclusion in this study:

1. Route 7 (Harry Byrd Highway) and Ashburn Village Boulevard/Janelia Farm Boulevard;
2. Route 7 (Harry Byrd Highway) and Lexington Drive/Smith Circle;
3. Route 7 (Harry Byrd Highway) and Route 607 (Loudoun County Parkway)/Presidential Drive;
4. Route 7 (Harry Byrd Highway) and Richfield Way/George Washington Boulevard;
5. Route 7 (Harry Byrd Highway) and City Center Boulevard/Countryside Boulevard;
6. Route 7 (Harry Byrd Highway) and Loudoun Tech Drive/Palisade Parkway;
7. Algonkian Parkway and Countryside Boulevard;
8. Algonkian Parkway and Winding Road/Sutherlin Place;
9. Route 28 (Sully Road) and Dulles Center Boulevard;
10. Ashburn Village Boulevard and Gloucester Parkway;
11. Route 607 (Loudoun County Parkway) and Smith Switch Road;
12. Route 28 (Sully Road) and Nokes Boulevard;
13. Nokes Boulevard and Atlantic Boulevard;
14. Nokes Boulevard and Route 637 (Cascade Parkway/Potomac View Road);
15. Route 28 (Sully Road) and Route 847 (Severn Way);
16. Route 637 (Potomac View Road) and Woodland Road;
17. Route 28 (Sully Road) and Steeplechase Drive;
18. Route 640 (Farmwell Road) and Ashburn Village Boulevard;
19. Route 640 (Farmwell Road) and Route 625 (Waxpool Road)/Smith Switch Road;
20. Route 625 (Waxpool Road) and Route 607 (Loudoun County Parkway);
21. Route 625 (Waxpool Road) and Pacific Boulevard;
22. Route 625 (Church Road) and Davis Drive/Ruritan Circle;
23. Route 625 (Church Road) and Route 637 (Potomac View Road); and
24. All site driveways associated with the proposed Kincora development.

The following intersections were identified to be included in the traffic study for the Saturday analysis:

1. Route 7 (Harry Byrd Highway) and Route 607 (Loudoun County Parkway)/Presidential Drive;
2. Route 607 (Loudoun County Parkway) and Smith Switch Road;
3. Route 28 (Sully Road) and Nokes Boulevard;



4. Route 625 (Waxpool Road) and Route 607 (Loudoun County Parkway);
5. Route 625 (Waxpool Road) and Pacific Boulevard; and
6. All site driveways associated with the proposed Kincora development.

Roadway Network

A description of the major roadways within the immediate vicinity of the site is presented below. The existing lane configuration and traffic control in the study area is shown in **Figure 4**.

- ◆ **Route 7 (Harry Byrd Highway – from Cascade Parkway west to Algonkian Parkway)** is a six-lane, controlled access, median divided, principal arterial with grade-separated interchange at Cascade Parkway. Individual site access occurs along this section. The current posted speed limit on this road is 55 mph within the vicinity of the project site.
- ◆ **Route 7 (Harry Byrd Highway – from Algonkian Parkway west to Ashburn Village Boulevard)** is a six-lane, controlled access, median divided, principal arterial with grade separated interchanges at Algonkian Parkway/Atlantic Boulevard and Route 28. Left and right turn lanes are provided at all intersections. The current posted speed limit on this road is 55 mph within the vicinity of the project site.
- ◆ **Route 28 (Sully Road – from Route 625 north to Route 7)** is a six-lane, controlled access, median divided, principal arterial with grade separated interchanges at Route 625 and Route 7. Left and right turn lanes are provided at all intersections. The current posted speed limit on this road is 55 mph within the vicinity of the project site.
- ◆ **Route 625 (Church Road – from Route 637 west to Ruritan Circle (west)/Davis Drive)** is a two to four-lane, local access, undivided, major collector with current posted speed limit of 35 mph within the vicinity of the project site.
- ◆ **Route 625 (Church Road – from Ruritan Circle (west)/Atlantic Boulevard west to Route 28)** is a four-lane, limited access, median divided, major collector with grade-separated interchange at Route 28. The road alignment was shifted north of the existing alignment to provide desirable interchange design. Left and right turn lanes are provided at its intersection with Atlantic Boulevard. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Route 625 (Waxpool Road – from Route 28 west to Pacific Boulevard)** is a six-lane, limited access, median divided, major collector with grade-separated interchange at Route 28. The road alignment was shifted north of the existing alignment to provide desirable interchange design. Left and right turn lanes are provided at its intersection with Pacific Boulevard. The current posted speed limit on this road is 45 mph within the vicinity of the project site.



- ◆ **Route 625/Route 640 (Waxpool Road/Farmwell Road – from Pacific Boulevard west to Route 641)** is a four to six-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections. The current posted speed limit on this road is 45 mph within the vicinity of the project site.
- ◆ **Route 28 East Collector Road (Atlantic Boulevard – from Route 625 north to Route 7)** is a four-lane, controlled access, median divided, major collector with grade-separated interchange at Route 7 with Algonkian Parkway. Left and right turn lanes are required at all intersections. The current posted speed limit on this road is 45 mph within the vicinity of the project site.
- ◆ **Route 28 East Collector Road (Davis Drive – south of Route 625)** is a four-lane, local access, undivided, major collector with left and right turn lanes at major intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Route 28 West Collector Road (Pacific Boulevard – from Route 625 north to just south of W&OD trail crossing)** is a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Route 28 West Collector Road (Pacific Boulevard – from West Severn Way north approximately 700 feet)** is a four-lane, local access, undivided, minor collector with left and right turn lanes at major intersections.
- ◆ **Route 607 (Loudoun County Parkway – from Smith Switch Road south to Redskins Drive)** is a two-lane, local access, secondary road with 7-foot travel lanes. The current posted speed limit on this road is 25 mph within the vicinity of the project site. It should be noted that Route 607 was closed to vehicular traffic from Route 7 south to Smith Switch Road due to construction work along this section.
- ◆ **Route 607 (Loudoun County Parkway – from Redskins Drive south to Route 625)** is a four-lane, controlled access, median divided, minor arterial with left and right turn lanes at major intersections. The current posted speed limit on this road is 45 mph within the vicinity of the project site.
- ◆ **Route 607 (Loudoun County Parkway – south of Route 625)** is a six-lane, controlled access, median divided, minor arterial with left and right turn lanes at all intersections. The current posted speed limit on this road is 45 mph within the vicinity of the project site.
- ◆ **Route 637 (Potomac View Road – from Route 625 north to Cascade Parkway at Nokes Boulevard)** is a four-lane, controlled access, median divided, major collector with single left and right turn lanes at all intersections. The current posted speed limit on this road is 45 mph within the vicinity of the project site.



- ◆ **Route 638 Relocated (Nokes Boulevard – from Route 28 east to Route 637/Cascade Parkway at Potomac View Road)** is a four-lane, controlled access, median divided, major collector with left and right turn lanes at major intersections. The current posted speed limit on this road is 45 mph within the vicinity of the project site.
- ◆ **Route 679/Route 847 (Woodland Road/East Severn Way – from Route 28 east to Route 637)** is a four-lane, local access, undivided, minor collector with left and right turn lanes at major intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Route 1570 (Countryside Boulevard – from Route 7 to Algonkian Parkway)** is a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Route 1582 (Algonkian Parkway – north of Route 7 at Atlantic Boulevard)** is a four-lane, controlled access, median divided, minor arterial with grade-separated interchange at Route 7. Left and right turn lanes are provided at all intersections. The current posted speed limit on this road is 45 mph within the vicinity of the project site.
- ◆ **Route 1795 (Palisade Parkway – from Route 637 west to Route 777 at Route 7)** is a four-lane, controlled access, median divided, minor collector with left and right turn lanes at major intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **City Center Boulevard (Dulles Town Center Development – from Nokes Boulevard north to Route 7 at Countryside Boulevard)** is a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Route 2020 (Ashburn Village Boulevard – from Route 7 south to Route 640)** is a four-lane, controlled access, median divided, major collector with left and right turn lanes at all intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Gloucester Parkway (from Route 659 to existing terminus)** is a four-lane, controlled access, median divided, major collector with left and right turn lanes at all at-grade intersections. The current posted speed limit on this road is 35 mph within the vicinity of the project site.
- ◆ **Old Route 607 (Smith Switch Road – from Route 640 north and east to Loudoun County Parkway)** is a two-lane, local access, unpaved/paved, secondary road with no posted speed limit within the vicinity of the project site.

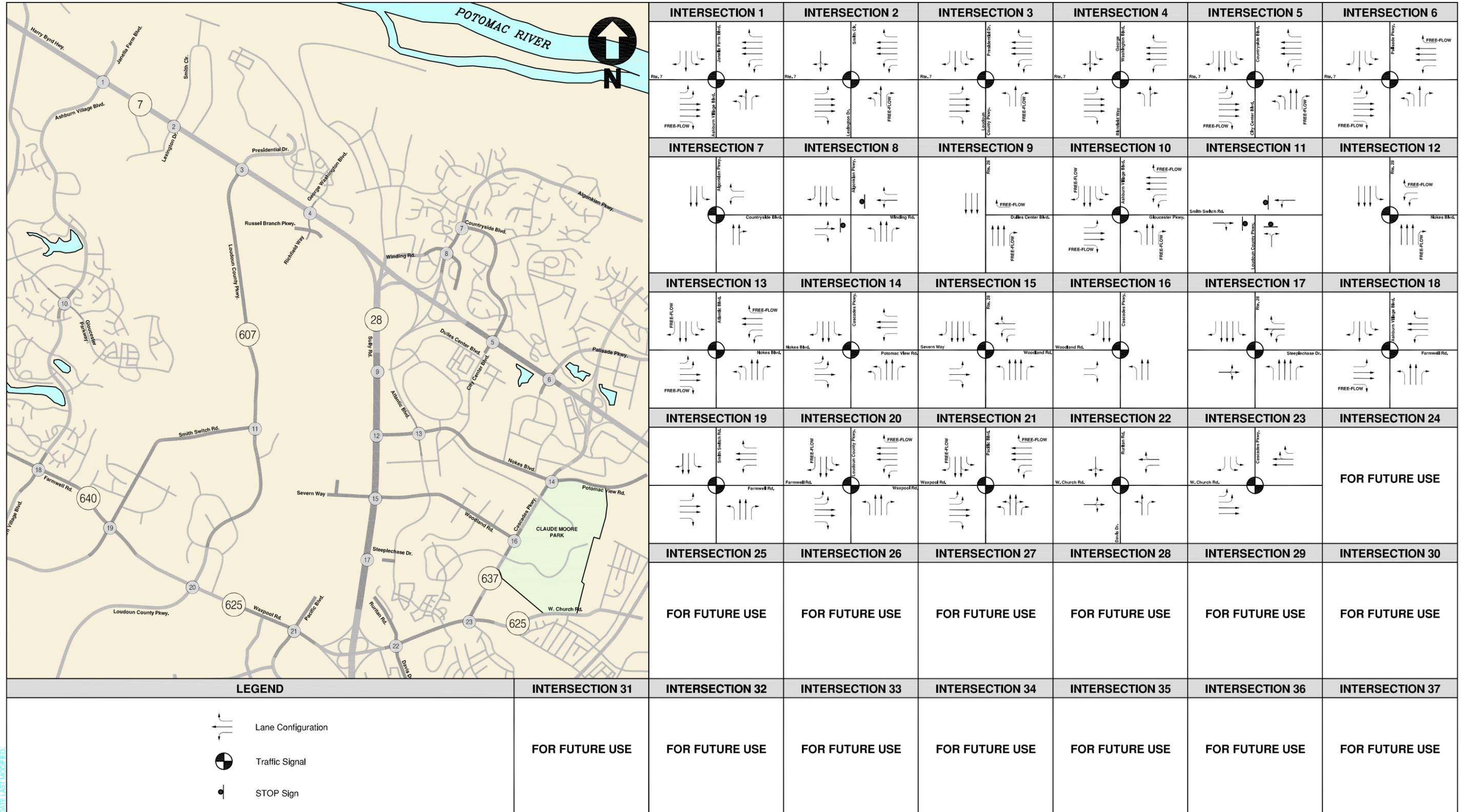


Figure 4
Existing (2008) Lane Configuration and Traffic Control



EXISTING CONDITIONS (2008)

Hazardous Locations

A field reconnaissance was conducted on the roadways and intersections within the vicinity of the proposed Kincora site. No hazardous conditions were found as a result of the field inspection.

Existing Traffic Volumes

In order to determine the weekday peak hour turning movement volumes, traffic counts were conducted in May and June 2008 from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00 PM at the intersections contained within the study area. Analysis of the existing traffic data determined the peak hours shown below:

- 7:45 AM to 8:45 AM (Weekday)
- 5:00 PM to 6:00 PM (Weekday)

As mentioned earlier, a Saturday scenario was also analyzed to evaluate the impacts from the proposed baseball stadium. VDOT and the County staff have identified certain intersections in the study area that were analyzed for the Saturday scenario only. Traffic counts were conducted on Saturday in June 2008 from 11:00 AM to 2:00 PM at the intersections identified by VDOT. A minor league baseball team franchise is planned to serve as the primary tenant for the facility. Since the baseball games for the minor league are typically scheduled in the afternoon timeframe (6:00 PM Starts), the Saturday peak hour traffic counts were adjusted to reflect 5:00 PM to 6:00 PM traffic data. Daily traffic volumes were collected in the study area for Saturday. The traffic volumes were compared between the Saturday peak hour and afternoon (5:00 PM to 6:00 PM) timeframe. Based on this comparison, a traffic-adjusting factor was evaluated. The details of this comparison analysis are presented in the appendix section of the report.

The existing peak hour traffic volumes for the intersections contained within the study area are shown in **Figure 5**. The existing counts are included in the Technical Appendix.

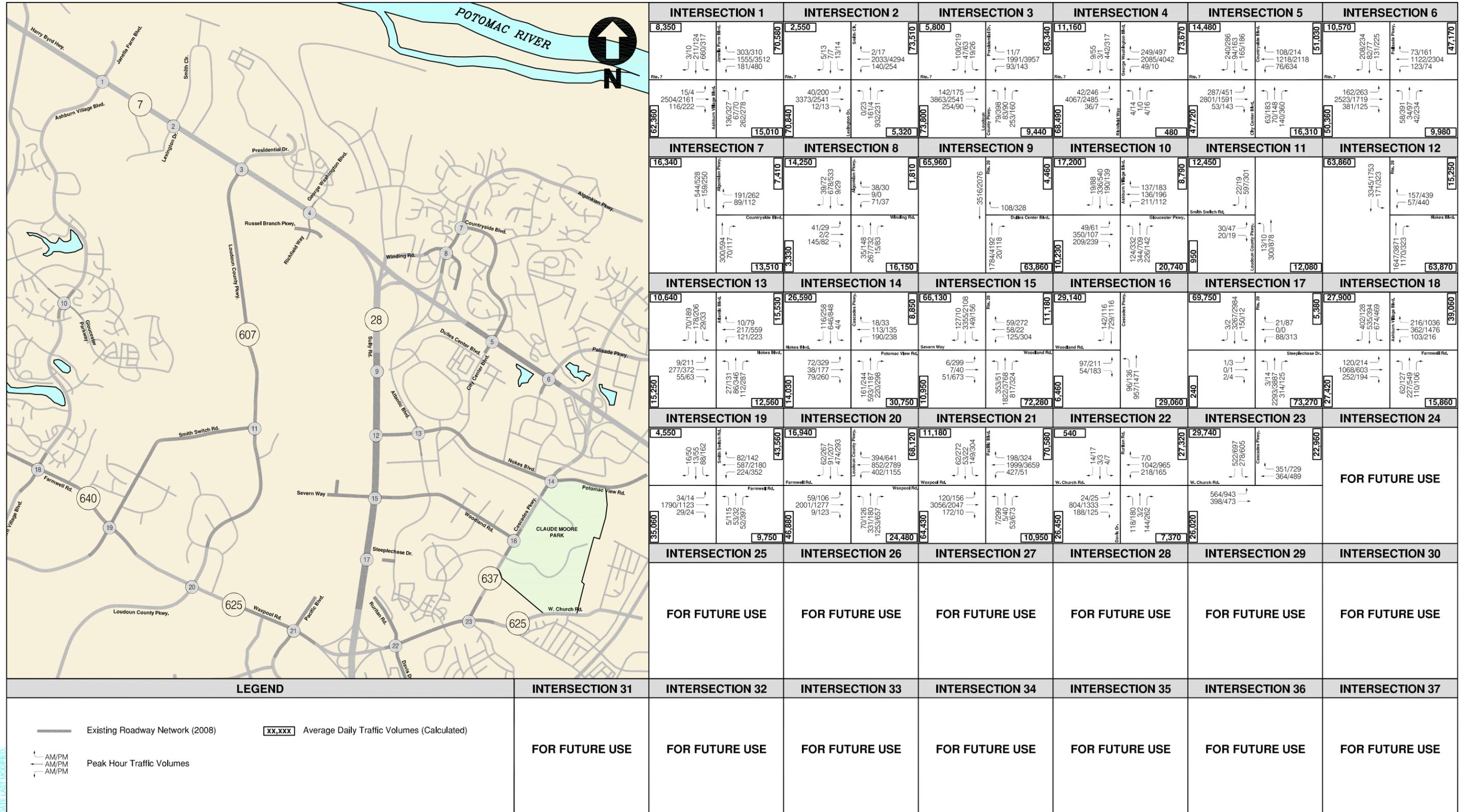


Figure 5A
Existing (2008) Peak Hour Traffic Volumes - Weekday



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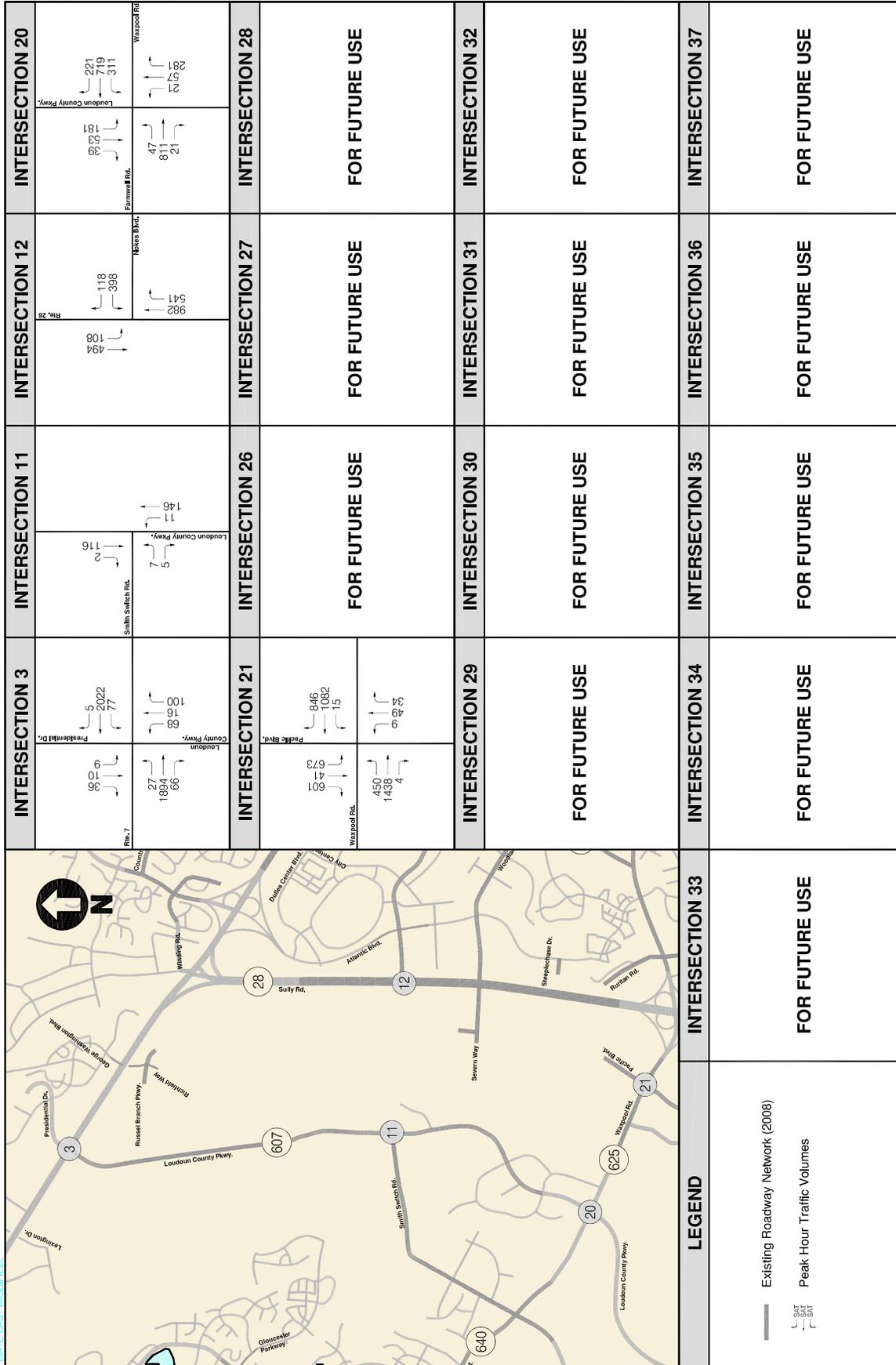


Figure 5B
Existing (2008) Peak Hour Traffic Volumes - Saturday



Existing Conditions Capacity Analysis

Capacity analyses were performed at the intersections contained within the study area during the weekday morning and afternoon peak hours under the existing conditions. Intersection capacity analyses were performed using *Synchro*, version 6.0 based on the latest Highway Capacity Manual (HCM 2000) data and methodology. As agreed upon in the scoping meeting, roadway link and interchange capacity analyses were not performed in this study.

The results of the intersection capacity analyses are presented in **Table 1**, and are expressed in terms of level of service (LOS) and delay (seconds per vehicle). A description of the different LOS and delay and the detailed analysis worksheets for the existing conditions are included in the Technical Appendix.

Table 1: Existing (2008) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.						
	Overall (Signalized)	F	156.3	E	66.4	--	--
	Eastbound	C	27.8	D	40.9	--	--
	Westbound	C	29.8	E	62.2	--	--
	Northbound	F	86.6	F	109.7	--	--
	Southbound	F	817.2	F	167.6	--	--
	Overall Mitigations – Change PM cycle length and adjust AM and PM signal timings	E	55.4	C	33.3	--	--
	Eastbound – Add 4 th through lane.	C	28.6	C	26.3	--	--
	Westbound – Add 4 th through lane and allow permitted + overlap right turn movement.	C	26.0	C	32.9	--	--
	Northbound – Add 2 nd left turn bay; restripe left/thru shared lane to thru lane only; change signal phasing.	F	174.8	D	47.5	--	--
Southbound – Restripe right turn lane to thru/right shared lane and change signal phasing.	F	126.3	D	51.8	--	--	
2	Route 7 and Lexington Drive/Smith Circle						
	Overall (Signalized)	E	64.1	F	119.0	--	--
	Eastbound	D	52.0	F	99.7	--	--
	Westbound	C	22.2	F	140.3	--	--
	Northbound	F	149.0	B	14.3	--	--
	Southbound	F	93.3	F	84.8	--	--
	Overall Mitigations – Change PM cycle length and adjust AM and PM signal timings	D	51.3	D	52.8	--	--
	Eastbound – Add 4 th through lane and allow permitted + overlap right turn movement.	C	21.5	D	53.0	--	--
	Westbound – Add 4 th through lane and allow permitted + overlap right turn movement.	D	44.1	D	54.8	--	--
	Northbound	F	127.0	B	14.2	--	--
Southbound	F	92.0	F	85.9	--	--	



Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
3	Route 7 and Loudoun County Parkway/Presidential Dr.						
	Overall (Signalized)	F	91.0	F	144.4	D	36.0
	Eastbound	F	124.4	D	39.4	C	26.8
	Westbound	C	21.6	F	111.1	D	38.9
	Northbound	D	43.2	F	722.0	F	80.3
	Southbound	F	86.9	F	183.1	F	85.2
	Overall Mitigations – Change PM cycle length and adjust AM and PM signal timings	D	46.1	E	75.7	B	14.6
	Eastbound – Add 4 th through lane.	D	54.2	D	53.0	B	13.3
	Westbound – Add 4 th through lane.	C	25.6	D	46.0	B	13.3
	Northbound	D	40.3	F	322.5	C	27.7
	Southbound – Allow permitted + overlap right turn movement.	E	70.1	F	94.4	D	54.9
4	Route 7 and Richfield Way/George Washington Blvd.						
	Overall (Signalized)	F	120.3	F	237.6	--	--
	Eastbound	F	175.3	F	340.0	--	--
	Westbound	C	24.5	F	176.2	--	--
	Northbound	F	90.9	F	84.0	--	--
	Southbound	F	102.0	F	107.2	--	--
	Overall Mitigations – Change PM cycle length and adjust AM and PM signal timings	C	26.5	E	59.8	--	--
	Eastbound – Add 2 nd left and 4 th through lane and allow permitted + overlap right turn movement.	A	5.4	D	54.4	--	--
	Westbound – Add 4 th through lane and allow permitted + overlap right turn movement.	B	12.3	D	54.9	--	--
	Northbound	F	95.4	F	82.2	--	--
	Southbound – Add 2 nd left turn bay.	F	268.2	F	156.3	--	--
5	Route 7 and City Center Blvd./Countryside Blvd.						
	Overall (Signalized)	D	39.6	E	65.8	--	--
	Eastbound	D	42.7	D	43.9	--	--
	Westbound	C	22.6	F	90.5	--	--
	Northbound	D	42.4	D	40.2	--	--
	Southbound	E	63.7	E	62.3	--	--
	Overall Mitigation – Change AM and PM cycle lengths	C	30.5	D	43.7	--	--
	Eastbound – Add 4 th through lane.	C	30.9	D	46.0	--	--
	Westbound – Add 4 th through lane.	B	20.0	D	42.7	--	--
	Northbound	C	34.5	C	33.0	--	--
	Southbound	D	51.7	D	51.1	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway						
	Overall (Signalized)	C	25.1	D	51.6	--	--
	Eastbound	B	15.6	C	34.8	--	--
	Westbound	C	22.6	D	50.1	--	--
	Northbound	E	78.1	F	83.8	--	--
	Southbound	E	74.5	E	79.1	--	--
	Overall Mitigation – Change AM and PM cycle lengths	B	19.8	D	42.5	--	--
	Eastbound – Add 4 th through lane.	B	11.7	D	54.5	--	--



Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Westbound – Add 4 th through lane.	B	19.3	C	31.5	--	--
	Northbound – Allow permitted + overlap right turn movement.	E	58.7	D	39.4	--	--
	Southbound – Allow permitted + overlap right turn movement.	E	59.4	D	47.6	--	--
7	Algonkian Parkway and Countryside Boulevard						
	Overall (Signalized)	A	7.8	B	10.2	--	--
	Westbound	B	12.5	B	14.8	--	--
	Northbound	B	11.3	B	14.2	--	--
	Southbound	A	3.5	A	4.5	--	--
8	Algonkian Parkway and Winding Road/Sutherland Lane						
	Overall (Two-Way Stop Controlled)	A	7.7	C	21.0	--	--
	Eastbound Approach	C	19.9	F	58.2	--	--
	Westbound Approach	F	51.3	F	317.7	--	--
	Northbound Left Turn	A	1.1	B	10.0	--	--
	Southbound Left Turn	A	8.1	B	10.1	--	--
	Overall Mitigation – Install a traffic signal	B	12.7	A	9.1	--	--
	Eastbound	C	33.9	C	31.8	--	--
	Westbound	D	35.3	D	35.7	--	--
	Northbound	A	5.0	A	5.4	--	--
	Southbound	A	7.0	A	6.3	--	--
9	Route 28 and Dulles Center Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway						
	Overall (Signalized)	C	23.4	C	27.5	--	--
	Eastbound	C	22.1	B	16.7	--	--
	Westbound	C	23.4	C	23.8	--	--
	Northbound	B	18.9	C	31.3	--	--
	Southbound	C	30.7	C	29.9	--	--
	Overall Mitigation – Adjust AM and PM signal timings	C	22.9	C	22.6	--	--
	Eastbound	C	21.8	B	15.5	--	--
	Westbound	C	22.9	C	22.9	--	--
	Northbound – Add 2 nd left turn bay.	B	18.9	C	22.6	--	--
	Southbound	C	29.0	C	25.6	--	--
11	Loudoun County Parkway and Smith Switch Road						
	Overall (Two-Way Stop Controlled)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Approach	C	22.1	E	39.8	B	10.3
	Northbound Approach	A	0.7	A	0.5	A	1.2
	Southbound Approach	A	0.0	A	0.0	A	0.0
12	Route 28 and Nokes Boulevard						
	Overall (Signalized)	B	10.8	F	88.0	B	17.7
	Westbound	B	17.5	D	38.0	D	44.1
	Northbound	A	5.5	F	109.4	A	8.3
	Southbound	B	12.9	E	67.7	B	11.6
	Overall Mitigation – Adjust PM signal timings	B	13.2	F	102.5	C	30.0
	Westbound	B	17.5	F	444.6	D	36.6
	Northbound	B	13.0	D	52.6	C	25.3
	Southbound	B	12.9	D	53.1	C	34.0



Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
13	Nokes Boulevard and Atlantic Boulevard						
	Overall (Signalized)	C	22.1	C	26.4	--	--
	Eastbound	B	13.3	C	25.9	--	--
	Westbound	C	20.2	C	27.1	--	--
	Northbound	C	32.4	C	28.4	--	--
	Southbound	C	28.2	C	21.1	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	27.0	D	39.6	--	--
	Eastbound	D	38.9	D	49.1	--	--
	Westbound	D	40.5	E	69.3	--	--
	Northbound	C	21.7	C	32.6	--	--
	Southbound	C	23.8	C	31.4	--	--
	Overall Mitigation – Adjust PM signal timings	C	27.0	C	34.3	--	--
	Eastbound	D	38.9	D	52.0	--	--
	Westbound	D	40.5	D	41.7	--	--
	Northbound	C	21.7	C	29.2	--	--
	Southbound	C	23.8	C	27.4	--	--
15	Route 28 and Severn Way						
	Overall (Signalized)	F	232.4	F	213.0	--	--
	Eastbound	C	31.5	F	391.6	--	--
	Westbound	D	35.1	F	87.3	--	--
	Northbound	F	83.7	F	281.8	--	--
	Southbound	F	357.1	C	32.0	--	--
	Overall Mitigation – Adjust AM and PM signal timings	D	43.3	F	179.2	--	--
	Eastbound	D	45.3	F	654.0	--	--
	Westbound	F	104.8	F	552.9	--	--
	Northbound-Add 2 nd left turn lane	C	25.1	E	63.6	--	--
	Southbound	D	50.5	D	50.4	--	--
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	8.1	B	12.6	--	--
	Eastbound	C	25.5	C	23.4	--	--
	Northbound	A	4.1	A	8.1	--	--
	Southbound	A	9.6	B	14.5	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Signalized)	D	41.1	E	61.0	--	--
	Eastbound	D	45.6	D	54.3	--	--
	Westbound	D	44.8	F	204.0	--	--
	Northbound	C	20.8	F	83.7	--	--
	Southbound	E	56.4	A	8.0	--	--
	Overall Mitigation – Adjust AM and PM signal timings	C	28.1	D	54.2	--	--
	Eastbound – Change signal phasing.	D	46.3	E	61.9	--	--
	Westbound – Restripe shared left/through to through only; change signal phasing.	D	51.4	F	328.0	--	--
	Northbound – Allow permitted + overlap right turn movement.	C	20.4	D	52.8	--	--
	Southbound	D	33.1	B	10.9	--	--
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	D	47.8	F	131.3	--	--



Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Eastbound	D	40.9	D	46.0	--	--
	Westbound	C	33.4	F	143.9	--	--
	Northbound	D	54.5	D	52.8	--	--
	Southbound	E	57.2	F	230.4	--	--
	Overall Mitigation – Adjust AM and PM signal timings	C	34.5	D	46.9	--	--
	Eastbound – Add 3 rd through lane.	C	30.9	D	36.2	--	--
	Westbound – Add 3 rd through lane and allow free-flow right turn movement.	B	18.7	D	46.5	--	--
	Northbound – Allow permitted + overlap right turn movement.	D	48.7	D	52.3	--	--
	Southbound – Add 2 nd through lane and allow permitted + overlap right turn movement.	D	39.9	D	54.0	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	E	61.7	E	56.5	--	--
	Eastbound	C	26.6	B	16.6	--	--
	Westbound	E	62.5	C	31.1	--	--
	Northbound	F	183.7	F	218.4	--	--
	Southbound	F	91.7	F	113.8	--	--
	Overall Mitigation – Change AM and PM cycle lengths	C	23.7	C	27.3	--	--
	Eastbound – Add 3 rd through lane.	C	24.4	C	33.0	--	--
	Westbound – Add 3 rd through lane.	C	23.8	C	24.1	--	--
	Northbound – Allow free-flow right turn movement.	B	12.2	B	16.4	--	--
	Southbound	D	43.4	D	52.2	--	--
20	Waxpool Road and Loudoun County Parkway						
	Overall (Signalized)	F	339.8	F	178.6	D	40.0
	Eastbound	D	41.3	C	31.4	D	41.1
	Westbound	E	76.9	F	192.0	C	30.5
	Northbound	F	927.8	F	338.5	E	58.0
	Southbound	F	433.7	F	179.7	D	53.6
	Overall Mitigations – Change PM cycle length and adjust AM and PM signal timings	D	36.0	D	39.3	C	22.4
	Eastbound – Add 3 rd through lane.	D	47.4	D	43.9	B	19.9
	Westbound	C	28.0	D	38.0	C	20.7
	Northbound – Allow free-flow right turn movement.	C	22.3	C	31.5	B	13.2
	Southbound – Add 2 nd left turn bay and restripe left/thru shared lane to thru lane only.	D	52.8	D	47.9	D	45.9
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	F	85.3	E	78.1	D	42.8
	Eastbound	F	138.7	C	31.8	E	69.2
	Westbound	C	28.6	D	44.6	B	17.7
	Northbound	E	61.2	F	284.8	E	72.0
	Southbound	E	62.9	E	79.6	D	37.7
	Overall Mitigation – Change AM and PM cycle lengths	D	36.0	D	41.4	D	38.4
	Eastbound – Add 4 th through lane.	D	46.8	C	28.6	D	53.6
	Westbound	C	23.0	D	48.7	B	14.0
	Northbound – Convert right turn to free	B	16.8	D	35.7	D	40.3



Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	flow						
	Southbound	D	47.4	D	51.6	D	50.3
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	F	595.8	F	665.9	--	--
	Eastbound	F	1527.2	F	1441.8	--	--
	Westbound	E	57.5	C	33.1	--	--
	Northbound	D	38.0	F	81.9	--	--
	Southbound	D	38.3	D	39.4	--	--
	Overall Mitigation – Adjust AM and PM signal timings	C	20.5	D	36.2	--	--
	Eastbound – Add 2 nd through lane.	C	26.2	D	43.7	--	--
	Westbound – Add 2 nd through lane.	B	14.1	C	24.3	--	--
	Northbound – Allow permitted + overlap right turn movement.	C	29.0	D	42.7	--	--
	Southbound	D	36.6	D	48.3	--	--
23	Church Road and Cascades Parkway						
	Overall (Signalized)	B	17.1	D	45.9	--	--
	Eastbound	B	15.0	D	54.8	--	--
	Westbound	B	14.4	C	29.7	--	--
	Southbound	C	21.7	D	51.0	--	--

Note: N/A means not applicable.

According to the Loudoun County's [Facilities Standards Manual](#) (FSM), it is desirable to achieve an overall and per approach level of service (LOS) D or better at each intersection. The results presented in **Table 3** show that most of the study intersections are currently operating at unacceptable conditions. The following mitigation measures would be required to meet the desired LOS criteria set forth by the County under the existing conditions:

- *Intersection of Route 7 with Ashburn Village Boulevard/Janelia Farm Boulevard:*
 - Add fourth eastbound and westbound through lane.
 - Add second northbound left turn bay.
 - Restripe northbound left/through shared lane to through lane only.
 - Restripe southbound right turn lane to through/right shared lane.
 - Allow permitted plus overlap right turn movement in the westbound approach.
 - Adjust signal phasing in the northbound and southbound approaches.
 - Change PM cycle length and adjust AM and PM signal timings.
- *Intersection of Route 7 with Lexington Drive/Smith Circle:*
 - Add fourth eastbound and westbound through lane.
 - Allow permitted plus overlap right turn movement in the eastbound and westbound



- approaches.
- Change PM cycle length and adjust AM and PM signal timings.
 - *Intersection of Route 7 with Loudoun County Parkway/Presidential Drive:*
 - Add fourth eastbound and westbound through lane.
 - Allow permitted plus overlap right turn movement in the southbound approach.
 - Change PM cycle length and adjust AM and PM signal timings.
 - *Intersection of Route 7 with Richfield Way/George Washington Boulevard:*
 - Add fourth eastbound and westbound through lane.
 - Add second southbound left turn bay.
 - Restripe southbound left/through/right shared lane to right/through shared lane.
 - Add second eastbound left turn bay.
 - Allow permitted plus overlap right turn movement in the eastbound and westbound approaches.
 - Change PM cycle length and adjust AM and PM signal timings.
 - *Intersection of Route 7 with City Center Boulevard/Countryside Boulevard:*
 - Add fourth eastbound and westbound through lane.
 - Change AM and PM cycle lengths and signal timings.
 - *Intersection of Route 7 with Loudoun Tech Drive/Palisade Parkway:*
 - Add fourth eastbound and westbound through lane.
 - Allow permitted plus overlap right turn movement in the northbound and southbound approaches.
 - Change AM and PM cycle lengths and signal timings.
 - *Intersection of Algonkian Parkway with Winding Road/Sutherlin Lane:*
 - Install a traffic signal.
 - *Intersection of Ashburn Village Boulevard with Gloucester Parkway:*
 - Add second northbound left turn bay.
 - Adjust AM and PM signal timings.
 - *Intersection of Route 28 with Nokes Boulevard:*
 - Adjust PM signal timings.
 - *Intersection of Cascades Parkway with Nokes Boulevard:*
 - Adjust PM cycle length signal timings.



- *Intersection of Route 28 with Severn Way:*
 - Add second northbound left turn bay.
 - Adjust AM and PM signal timings.
- *Intersection of Route 28 with Steeplechase Drive:*
 - Adjust signal phasing in the eastbound and westbound approaches.
 - Restripe westbound left/through shared lane to through lane only.
 - Adjust AM and PM signal timings.
- *Intersection of Farmwell Road with Ashburn Village Boulevard:*
 - Add third eastbound and westbound through lane.
 - Add second southbound through lane.
 - Allow free-flow right turn movement in the westbound approach.
 - Allow permitted plus overlap right turn movement in the northbound and southbound approaches.
 - Adjust AM and PM signal timings.
- *Intersection of Farmwell Road with Smith Switch Road/Waxpool Road:*
 - Add third eastbound and westbound through lane.
 - Allow free-flow right turn movement in the northbound approach.
 - Change AM and PM cycle lengths and signal timings.
- *Intersection of Waxpool Road with Loudoun County Parkway:*
 - Add third eastbound through lane.
 - Add second southbound left turn bay.
 - Restripe southbound left/through shared lane to through lane only.
 - Allow free-flow right turn movement in the northbound approach.
 - Change AM and PM cycle lengths and signal timings.
- *Intersection of Waxpool Road with Pacific Boulevard:*
 - Add fourth eastbound through lane.
 - Convert northbound right turn to free flow
 - Change AM and PM cycle lengths and signal timings.
- *Intersection of Church Road with Davis Drive/Ruritan Circle:*
 - Add second eastbound and westbound through lane.



- Allow permitted plus overlap right turn movement in the northbound approach.
- Adjust AM and PM signal timings.

It should be noted that the mitigation measures recommended at most of the intersections on Route 7 will not meet the overall and per approach LOS criteria set forth by the County due to the high volume demand on Route 7, existing proffers, and public sector funding resources on this major arterial. However, all major street approaches on Route 7 will operate at acceptable levels of service with the recommended improvements listed above, but some of the minor streets will operate at unacceptable conditions. **Figures 6A and 6B** illustrate graphically the intersection capacity analysis results. **Figure 7** shows the recommended improvements under the existing conditions.

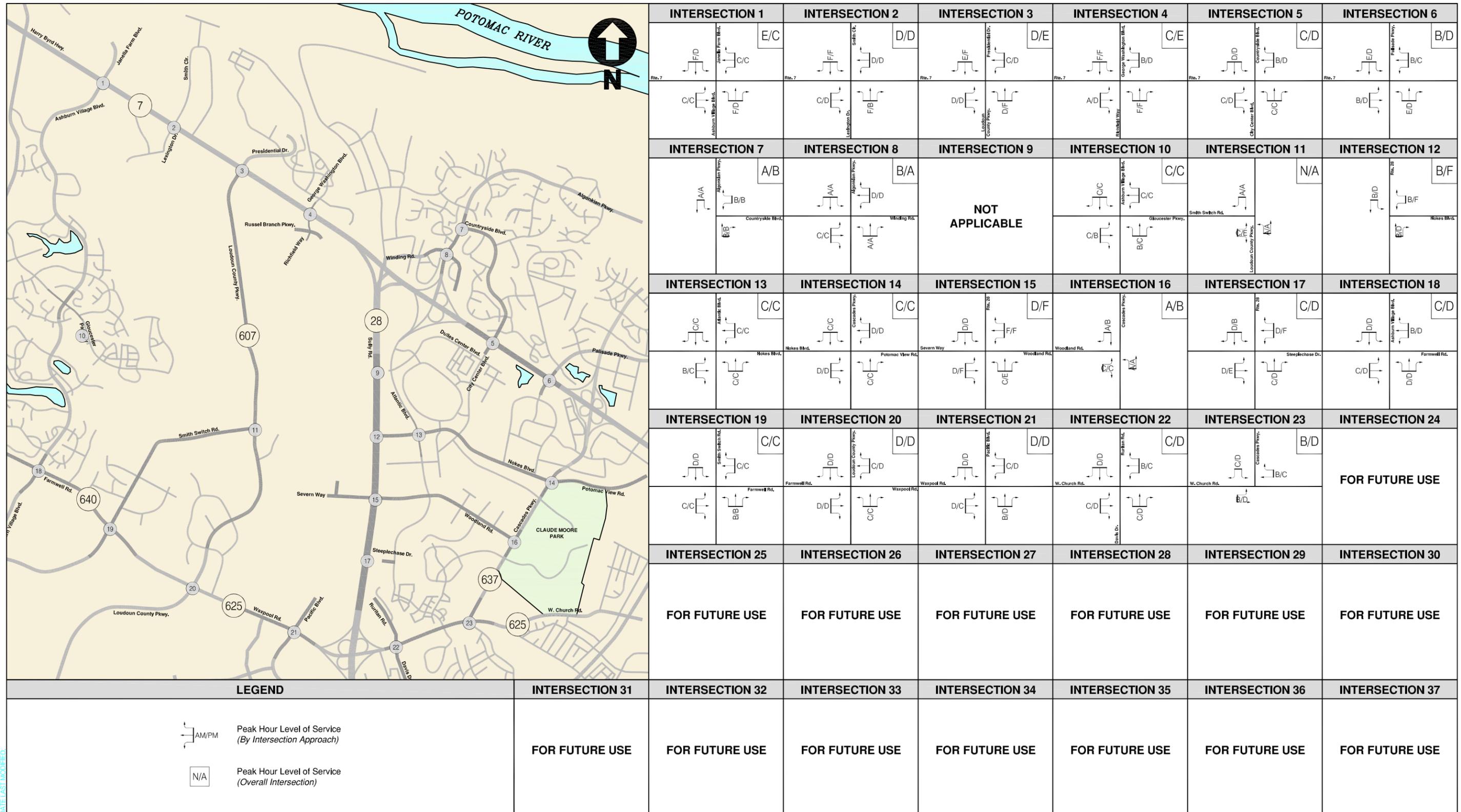


Figure 6A
Existing (2008) Levels of Service - Weekday



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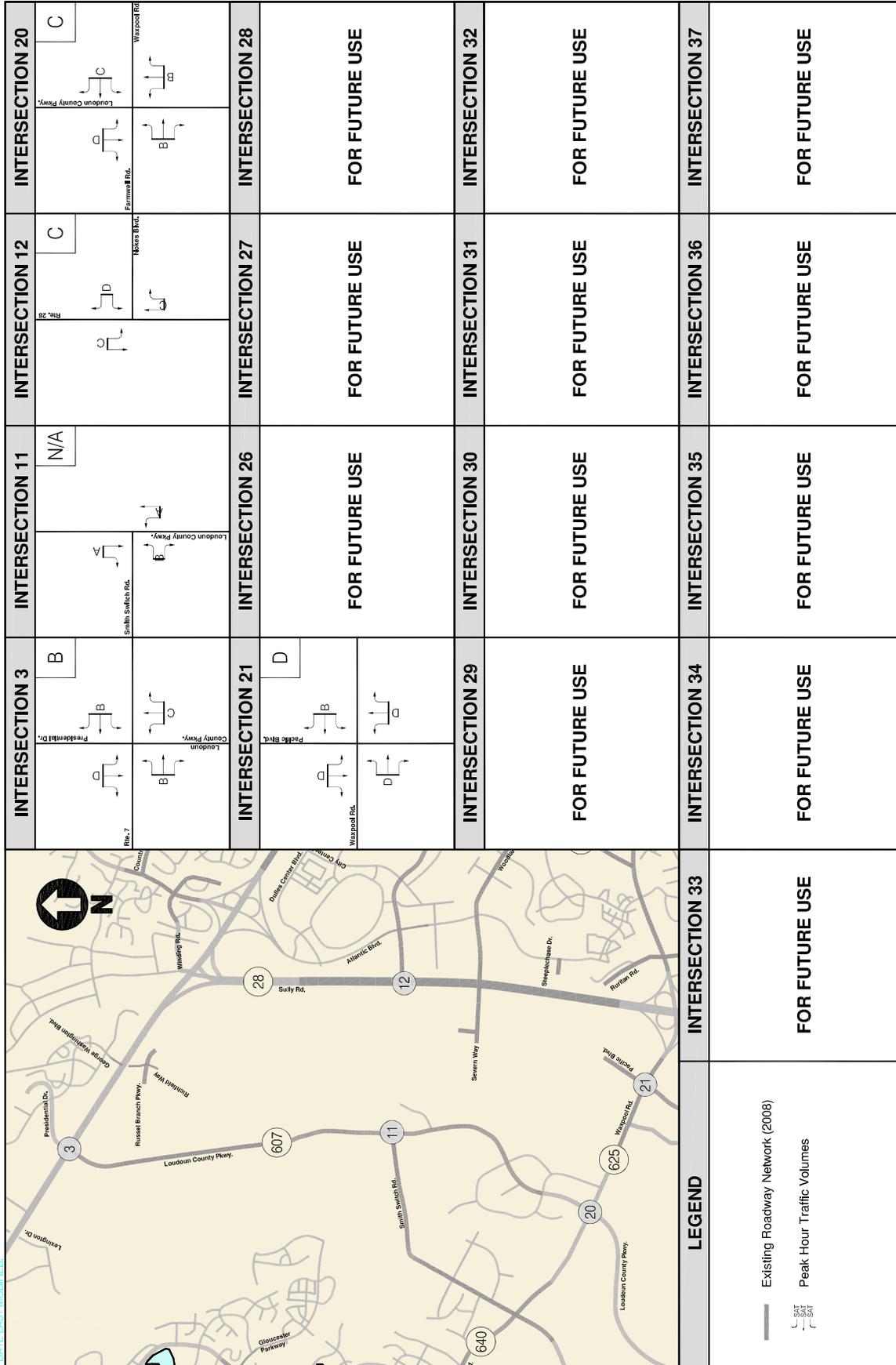


Figure 6B
Existing (2008) Levels of Service - Saturday

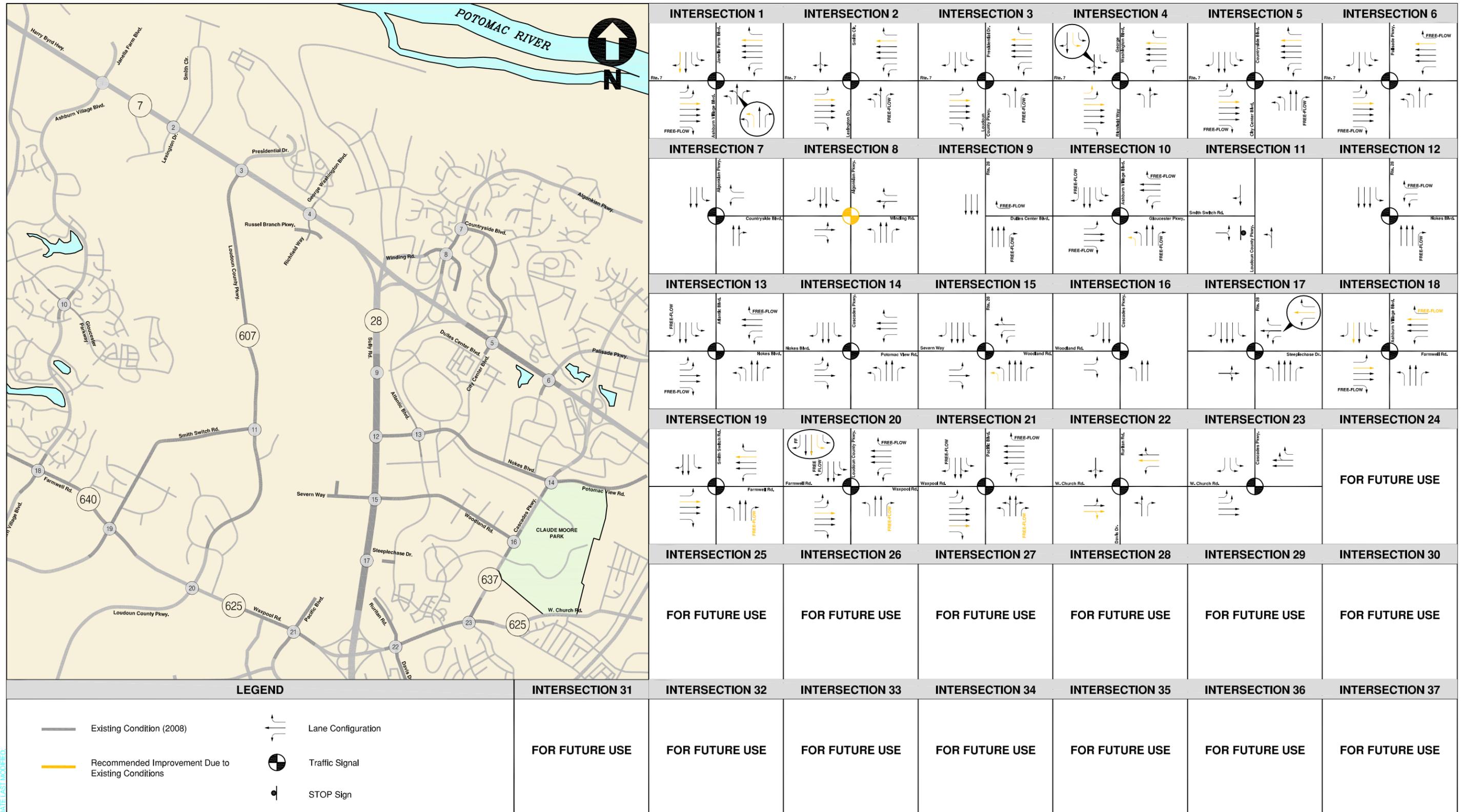


Figure 7
Existing (2008) Conditions Recommended Improvements



FUTURE CONDITIONS WITHOUT DEVELOPMENT (2011)

Future without Development Traffic Volumes

The development of the Special Exception use of the proposed Kincora site is anticipated to be complete in 2011. Future traffic volumes were projected by increasing existing traffic volumes to the 2011 build-out year using a growth rate based on historical data obtained from VDOT, existing traffic counts, and Loudoun County/Council of Government (COG)'s future traffic model projections. An inherent regional growth rate of four percent (4%) compounded annually on Route 28 and one percent (1%) compounded annually on Route 640, Route 625, and Route 637 over a three-year period were applied to the existing traffic volumes on the major movements along these roads to account for regional increase in traffic due to background growth.

No regional growth was considered on Route 7 and Ashburn Village Boulevard because no increase in traffic was observed on these roads during the last three years. These static growth rates on Route 7 and Ashburn Village Boulevard during the interim phase were documented in the Technical Appendix.

In addition to the regional growth, traffic generated by the following eleven (11) nearby future approved background developments was considered in this analysis based on previous studies performed in the area:

1. Ashburn Executive Center
2. Beaumeade
3. Commonwealth Center
4. Lansdowne
5. Loudoun Pointe
6. Potomac Greens Active Adult
7. Ashburn Corporate Center
8. University Center
9. Ashburn Village Research Park
10. Dulles Town Center
11. One Loudoun

The future volumes without development (2011) traffic volumes are illustrated in **Figures 8A and 8B**. The location and the trips generated by the approved background developments are shown in the appendix.

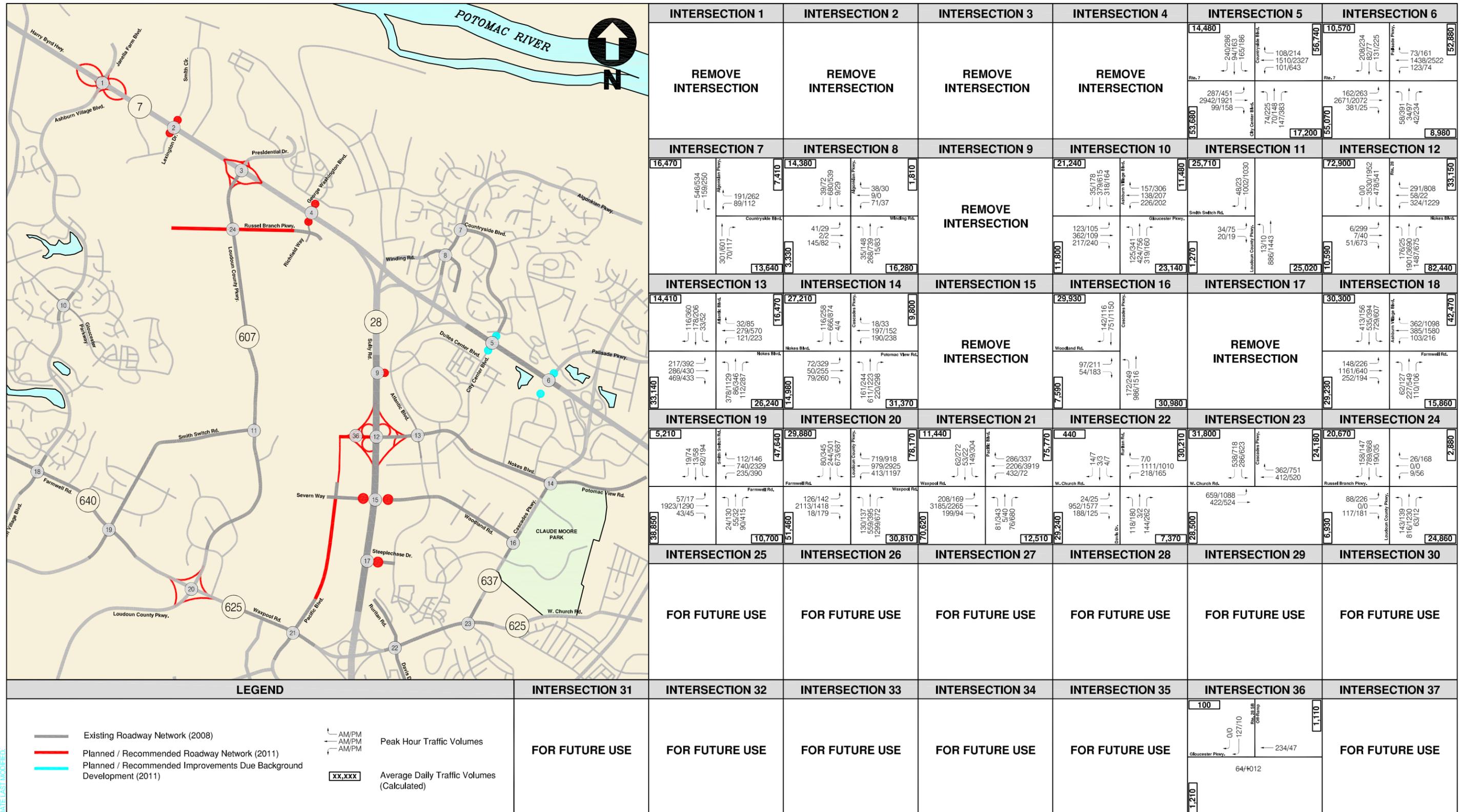


Figure 8A Future Background without Development (2011) Traffic Volumes - Weekday

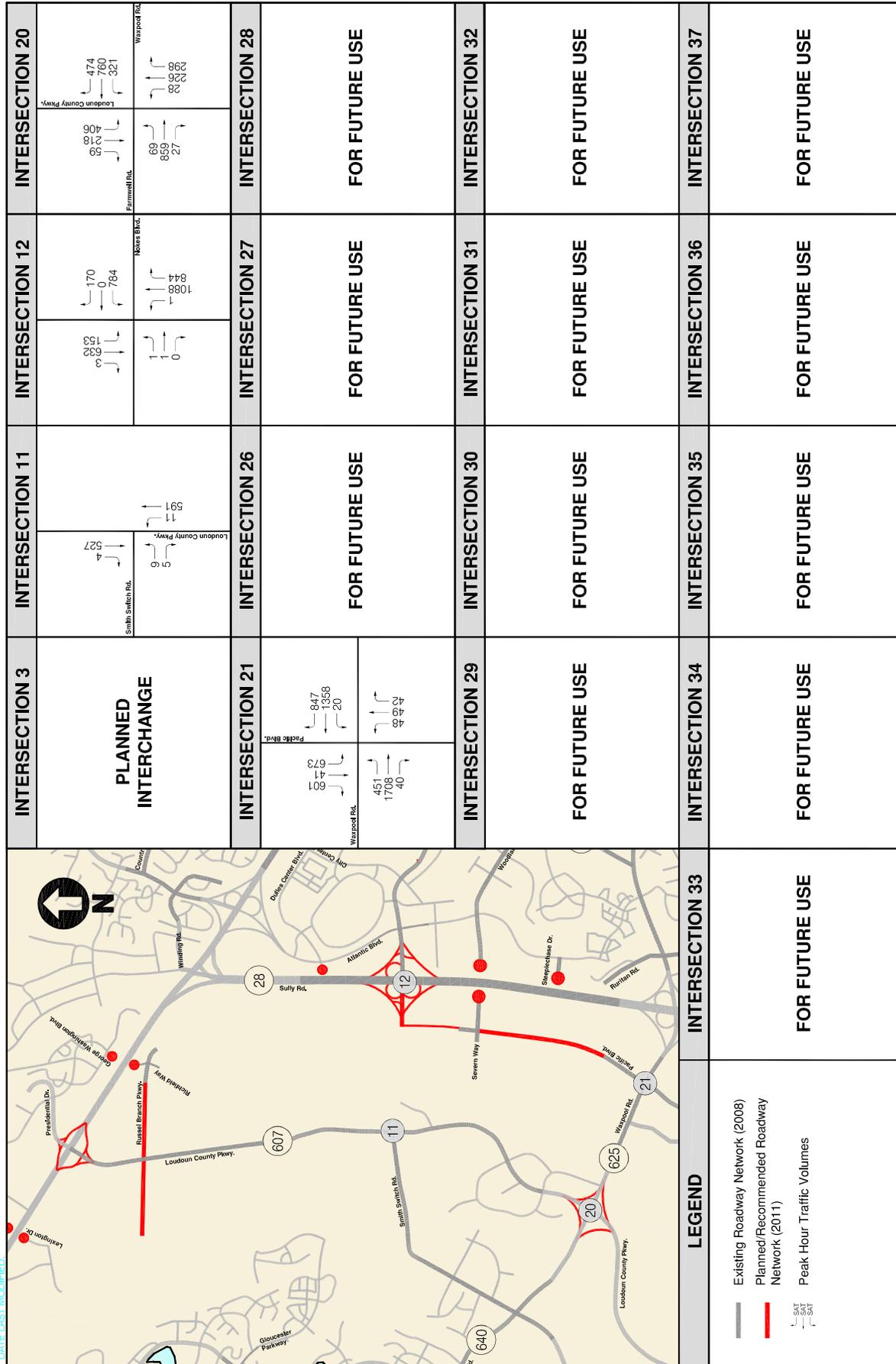


Figure 8B
Future Background without Development (2011) Traffic Volumes - Saturday

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Future without Development Capacity Analysis

Capacity analyses were performed at the existing and planned intersections contained within the study area during the morning and afternoon peak hours under the future background 2011 conditions.

The results of the intersection capacity analyses under the future background 2011 conditions are presented in **Table 6**, and are expressed in terms of level of service (LOS) and delay (seconds per vehicle). The detailed analysis worksheets are contained in the Technical Appendix.

Table 2: Future Background (2011) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.						
	Overall (Signalized)	D	54.6	E	75.2	--	--
	Eastbound	D	38.0	C	31.5	--	--
	Westbound	D	37.7	E	76.1	--	--
	Northbound	F	117.8	E	68.0	--	--
	Southbound	F	104.5	F	212.8	--	--
Overall Mitigation – Convert at-grade intersection into grade-separated interchange							
2	Route 7 and Lexington Drive/Smith Circle						
	Overall (Signalized)	C	29.4	F	80.3	--	--
	Eastbound	C	25.3	C	20.1	--	--
	Westbound	D	39.6	F	120.3	--	--
	Northbound	C	20.2	A	8.6	--	--
	Southbound	F	90.1	F	82.6	--	--
Overall Mitigation – Remove (cul-de-sac) intersection due to adjacent recommended interchange							
3	Route 7 and Loudoun County Parkway/Presidential Dr.						
	Overall (Signalized)	F	94.1	F	225.4	--	--
	Eastbound	D	50.1	D	44.7	--	--
	Westbound	F	173.7	F	133.7	--	--
	Northbound	F	88.1	F	808.0	--	--
	Southbound	E	69.7	F	197.0	--	--
Overall Mitigation – Convert at-grade intersection into grade-separated interchange							
4	Route 7 and Richfield Way/George Washington Blvd.						
	Overall (Signalized)	C	29.9	E	61.1	--	--
	Eastbound	C	20.2	B	16.3	--	--
	Westbound	B	12.6	F	87.0	--	--
	Northbound	F	94.6	F	82.6	--	--
	Southbound	F	236.0	F	105.8	--	--
Overall Mitigation – Remove (cul-de-sac) intersection due to adjacent recommended interchange							
5	Route 7 and City Center Blvd./Countryside Blvd.						
	Overall (Signalized)	C	27.1	D	36.5	--	--
	Eastbound	C	27.5	D	36.1	--	--
	Westbound	B	18.4	C	33.5	--	--
	Northbound	C	31.0	C	34.7	--	--
	Southbound	D	52.7	E	55.1	--	--
Overall Mitigation – Change AM and PM signal timing and cycle lengths							
	Eastbound	C	27.5	D	36.4	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Westbound	C	22.0	C	33.9	--	--
	Northbound	C	31.0	C	34.7	--	--
	Southbound.	D	52.7	D	54.6	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway						
	Overall (Signalized)	B	16.1	D	37.8	--	--
	Eastbound	A	8.9	D	36.3	--	--
	Westbound	B	15.5	D	37.5	--	--
	Northbound	E	60.7	D	37.6	--	--
	Southbound	E	59.1	D	46.6	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	22.0	D	37.8	--	--
	Eastbound	B	19.9	D	36.3	--	--
	Westbound	B	15.7	D	37.5	--	--
	Northbound	D	54.3	D	37.6	--	--
	Southbound.	D	52.2	D	46.6	--	--
7	Algonkian Parkway and Countryside Boulevard						
	Overall (Signalized)	A	6.6	A	8.8	--	--
	Westbound	B	13.1	B	12.7	--	--
	Northbound	A	9.3	B	12.4	--	--
	Southbound	A	2.5	A	3.5	--	--
8	Algonkian Parkway and Winding Road/Sutherland Lane						
	Overall (Signalized)	B	12.6	A	7.8	--	--
	Eastbound	C	34.3	C	32.4	--	--
	Westbound	D	35.6	D	36.0	--	--
	Northbound	A	4.7	A	4.5	--	--
	Southbound	A	6.7	A	5.5	--	--
9	Route 28 and Dulles Center Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway						
	Overall (Signalized)	C	23.2	C	22.6	--	--
	Eastbound	C	22.8	B	17.8	--	--
	Westbound	C	23.0	B	19.5	--	--
	Northbound	B	19.6	C	25.1	--	--
	Southbound	C	27.9	C	23.9	--	--
11	Loudoun County Parkway and Smith Switch Road						
	Overall (Two-Way Stop Controlled)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	F	108.0	F	**	C	19.7
	Northbound	A	0.7	A	1.8	A	0.3
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation – Install Traffic Signal	A	6.5	C	23.6	A	20.
	Eastbound	D	46.2	D	53.9	D	52.8
	Northbound.	A	4.6	C	34.2	A	1.5
	Southbound	A	6.1	A	6.3	A	1.4
12	Route 28 and Nokes Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
13	Nokes Boulevard and Atlantic Boulevard						
	Overall (Signalized)	C	23.0	F	132.7	--	--
	Eastbound	B	15.5	C	20.6	--	--
	Westbound	C	26.5	C	28.7	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Northbound	C	32.1	F	305.3	--	--
	Southbound	C	24.5	B	16.5	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	31.6	C	29.8	--	--
	Eastbound	B	19.1	C	27.7	--	--
	Westbound	C	30.2	D	43.7	--	--
	Northbound	D	50.6	C	28.5	--	--
	Southbound	D	37.0	B	18.5	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	24.1	D	37.3	--	--
	Eastbound	D	39.1	E	74.1	--	--
	Westbound	D	35.7	D	37.6	--	--
	Northbound	B	18.8	C	26.5	--	--
	Southbound	C	21.0	C	25.9	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	24.8	D	38.7	--	--
	Eastbound	D	41.1	D	52.6	--	--
	Westbound	D	36.7	D	53.3	--	--
	Northbound	B	19.0	C	32.6	--	--
	Southbound	C	21.9	C	32.1	--	--
15	Route 28 and Severn Way						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	7.4	B	15.6	--	--
	Eastbound	C	23.0	C	29.2	--	--
	Northbound	A	3.7	A	9.6	--	--
	Southbound	A	9.6	B	19.7	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	C	32.8	D	42.8	--	--
	Eastbound	C	30.4	D	36.0	--	--
	Westbound	B	14.5	D	37.1	--	--
	Northbound	D	49.2	D	52.3	--	--
	Southbound	D	40.5	E	56.8	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	32.8	D	40.8	--	--
	Eastbound	C	32.0	D	39.5	--	--
	Westbound	B	16.4	D	35.4	--	--
	Northbound	D	49.5	D	50.6	--	--
	Southbound	D	37.7	D	49.1	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	C	21.5	C	29.0	--	--
	Eastbound	C	21.0	D	37.8	--	--
	Westbound	B	19.3	C	25.5	--	--
	Northbound	C	25.7	B	15.5	--	--
	Southbound	D	43.1	D	47.7	--	--
20	Waxpool Road and Loudoun County Parkway						
	Overall (Signalized)	E	60.3	F	87.8	C	27.4
	Eastbound	D	50.9	D	46.7	C	24.2



Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Westbound	C	22.2	D	44.7	B	18.3
	Northbound	F	84.2	D	41.7	C	25.9
	Southbound	F	114.3	F	312.5	D	53.9
Overall Mitigation – Convert at-grade intersection into grade-separated interchange							
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	C	24.1	D	42.4	C	31.1
	Eastbound	C	28.2	C	23.1	D	46.6
	Westbound	B	17.8	E	57.6	B	17.3
	Northbound	B	10.1	C	27.2	D	44.6
	Southbound	D	40.3	D	40.9	C	27.1
Overall Mitigation – Remove split phasing. Adjust AM and PM signal timings and phasing							
	Overall (Signalized)	C	22.1	C	27.5	C	30.8
	Eastbound	C	24.8	B	18.1	D	43.2
	Westbound	B	16.1	C	32.4	C	21.3
	Northbound – Add 2nd left turn bay	B	12.0	C	24.1	D	45.3
	Southbound – Add 2nd left turn bay.	D	51.4	D	37.4	C	24.6
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	B	15.0	D	35.6	--	--
	Eastbound	C	20.0	D	51.3	--	--
	Westbound	A	8.1	B	11.4	--	--
	Northbound	C	26.6	D	38.0	--	--
	Southbound	C	34.5	D	47.9	--	--
23	Church Road and Cascades Parkway						
	Overall (Signalized)	B	17.8	D	45.7	--	--
	Eastbound	B	15.5	E	58.8	--	--
	Westbound	B	15.4	C	31.6	--	--
	Southbound	C	23.1	D	43.3	--	--
Overall Mitigation – Adjust AM and PM signal timings and cycle length							
	Overall (Signalized)	B	17.6	D	38.2	--	--
	Eastbound	B	15.7	D	35.6	--	--
	Westbound	B	15.6	D	43.1	--	--
	Southbound	C	22.0	D	36.9	--	--
24	Loudoun County Parkway and Russell Branch Parkway						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	F	4299.5	F	5558.9	--	--
	Westbound	F	115.4	F	2514.8	--	--
	Northbound	B	11.7	B	12.2	--	--
	Southbound	B	11.7	B	12.4	--	--
Overall Mitigation – Install Signal							
	Overall (Unsignalized)	B	16.6	B	18.8	--	--
	Eastbound	C	28.7	D	35.2	--	--
	Westbound	C	27.2	C	26.9	--	--
	Northbound	B	15.7	B	15.6	--	--
	Southbound	B	15.0	B	14.8	--	--

Note: N/A means not applicable.



As mentioned before, it is desirable to achieve a minimum overall and per approach LOS D at each intersection. Assuming that the mitigation measures recommended in the existing conditions were in place, the results presented in **Table 2** show that most of the study intersections would operate at unacceptable levels of service under the future background 2011 conditions. The following improvements would be required to meet the desired LOS criteria set forth by the County under this scenario:

- *Intersection of Route 7 with Ashburn Village Boulevard/Janelia Farm Boulevard:*
 - Convert this at-grade intersection into a grade-separated interchange.
- *Intersection of Route 7 with Lexington Drive/Smith Circle:*
 - Remove (cul-de-sac) this intersection and reroute traffic to the adjacent recommended grade-separated interchanges.
- *Intersection of Route 7 with Loudoun County Parkway/Presidential Drive:*
 - Convert this at-grade intersection into a grade-separated interchange.
- *Intersection of Route 7 with Richfield Way/George Washington Boulevard:*
 - Remove (cul-de-sac) this intersection and reroute traffic to the adjacent recommended grade-separated interchanges.
- *Intersection of Route 7 with City Center Boulevard/Countryside Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Route 7 with Loudoun Tech Drive/Palisade Parkway:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Route 28 with Dulles Center Boulevard:*
 - Remove (cul-de-sac) this intersection and reroute traffic to the adjacent planned Route 28 and Nokes Boulevard interchange.
- *Intersection of Loudoun County Parkway with Smith Switch Road:*
 - Install a traffic signal.
- *Intersection of Route 28 with Nokes Boulevard:*
 - Convert this at-grade intersection into a grade-separated interchange.
- *Intersection of Nokes Boulevard with Atlantic Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Route 28 with Severn Way:*
 - Remove (cul-de-sac) this intersection and reroute traffic to the adjacent planned Route 28 and Nokes Boulevard interchange.



- *Intersection of Nokes Boulevard with Cascade Parkway/Potomac View Road:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Route 28 with Steeplechase Drive:*
 - Remove (cul-de-sac) this intersection and reroute traffic to the adjacent existing and planned grade-separated interchanges on Route 28.
- *Intersection of Farmwell Road with Ashburn Village Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Waxpool Road with Loudoun County Parkway:*
 - Convert this at-grade intersection into a grade-separated interchange.
- *Intersection of Waxpool Road with Pacific Boulevard:*
 - Remove split phasing for northbound and southbound approaches.
 - Add 2nd left turn bay in northbound direction.
 - Restripe southbound shared through/left lane to through lane.
 - Add 2nd left turn bay in southbound direction.
 - Restripe northbound shared through/left lane to through lane.
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Church Road with Cascades Parkway:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Russell Branch Parkway:*
 - Install a traffic signal.

As mentioned before, no analyses were performed at the recommended grade-separated interchanges. **Figures 9A and 9B** illustrate graphically the intersection capacity analysis results. **Figure 10** shows the recommended improvements under the future background 2011 conditions.

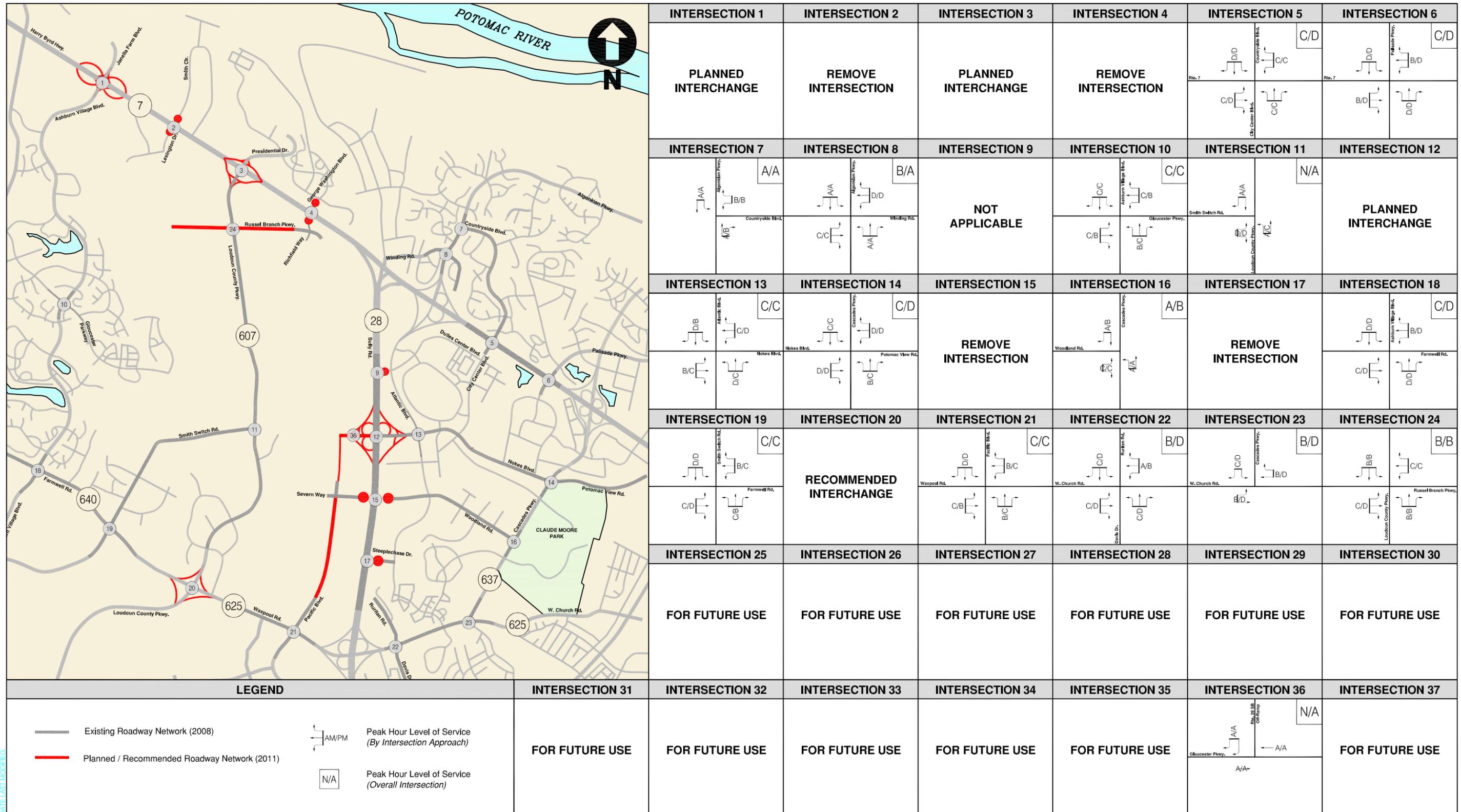


Figure 9A
Future Conditions without Development (2011) Levels of Service - Weekday

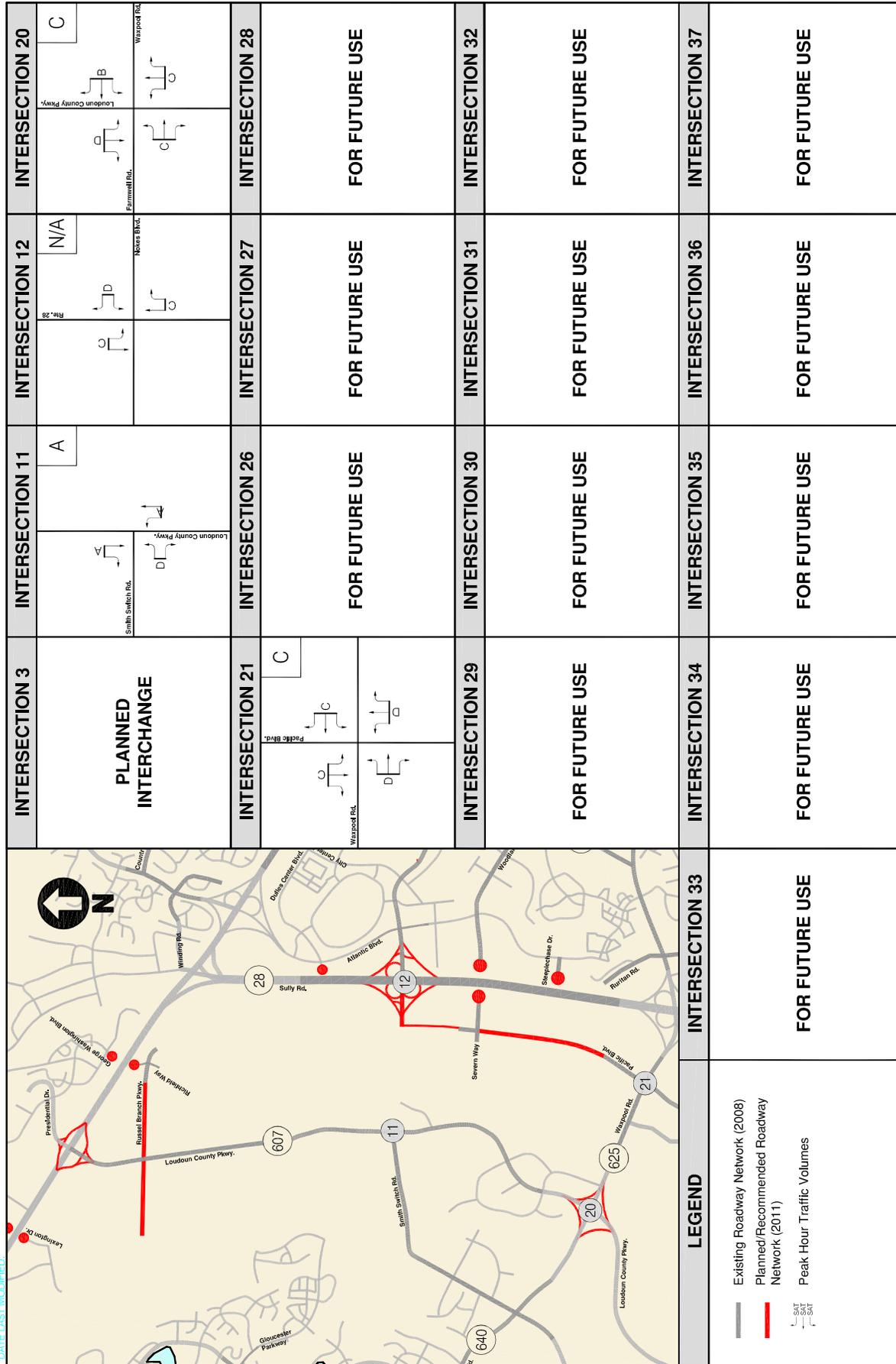


Figure 9B
Future Conditions without Development (2011) Levels of Service - Saturday

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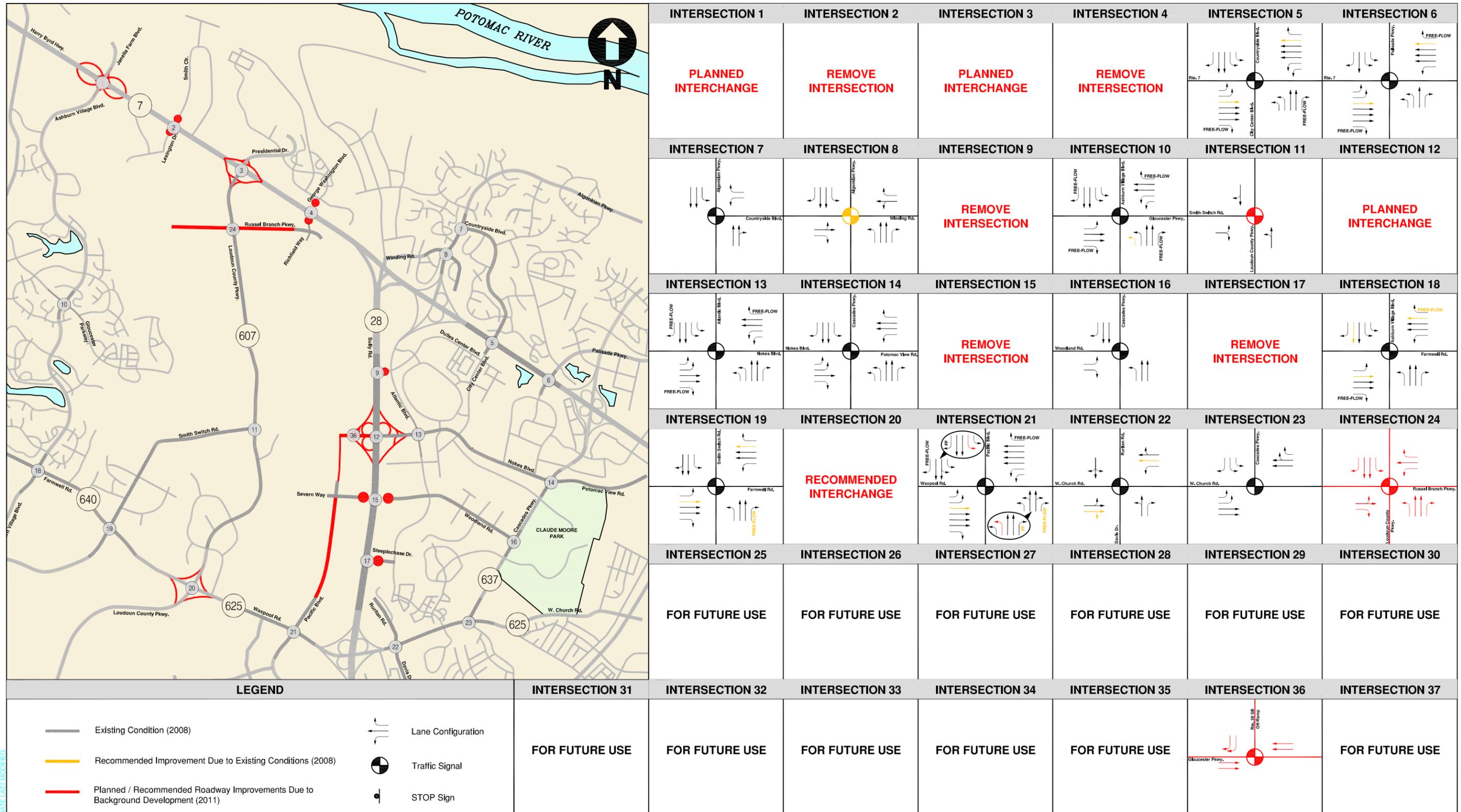


Figure 10
Future Conditions without Development (2011) Recommended Improvements



TRIP GENERATION (STADIUM SPECIAL EXCEPTION - PHASE I - 2011)

In order to calculate the trip generation for the proposed development program (Phase I) by 2011, the ITE's Trip Generation, 7th Edition publication was used to determine the trips into and out of the project site for the weekday morning and afternoon peak hours as well as for an entire weekday. Average daily volumes for residential developments were estimated based on Loudoun County's trip generation rates.

In addition to the new site trip estimates, trip generation reductions were considered to account for internal synergy, pass-by trips, and mode split reduction, which are listed below:

- *Pass-by trips:* A 25% reduction will be considered on proposed retail trips during the afternoon peak period only to represent traffic pulled from background traffic stream.
- *Internal trips:* According to the VDOT's guidelines for Chapter 527 traffic study, internal capture reduction will be considered for mixed-use land bays.
- *Mode split reduction:* A 10% reduction on proposed office and residential trips will be considered to reflect expected transit usage mode split by future public transportation within the study area. This reduction assumes associated transit commitments from the applicant for implementation.

Table 3: Trip Generation (Stadium Special Exception - Phase I – 2011)

Land Use	ITE Code	Size	Units	Weekday						Saturday			
				AM Peak Hour			PM Peak Hour			Daily	Peak Hour of Generator		
				In	Out	Total	In	Out	Total	Total	In	Out	Total
APPROVED USE – PHASE I													
PD-IP (0.4 FAR)													
Office Park	750	1050.2	kSF	1,391	171	1,562	193	1,184	1,377	11,353	110	38	148
PROPOSED PLAN - MIXED USE DEVELOPMENT – PHASE I													
Residential Development													
Townhouses/Condos	230	750	DU	45	214	259	211	103	314	6,525	141	120	261
<i>Internal Trip Reduction</i>		15%		-7	-32	-39	-32	-16	-48	-979	-22	-18	-40
<i>Mode Split Reduction</i>		10%		-5	-21	-26	-22	-10	-32	-653	-15	-12	-27
Subtotal Residential Development		750	DU	33	161	194	157	77	234	4,893	104	90	194
Office Development													
Hotel	310	85	Rooms	21	13	34	28	23	51	388	36	27	63
Office Park	750	515.0	kSF	765	94	859	103	627	730	5,776	55	18	73
Subtotal Office Development		600.0	kSF	786	107	893	131	650	781	6,164	91	45	136
<i>Internal Trip Reduction</i>		15%		-26	-6	-31	-8	-16	-24	-411	-9	-11	-20
<i>Mode Split Reduction</i>		10%		-79	-11	-90	-14	-65	-79	-617	-10	-4	-14
Subtotal Office Development		600.0	kSF	681	90	772	109	569	678	5,136	72	30	102



Land Use	ITE Code	Size	Units	Weekday						Saturday			
				AM Peak Hour			PM Peak Hour			Daily	Peak Hour of Generator		
				In	Out	Total	In	Out	Total	Total	In	Out	Total
Retail Development													
Shopping Center	820	150.0	kSF	122	78	200	394	425	819	8,839	587	540	1127
<i>Internal Trip Reduction</i>		15%		-6	-1	-8	-8	-16	-24	-568	-89	-81	-170
<i>Pass-by Reduction</i>		25%		-31	-19	-50	-99	-106	-205	-2,210	-147	-135	-282
Subtotal Retail Development		150.0	kSF	85	58	142	287	303	590	6,061	351	324	675
Stadium													
Baseball Stadium*		5,500	Seats	N/A	N/A	N/A	N/A	N/A	N/A	N/A	386	15	401
Total Proposed Site Trips (Without Reductions)				953	399	1,352	736	1,178	1,914	21,528	1,205	720	1,925
<i>Total Reduced Trips</i>				-154	-90	-244	-183	-229	-412	-5,438	-292	-261	-553
TOTAL PROPOSED SITE TRIPS (WITH REDUCTIONS)				799	309	1,108	553	949	1,502	16,090	913	459	1,372
Difference (Proposed – Approved)				-592	138	-454	360	-235	125	4,737	803	421	1,224

*Trip Generation based on Observed Rates (Details in the appendix)

Table 3 shows that the project site will generate approximately 1,108 new weekday morning peak hour trips, approximately 1,502 new weekday afternoon peak hour trips, approximately 1,372 new Saturday peak hour trips, and approximately 16,090 new average daily trips with the proposed Kincora development in 2011.

SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT (2011)

Site Access

Access to the proposed Kincora site will be provided along the future Pacific Boulevard. The project site will be primarily served by Route 28 and the planned grade-separated interchange at the existing intersection of Route 28 with Nokes Boulevard. The site will be bisected by future regional roads, such as Pacific Boulevard and Gloucester Parkway. These regional roads are planned for a capacity in excess of what is required to serve the site during the interim 2011 traffic conditions. The graphics included in this section represent the regional benefits these roads provide by showing them serving a dual purpose. The following is a description of these two roads:

- **Pacific Boulevard (from existing terminus north to Future Site Drive #1)** will be a two-lane, local access, rural road with left and right turn lanes at major intersections in 2011.
- **Gloucester Parkway (from Route 28/Nokes Boulevard interchange west to Pacific Boulevard)** will be a four-lane, controlled access, median divided, major collector with left and right turn lanes at at-grade intersections in 2011.



Distribution and Assignment

Directional trip distribution information was provided for site entrances and collector/arterial intersections within the study area based on office, retail, and residential uses. The trip distribution for vehicles accessing the proposed Kincora development were routed in the roadway network to the project site. The site traffic assignment for the weekday peak hours is illustrated in **Figures 11A through 11K** in 2011.

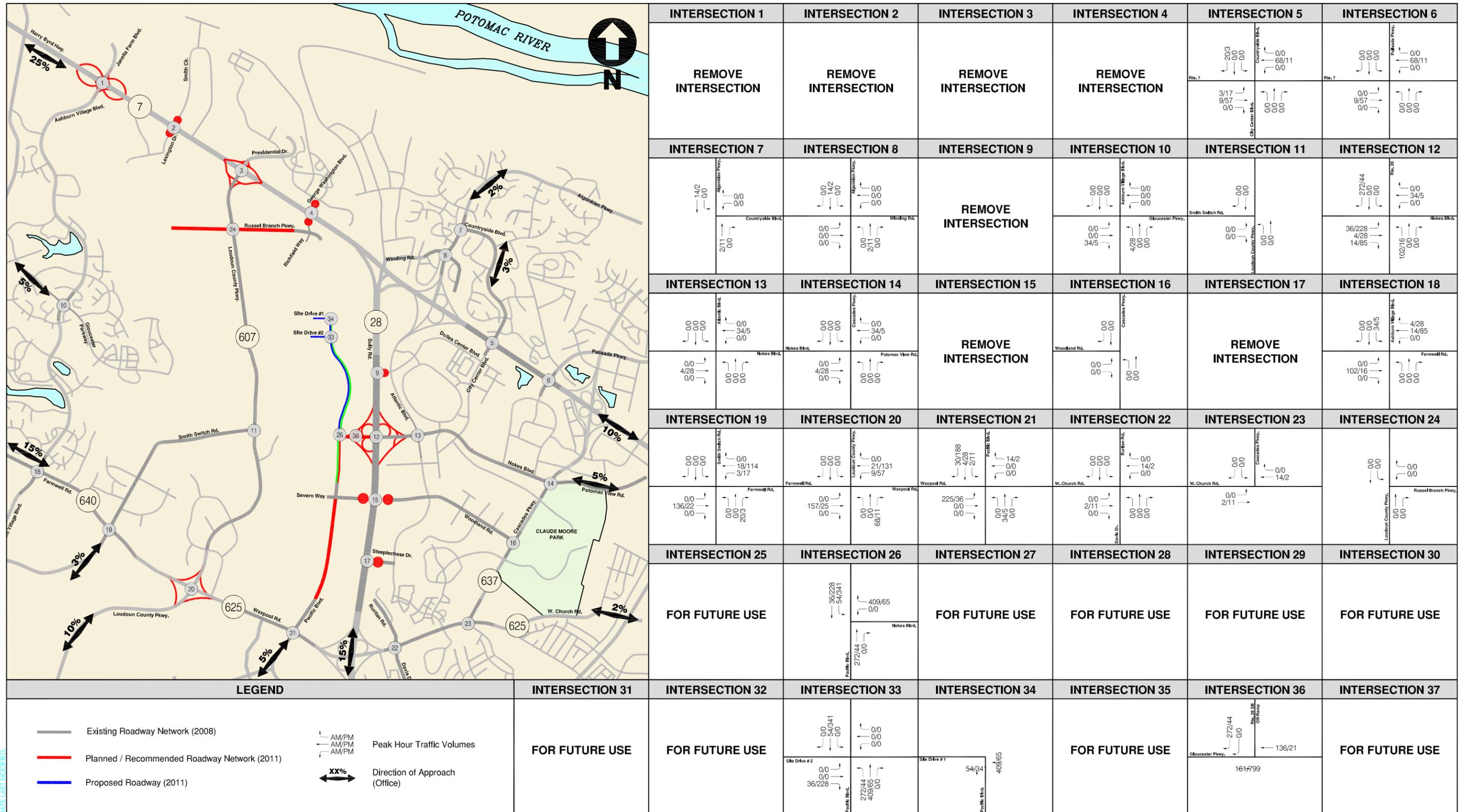


Figure 11A Site Generated (2011) Traffic Volumes - Office Use - Weekday

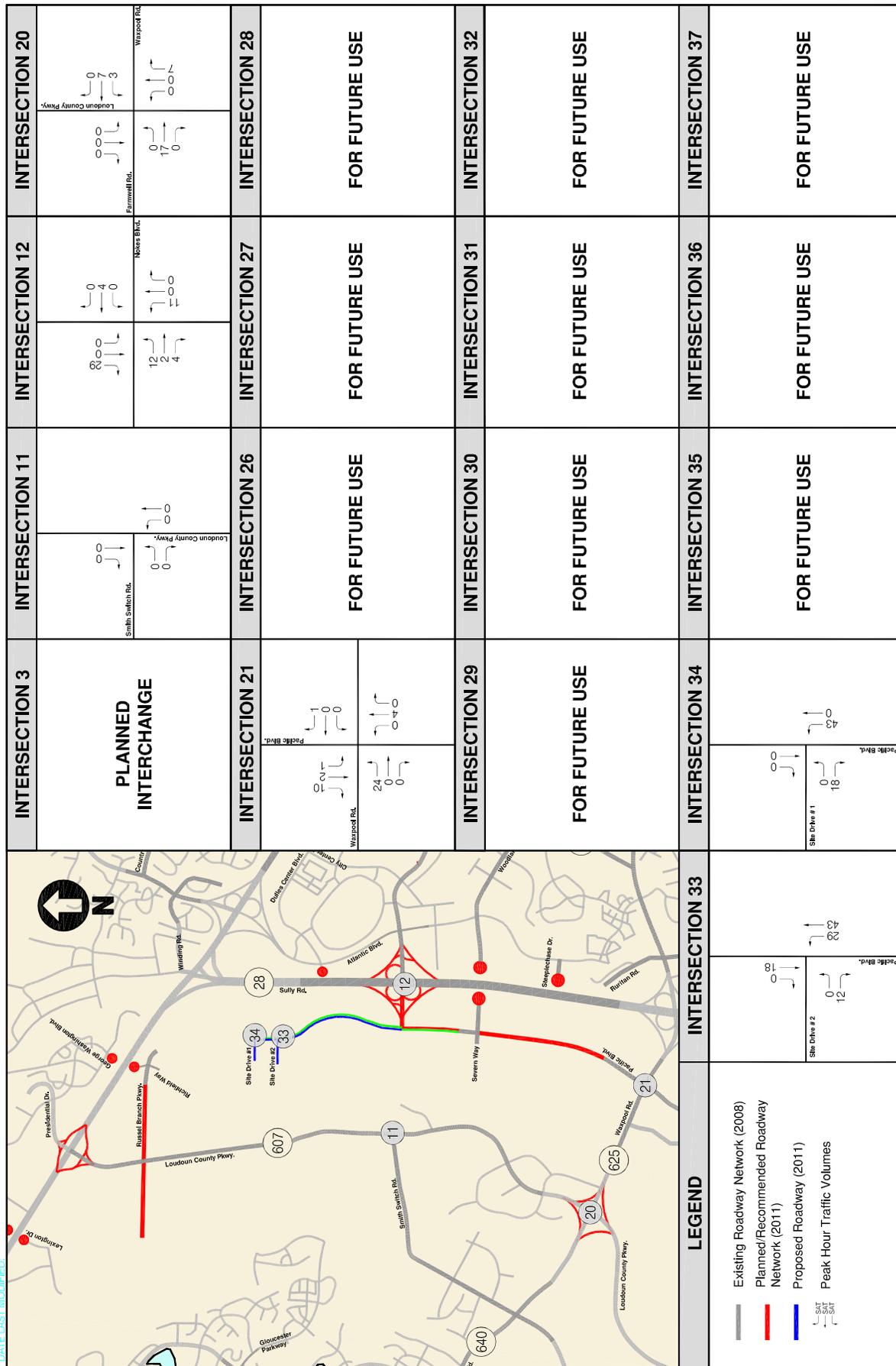


Figure 11B
 Site Generated (2011) Traffic Volumes - Office Use - Saturday

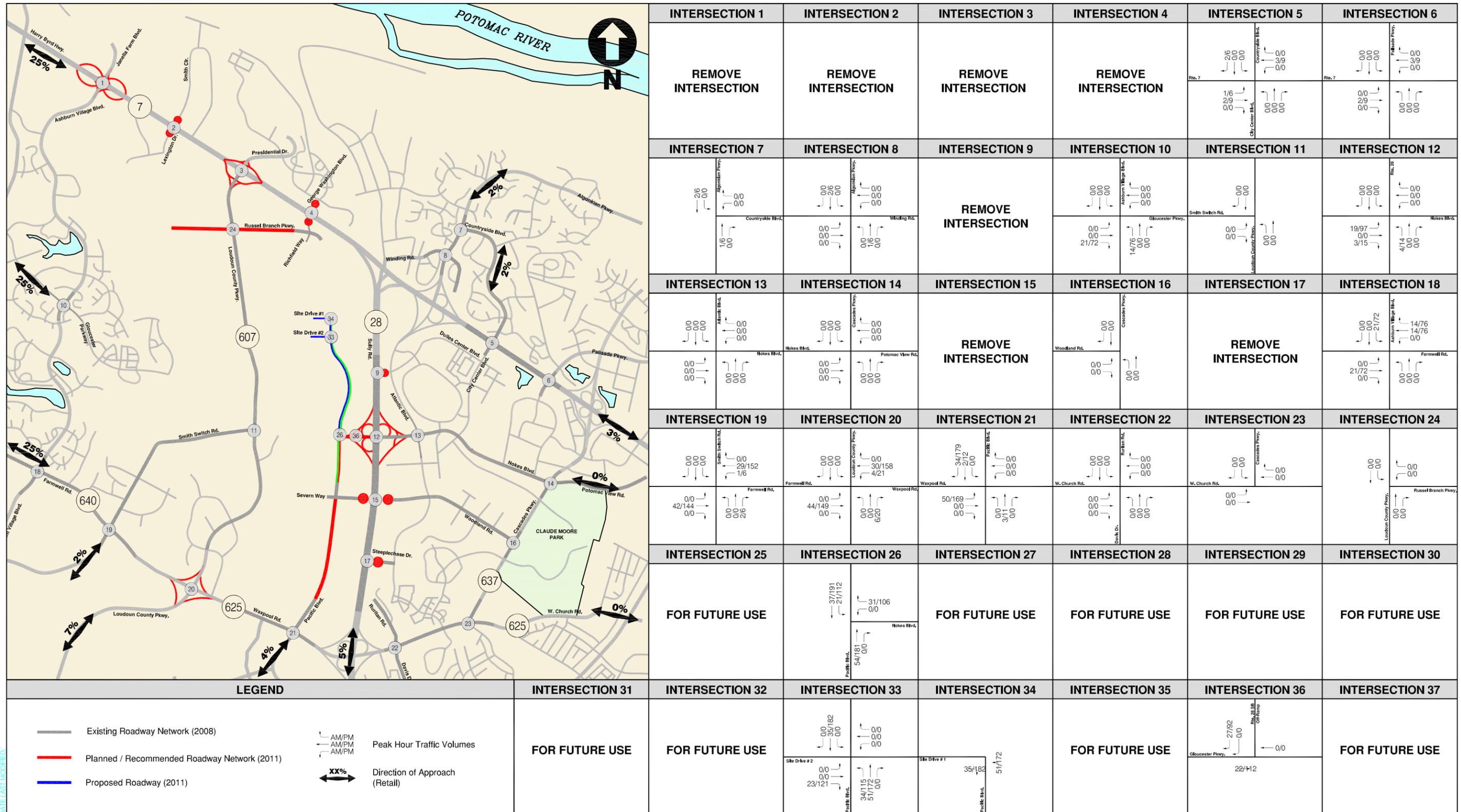


Figure 11C Site Generated (2011) Traffic Volumes - Retail Use - Weekday

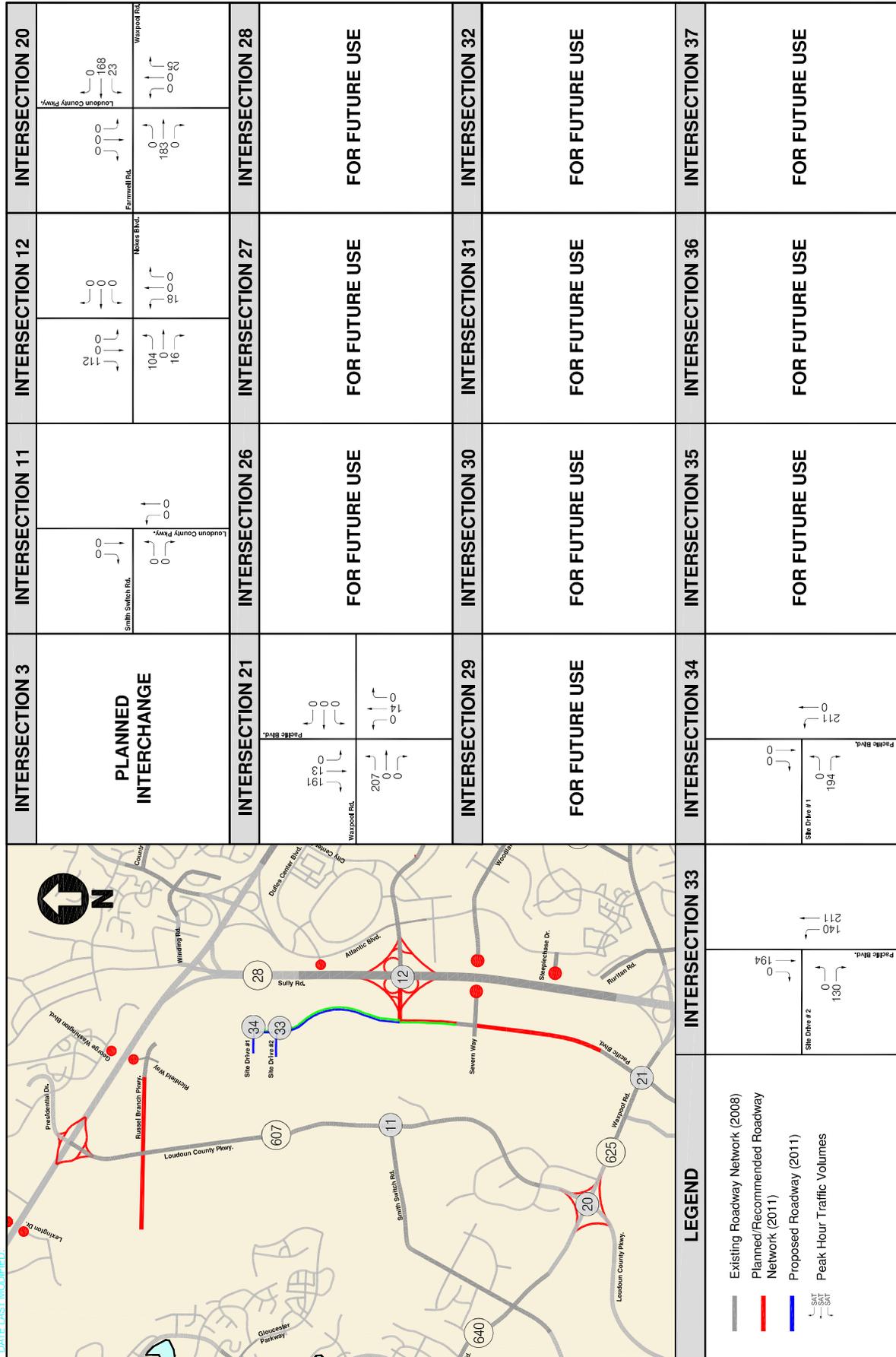


Figure 11D
Site Generated (2011) Traffic Volumes - Retail Use - Saturday

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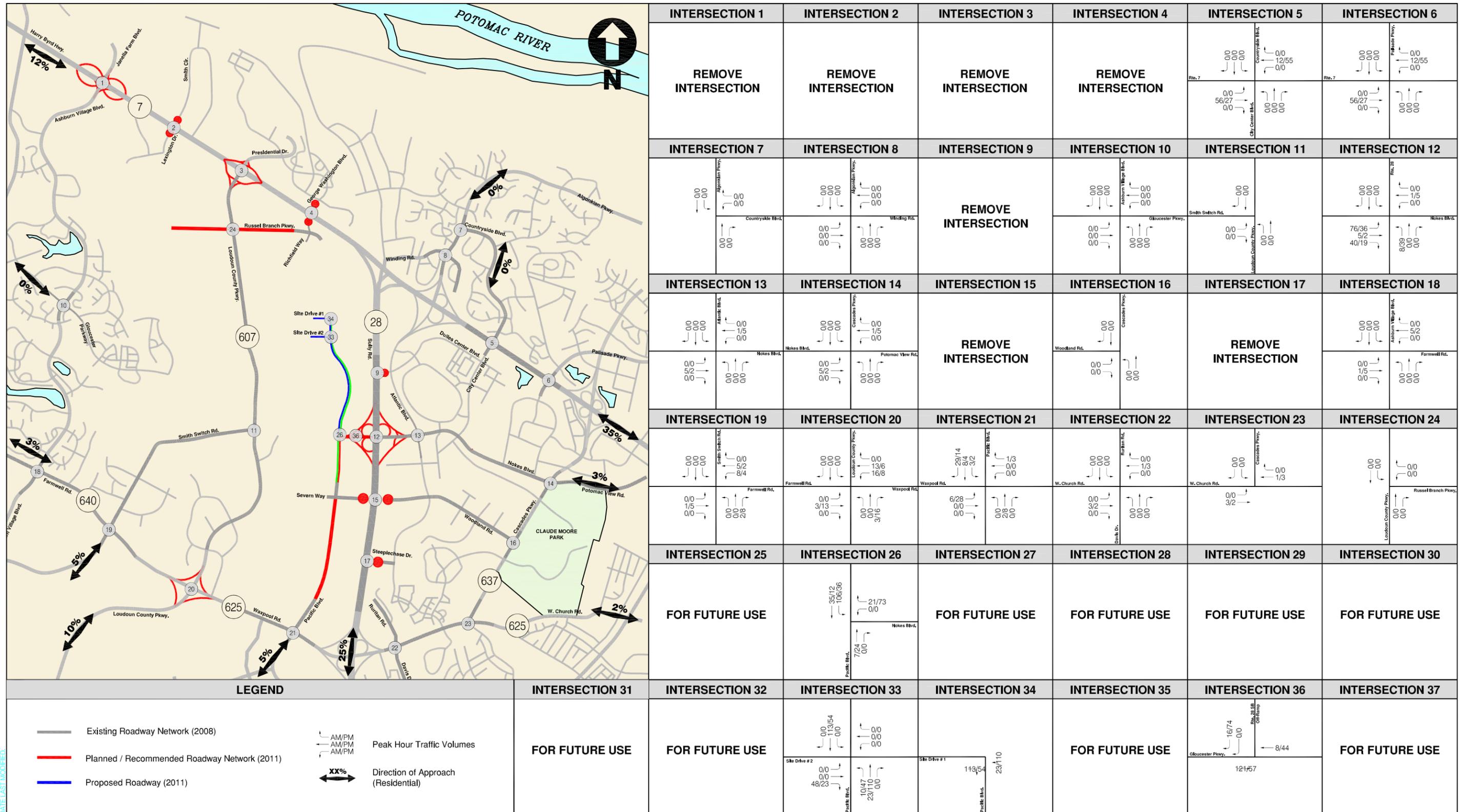


Figure 11E Site Generated (2011) Traffic Volumes - Residential Use - Weekday



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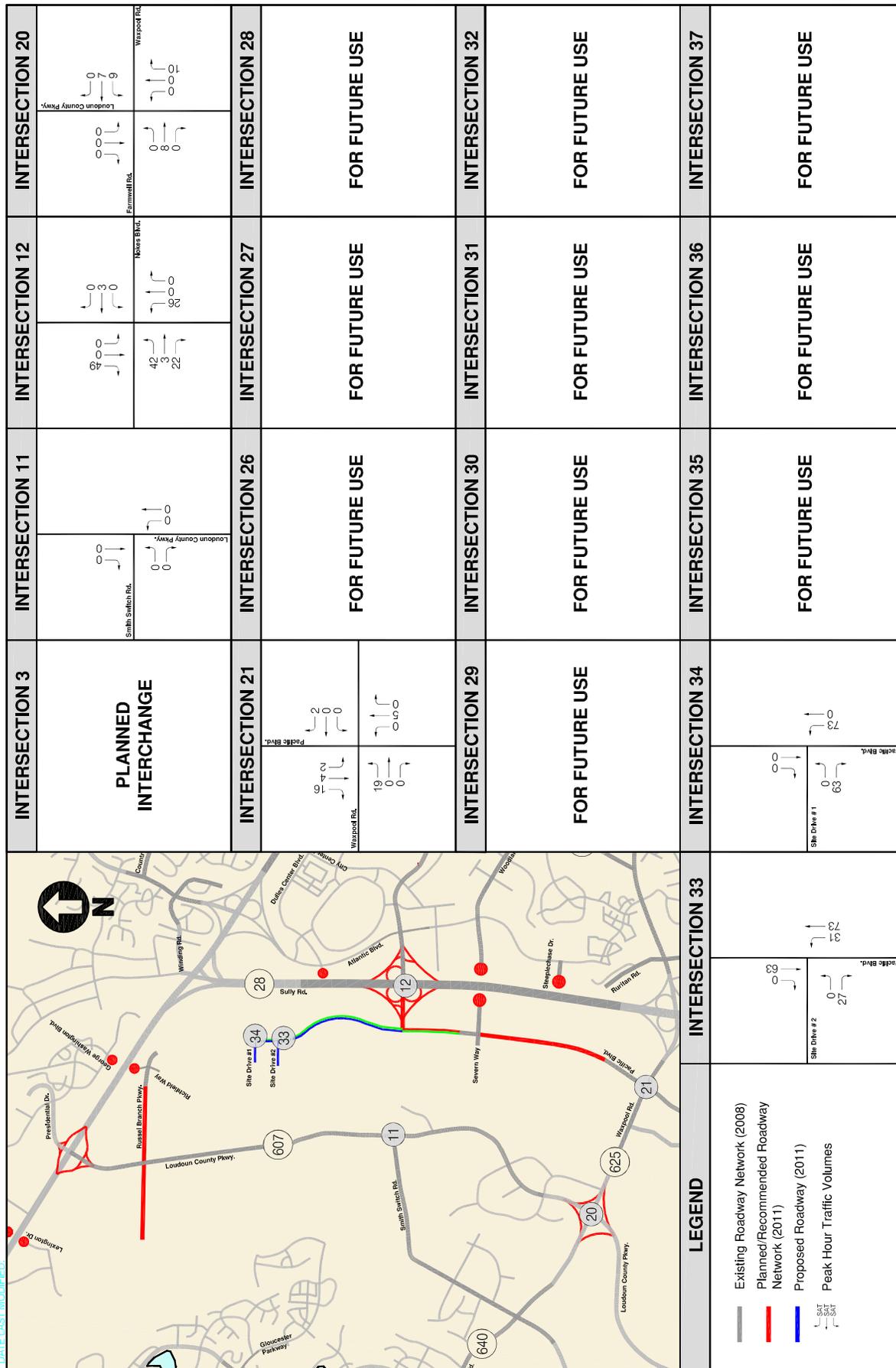


Figure 11F
Site Generated (2011) Traffic Volumes - Residential Use - Saturday

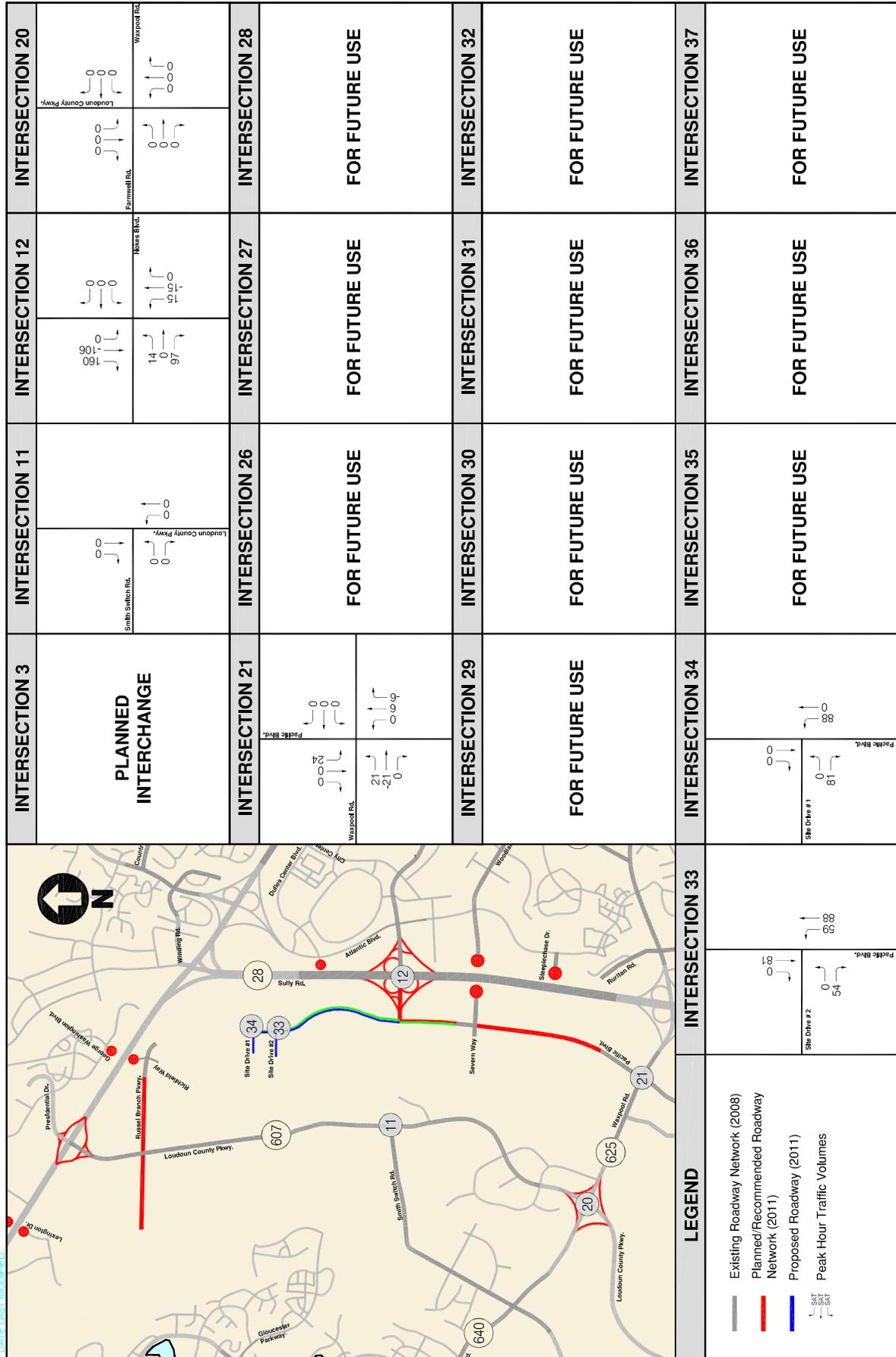


Figure 11H
Pass-by Trips (2011) - Saturday

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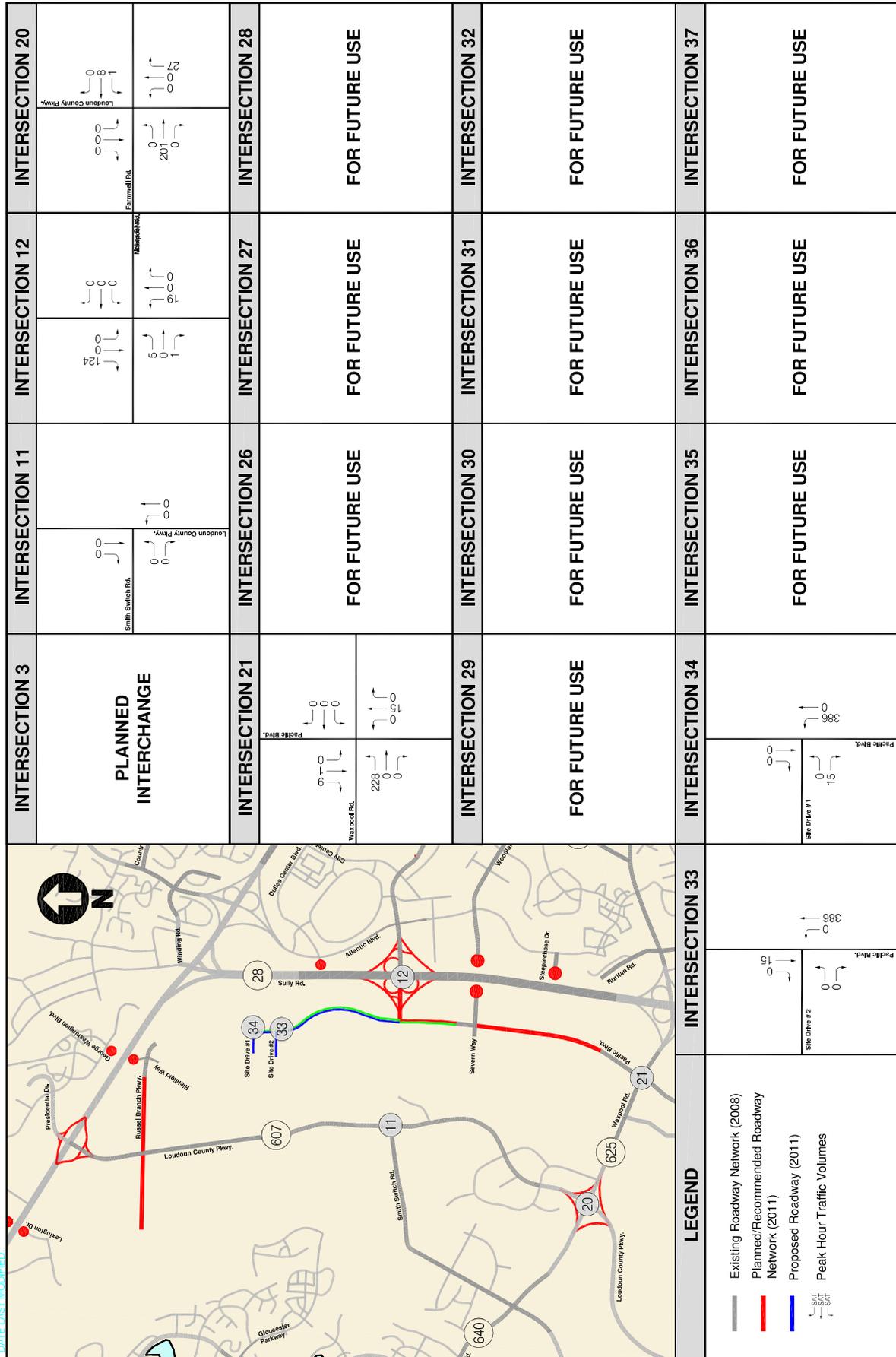


Figure 111
Site Generated (2011) Traffic Volumes - Stadium - Saturday

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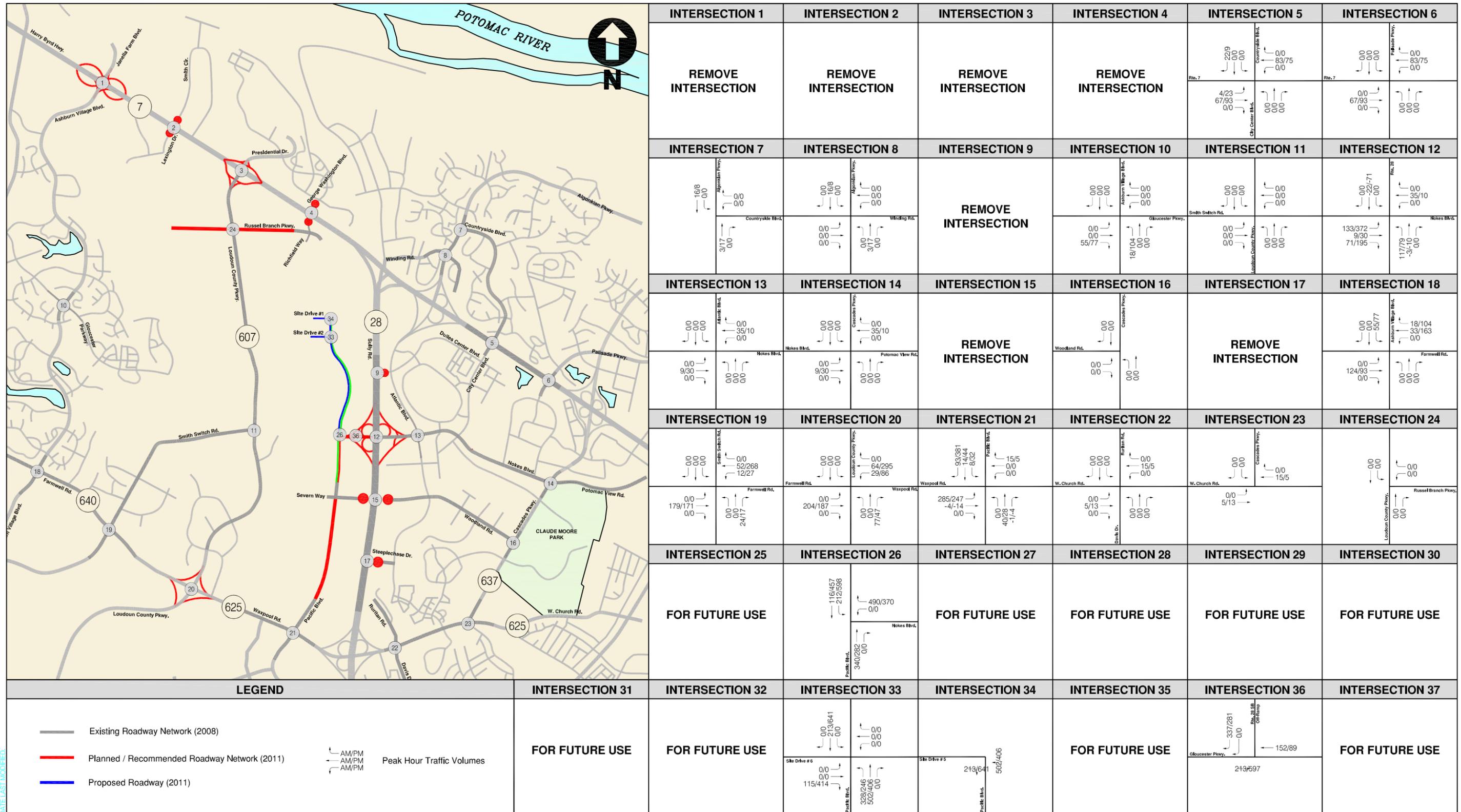


Figure 11J
Total Site Generated Trips (2011) - Weekday

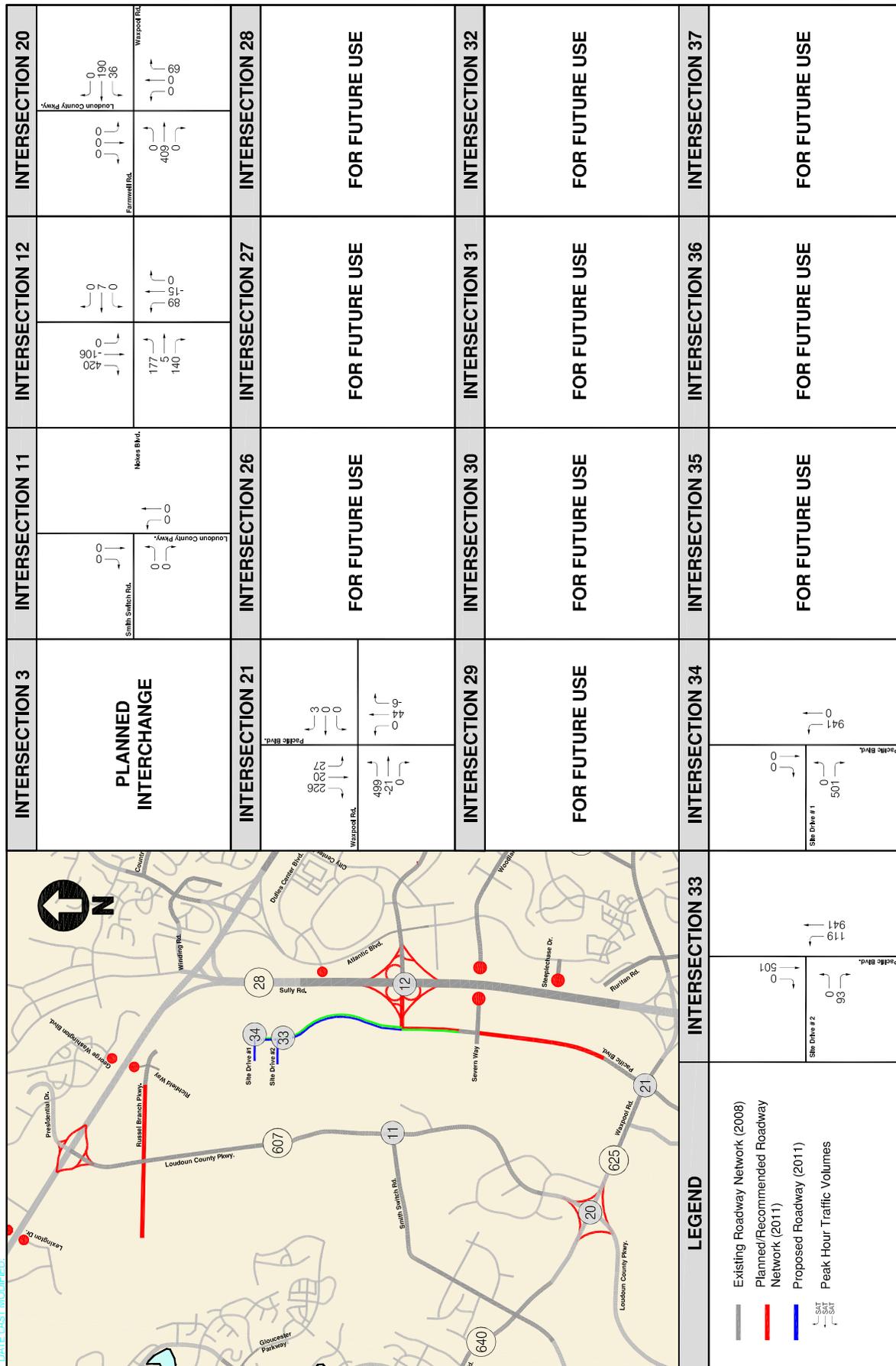


Figure 11K
Total Site Generated Trips (2011) - Saturday

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FUTURE CONDITIONS WITH DEVELOPMENT (PHASE I - 2011)

Future with Development Traffic Volumes

In order to determine the future conditions with development (2011) traffic volumes, the trips generated by the proposed development under the 2011 conditions were added to the future conditions without development (2011) traffic. The traffic volumes for total future traffic conditions are shown in **Figures 12A and B**.

Future with Development Capacity Analysis

Intersection capacity analyses were performed for the future with development (Phase I - 2011) traffic conditions at the intersections contained within the study area during the morning and afternoon peak hours. *Synchro, version 6.0* was used to analyze the study intersections based on the Highway Capacity Manual methodology. The results of the intersection capacity analyses for the future with development conditions are presented in **Table 4**. The detailed analysis worksheets are contained in the Technical Appendix.

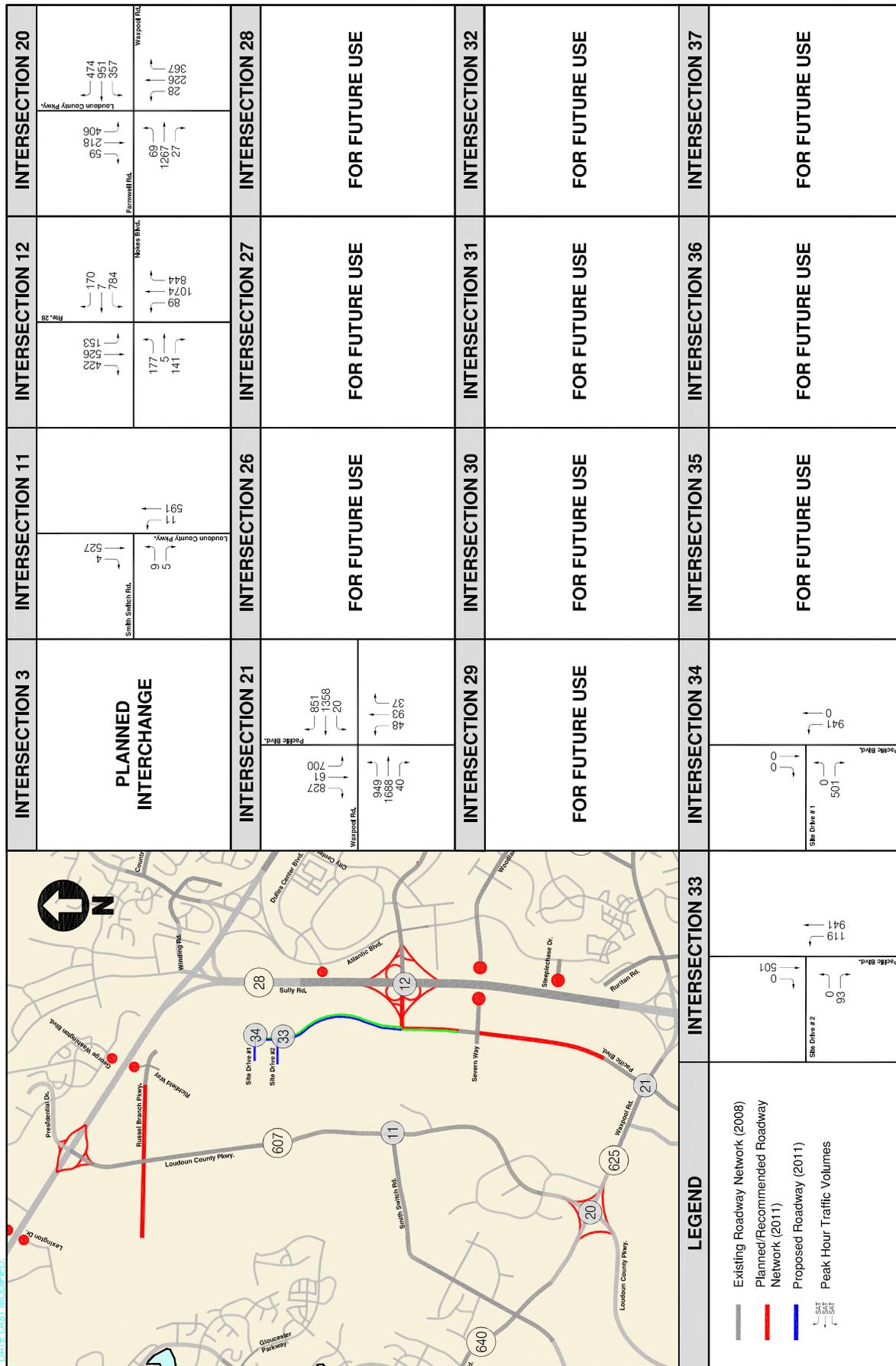


Figure 12B
Future Conditions with Development (Phase I - 2011) Peak Hour Volumes - Saturday

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**Table 4: Future Conditions with Development (Phase I - 2011) Intersection Capacity Analysis**

Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) with Development						
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour		
		LOS	Delay	LOS	Delay	LOS	Delay	
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
2	Route 7 and Lexington Drive/Smith Circle	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
3	Route 7 and Loudoun County Parkway/Presidential Dr.	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
4	Route 7 and Richfield Way/George Washington Blvd.	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
5	Route 7 and City Center Blvd./Countryside Blvd.	Overall (Signalized)	C	29.5	D	37.3	--	--
	Eastbound	C	29.4	D	36.8	--	--	
	Westbound	C	23.0	C	34.9	--	--	
	Northbound	C	30.6	C	34.7	--	--	
	Southbound	D	51.9	D	54.6	--	--	
6	Route 7 and Loudoun Tech Drive/Palisade Parkway	Overall (Signalized)	C	22.2	D	39.7	--	--
	Eastbound	C	20.3	D	37.2	--	--	
	Westbound	B	15.8	D	41.0	--	--	
	Northbound	D	54.3	D	37.6	--	--	
	Southbound	D	52.3	D	46.6	--	--	
7	Algonkian Parkway and Countryside Boulevard	Overall (Signalized)	A	6.5	A	8.8	--	--
	Westbound	B	13.1	B	12.9	--	--	
	Northbound	A	9.3	B	12.4	--	--	
	Southbound	A	2.6	A	3.6	--	--	
8	Algonkian Parkway and Winding Road/Sutherland Lane	Overall (Signalized)	B	12.5	A	7.8	--	--
	Eastbound	C	34.3	C	32.4	--	--	
	Westbound	D	35.6	D	36.0	--	--	
	Northbound	A	4.7	A	4.6	--	--	
	Southbound	A	6.7	A	5.6	--	--	
9	Route 28 and Dulles Center Boulevard	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway	Overall (Signalized)	C	22.9	C	22.5	--	--
	Eastbound	C	21.2	B	15.8	--	--	
	Westbound	C	23.0	C	20.2	--	--	
	Northbound	B	19.9	C	24.9	--	--	
	Southbound	C	28.1	C	25.1	--	--	
11	Loudoun County Parkway and Smith Switch Road	Overall (Signalized)	A	5.6	C	26.3	A	2.2
	Eastbound	D	38.0	D	54.5	D	52.6	
	Northbound	A	3.6	D	38.4	A	1.7	
	Southbound	A	5.0	A	7.1	A	1.6	
12	Route 28 and Nokes Boulevard	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A



Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
13	Nokes Boulevard and Atlantic Boulevard						
	Overall (Signalized)	C	31.4	C	30.2	--	--
	Eastbound	B	19.1	C	28.1	--	--
	Westbound	C	29.7	D	44.7	--	--
	Northbound	D	50.6	C	28.5	--	--
	Southbound	D	37.0	B	18.5	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	25.2	D	38.7	--	--
	Eastbound	D	41.2	D	52.6	--	--
	Westbound	D	36.7	D	53.3	--	--
	Northbound	B	19.1	C	32.6	--	--
	Southbound	C	22.0	C	32.1	--	--
15	Route 28 and Severn Way						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	7.4	B	15.6	--	--
	Eastbound	C	23.0	C	29.2	--	--
	Northbound	A	3.7	A	9.6	--	--
	Southbound	A	9.6	B	19.7	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	C	33.9	D	52.7	--	--
	Eastbound	C	34.8	D	37.7	--	--
	Westbound	B	16.7	D	48.8	--	--
	Northbound	D	49.5	D	49.2	--	--
	Southbound	D	38.5	E	79.0	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	34.0	D	51.8	--	--
	Eastbound	C	34.5	D	43.5	--	--
	Westbound	B	16.5	D	54.8	--	--
	Northbound	D	49.5	D	47.3	--	--
	Southbound	D	39.2	D	54.8	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	C	21.8	C	30.5	--	--
	Eastbound	C	21.7	D	40.2	--	--
	Westbound	B	19.5	C	26.7	--	--
	Northbound	C	22.6	B	15.1	--	--
	Southbound	D	43.1	D	49.9	--	--
20	Waxpool Road and Loudoun County Parkway						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	C	29.8	D	39.8	C	34.1
	Eastbound	C	31.4	C	27.4	C	35.0
	Westbound	C	26.1	D	48.7	D	36.6
	Northbound	D	40.6	D	41.6	D	50.8
	Southbound	D	37.4	C	34.2	C	27.1
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	B	15.1	C	30.1	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Eastbound	C	20.1	D	37.8	--	--
	Westbound	A	8.1	B	14.3	--	--
	Northbound	C	26.7	D	40.8	--	--
	Southbound	C	34.6	D	47.9	--	--
23	Church Road and Cascades Parkway						
	Overall (Signalized)	B	17.7	D	38.4	--	--
	Eastbound	B	15.7	D	35.6	--	--
	Westbound	B	15.7	D	43.4	--	--
	Southbound	C	22.1	D	36.9	--	--
24	Loudoun County Parkway and Russell Branch Parkway						
	Overall (Signalized)	B	11.6	C	20.8	--	--
	Eastbound	C	25.1	C	29.1	--	--
	Westbound	C	24.8	C	25.3	--	--
	Northbound	B	11.4	B	19.4	--	--
	Southbound	B	10.3	B	18.5	--	--
26	Gloucester Parkway and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	F	51.3	F	90.5	--	--
	Northbound	A	0.0	A	0.0	--	--
	Southbound	A	6.3	B	10.1	--	--
	Overall Mitigation – Install Signal	A	8.6	B	15.3	--	--
	Westbound	A	9.4	D	37.4	--	--
	Northbound	A	7.5	A	3.5	--	--
	Southbound – Add left turn lane.	A	7.9	B	10.5	--	--
31	Site Driveway #1 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	A	9.2	B	14.1	B	11.6
	Northbound	A	8.3	A	8.0	B	10.9
	Southbound	A	0.0	A	0.0	B	13.2
32	Site Driveway #2 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	B	10.1	F	79.0	B	11.4
	Northbound	A	5.3	A	6.7	B	10.6
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation – Add Signal	A	8.0	C	28.3	A	7.8
	Eastbound	C	33.6	D	46.2	D	46.0
	Northbound	A	6.1	D	40.2	A	7.4
	Southbound	A	1.7	A	4.6	A	1.5

Note: N/A means not applicable.

As mentioned before, it is desirable to achieve an overall and per approach LOS D or better at each intersection. Assuming that the mitigation measures recommended in the future background 2011 conditions were in place, the results presented in **Table 4** show that some of the study intersections would operate at unacceptable levels of service under the total future 2011 conditions with this planned interchange. The following improvements would be required to meet the desired LOS criteria set forth by the County under this scenario:



- *Intersection of Farmwell Road with Ashburn Village Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Gloucester Parkway with Pacific Boulevard:*
 - Analyzed Gloucester Parkway as a four-lane, median divided, rural highway with left and right turn lanes provided at this intersection.
 - Analyzed Pacific Boulevard as a two-lane, local access, rural road.
 - Install a traffic signal.
 - Add southbound left turn bay.
- *Intersection of Pacific Boulevard with Future Site Drive #2:*
 - Analyzed Pacific Boulevard as a two-lane, local access, rural road.
 - Add Traffic Signal

As mentioned earlier in the report, no analyses were performed at the planned and recommended grade-separated interchanges. **Figures 13A and B** illustrate graphically the intersection capacity analysis results. **Figure 14** shows the recommended improvements under the total future 2011 conditions.

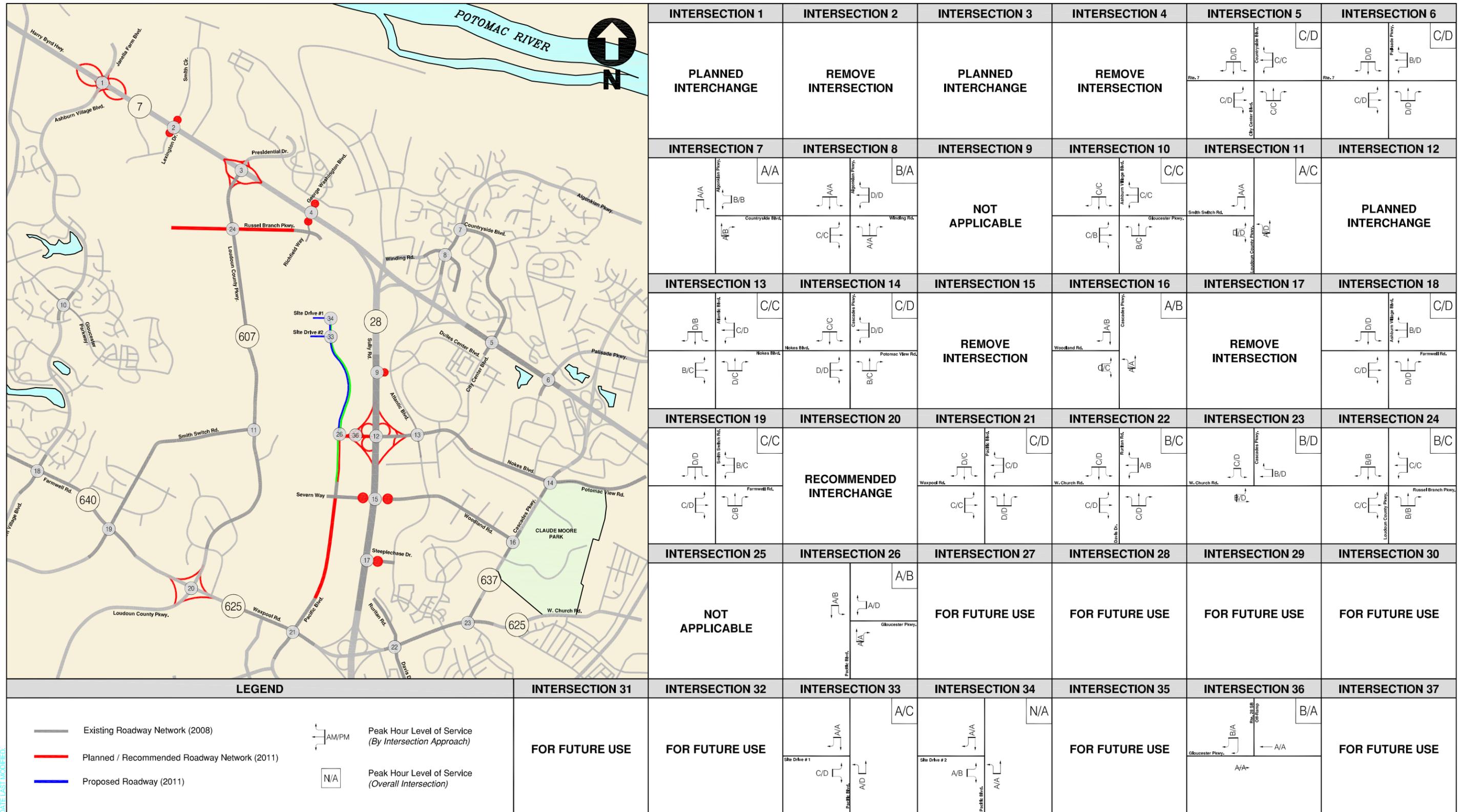


Figure 13A
Future Conditions with Development (2011) Peak Hour Levels of Service - Weekday

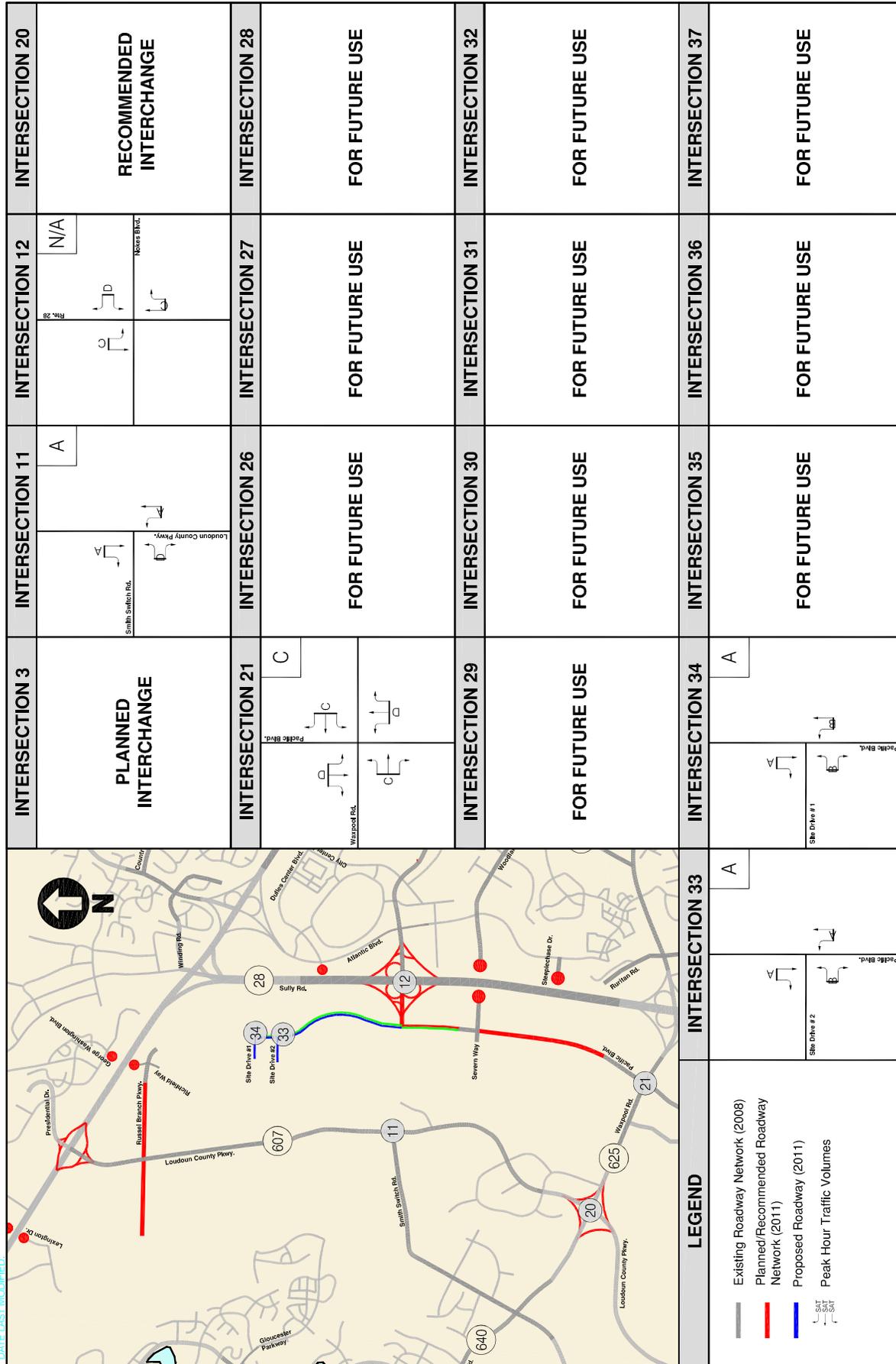


Figure 13B
Future Conditions with Development (2011) Peak Hour Levels of Service - Saturday

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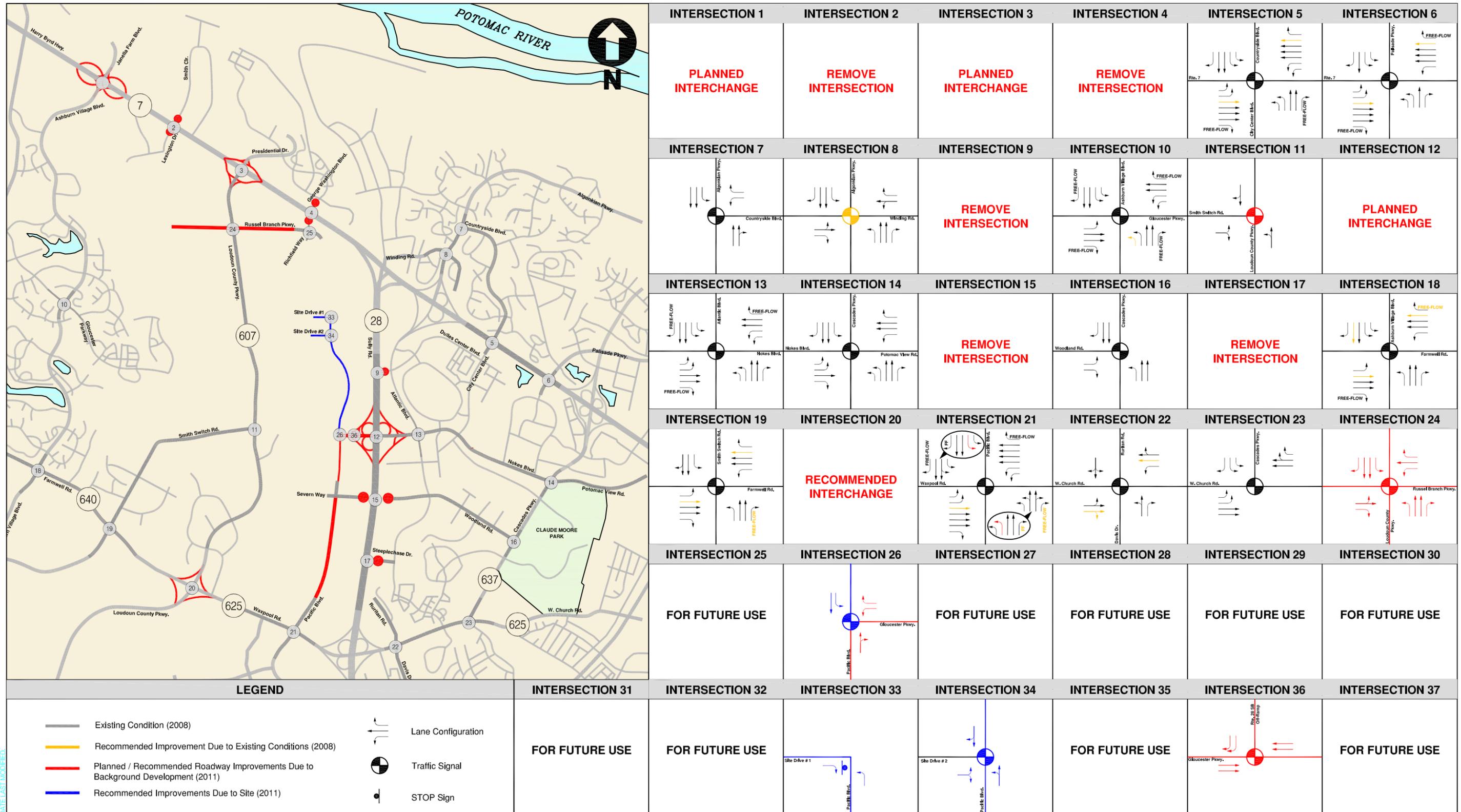


Figure 14
Future Conditions with Development (2011) Recommended Improvements



FUTURE CONDITIONS WITHOUT DEVELOPMENT (2015)

Future without Development Traffic Volumes

The development of the second and interim phase of the proposed Kincora site is anticipated to be completed in 2015. As mentioned earlier in the report, future traffic volumes were projected by increasing the existing traffic volumes to the full 2015 build-out year using a growth rate based on historical data obtained from VDOT, existing traffic counts, and Loudoun County/COG's future traffic model projections. An inherent regional growth rate of four percent (4%) compounded annually on Route 28 and one percent (1%) compounded annually on Route 640, Route 625, and Route 637 over a seven-year period were applied to the existing traffic volumes on the major movements along these roads to account for regional increase in traffic due to background growth. In addition to the regional growth, traffic generated by the following fourteen (14) nearby future approved background developments was considered in this analysis based on previous studies performed in the area:

1. Ashburn Executive Center
2. Beaumeade
3. Commonwealth Center
4. Lansdowne
5. Loudoun Pointe
6. Potomac Greens Active Adult
7. Ashburn Corporate Center
8. University Center
9. Ashburn Village Research Park
10. Dulles Town Center
11. Ashbrook/Ashburn Village
12. Potomac Farms
13. One Loudoun
14. Erickson Retirement Communities

The inherent growth rate in conjunction with the trips generated by the approved background developments was applied to the existing traffic volume in order to generate future without development (2015) traffic volumes. The future volumes without development (2015) traffic volumes are illustrated in **Figures 15A and B**. The location and the trips generated by the approved background developments are shown in the appendix

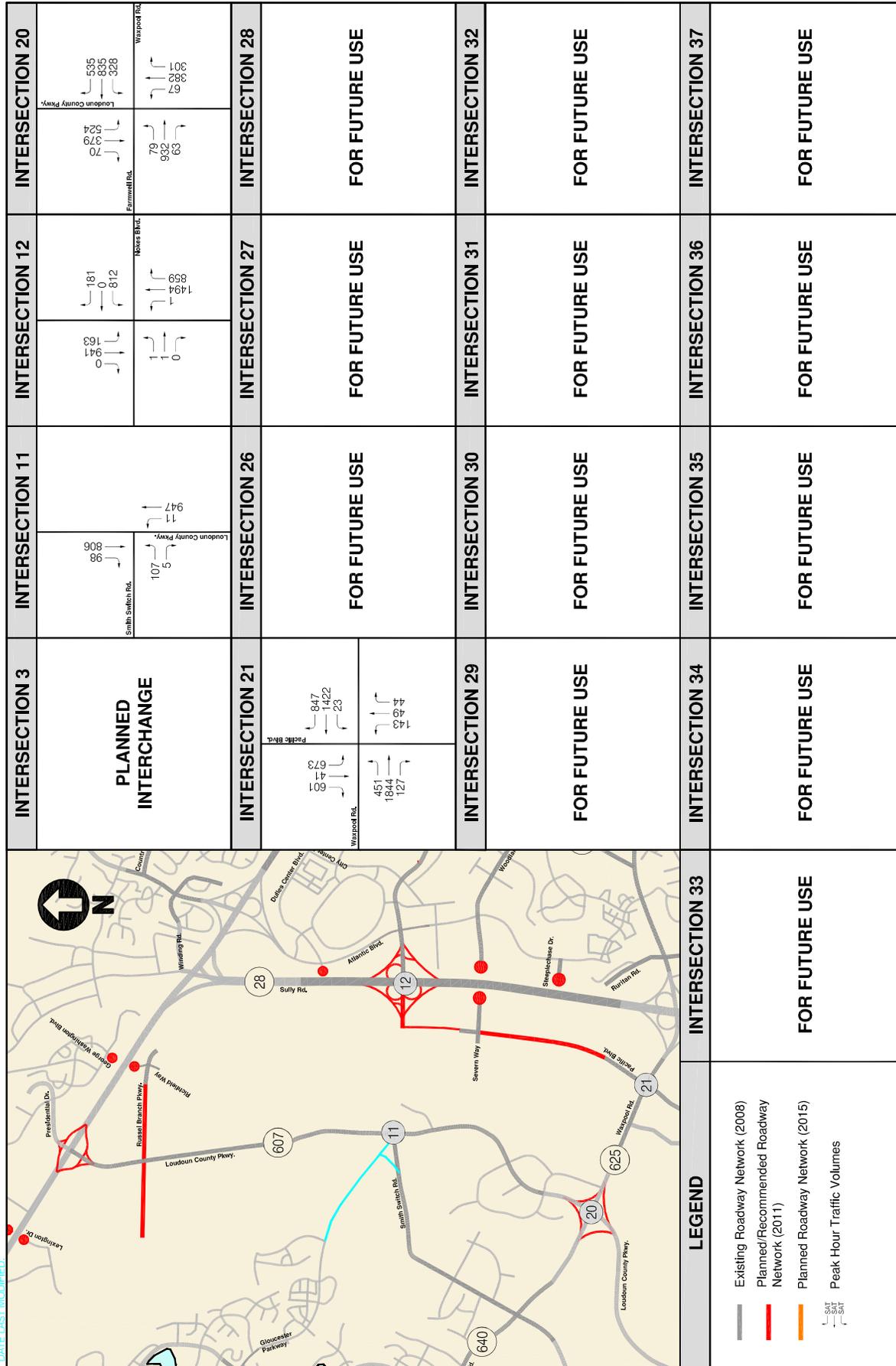


Figure 15B
Future Conditions without Development (2015) Peak Hour Volumes - Saturday

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Future without Development Capacity Analysis

Capacity analyses were performed at the existing and planned intersections contained within the study area during the morning and afternoon peak hours under the future background 2015 conditions. The results of the intersection capacity analyses are presented in **Table 5**, and are expressed in terms of level of service (LOS) and delay (seconds per vehicle). The detailed analysis worksheets are contained in the Technical Appendix.

Table 5: Future without Development (2015) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
2	Route 7 and Lexington Drive/Smith Circle						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
3	Route 7 and Loudoun County Parkway/Presidential Dr.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
4	Route 7 and Richfield Way/George Washington Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
5	Route 7 and City Center Blvd./Countryside Blvd.						
	Overall (Signalized)	C	30.0	D	39.2	--	--
	Eastbound	C	30.0	D	40.7	--	--
	Westbound	C	24.8	C	34.8	--	--
	Northbound	C	31.1	D	39.0	--	--
	Southbound	D	52.5	E	55.1	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	30.0	D	39.5	--	--
	Eastbound	C	30.0	D	41.2	--	--
	Westbound	C	24.8	D	35.1	--	--
	Northbound	C	31.1	D	39.0	--	--
	Southbound	D	52.5	D	54.6	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway						
	Overall (Signalized)	C	22.3	D	47.3	--	--
	Eastbound	C	20.9	D	47.7	--	--
	Westbound	B	16.7	D	49.5	--	--
	Northbound	D	54.3	D	37.6	--	--
	Southbound	D	52.6	D	46.6	--	--
	Overall Mitigation – Remove split phasing. Change AM and PM signal timing and cycle lengths	C	21.5	C	30.9	--	--
	Eastbound	C	20.3	C	26.6	--	--
	Westbound	B	17.0	C	27.7	--	--
	Northbound	D	48.4	D	45.7	--	--
	Southbound	D	44.8	D	51.5	--	--
7	Algonkian Parkway and Countryside Boulevard						
	Overall (Signalized)	A	6.6	A	8.8	--	--
	Westbound	B	13.1	B	12.8	--	--
	Northbound	A	9.3	B	12.4	--	--
	Southbound	A	2.6	A	3.6	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
8	Algonkian Parkway and Winding Road/Sutherland Lane						
	Overall (Signalized)	B	12.6	A	7.8	--	--
	Eastbound	C	34.3	C	32.4	--	--
	Westbound	D	35.6	D	36.0	--	--
	Northbound	A	4.7	A	4.6	--	--
	Southbound	A	6.7	A	5.6	--	--
9	Route 28 and Dulles Center Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway						
	Overall (Signalized)	C	28.6	C	28.2	--	--
	Eastbound	C	29.7	C	28.6	--	--
	Westbound	C	29.2	C	27.7	--	--
	Northbound	C	25.8	C	30.3	--	--
	Southbound	C	30.7	C	26.2	--	--
11	Loudoun County Parkway and Smith Switch Road						
	Overall (Signalized)	F	897.0	F	235.2	A	8.0
	Eastbound	E	71.1	F	167.0	C	34.2
	Northbound	F	1749.6	F	291.9	A	6.8
	Southbound	D	50.4	F	189.2	A	6.0
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	A	8.6	C	20.4	A	5.0
	Eastbound – And 2 nd left turn lane.	C	31.9	D	47.2	C	20.4
	Northbound – And 2 nd through lane.	A	9.0	C	31.5	A	4.2
	Southbound – And 2 nd through lane.	A	5.4	A	6.1	A	4.0
12	Route 28 and Nokes Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
13	Nokes Boulevard and Atlantic Boulevard						
	Overall (Signalized)	C	32.6	C	30.9	--	--
	Eastbound	C	23.6	C	31.5	--	--
	Westbound	C	30.1	D	47.1	--	--
	Northbound	D	51.2	C	28.5	--	--
	Southbound	C	34.8	B	16.1	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	26.0	D	44.1	--	--
	Eastbound	D	41.9	E	64.0	--	--
	Westbound	D	37.8	D	54.5	--	--
	Northbound	B	19.2	D	36.6	--	--
	Southbound	C	22.3	D	35.2	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	25.5	D	38.9	--	--
	Eastbound	D	40.4	D	48.3	--	--
	Westbound	D	37.2	D	52.3	--	--
	Northbound	B	18.9	D	35.0	--	--
	Southbound	C	21.8	C	32.1	--	--
15	Route 28 and Severn Way						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	7.9	B	16.2	--	--
	Eastbound	C	22.3	C	30.5	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Northbound	A	3.8	B	10.1	--	--
	Southbound	B	10.9	C	20.4	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	E	59.1	D	53.6	--	--
	Eastbound	D	42.4	D	44.2	--	--
	Westbound	F	111.4	D	44.5	--	--
	Northbound	D	48.0	D	50.7	--	--
	Southbound	D	37.2	F	83.2	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	D	41.6	D	41.7	--	--
	Eastbound – Add 2 nd left turn lane.	D	44.5	D	37.6	--	--
	Westbound – Add 2 nd left turn lane.	C	25.7	D	36.8	--	--
	Northbound – Add 2 nd left turn lane.	D	48.9	D	53.0	--	--
	Southbound	D	49.4	D	49.6	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	C	21.6	C	31.3	--	--
	Eastbound	C	21.1	D	38.1	--	--
	Westbound	B	18.4	C	25.7	--	--
	Northbound	C	29.2	B	16.2	--	--
	Southbound	D	43.7	E	62.6	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	28.4	C	34.6	--	--
	Eastbound	C	30.7	D	43.1	--	--
	Westbound	C	21.6	C	31.3	--	--
	Northbound	C	31.0	B	16.7	--	--
	Southbound	D	48.1	D	49.7	--	--
20	Waxpool Road and Loudoun County Parkway						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	C	30.9	C	34.1	C	29.9
	Eastbound	D	35.4	B	17.7	C	34.8
	Westbound	C	22.2	D	43.9	B	15.8
	Northbound	D	54.0	C	32.7	D	46.5
	Southbound	D	44.7	D	41.9	D	42.7
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	B	15.5	D	38.3	--	--
	Eastbound	C	20.6	D	53.6	--	--
	Westbound	A	8.7	B	14.4	--	--
	Northbound	C	27.6	D	40.8	--	--
	Southbound	D	35.4	D	47.9	--	--
23	Church Road and Cascades Parkway						
	Overall (Signalized)	B	18.6	D	42.3	--	--
	Eastbound	B	16.4	D	39.1	--	--
	Westbound	B	16.9	D	49.9	--	--
	Southbound	C	23.4	D	39.0	--	--
24	Loudoun County Parkway and Russell Branch Parkway						
	Overall (Signalized)	C	29.8	E	66.9	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Eastbound	D	45.7	F	103.8	--	--
	Westbound	D	36.5	E	65.1	--	--
	Northbound	C	27.6	D	48.1	--	--
	Southbound	C	28.5	E	68.8	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	25.7	C	27.3	--	--
	Eastbound – Add 2 nd left turn lane. Add right turn free flow.	B	19.2	C	30.7	--	--
	Westbound –Add Free Flow.	B	12.2	B	10.7	--	--
	Northbound	C	26.4	C	25.9	--	--
	Southbound	C	26.7	C	29.2	--	--
36	Gloucester Parkway and Route 28 SB Off-Ramp						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	A	0.0	A	0.0	--	--
	Westbound	A	0.0	A	0.0	--	--
	Southbound	A	9.3	A	8.5	--	--

Note: N/A means not applicable.

According to Loudoun County, it is desirable to achieve an overall and per approach LOS D or better at each intersection. Assuming that the mitigation measures recommended in the future background 2011 conditions were in place, the results presented in **Table 5** show that some of the study intersections would operate at unacceptable levels of service under the future background 2015 conditions. The following improvements would be required to meet the desired LOS criteria set forth by the County under this scenario:

- *Intersection of Route 7 with City Center Boulevard/Countryside Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Route 7 with Loudoun Tech Drive/Palisade Parkway:*
 - Remove split phasing on northbound and southbound phases.
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Smith Switch Road:*
 - Add second eastbound left turn bay
 - Add second northbound through lane
 - Add second southbound through lane.
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Nokes Boulevard with Cascade Parkway/Potomac View Road:*
 - Adjust AM and PM signal timings and cycle lengths.



- *Intersection of Farmwell Road with Ashburn Village Boulevard:*
 - Add second eastbound left turn bay.
 - Add second westbound left turn bay.
 - Add second northbound through lane.
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Farmwell Road with Smith Switch Road/Waxpool Road:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Russell Branch Parkway:*
 - Add eastbound approach as two-left turn lanes, one through lane and one free flow right turn lane.
 - Convert westbound right turn lane to free flow.
 - Adjust AM and PM signal timings and cycle lengths.

As mentioned before, no analyses were performed at the planned and recommended grade-separated interchanges. **Figures 16A and B** illustrate graphically the intersection capacity analysis results. **Figure 17** shows the recommended improvements under the interim year conditions without the proposed Kincora development.



INTERSECTION 1	INTERSECTION 2	INTERSECTION 3	INTERSECTION 4	INTERSECTION 5	INTERSECTION 6
PLANNED INTERCHANGE	REMOVE INTERSECTION	PLANNED INTERCHANGE	REMOVE INTERSECTION	C/D	C/C
INTERSECTION 7	INTERSECTION 8	INTERSECTION 9	INTERSECTION 10	INTERSECTION 11	INTERSECTION 12
A/A	B/A	NOT APPLICABLE	C/C	A/C	PLANNED INTERCHANGE
INTERSECTION 13	INTERSECTION 14	INTERSECTION 15	INTERSECTION 16	INTERSECTION 17	INTERSECTION 18
C/C	C/D	REMOVE INTERSECTION	A/B	REMOVE INTERSECTION	D/D
INTERSECTION 19	INTERSECTION 20	INTERSECTION 21	INTERSECTION 22	INTERSECTION 23	INTERSECTION 24
C/C	RECOMMENDED INTERCHANGE	C/C	B/D	B/D	C/C
INTERSECTION 25	INTERSECTION 26	INTERSECTION 27	INTERSECTION 28	INTERSECTION 29	INTERSECTION 30
FOR FUTURE USE	FOR FUTURE USE	FOR FUTURE USE	FOR FUTURE USE	FOR FUTURE USE	FOR FUTURE USE
INTERSECTION 31	INTERSECTION 32	INTERSECTION 33	INTERSECTION 34	INTERSECTION 35	INTERSECTION 36
FOR FUTURE USE	FOR FUTURE USE	FOR FUTURE USE	FOR FUTURE USE	FOR FUTURE USE	N/A
INTERSECTION 37	FOR FUTURE USE				

LEGEND	
Existing Roadway Network (2008)	Planned / Recommended Roadway Network (2011)
Proposed Roadway (2011)	Planned Roadway (2025)
Planned Roadway (2030)	Peak Hour Level of Service (By Intersection Approach)
	Peak Hour Level of Service (Overall Intersection)

Figure 16A
Future Conditions without Development (2015) Levels of Service - Weekday



	<p>INTERSECTION 3</p> <p>PLANNED INTERCHANGE</p>	<p>INTERSECTION 11</p>	<p>INTERSECTION 12</p> <p>PLANNED INTERCHANGE</p>	<p>INTERSECTION 20</p> <p>RECOMMENDED INTERCHANGE</p>
<p>INTERSECTION 21</p>	<p>INTERSECTION 26</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 27</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 28</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 32</p> <p>FOR FUTURE USE</p>
<p>INTERSECTION 29</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 30</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 31</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 36</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 37</p> <p>FOR FUTURE USE</p>
<p>LEGEND</p> <ul style="list-style-type: none"> Existing Roadway Network (2008) Planned/Recommended Roadway Network (2011) Peak Hour Traffic Volumes 	<p>INTERSECTION 33</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 34</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 35</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 37</p> <p>FOR FUTURE USE</p>

Figure 16B
Future Conditions without Development (2015) Levels of Service - Saturday

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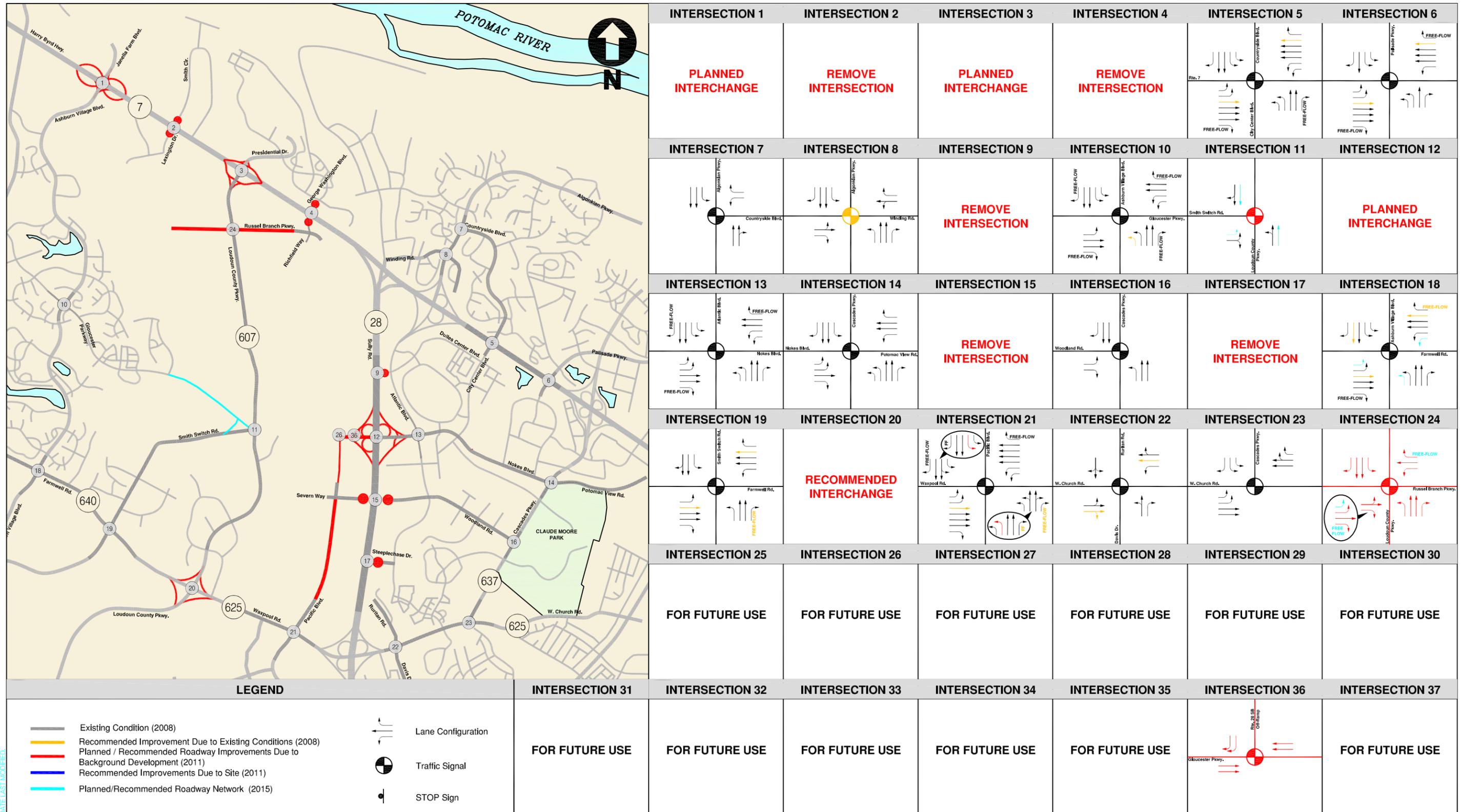


Figure 17
Future Conditions without Development (2015) Recommended Improvements



TRIP GENERATION (PHASE II - 2015)

In order to calculate the trip generation for proposed development program by 2015, the ITE's Trip Generation, 7th Edition publication was used to determine the trips into and out of the project site for the weekday morning and afternoon peak hours as well as for an entire weekday. Average daily volumes for residential developments were estimated based on Loudoun County's trip generation rates.

In addition to the new site trip estimates, trip generation reductions were considered to account for internal synergy, pass-by trips, and mode split reduction, which are listed below:

- *Pass-by trips:* A 25% reduction will be considered on proposed retail trips during the afternoon peak period only to represent traffic pulled from background traffic stream. A 40% reduction was applied to the proposed bank.
- *Internal trips:* According to the VDOT's guidelines for Chapter 527 traffic study, internal capture reduction will be considered for mixed-use land bays.
- *Mode split reduction:* A 10% reduction on proposed office and residential trips will be considered to reflect expected transit usage mode split by future public transportation within the study area. This reduction assumes associated transit commitments from the applicant for implementation.

These reductions were applied to the appropriate site trip assignment. **Table 6** presents the new trips generated by the proposed development program in 2015.

Table 6: Trip Generation (Phase II – 2015)

Land Use	ITE Code	Size	Units	Weekday						Saturday			
				AM Peak Hour		PM Peak Hour		Daily	Peak Hour of Generator				
				In	Out	Total	In		Out	Total	In	Out	Total
APPROVED USE – PHASE II													
PD-IP (0.4 FAR)													
Office Park	750	3,132	kSF	3,481	430	3,911	546	3,350	3,896	33,045	325	114	439
PROPOSED PLAN - MIXED USE DEVELOPMENT – PHASE II													
Residential Development													
Townhouses/Condos	230	1,075	DU	59	287	346	283	139	422	9,353	192	163	355
Internal Trip Reduction		15%		-9	-43	-52	-43	-21	-64	-1,403	-29	-25	-54
Mode Split Reduction		10%		-6	-29	-35	-29	-14	-43	-936	-20	-16	-36
Subtotal Residential Development		1,075	DU	44	215	259	211	104	315	7,014	143	122	265
Office Development													
Hotel	310	170	Rooms	49	30	79	54	47	101	1,149	69	53	122
Office Park	750	1,145.0	kSF	1,496	184	1,680	209	1,283	1,492	12,340	120	41	161
Subtotal Office Development		1,315.0	kSF	1,545	214	1,759	263	1,330	1,593	13,489	189	94	283



Land Use	ITE Code	Size	Units	Weekday						Saturday			
				AM Peak Hour			PM Peak Hour			Daily	Peak Hour of Generator		
				In	Out	Total	In	Out	Total	Total	In	Out	Total
Internal Trip Reduction		15%		-28	-6	-34	-11	-23	-34	-561	-12	-14	-26
Mode Split Reduction		10%		-155	-21	-176	-27	-133	-160	-1,349	-19	-10	-29
Subtotal Office Development		1,315.0	kSF	1,362	187	1,549	225	1,174	1,399	11,579	158	70	228
Retail Development													
Shopping Center	820	209.0	kSF	149	95	244	490	529	1,019	10,966	727	671	1398
Health/Fitness Club	492	35.0	kSF	19	24	43	73	69	142	1,153	46	45	91
Drive-in Banks	912	16.0	kSF	111	87	198	366	366	732	3,175	303	291	594
High-Turnover (Sit-Down) Restaurants	932	40.0	kSF	240	221	461	267	170	437	5,086	504	296	800
Subtotal Retail Development		300.0	kSF	519	427	946	1,196	1,134	2,330	20,380	1,580	1,303	2,883
Internal Trip Reduction		15%		-15	-3	-18	-10	-20	-30	-842	-12	-14	-25
Pass-by Reduction (Bank)		40%		-45	-35	-80	-147	-146	-293	-1,270	-122	-116	-238
Pass-by Reduction (Retail)		25%		-38	-23	-61	-123	-132	-255	-2,742	-182	-168	-350
Subtotal Retail Development		300.0	kSF	421	366	787	916	836	1,752	15,526	1,264	1,005	2,270
Stadium													
Baseball Stadium		5,500	Seats	N/A	N/A	N/A	N/A	N/A	N/A	N/A	386	15	401
Civic Use													
Performing Arts Center*		120.0	kSF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Proposed Site Trips (Without Reductions)				2,123	928	3,051	1,742	2,603	4,345	43,222	2,347	1,575	3,922
Total Reduced Trips				-296	-160	-456	-390	-489	-879	-9,103	-396	-363	-759
TOTAL PROPOSED SITE TRIPS (WITH REDUCTIONS)				1,827	768	2,595	1,352	2,114	3,466	34,119	1,951	1,212	3,163
Difference (Proposed – Approved)				-1,654	338	-1,316	806	-1,236	-430	1,074	1,626	1,098	2,724

*The performing arts center will generate off-peak hour trips.

Table 6 shows that the proposed development under phase II will generate approximately 2,595 new weekday morning peak hour trips, approximately 3,466 new weekday afternoon peak hour trips, 3,163 new Saturday peak hour trips and approximately 24,359 new average daily trips with the proposed Kincora development in 2015.



SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT (PHASE II – 2015)

Site Access and Proposed Roadway Improvements

Access to the proposed Kincora site will be provided along the future Pacific Boulevard. The project site will be primarily served by Route 28 and the planned grade-separated interchange at the existing intersection of Route 28 with Nokes Boulevard. The site will be bisected by future regional roads, such as Pacific Boulevard and Gloucester Parkway. The graphics included in this section represent the regional benefits these roads provide by showing them serving a dual purpose. The following is a description of the principal site access road:

- **Pacific Boulevard (from Gloucester Parkway north to Russell Branch Parkway)** will be a four-lane, local access, rural road with left and right turn lanes at major intersections.

Distribution and Assignment

Directional trip distribution information was provided for site entrances and collector/arterial intersections within the study area based on office, retail, and residential uses. The site traffic assignment for the weekday peak hours is illustrated in **Figures 18A through 18K**.

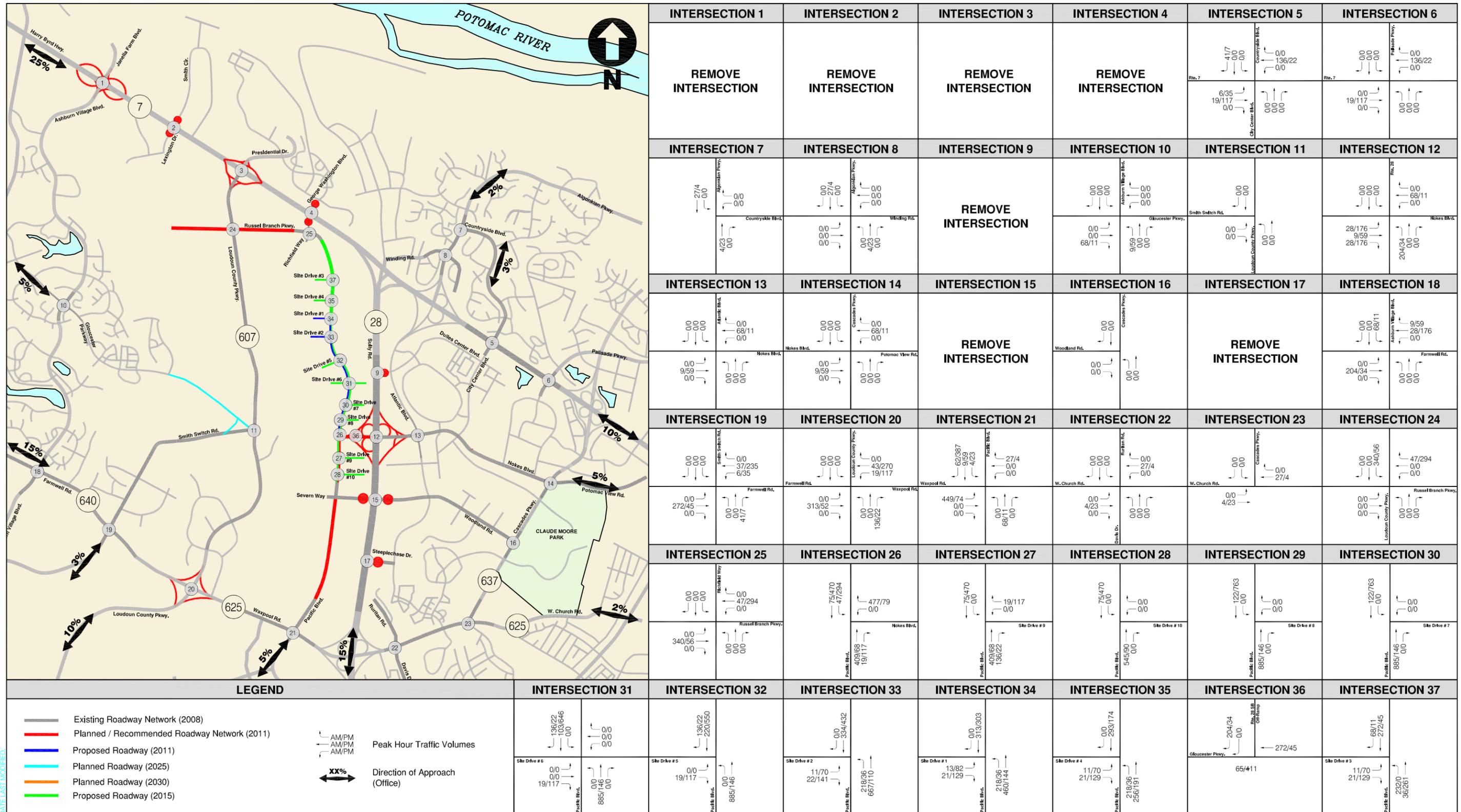


Figure 18A Site Generated (2015) Traffic Volumes - Office Use - Weekday

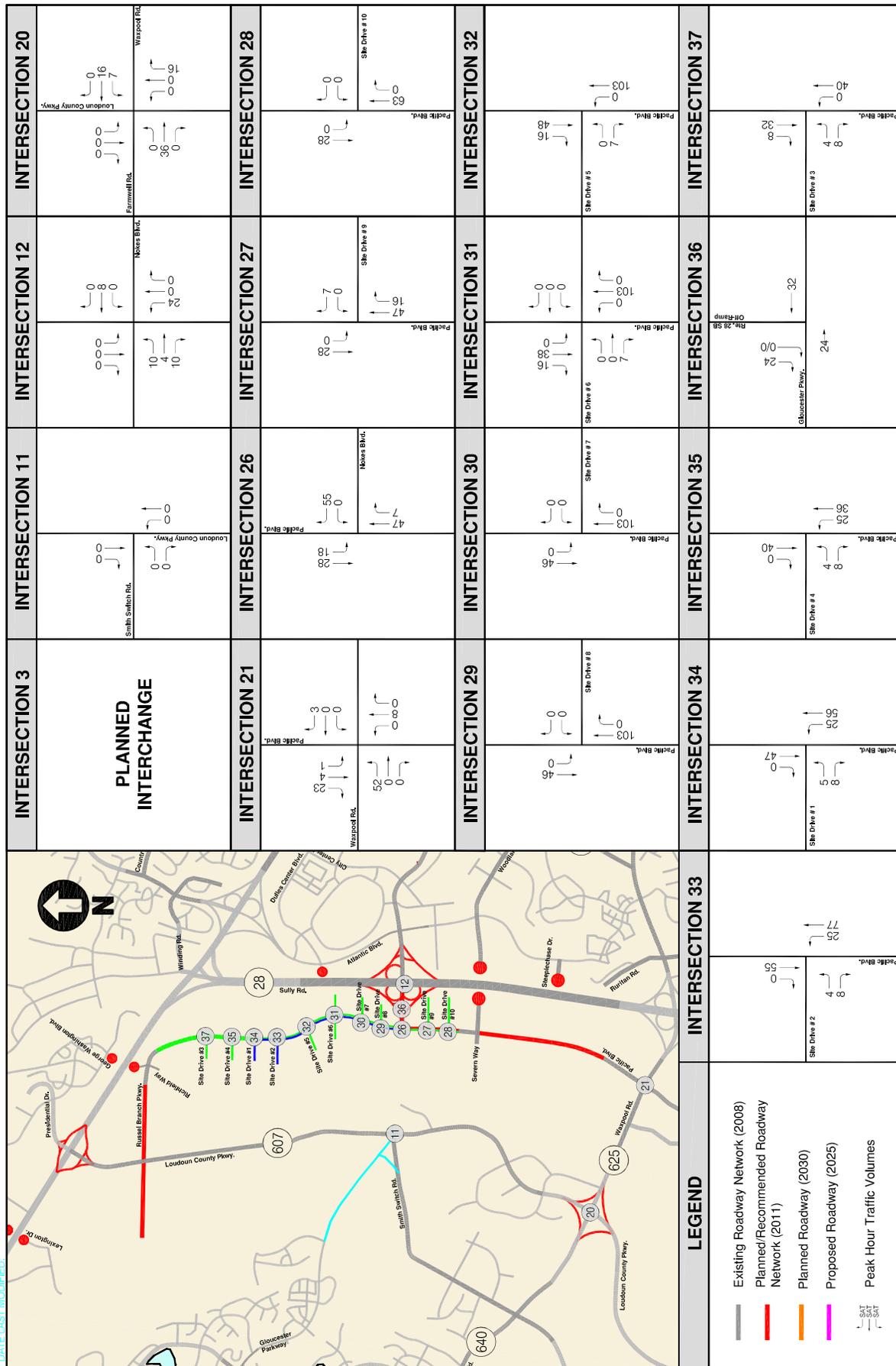


Figure 18B
Site Generated (2015) Traffic Volumes - Office Use - Saturday

FILE PATH: PA\2041\010_Kincora_2008\Graphics\REPORT_GRAPHICS.dwg
DATE LAST MODIFIED:

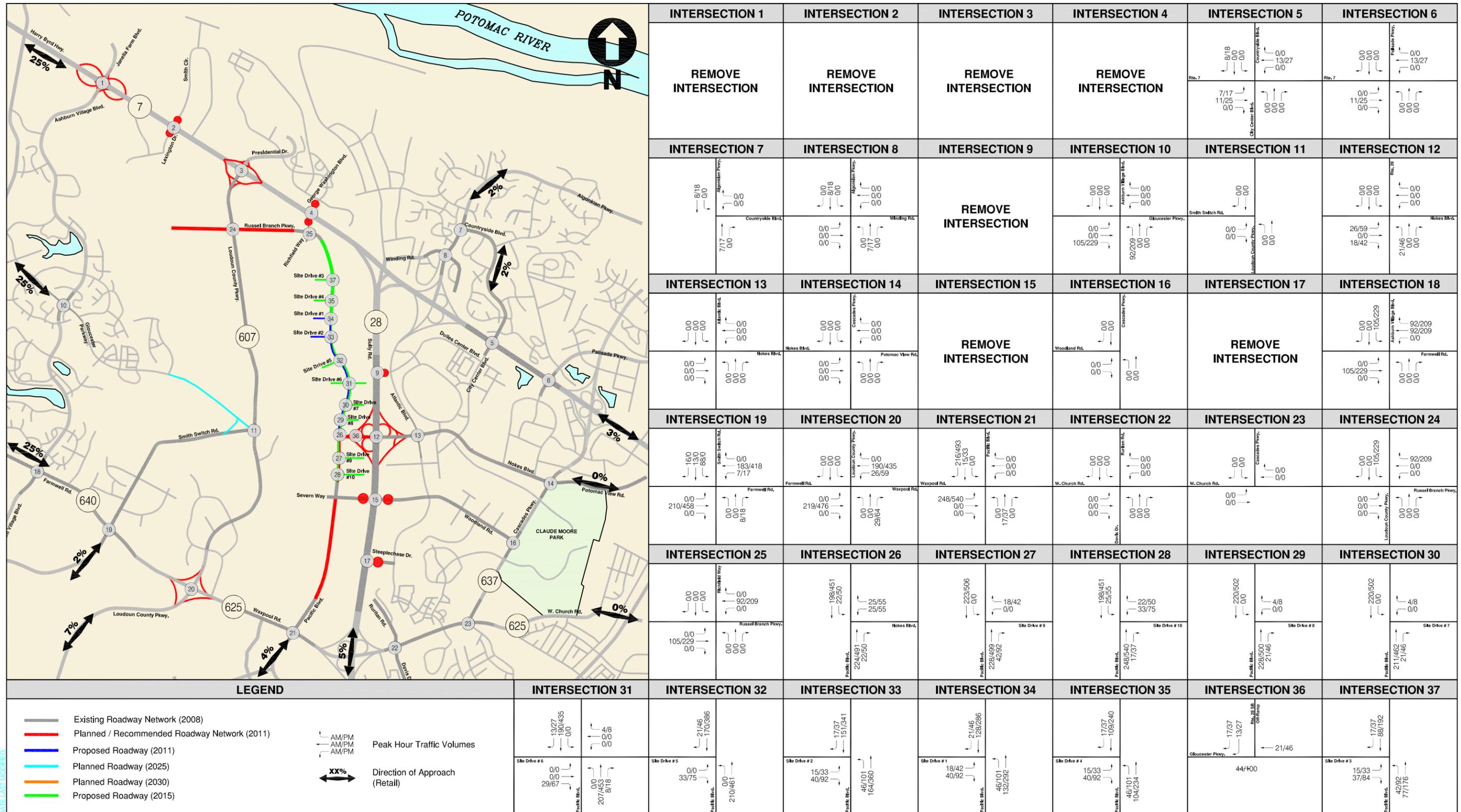


Figure 18C Site Generated (2015) Traffic Volumes - Retail Use - Weekday

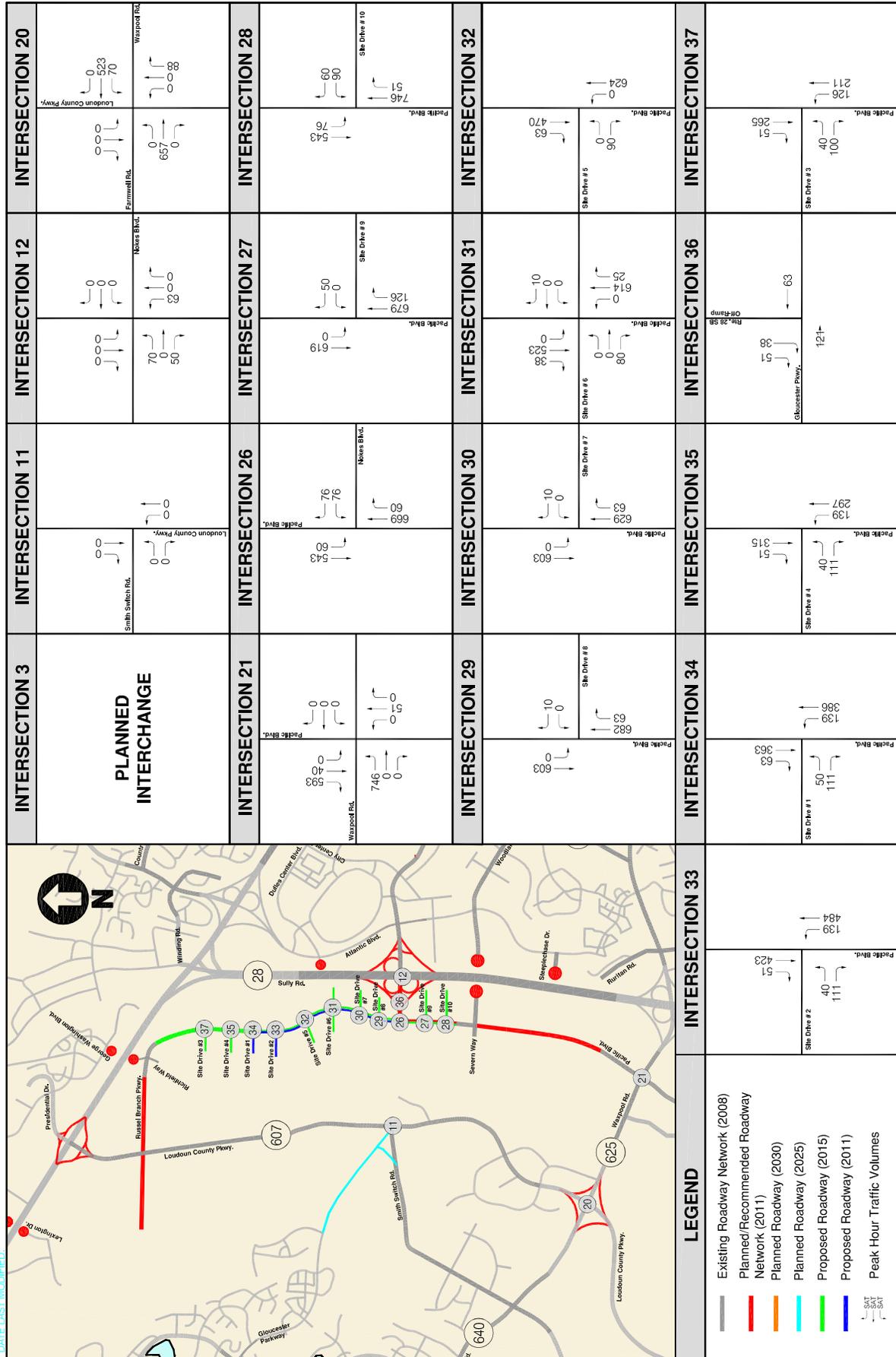


Figure 18D
Site Generated (2015) Traffic Volumes - Retail Use - Saturday

FILE PATH: PA\2041\010_Kincora_2008\Graphics\REPORT_GRAPHICS.dwg
DATE LAST MODIFIED:

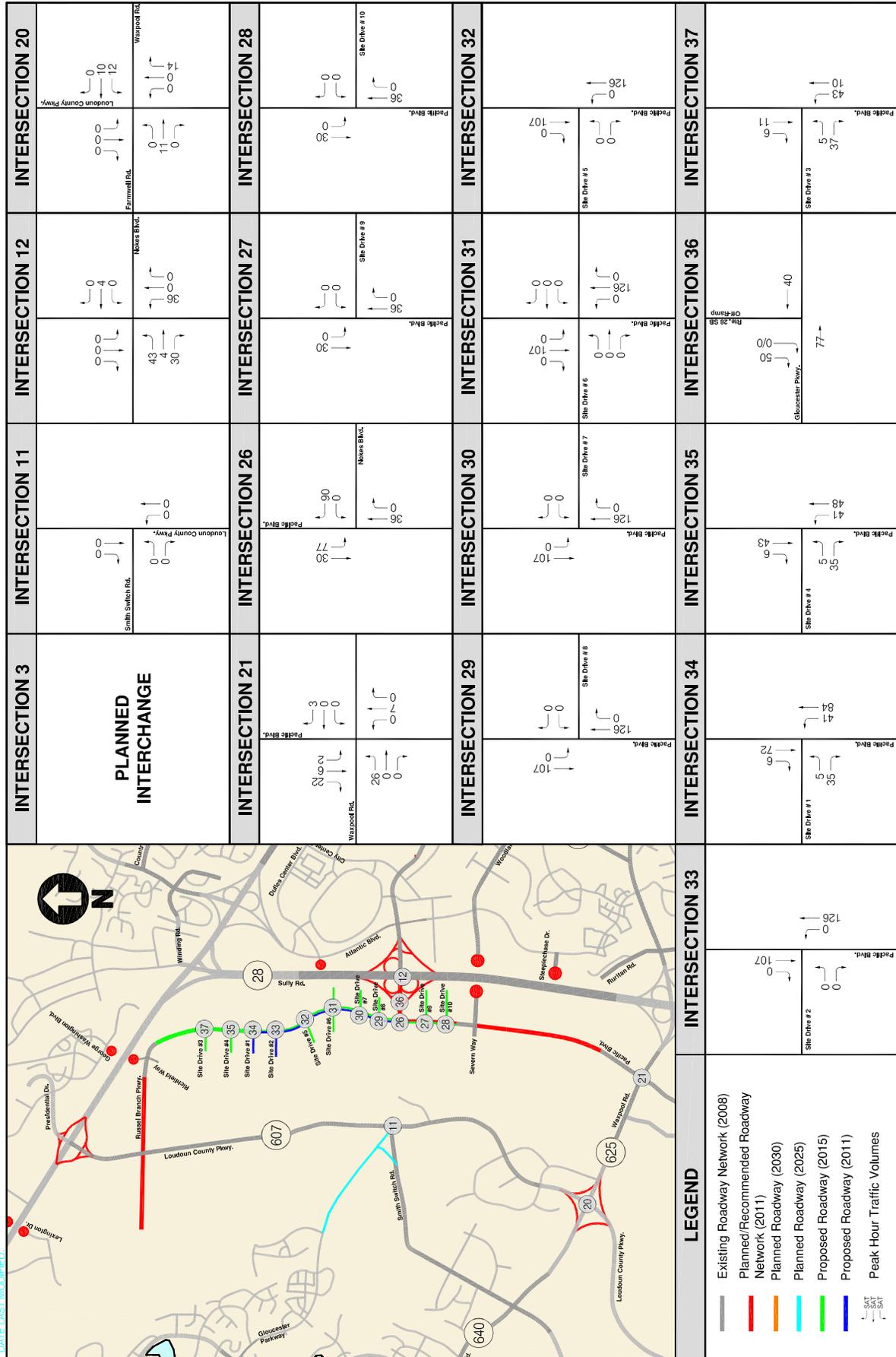
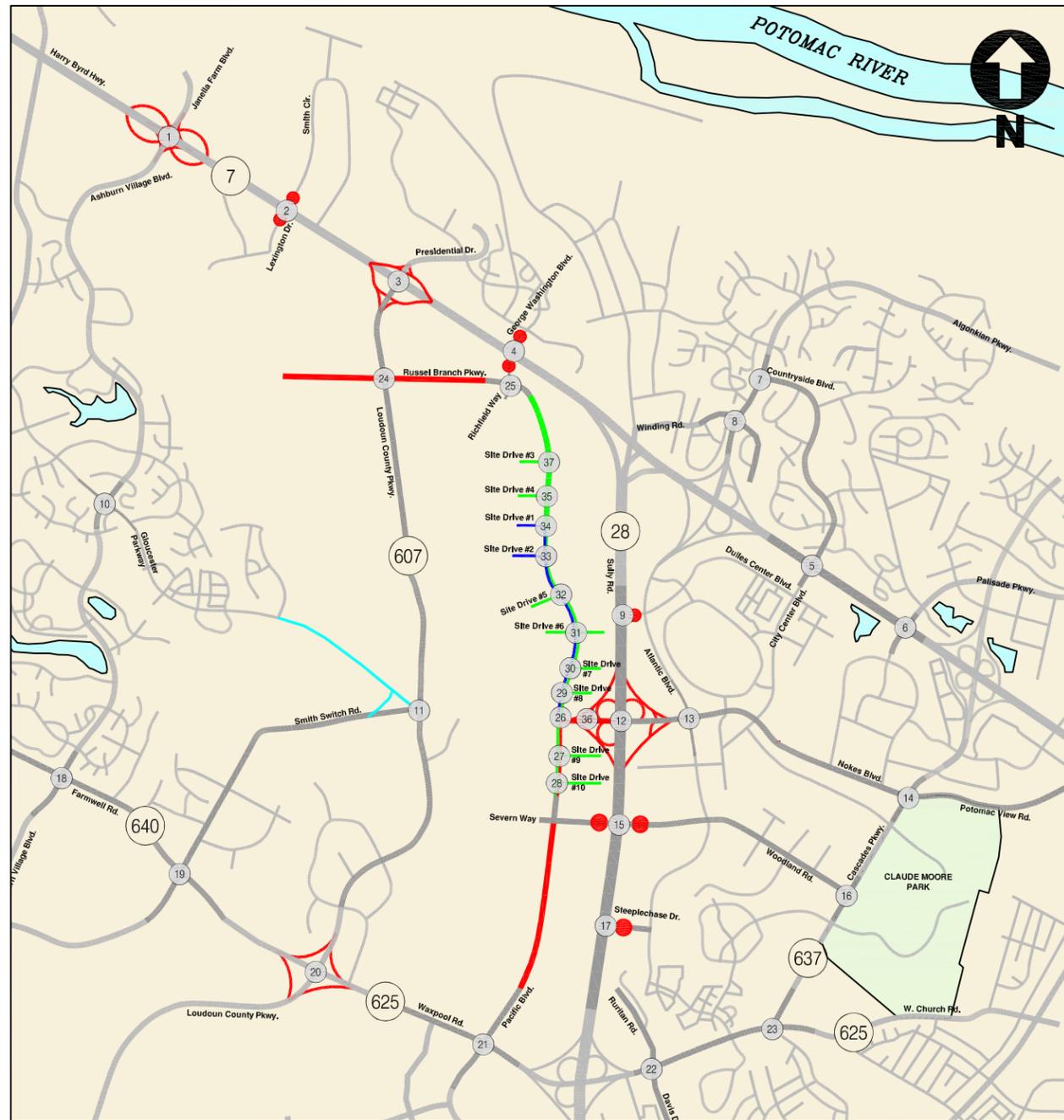


Figure 18F
Site Generated (2015) Traffic Volumes - Residential Use - Saturday

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INTERSECTION 1	INTERSECTION 2	INTERSECTION 3	INTERSECTION 4	INTERSECTION 5	INTERSECTION 6	
REMOVE INTERSECTION	REMOVE INTERSECTION	REMOVE INTERSECTION	REMOVE INTERSECTION			
INTERSECTION 7	INTERSECTION 8	INTERSECTION 9	INTERSECTION 10	INTERSECTION 11	INTERSECTION 12	
		REMOVE INTERSECTION				
INTERSECTION 13	INTERSECTION 14	INTERSECTION 15	INTERSECTION 16	INTERSECTION 17	INTERSECTION 18	
		REMOVE INTERSECTION		REMOVE INTERSECTION		
INTERSECTION 19	INTERSECTION 20	INTERSECTION 21	INTERSECTION 22	INTERSECTION 23	INTERSECTION 24	
INTERSECTION 25	INTERSECTION 26	INTERSECTION 27	INTERSECTION 28	INTERSECTION 29	INTERSECTION 30	
INTERSECTION 31	INTERSECTION 32	INTERSECTION 33	INTERSECTION 34	INTERSECTION 35	INTERSECTION 36	INTERSECTION 37

LEGEND

- Existing Roadway Network (2008)
- Planned / Recommended Roadway Network (2011)
- Proposed Roadway (2011)
- Planned Roadway (2025)
- Planned Roadway (2030)
- Proposed Roadway (2015)

Peak Hour Traffic Volumes

- AM/PM
- AM/PM
- AM/PM

Figure 18G
Pass-by Trips (2015) - Weekday

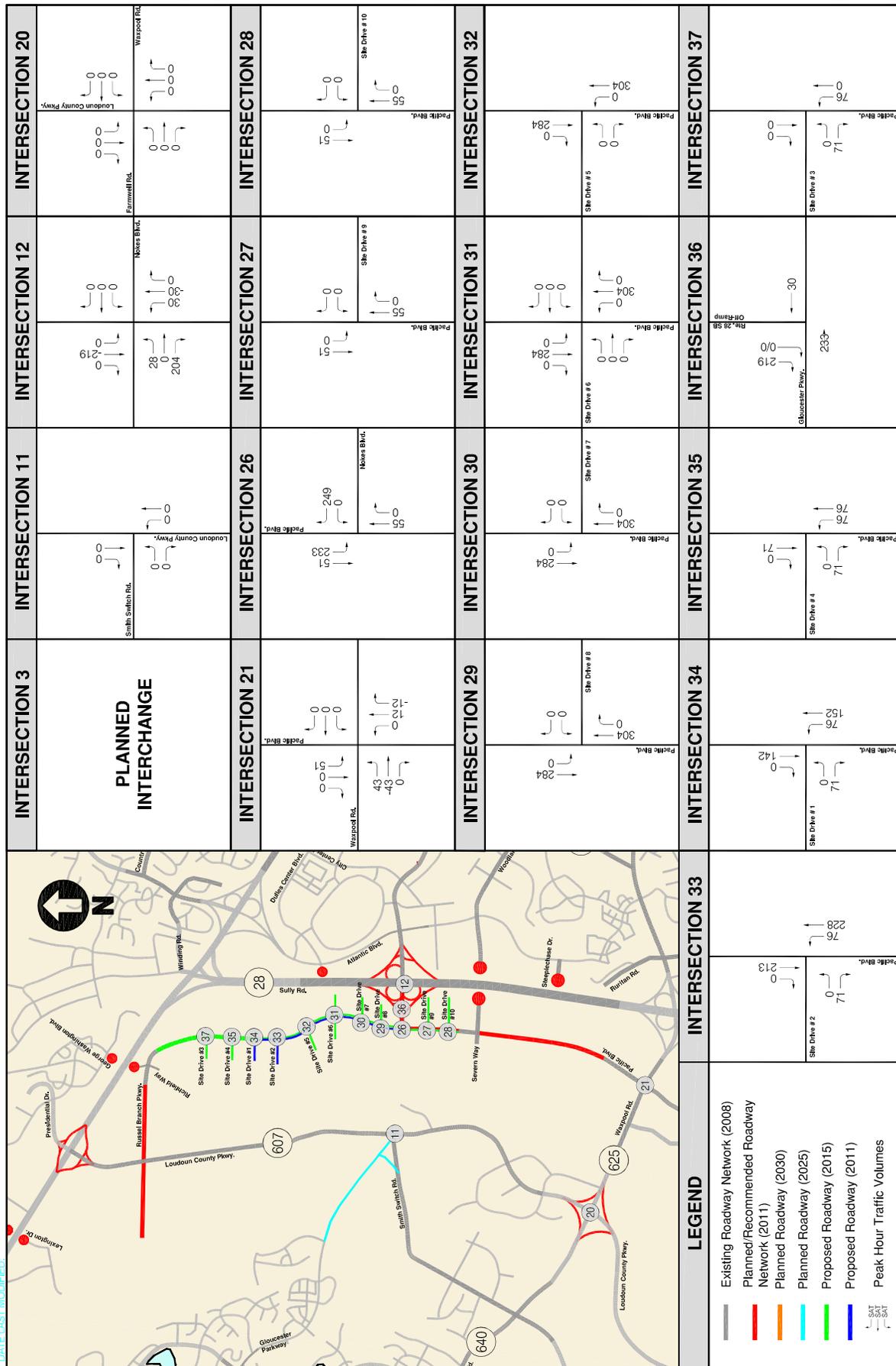


Figure 18H
Pass-by Trips (2015) - Saturday

FILE PATH: PA\2041\010_Kincora_2008\Graphics\REPORT_GRAPHICS.dwg
DATE LAST MODIFIED:

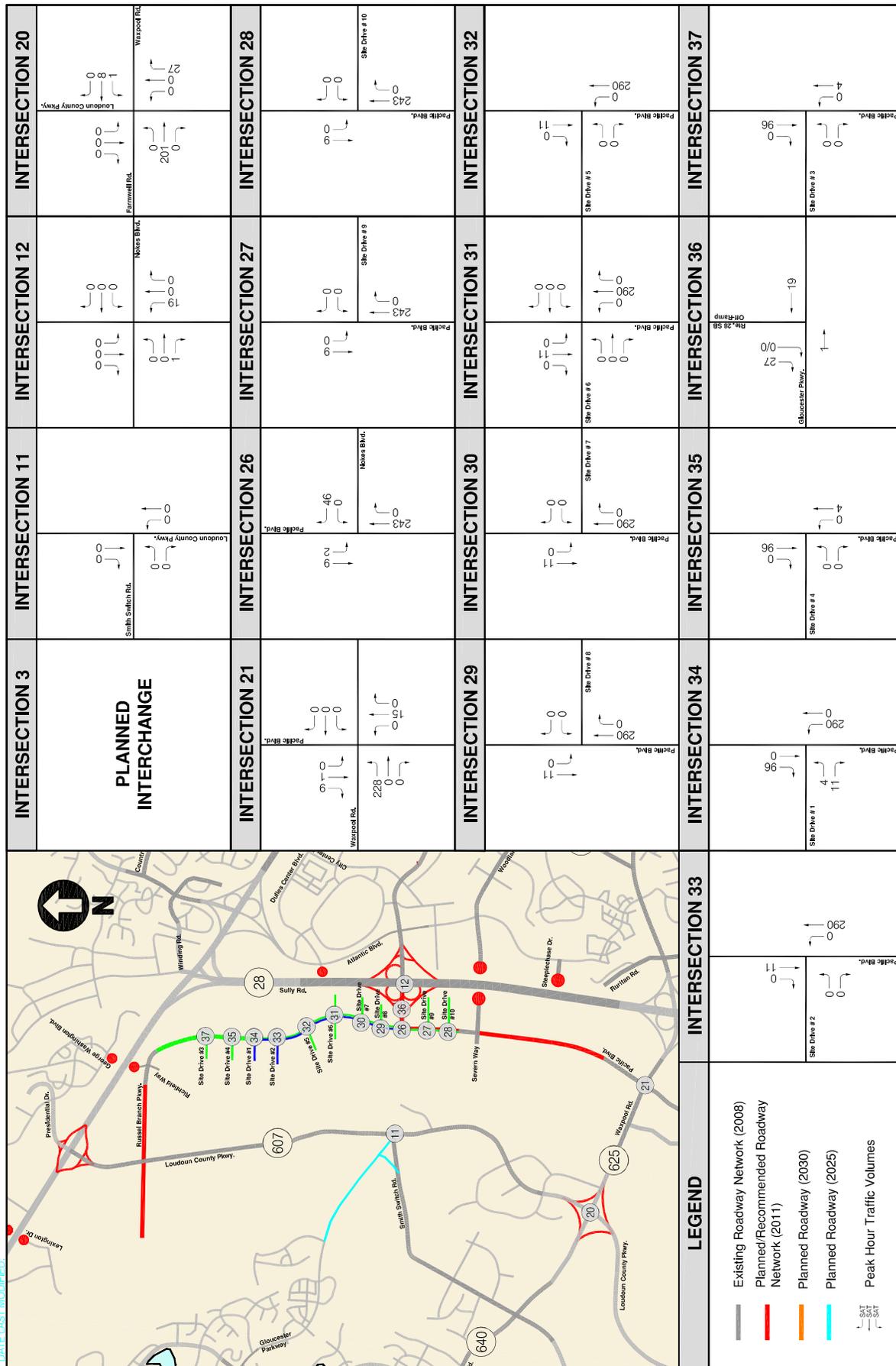


Figure 181
Site Generated (2015) Traffic Volumes - Stadium - Saturday

FILE PATH: PA\2041\010 Kincora_2008\Graphics\REPORT GRAPHICS.dwg
DATE LAST MODIFIED:



FILE PATH: PA\2041\010 Kincora_2008\Graphics\REPORT GRAPHICS.dwg
DATE: LAST MODIFIED:

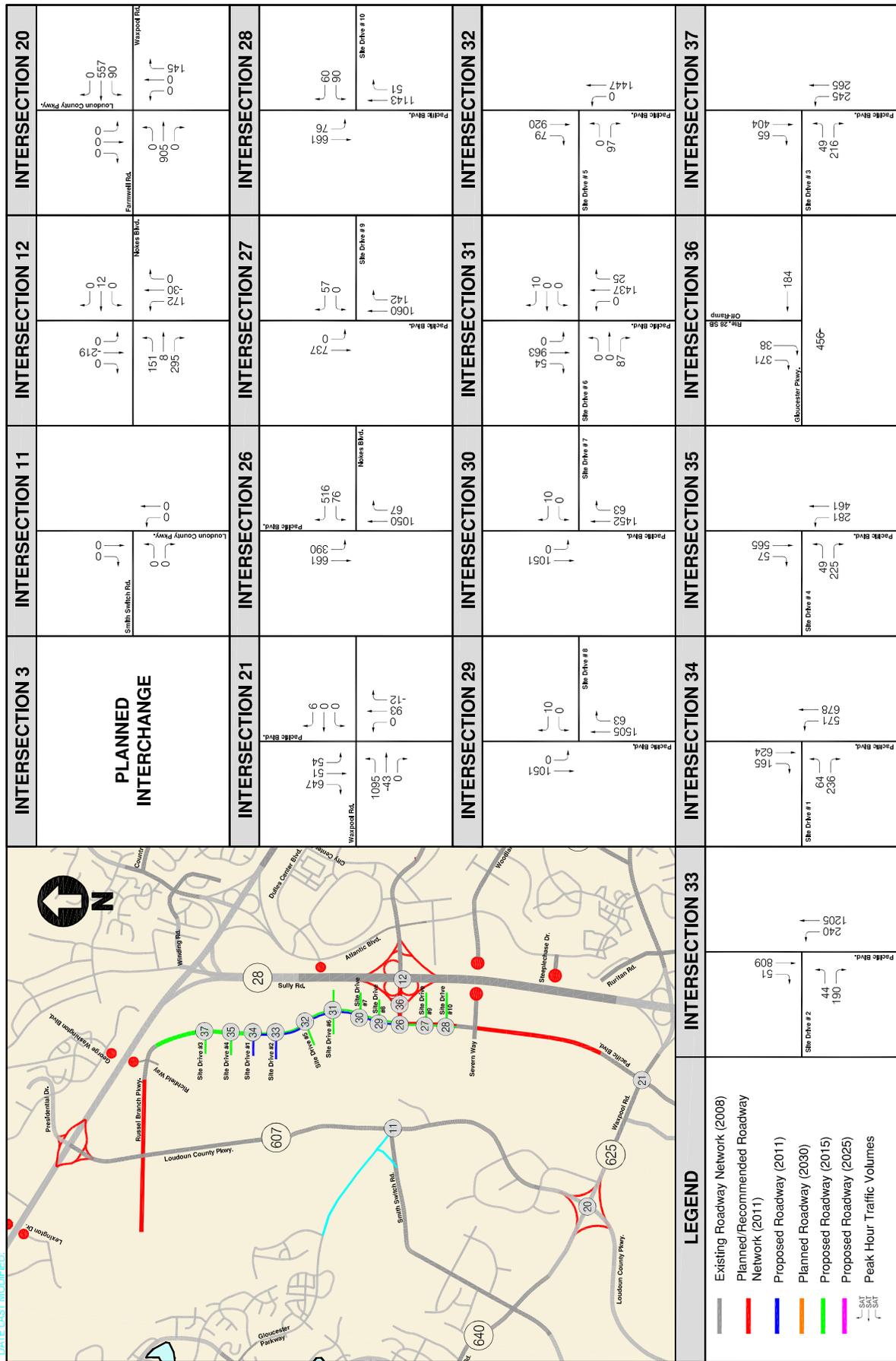


Figure 18K
Total Site Generated (2015) Traffic Volumes - Saturday



FUTURE CONDITIONS WITH DEVELOPMENT (PHASE II - 2015)

Future with Development Traffic Volumes

In order to determine the future conditions with development (2015) traffic volumes, the trips generated by the proposed development under the Phase II conditions were added to the future conditions without development (2015) traffic. The traffic volumes for total future traffic conditions (2015) are shown in **Figures 19A and B**.

Future with Development Capacity Analysis

Capacity analyses were performed at the existing, planned, and proposed intersections contained within the study area during the morning and afternoon peak hours under the total future 2015 traffic conditions. The results of the intersection capacity analysis are presented in **Table 7**, and are expressed in terms of level of service (LOS) and delay (seconds per vehicle). The detailed analysis worksheets are contained in the Technical Appendix.

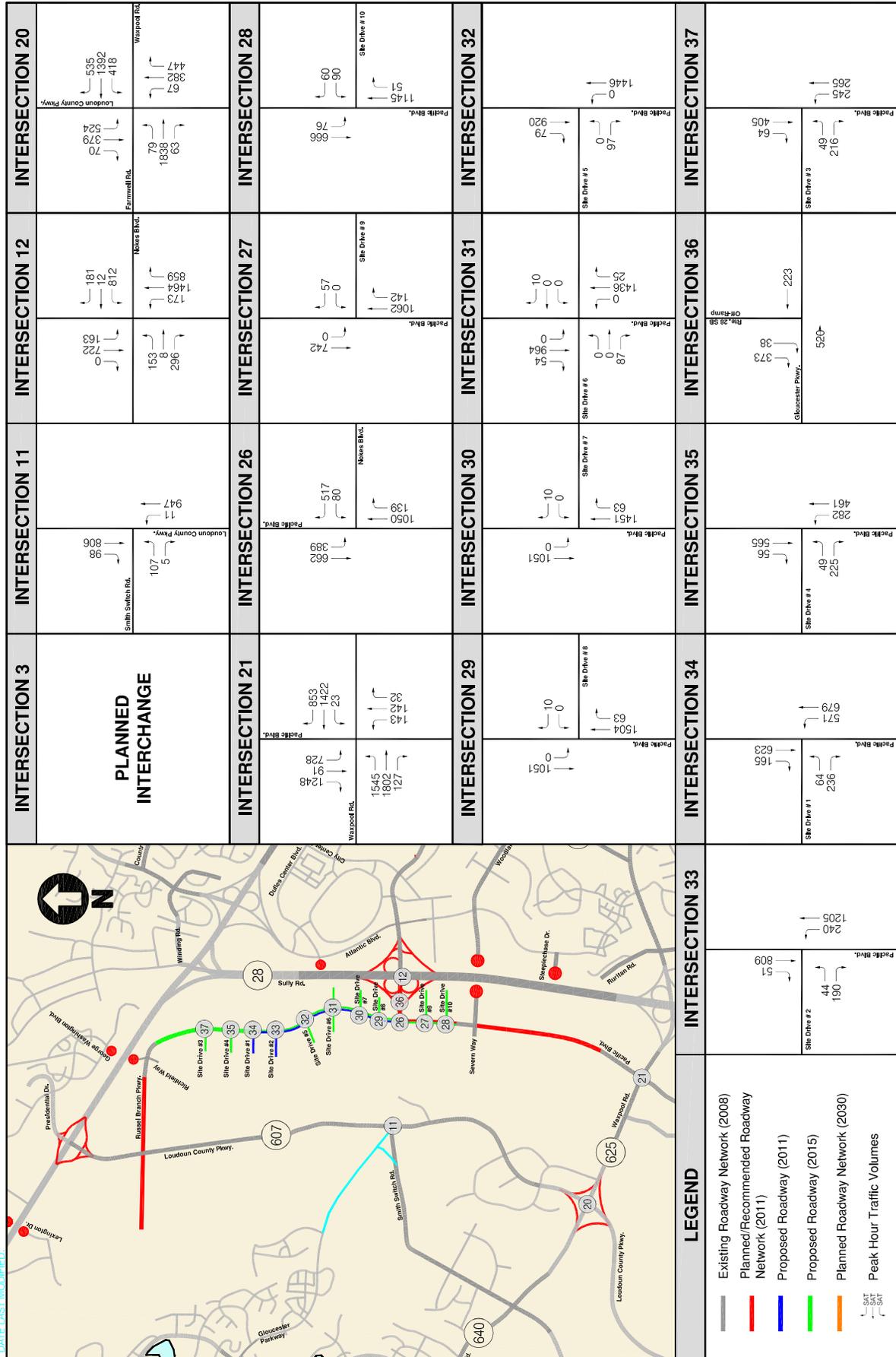


Figure 19B
Future Conditions with Development (2015) Traffic Volumes - Saturday

FILE PATH: PA\2041\010 Kincora 2008\Graphics\REPORT GRAPHICS.dwg
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Table 7: Total Future (2015) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development						
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour		
		LOS	Delay	LOS	Delay	LOS	Delay	
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
2	Route 7 and Lexington Drive/Smith Circle	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
3	Route 7 and Loudoun County Parkway/Presidential Dr.	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
4	Route 7 and Richfield Way/George Washington Blvd.	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
5	Route 7 and City Center Blvd./Countryside Blvd.	Overall (Signalized)	C	33.2	D	42.0	--	--
		Eastbound	C	34.5	D	44.4	--	--
		Westbound	C	27.6	D	38.1	--	--
		Northbound	C	30.6	D	39.0	--	--
		Southbound	D	51.1	D	54.2	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway	Overall (Signalized)	C	22.0	C	32.3	--	--
		Eastbound	C	21.2	C	28.2	--	--
		Westbound	B	17.6	C	29.9	--	--
		Northbound	D	48.3	D	45.7	--	--
		Southbound	D	44.8	D	51.5	--	--
7	Algonkian Parkway and Countryside Boulevard	Overall (Signalized)	A	6.5	A	8.9	--	--
		Westbound	B	13.1	B	13.2	--	--
		Northbound	A	9.3	B	12.6	--	--
		Southbound	A	2.6	A	3.6	--	--
8	Algonkian Parkway and Winding Road/Sutherlin Lane	Overall (Signalized)	B	12.4	A	7.8	--	--
		Eastbound	C	34.3	C	32.4	--	--
		Westbound	D	35.6	D	36.0	--	--
		Northbound	A	4.7	A	4.7	--	--
		Southbound	A	6.8	A	5.6	--	--
9	Route 28 and Dulles Center Boulevard	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway	Overall (Signalized)	C	27.9	C	32.4	--	--
		Eastbound	C	24.8	C	21.4	--	--
		Westbound	C	29.2	C	29.3	--	--
		Northbound	C	27.2	D	42.8	--	--
		Southbound	C	32.0	C	27.8	--	--
11	Loudoun County Parkway and Smith Switch Road	Overall (Signalized)	A	8.6	C	21.7	A	5.8
		Eastbound	C	31.9	D	47.7	B	20.0
		Northbound	A	9.0	C	34.1	A	5.1
		Southbound	A	5.4	A	6.3	A	4.9
12	Route 28 and Nokes Boulevard	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
13	Nokes Boulevard and Atlantic Boulevard							



Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Overall (Signalized)	C	32.4	C	31.9	--	--
	Eastbound	C	23.6	C	32.9	--	--
	Westbound	C	30.1	D	49.6	--	--
	Northbound	D	51.2	C	28.5	--	--
	Southbound	C	34.8	B	16.1	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	26.9	D	49.0	--	--
	Eastbound	D	42.3	F	81.8	--	--
	Westbound	D	38.4	D	54.4	--	--
	Northbound	B	19.6	D	37.4	--	--
	Southbound	C	22.7	D	35.7	--	--
	Overall Mitigation – Change signal timing and cycle length	C	31.7	D	44.6	--	--
	Eastbound.	D	40.4	D	51.7	--	--
	Westbound	D	46.0	D	36.0	--	--
	Northbound	C	24.0	D	44.9	--	--
	Southbound	C	27.8	D	41.1	--	--
15	Route 28 and Severn Way						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	7.9	B	16.2	--	--
	Eastbound	C	22.3	C	30.5	--	--
	Northbound	A	3.8	B	10.1	--	--
	Southbound	B	10.9	C	20.4	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	D	39.8	F	97.5	--	--
	Eastbound	D	36.8	D	37.4	--	--
	Westbound	B	14.9	F	124.2	--	--
	Northbound	D	50.6	D	53.6	--	--
	Southbound	E	56.6	F	107.8	--	--
	Overall Mitigation – Change signal timing and cycle length	C	38.5	D	52.0	--	--
	Eastbound	D	38.0	D	52.7	--	--
	Westbound – Add 4 th through lane	B	14.6	D	51.4	--	--
	Northbound	D	50.1	D	52.8	--	--
	Southbound	D	51.8	D	52.5	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	D	38.4	E	55.5	--	--
	Eastbound	D	50.9	F	82.6	--	--
	Westbound	B	18.6	D	46.0	--	--
	Northbound	C	24.3	B	15.4	--	--
	Southbound	D	43.7	E	65.6	--	--
	Overall Mitigation – Change signal timing and cycle length	C	21.4	D	51.7	--	--
	Eastbound	C	21.0	D	54.5	--	--
	Westbound	B	19.0	D	52.7	--	--
	Northbound	C	24.5	C	33.7	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Southbound.	D	46.6	D	54.9	--	--
20	Waxpool Road and Loudoun County Parkway						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	D	50.2	F	93.2	F	292.4
	Eastbound	E	66.7	F	133.7	F	651.1
	Westbound	C	28.0	E	56.3	B	16.2
	Northbound	E	72.4	F	129.1	E	59.5
	Southbound	C	29.8	F	82.0	C	32.4
	Overall Mitigation – Adjust signal timing and cycle length	D	35.3	E	64.6	D	36.3
	Eastbound – Add 3 rd left turn lane and convert right turn lane to free flow	D	36.8	D	54.9	C	27.5
	Westbound	C	31.7	F	86.6	C	31.5
	Northbound	D	54.3	D	47.9	D	53.1
	Southbound	C	30.5	D	36.7	D	53.8
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	B	15.6	D	40.8	--	--
	Eastbound	C	20.7	E	58.2	--	--
	Westbound	A	8.8	B	14.4	--	--
	Northbound	C	27.8	D	40.8	--	--
	Southbound	D	35.6	D	47.9	--	--
	Overall Mitigation – Remove split phasing. Change AM and PM signal timing and cycle length	B	10.6	C	24.1	--	--
	Eastbound	B	13.6	C	28.0	--	--
	Westbound	A	4.9	B	12.6	--	--
	Northbound	C	26.7	D	39.9	--	--
	Southbound	C	27.9	C	34.3	--	--
23	Church Road and Cascades Parkway						
	Overall (Signalized)	B	18.9	D	42.5	--	--
	Eastbound	B	16.5	D	38.7	--	--
	Westbound	B	17.2	D	51.0	--	--
	Southbound	C	23.9	D	39.2	--	--
24	Loudoun County Parkway and Russell Branch Parkway						
	Overall (Signalized)	E	61.1	D	45.2	--	--
	Eastbound	C	25.9	C	22.9	--	--
	Westbound	A	2.7	A	4.1	--	--
	Northbound	D	36.1	C	27.4	--	--
	Southbound	F	94.4	F	86.2	--	--
	Overall Mitigation – Change signal timing and cycle length	C	34.6	C	31.5	--	--
	Eastbound	C	31.8	C	31.2	--	--
	Westbound	A	2.9	A	5.0	--	--
	Northbound.	D	42.2	D	43.6	--	--
	Southbound	C	31.7	C	30.1	--	--
25	Russel Branch Parkway/Pacific Boulevard and Richfield Way/George Washington Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	--	--
	Eastbound	A	0.0	A	0.0	--	--
	Westbound	A	0.0	A	0.0	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Northbound	B	14.2	B	12.1	--	--
	Southbound	A	0.0	A	0.0	--	--
26	Gloucester Parkway and Pacific Boulevard						
	Overall (Signalized)	D	51.3	F	140.3	F	493.7
	Westbound	C	28.1	E	72.6	F	149.8
	Northbound	C	20.5	B	10.4	C	32.0
	Southbound	F	127.5	F	236.7	F	1223.6
	Overall Mitigation	C	20.8	C	24.0	C	23.4
	Westbound – Add 2 nd left turn lane.	C	23.5	D	35.1	C	32.1
	Northbound – Add 2 nd through lane and right turn lane.	C	22.6	C	31.9	C	26.8
	Southbound – Add 2 nd through lane	B	14.0	B	15.7	B	14.3
27	Site Driveway #9 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	C	15.5	C	22.9	D	29.5
28	Site Driveway #10 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	E	39.9	F	421.0	F	880.8
	Northbound	A	0.0	A	0.0	A	0.0
	Southbound	A	0.9	A	2.6	A	4.6
	Overall Mitigation – Install signal	A	4.8	A	6.2	A	6.8
	Westbound.	C	25.2	C	22.4	C	20.8
	Northbound – Add 2 nd through lane.	A	4.2	A	4.5	A	6.0
	Southbound – Add 2 nd through lane.	A	4.1	A	5.7	A	5.3
29	Site Driveway #8 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	E	41.5	D	28.4	F	1374.3
	Overall Mitigation	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound.	B	12.5	B	11.5	B	13.0
	Northbound – Add 2 nd through lane.	A	0.0	A	0.0	A	0.0
	Southbound – Add 2 nd through lane.	A	0.0	A	0.0	A	0.0
30	Site Driveway #7 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	C	23.5	C	20.3	D	33.2
31	Site Driveway #6 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	B	13.6	F	96.4	C	20.8
	Westbound	C	23.2	C	19.8	D	31.8
	Overall Mitigation	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	B	11.2	D	29.8	B	14.0
	Westbound	B	13.7	B	12.8	C	15.8
	Northbound – Add 2 nd through lane.	A	0.0	A	0.0	A	0.0
	Southbound – Add 2 nd through lane.	A	0.0	A	0.0	A	0.0
32	Site Driveway #5 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	C	15.2	F	187.6	C	23.9
	Northbound	A	0.0	A	0.0	A	0.0
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation	N/A	N/A	N/A	N/A	N/A	N/A



Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Eastbound	B	11.8	C	19.4	F	13.8
	Northbound – Add 2 nd through lane.	A	0.0	A	0.0	A	0.0
	Southbound – Add 2 nd through lane.	A	0.0	A	0.0	A	0.0
33	Site Driveway #2 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	F	274.5	F	**	F	**
	Northbound	B	10.2	B	11.7	C	15.5
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation – Install signal	A	7.6	C	20.3	B	12.7
	Eastbound	C	32.7	D	41.2	D	44.7
	Northbound – Add 2 nd through lane.	A	8.1	C	23.9	B	13.1
	Southbound – Add 2 nd through lane.	A	3.4	A	9.1	A	3.4
34	Site Driveway #1 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	F	201.1	F	**	F	**
	Northbound	A	7.6	A	9.2	D	25.0
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation – Install signal	A	7.3	C	21.2	B	19.0
	Eastbound	C	22.0	C	31.6	D	48.7
	Northbound – Add 2 nd through lane.	A	6.7	C	25.2	C	20.7
	Southbound – Add 2 nd through lane.	A	4.0	B	11.2	A	4.9
35	Site Driveway #4 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	E	43.2	F	624.4	F	181.4
	Northbound	A	6.5	A	6.3	A	7.0
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation – Install signal	A	6.9	B	15.7	A	8.9
	Eastbound	B	16.9	B	17.6	B	14.0
	Northbound – Add 2 nd through lane.	A	6.0	B	18.2	A	9.2
	Southbound – Add 2 nd through lane.	A	4.6	B	10.6	A	6.4
36	Gloucester Parkway and Route 28 SB Off-Ramp						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	A	0.0	A	0.0	A	0.0
	Westbound	A	0.0	A	0.0	A	0.0
	Southbound	B	12.5	B	12.0	B	10.4
37	Site Driveway #3 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	C	23.5	F	129.8	E	36.9
	Northbound	A	7.8	A	4.4	A	5.9
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound – Add 2 nd left turn lane.	C	21.4	C	20.6	C	17.8
	Northbound – Add 2 nd through lane.	A	8.9	A	3.3	A	5.0
	Southbound – Add 2 nd through lane.	A	0.0	A	0.0	A	0.0

Note: N/A means not applicable.

As mentioned before, it is desirable to achieve an overall and per approach LOS D or better at each intersection. Assuming that the mitigation measures recommended in the total future 2011 conditions)



and future background 2015 conditions were in place, the results presented in **Table 18** show that some of the study intersections would operate at unacceptable levels of service under the full build-out year (2015) conditions with the proposed Kincora development. The following improvements would be required to meet the desired LOS criteria set forth by Loudoun County under this scenario:

- *Intersection of Nokes Boulevard with Cascade Parkway/Potomac View Road:*
 - Adjust signal timing and cycle length.
- *Intersection of Farmwell Road with Ashburn Village Boulevard:*
 - Add fourth westbound through lane
 - Adjust signal timing and cycle length.
- *Intersection of Farmwell Road with Smith Switch Road/Waxpool Road:*
 - Adjust signal timing and cycle length.
- *Intersection of Waxpool Road with Pacific Boulevard:*
 - Add third eastbound left turn lane
 - Convert eastbound right turn lane to free flow right
 - Adjust signal timing and cycle length.
- *Intersection of Chruch Road with Davis Drive and Ruritan Circle:*
 - Remove split phasing on northbound and southbound phases.
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Russell Branch Parkway:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Gloucester Parkway with Pacific Boulevard:*
 - Add second westbound left turn lane
 - Add second northbound through lane
 - Add northbound right turn lane
 - Add second southbound through lane
- *Intersection of Pacific Boulevard with Site Drive #10; Intersection of Pacific Boulevard with Site Drive #2; Intersection of Pacific Boulevard with Site Drive #1; Intersection of Pacific Boulevard with Site Drive #4;*
 - Install traffic signal
 - Add second northbound through lane



- Add second southbound through lane.
- *Intersection of Pacific Boulevard with Site Drive #8; Intersection of Pacific Boulevard with Site Drive #5; Intersection of Pacific Boulevard with Site Drive #6*
 - Add second northbound through lane
 - Add second southbound through lane.
- *Intersection of Pacific Boulevard with Site Drive #3:*
 - Add second eastbound left turn lane.
 - Add second northbound through lane
 - Add second southbound through lane.

As mentioned earlier in the report, no analyses were performed at the recommended interchanges. **Figures 20A and B** illustrate graphically the intersection capacity analysis results. **Figure 21** shows the recommended improvements under the full build-out year conditions with the proposed Kincora development.

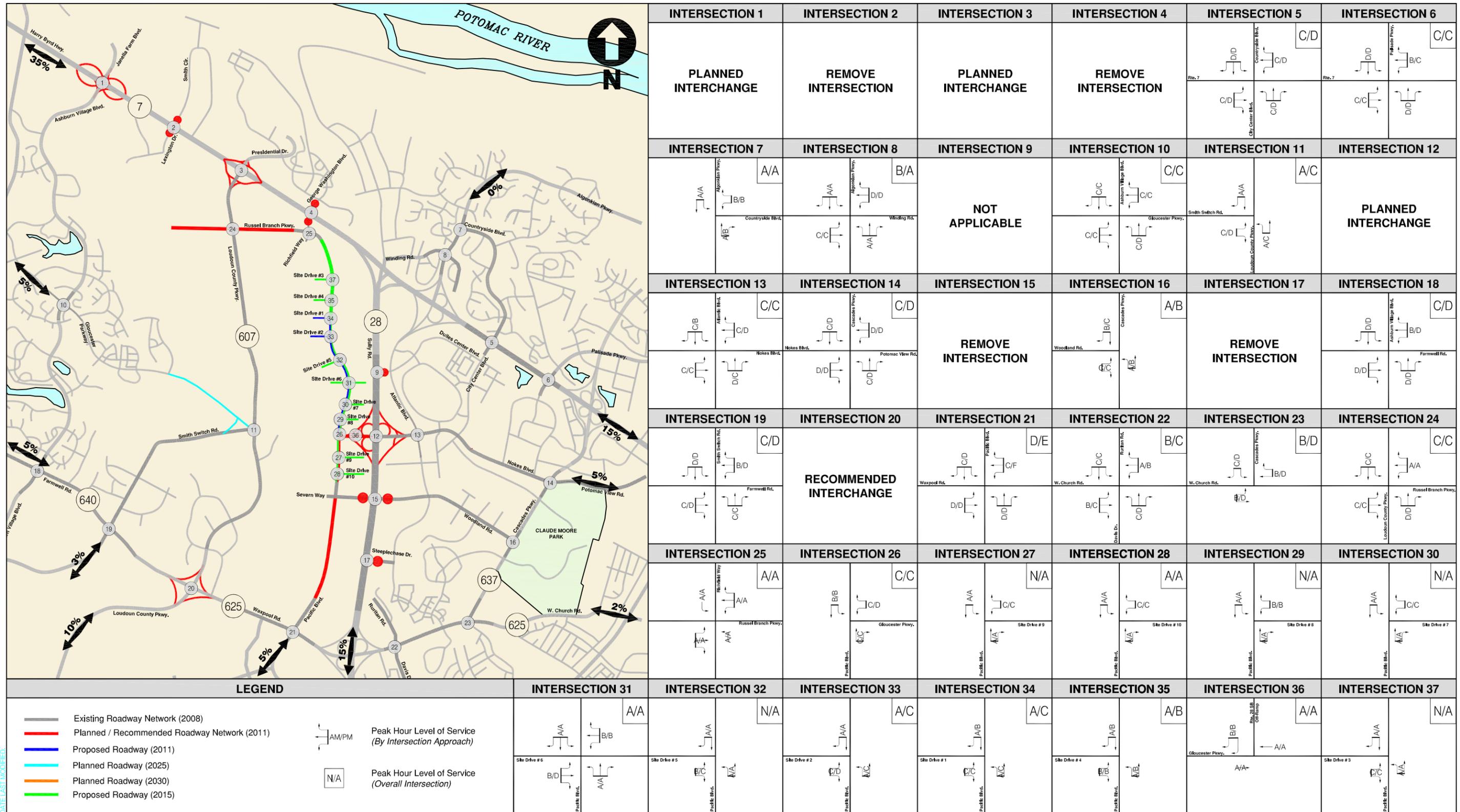


Figure 20A
Future Conditions with Development (Phase II - 2015) Peak Hour Levels of Service - Weekday

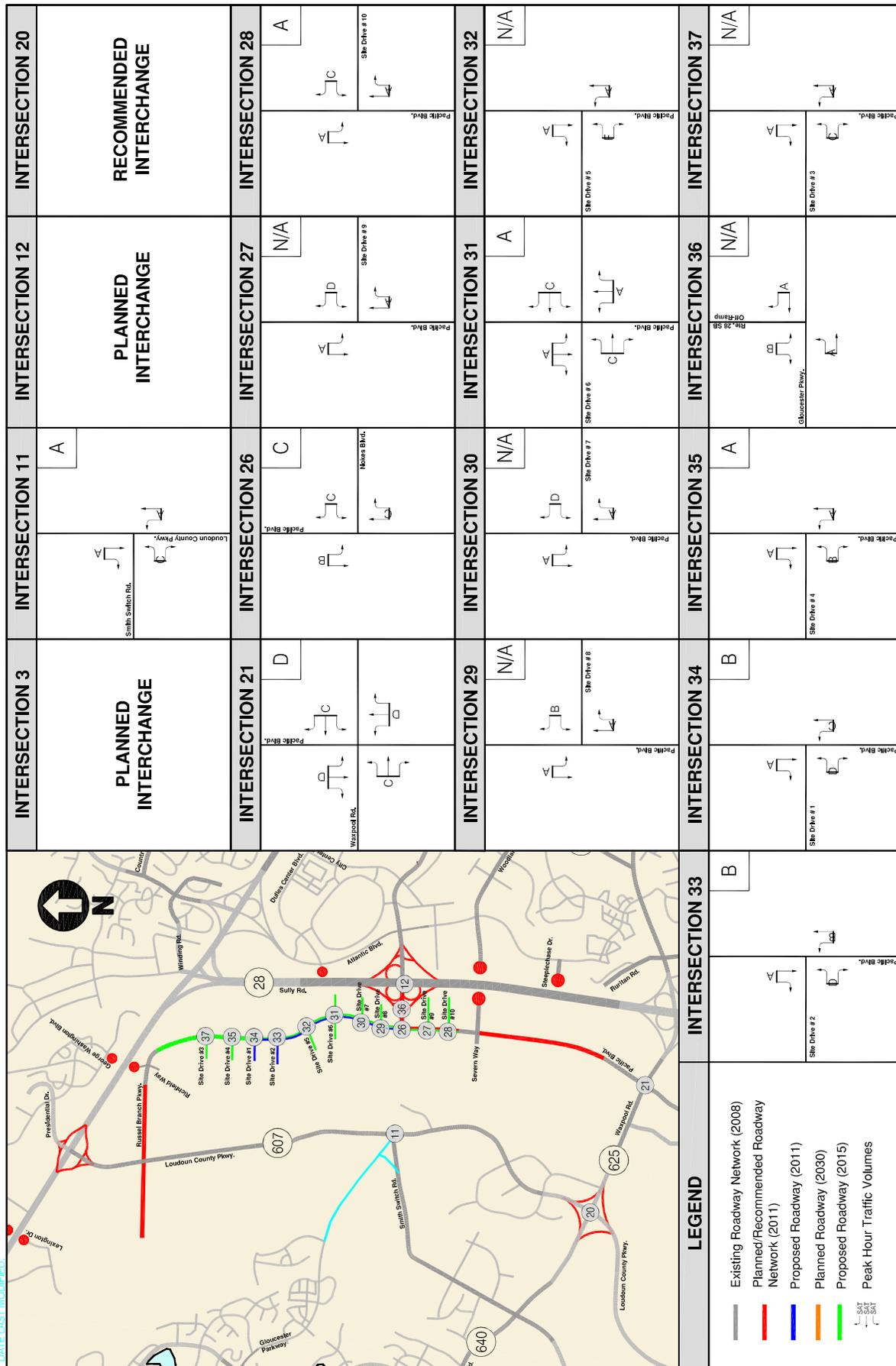


Figure 20B
 Future Conditions with Development (Phase II - 2015) Peak Hour Levels of Service - Saturday

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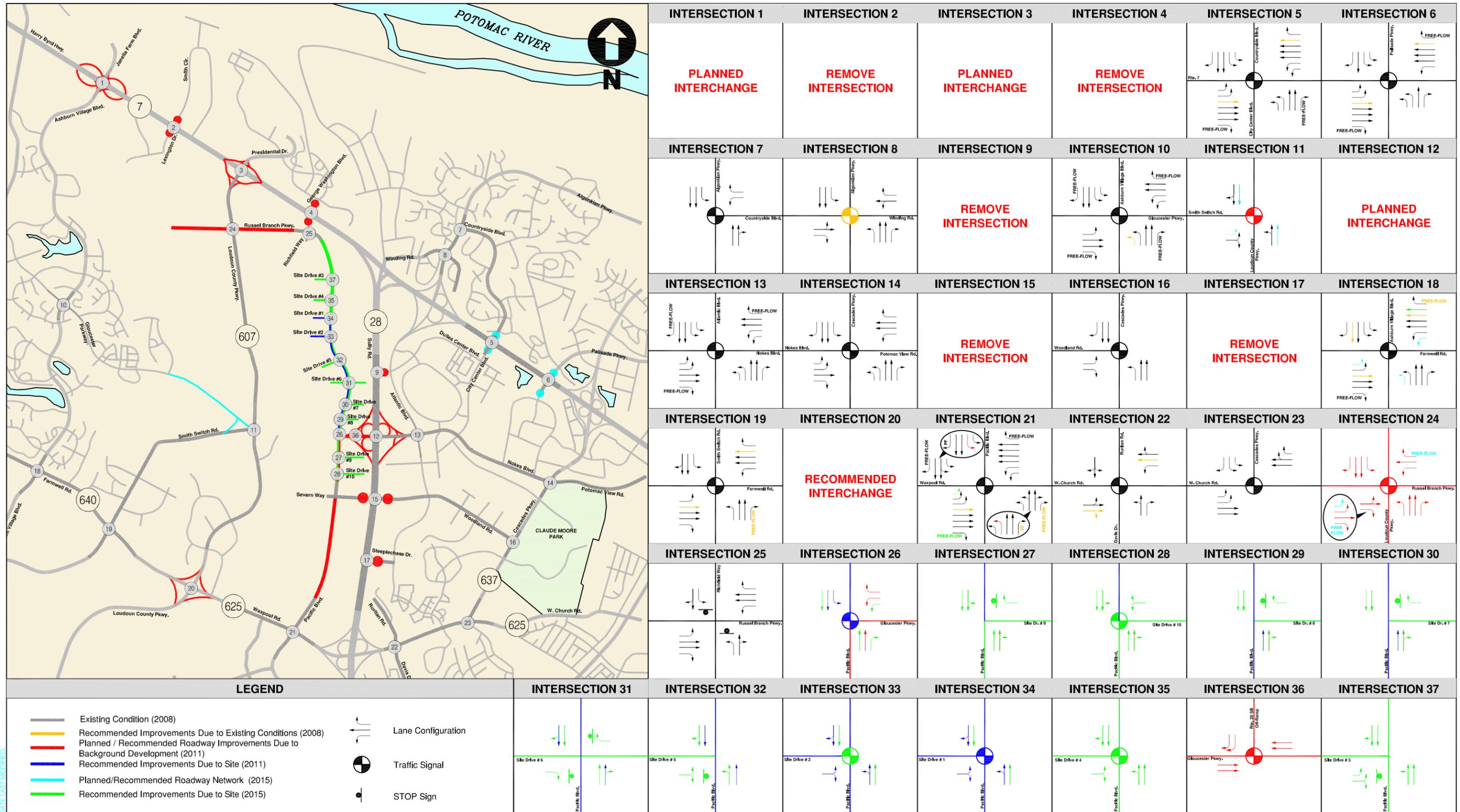


Figure 21
Future Conditions with Development (Phase II - 2015) Recommended Improvements



FUTURE CONDITIONS WITHOUT DEVELOPMENT (2025)

Future without Development Traffic Volumes

The development of the third and final phase of the proposed Kincora site is anticipated to be completed in 2025. As mentioned earlier in the report, future traffic volumes were projected by increasing the existing traffic volumes to the full 2025 build-out year using a growth rate based on historical data obtained from VDOT, existing traffic counts, and Loudoun County/COG's future traffic model projections. An inherent regional growth rate of four percent (4%) compounded annually on Route 28 and one percent (1%) compounded annually on Route 640, Route 625, and Route 637 over a seventeen-year period were applied to the existing traffic volumes on the major movements along these roads to account for regional increase in traffic due to background growth. In addition to the regional growth, traffic generated by the following fourteen (14) nearby future approved background developments was considered in this analysis based on previous studies performed in the area:

1. Ashburn Executive Center
2. Beaumeade
3. Commonwealth Center
4. Lansdowne
5. Loudoun Pointe
6. Potomac Greens Active Adult
7. Ashburn Corporate Center
8. University Center
9. Ashburn Village Research Park
10. Dulles Town Center
11. Ashbrook/Ashburn Village
12. Potomac Farms
13. One Loudoun
14. Erickson Retirement Communities

The inherent growth rate in conjunction with the trips generated by the approved background developments was applied to the existing traffic volume in order to generate future without development (2025) traffic volumes. The future volumes without development (2025) traffic volumes are illustrated in **Figures 22A and B**. The location and the trips generated by the approved background developments are shown in the appendix

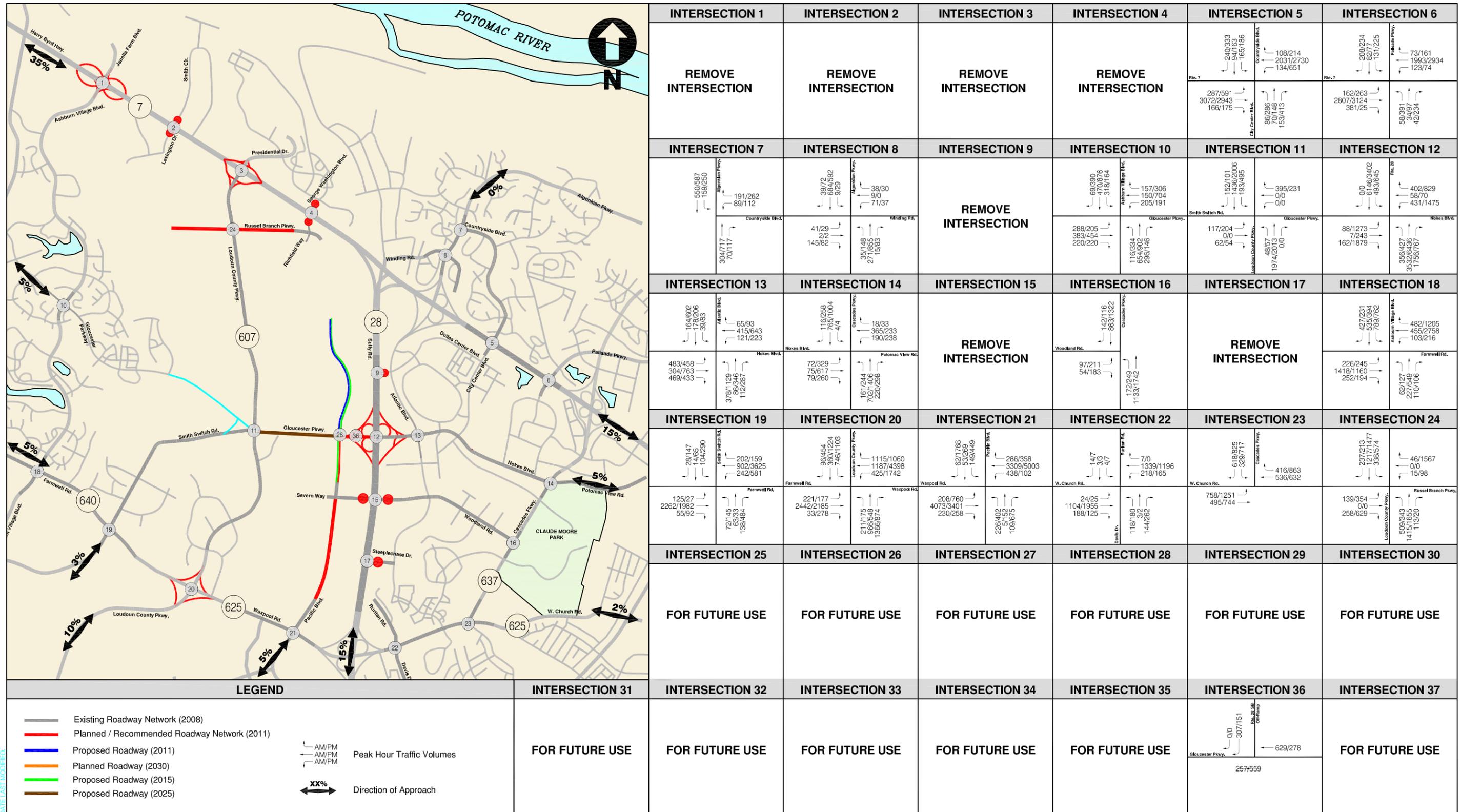


Figure 22A Future Conditions without Development (2025) Peak Hour Volumes - Weekday



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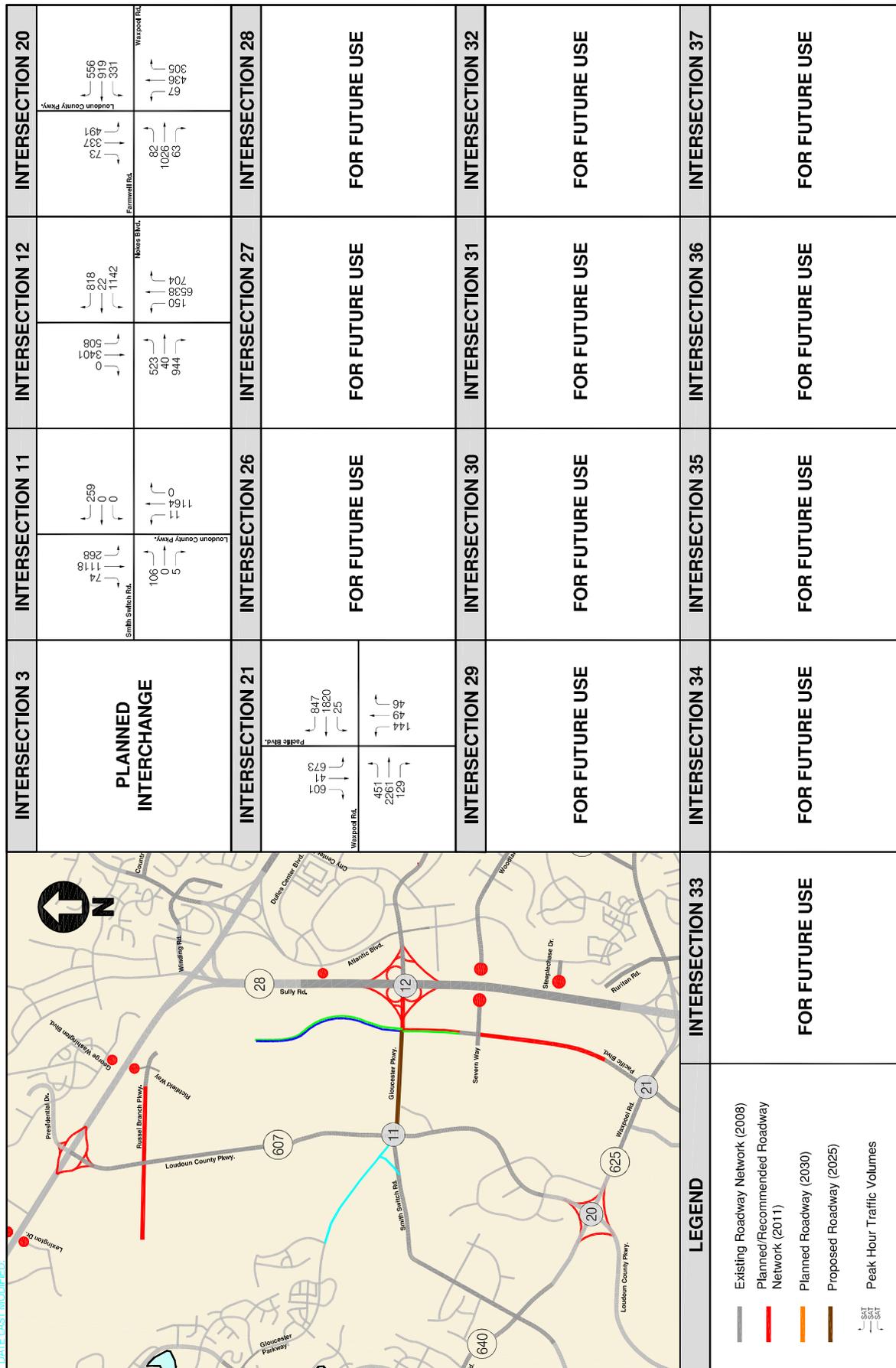


Figure 22B
Future Conditions without Development (2025) Peak Hour Volumes - Saturday



Future without Development Capacity Analysis

Capacity analyses were performed at the existing and planned intersections contained within the study area during the morning and afternoon peak hours under the future background 2025 conditions. The results of the intersection capacity analyses are presented in **Table 8**, and are expressed in terms of level of service (LOS) and delay (seconds per vehicle). The detailed analysis worksheets are contained in the Technical Appendix.

Table 8: Future without Development (2025) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
2	Route 7 and Lexington Drive/Smith Circle						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
3	Route 7 and Loudoun County Parkway/Presidential Dr.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
4	Route 7 and Richfield Way/George Washington Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
5	Route 7 and City Center Blvd./Countryside Blvd.						
	Overall (Signalized)	C	30.5	E	55.6	--	--
	Eastbound	C	30.5	E	69.3	--	--
	Westbound	C	25.5	D	44.3	--	--
	Northbound	C	31.4	D	45.8	--	--
	Southbound	D	52.4	D	52.7	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	28.3	D	41.2	--	--
	Eastbound	C	27.7	D	41.2	--	--
	Westbound	C	24.8	D	35.8	--	--
	Northbound	C	29.8	D	52.7	--	--
	Southbound	D	48.1	D	54.6	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway						
	Overall (Signalized)	C	20.2	D	36.5	--	--
	Eastbound	B	18.4	D	36.1	--	--
	Westbound	B	16.2	C	32.4	--	--
	Northbound	D	49.3	D	45.7	--	--
	Southbound	D	46.0	D	51.5	--	--
7	Algonkian Parkway and Countryside Boulevard						
	Overall (Signalized)	A	6.6	A	9.3	--	--
	Westbound	B	13.1	B	13.8	--	--
	Northbound	A	9.3	B	12.8	--	--
	Southbound	A	2.6	A	3.7	--	--
8	Algonkian Parkway and Winding Road/Sutherland Lane						
	Overall (Signalized)	B	12.6	A	7.8	--	--
	Eastbound	C	34.3	C	32.4	--	--
	Westbound	D	35.6	D	36.0	--	--
	Northbound	A	4.7	A	4.8	--	--
	Southbound	A	6.7	A	5.7	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
9	Route 28 and Dulles Center Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway						
	Overall (Signalized)	C	29.2	D	38.5	--	--
	Eastbound	C	32.0	D	38.3	--	--
	Westbound	C	29.2	D	49.7	--	--
	Northbound	C	25.8	D	36.5	--	--
	Southbound	C	30.5	C	30.9	--	--
11	Loudoun County Parkway and Smith Switch Road						
	Overall (Signalized)	B	12.0	D	54.8	A	7.7
	Eastbound	D	45.8	D	51.9	C	27.4
	Northbound	B	14.8	F	102.1	A	4.7
	Southbound	A	4.6	A	8.7	A	8.8
	Overall Mitigation – Change AM and PM signal timings.	B	10.7	B	14.7	A	8.3
	Eastbound	D	35.9	D	49.9	C	25.8
	Northbound – Add left turn lane	A	7.7	A	7.4	A	5.1
	Southbound	B	11.7	B	17.5	A	9.8
12	Route 28 and Nokes Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
13	Nokes Boulevard and Atlantic Boulevard						
	Overall (Signalized)	C	33.5	D	35.9	--	--
	Eastbound	C	26.1	D	43.4	--	--
	Westbound	C	32.0	E	56.0	--	--
	Northbound	D	51.2	C	28.5	--	--
	Southbound	C	33.3	B	14.7	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	24.6	D	35.9	--	--
	Eastbound	B	19.3	D	47.3	--	--
	Westbound	C	27.5	D	49.4	--	--
	Northbound	C	33.9	C	28.5	--	--
	Southbound	C	23.4	B	14.7	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	30.5	E	67.2	--	--
	Eastbound	D	41.1	F	112.9	--	--
	Westbound	D	46.1	E	58.3	--	--
	Northbound	C	22.9	E	56.3	--	--
	Southbound	C	27.1	D	44.6	--	--
	Overall Mitigation – Change AM and PM signal timings	C	25.7	D	36.9	--	--
	Eastbound – Add 2 nd through lane.	D	39.5	D	51.8	--	--
	Westbound-Add 2 nd left turn lane	D	39.0	D	52.7	--	--
	Northbound	B	18.7	C	29.6	--	--
	Southbound	C	22.1	C	27.6	--	--
15	Route 28 and Severn Way						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	7.6	B	18.1	--	--
	Eastbound	C	23.8	D	35.5	--	--
	Northbound	A	3.9	B	11.5	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Southbound	A	9.8	C	22.4	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	C	32.8	F	102.3	--	--
	Eastbound	C	33.6	D	43.1	--	--
	Westbound	B	15.0	F	155.9	--	--
	Northbound	D	50.1	D	52.2	--	--
	Southbound	D	38.7	D	37.1	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	33.6	E	57.4	--	--
	Eastbound	C	33.6	D	52.3	--	--
	Westbound	B	18.6	D	55.0	--	--
	Northbound	D	50.1	D	52.7	--	--
	Southbound	D	38.7	E	73.4	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	C	21.9	F	89.6	--	--
	Eastbound	C	21.4	E	65.1	--	--
	Westbound	B	18.8	F	115.1	--	--
	Northbound	C	27.5	C	20.7	--	--
	Southbound	D	48.1	E	60.8	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	22.9	D	45.9	--	--
	Eastbound –Add 4 th through lane	C	25.2	D	54.4	--	--
	Westbound –Add 4 th through lane	B	17.5	D	45.9	--	--
	Northbound	C	22.6	B	12.7	--	--
	Southbound –Add right turn lane.	C	34.8	D	45.7	--	--
20	Waxpool Road and Loudoun County Parkway						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	E	60.7	F	123.5	C	28.6
	Eastbound	F	88.8	C	33.4	C	30.9
	Westbound	C	21.7	F	188.7	C	24.1
	Northbound	E	58.1	E	57.9	D	49.0
	Southbound	D	50.4	F	172.7	C	29.2
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	D	48.0	F	121.8	C	27.8
	Eastbound	D	53.9	D	52.9	C	27.5
	Westbound	D	39.4	F	174.8	C	21.7
	Northbound	D	51.9	E	66.9	D	48.3
	Southbound	D	44.5	F	154.6	D	37.0
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	B	11.5	D	41.9	--	--
	Eastbound	B	14.8	E	61.3	--	--
	Westbound	A	5.7	B	12.7	--	--
	Northbound	C	28.3	D	39.9	--	--
	Southbound	C	29.4	C	34.3	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	B	10.9	C	25.3	--	--
	Eastbound – Add left turn lane	B	13.6	C	28.1	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) without Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Westbound	A	5.4	B	12.4	--	--
	Northbound	C	28.4	D	51.1	--	--
	Southbound	C	29.7	D	42.7	--	--
23	Church Road and Cascades Parkway						
	Overall (Signalized)	B	19.9	D	52.6	--	--
	Eastbound	B	17.9	D	52.2	--	--
	Westbound	B	18.6	E	71.2	--	--
	Southbound	C	23.9	D	35.1	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	B	19.9	C	32.7	--	--
	Eastbound	B	17.9	C	26.6	--	--
	Westbound	B	18.6	D	43.5	--	--
	Southbound	C	23.9	C	30.0	--	--
24	Loudoun County Parkway and Russell Branch Parkway						
	Overall (Signalized)	C	26.7	E	60.6	--	--
	Eastbound	B	18.7	C	21.7	--	--
	Westbound	B	12.5	F	96.4	--	--
	Northbound	C	24.9	D	37.1	--	--
	Southbound	C	31.1	E	72.2	--	--
	Overall Mitigation – Change AM and PM signal timing and cycle lengths	C	22.1	C	22.4	--	--
	Eastbound	B	11.3	C	22.6	--	--
	Westbound – Add 2 nd left turn lane and 2 nd right turn bay	A	9.8	A	4.3	--	--
	Northbound – Add 2 nd left turn lane	C	24.0	C	33.8	--	--
	Southbound – Add 2 nd left turn lane	C	22.1	C	25.6	--	--
26	Gloucester Parkway and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	A	0.0	A	0.0	--	--
	Westbound	A	2.1	A	3.3	--	--
	Northbound	A	8.9	B	10.4	--	--

Note: N/A means not applicable.

According to Loudoun County, it is desirable to achieve an overall and per approach LOS D or better at each intersection. Assuming that the mitigation measures recommended in the future background 2015 conditions were in place, the results presented in **Table 9** show that some of the study intersections would operate at unacceptable levels of service under the future background 2015 conditions. The following improvements would be required to meet the desired LOS criteria set forth by the County under this scenario:

- *Intersection of Route 7 with City Center Boulevard/Countryside Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Route 7 with Palisades Parkway:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Smith Switch Road:*



- Add northbound left turn bay
- Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Nokes Boulevard with Atlantic Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Nokes Boulevard with Cascade Parkway/Potomac View Road:*
 - Adjust AM and PM signal timings and cycle lengths
 - Add second eastbound through lane
 - Add second westbound left turn lane.
- *Intersection of Farmwell Road with Ashburn Village Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Farmwell Road with Smith Switch Road/Waxpool Road:*
 - Adjust AM and PM signal timings and cycle lengths
 - Add fourth eastbound through lane
 - Add fourth westbound through lane
 - Add a southbound right turn lane.
- *Intersection of Waxpool Road with Pacific Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Church Road with Davis Drive and Ruritan Circle:*
 - Add eastbound left turn lane
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Church Road with Cascades Parkway:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Russell Branch Parkway:*
 - Add second northbound left turn lane
 - Add second westbound left turn lane and right turn lane
 - Add second southbound left turn lane
 - Adjust AM and PM signal timings and cycle lengths.

As mentioned before, no analyses were performed at the planned and recommended grade-separated interchanges. **Figures 23A and B** illustrates graphically the intersection capacity analysis results. **Figures 24** shows the recommended improvements under the interim year conditions without the proposed Kincora development.

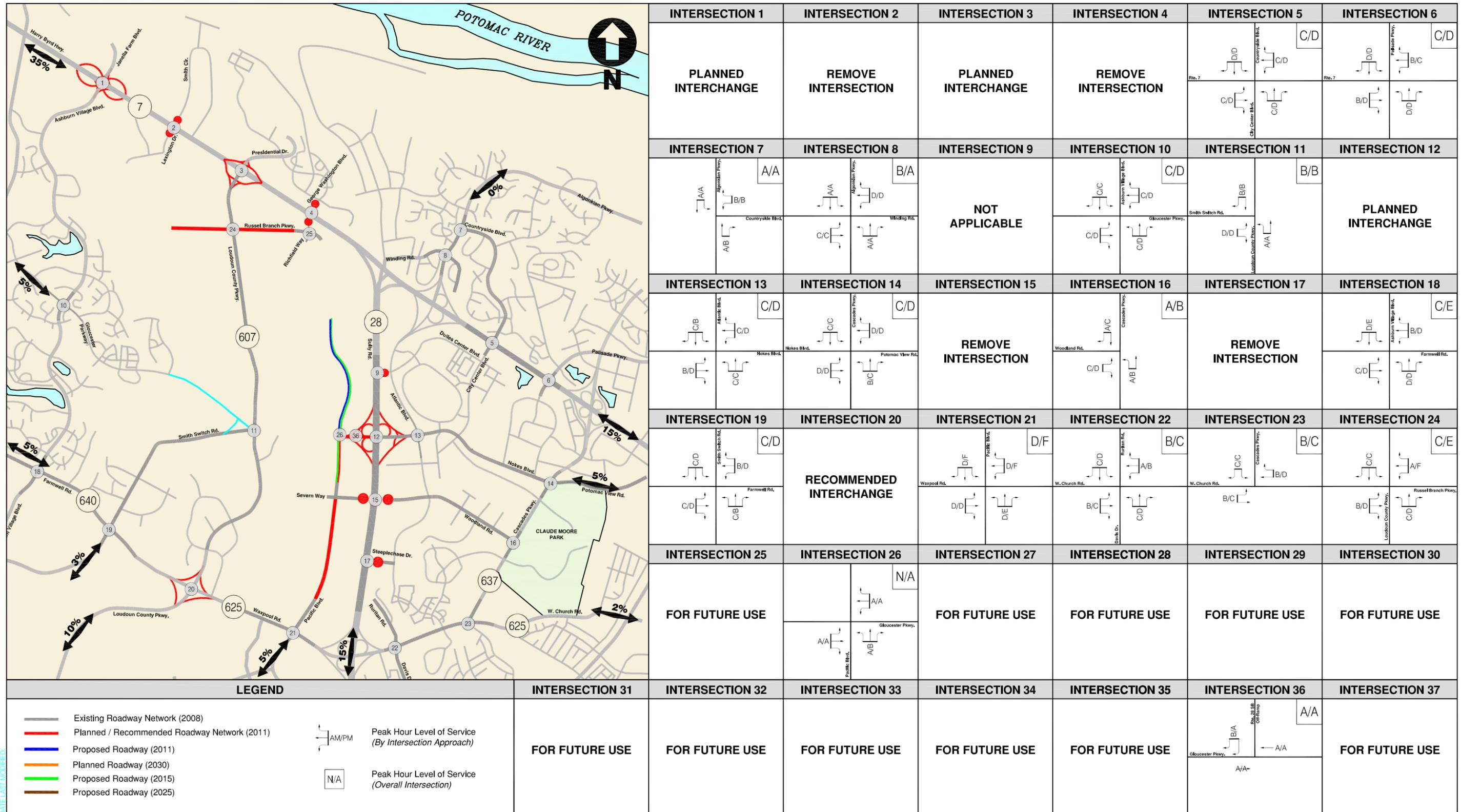


Figure 23A
Future Conditions without Development (2025) Levels of Service - Weekday



	<p>INTERSECTION 3</p> <p>PLANNED INTERCHANGE</p>	<p>INTERSECTION 11</p>	<p>INTERSECTION 12</p> <p>PLANNED INTERCHANGE</p>	<p>INTERSECTION 20</p> <p>RECOMMENDED INTERCHANGE</p>
<p>INTERSECTION 21</p>	<p>INTERSECTION 26</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 27</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 28</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 32</p> <p>FOR FUTURE USE</p>
<p>INTERSECTION 29</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 30</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 31</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 36</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 37</p> <p>FOR FUTURE USE</p>
<p>INTERSECTION 33</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 34</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 35</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 36</p> <p>FOR FUTURE USE</p>	<p>INTERSECTION 37</p> <p>FOR FUTURE USE</p>
<p>LEGEND</p> <ul style="list-style-type: none"> Existing Roadway Network (2008) Planned/Recommended Roadway Network (2011) Peak Hour Traffic Volumes 				

Figure 23B
Future Conditions without Development (2025) Levels of Service - Saturday

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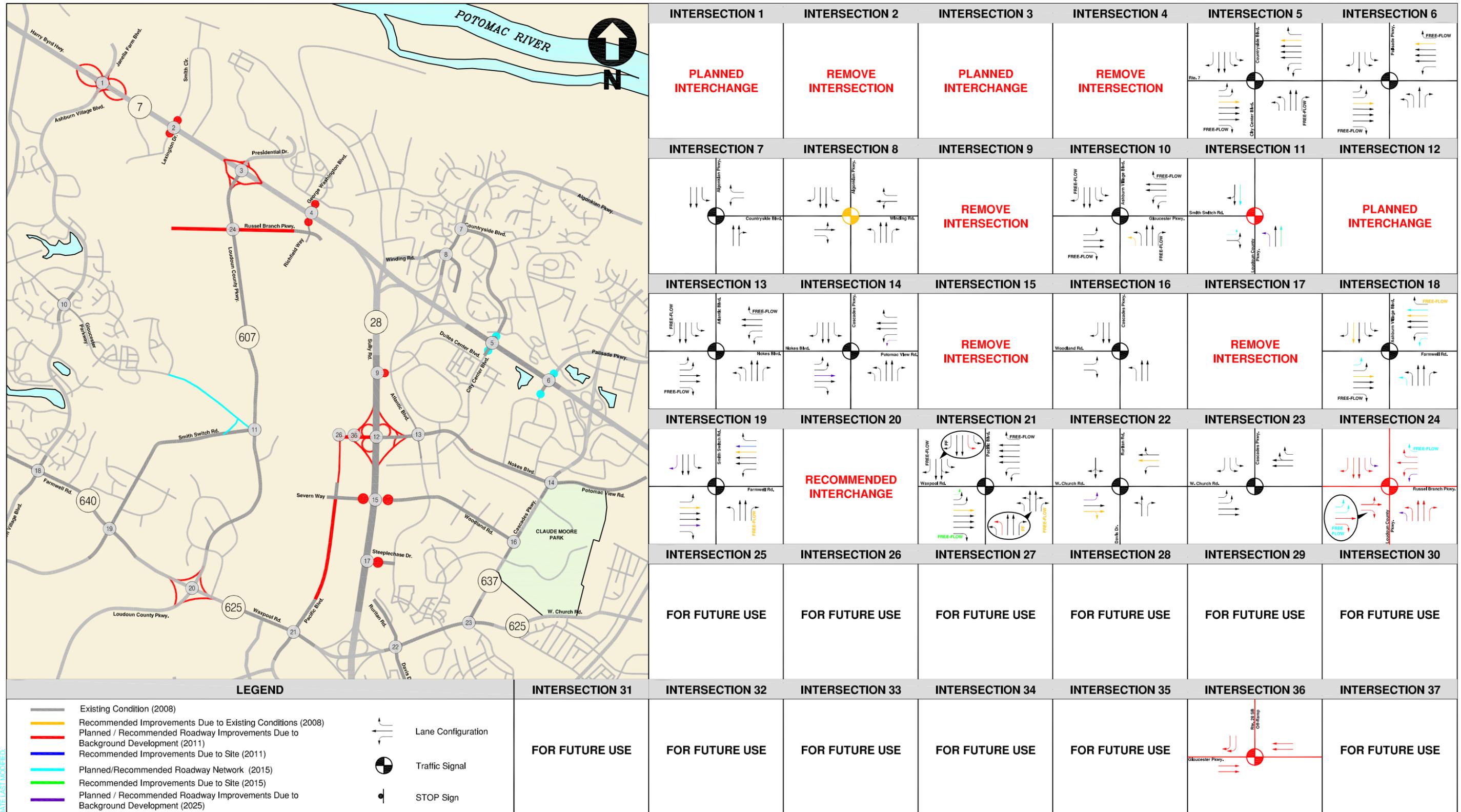


Figure 24
Future Conditions without Development (2025) Recommended Improvements



TRIP GENERATION (FULL BUILD OUT - PHASE III - 2025)

In order to calculate the trip generation for the currently designated keynote employment use and the proposed development program by 2025, the ITE’s Trip Generation, 7th Edition publication was used to determine the trips into and out of the project site for the weekday morning and afternoon peak hours as well as for an entire weekday. Average daily volumes for residential developments were estimated based on Loudoun County’s trip generation rates.

In addition to the new site trip estimates, trip generation reductions were considered to account for internal synergy, pass-by trips, and mode split reduction, which are listed below:

- *Pass-by trips:* A 25% reduction will be considered on proposed retail trips during the afternoon peak period only to represent traffic pulled from background traffic stream. A 40% reduction was applied to the proposed bank.
- *Internal trips:* According to the VDOT’s guidelines for Chapter 527 traffic study, internal capture reduction will be considered for mixed-use land bays.
- *Mode split reduction:* A 10% reduction on proposed office and residential trips will be considered to reflect expected transit usage mode split by future public transportation within the study area. This reduction assumes associated transit commitments from the applicant for implementation.

These reductions were applied to the appropriate site trip assignment. **Tables 10** presents the new trips generated by proposed development program in 2025, respectively.

Table 9: Trip Generation (Phase III – 2025)

Land Use	ITE Code	Size	Units	Weekday						Saturday			
				AM Peak Hour			PM Peak Hour			Daily	Peak Hour of Generator		
				In	Out	Total	In	Out	Total	Total	In	Out	Total
APPROVED USE													
PD-IP (0.4 FAR)													
Office Park	750	4,000.0	kSF	4,276	528	4,804	693	4,254	4,947	42,090	415	145	560
PROPOSED PLAN - MIXED USE DEVELOPMENT													
Residential Development													
Townhouses/Condos	230	1,400	DU	73	354	427	352	172	524	12,180	243	206	449
Internal Trip Reduction		15%		-11	-54	-65	-53	-26	-79	-1,827	-37	-31	-68
Mode Split Reduction		10%		-8	-35	-43	-36	-17	-53	-1,218	-25	-20	-45
Subtotal Residential Development		1,400	DU	54	265	319	263	129	392	9,135	181	155	336
Office Development													
Hotel	310	720	Rooms	289	184	473	226	199	425	6,071	282	220	502
Office Park	750	4,000.0	kSF	4,276	528	4,804	693	4,254	4,947	42,090	415	145	560
Subtotal Office Development		4,720.0	kSF	4,565	712	5,277	919	4,453	5,372	48,161	697	365	1,062



Land Use	ITE Code	Size	Units	Week day						Saturday			
				AM Peak Hour			PM Peak Hour			Daily	Peak Hour of Generator		
				In	Out	Total	In	Out	Total	Total	In	Out	Total
<i>Internal Trip Reduction</i>		15%		-45	-9	-54	-17	-34	-51	-1,188	-15	-18	-33
<i>Mode Split Reduction</i>		10%		-457	-71	-528	-92	-446	-538	-4,817	-70	-37	-107
Subtotal Office Development		4,720.0	kSF	4,063	632	4,695	810	3,973	4,783	42,156	612	310	922
Retail Development													
Shopping Center	820	409.0	kSF	223	142	365	762	825	1,587	16,966	1,125	1,038	2163
Health/Fitness Club	492	35.0	kSF	19	24	43	73	69	142	1,153	46	45	91
Drive-in Banks	912	16.0	kSF	111	87	198	366	366	732	3,175	303	291	594
High-Turnover (Sit-Down) Restaurants	932	40.0	kSF	240	221	461	267	170	437	5,086	504	296	800
Subtotal Retail Development		500.0	kSF	593	474	1,067	1,468	1,430	2,898	26,380	1,978	1,670	3,648
<i>Internal Trip Reduction</i>		15%		-9	-2	-11	-9	-19	-28	-639	-15	-17	-32
<i>Pass-by Reduction (Bank)</i>		40%		-45	-35	-80	-147	-146	-293	-1,270	-122	-116	-238
<i>Pass-by Reduction (Retail)</i>		25%		-56	-36	-92	-191	-206	-397	-4,242	-282	-259	-541
Subtotal Retail Development		500.0	kSF	483	401	884	1,121	1,059	2,180	20,229	1,559	1,278	2,837
Stadium													
Baseball Stadium		5,500	Seats	N/A	386	15	401						
Civic Use													
Performing Arts Center		375	kSF	N/A	N/A	N/A	N/A						
Total Proposed Site Trips (Without Reductions)				5,231	1,540	6,771	2,739	6,055	8,794	86,721	3,304	2,255	5,560
<i>Total Reduced Trips</i>				-631	-242	-873	-545	-894	-1,439	-15,201	-566	-499	-1,064
TOTAL PROPOSED SITE TRIPS (WITH REDUCTIONS)				4,600	1,298	5,898	2,194	5,161	7,355	71,520	2,738	1,756	4,496
Difference (Proposed – Approved)				-2,562	413	-2,149	926	-2,623	-1,697	-5,925	1,971	1,488	3,460

Table 6 shows that the proposed development under phase III will generate approximately 5,898 new weekday morning peak hour trips, approximately 7,355 new weekday afternoon peak hour trips, 4,496 new Saturday peak hour trips and approximately 71,520 new average daily trips with the proposed Kincora development in 2025.



SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT (PHASE III – 2025)

Site Access and Proposed Roadway Improvements

Access to the proposed Kincora site will be provided along the future Pacific Boulevard. The project site will be primarily served by Route 28 and the planned grade-separated interchange at the existing intersection of Route 28 with Nokes Boulevard. The site will be bisected by future regional roads, such as Pacific Boulevard and Gloucester Parkway. The graphics included in this section represent the regional benefits these roads provide by showing them serving a dual purpose. The following is a description of the principal site access road (Pacific Boulevard) and the offsite roadway improvement to be constructed by the proposed development:

- **Pacific Boulevard (from Gloucester Parkway north to Russell Branch Parkway)** will be a four-lane, local access, rural road with left and right turn lanes at major intersections.
- **Gloucester Parkway (from Route 607 east to Route 28)** will be a four-lane, controlled access, median divided, major collector with left and right turn lanes at all at-grade intersections.

Distribution and Assignment

Directional trip distribution information was provided for site entrances and collector/arterial intersections within the study area based on office, retail, and residential uses. The site traffic assignment for the weekday peak hours is illustrated in **Figures 25A through 25K**.

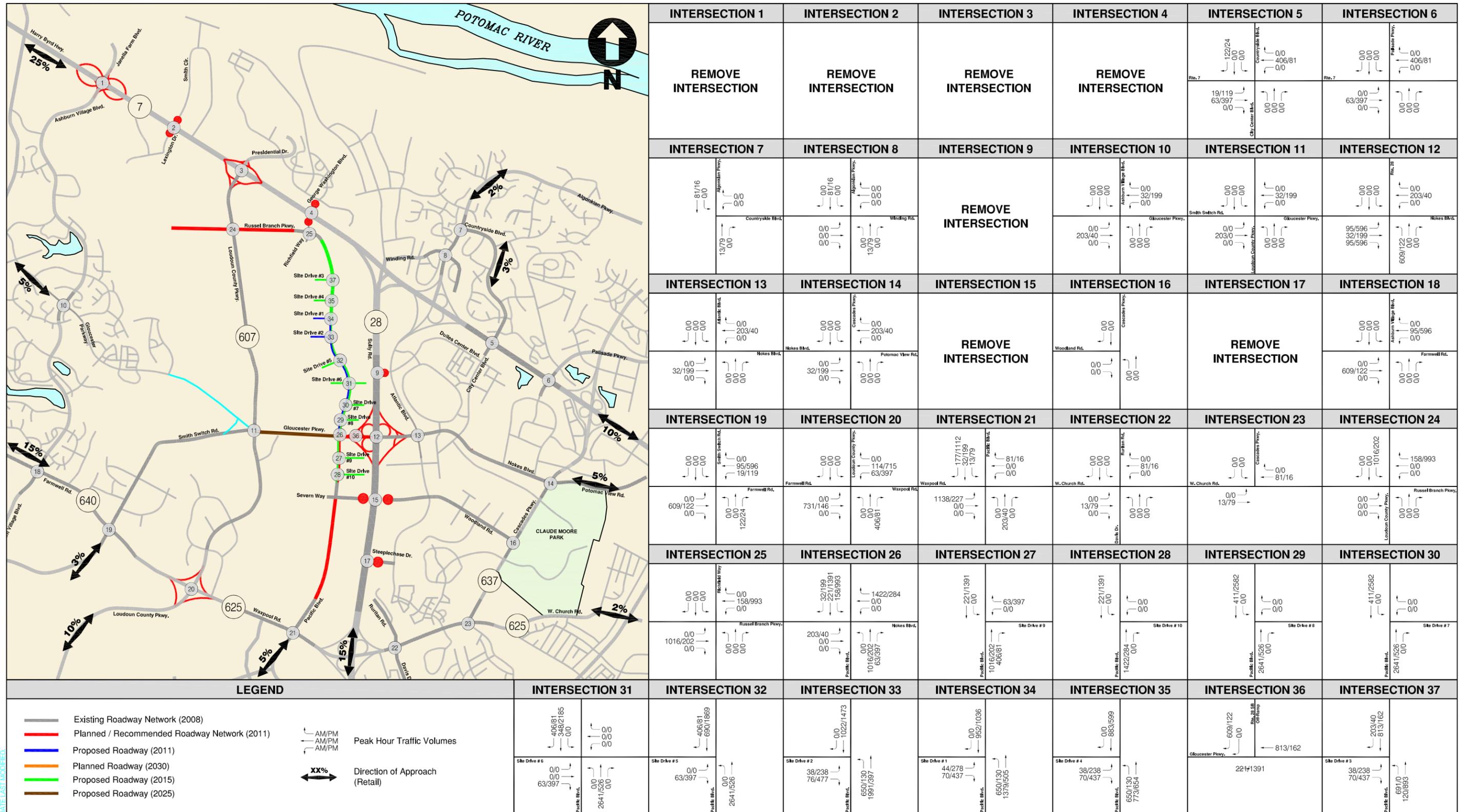


Figure 25A Site Generated (2025) Traffic Volumes - Office Use - Weekday



FILE PATH: PA\2041\010_Kincora_2008\Graphics\REPORT_GRAPHICS.dwg
DATE LAST MODIFIED:

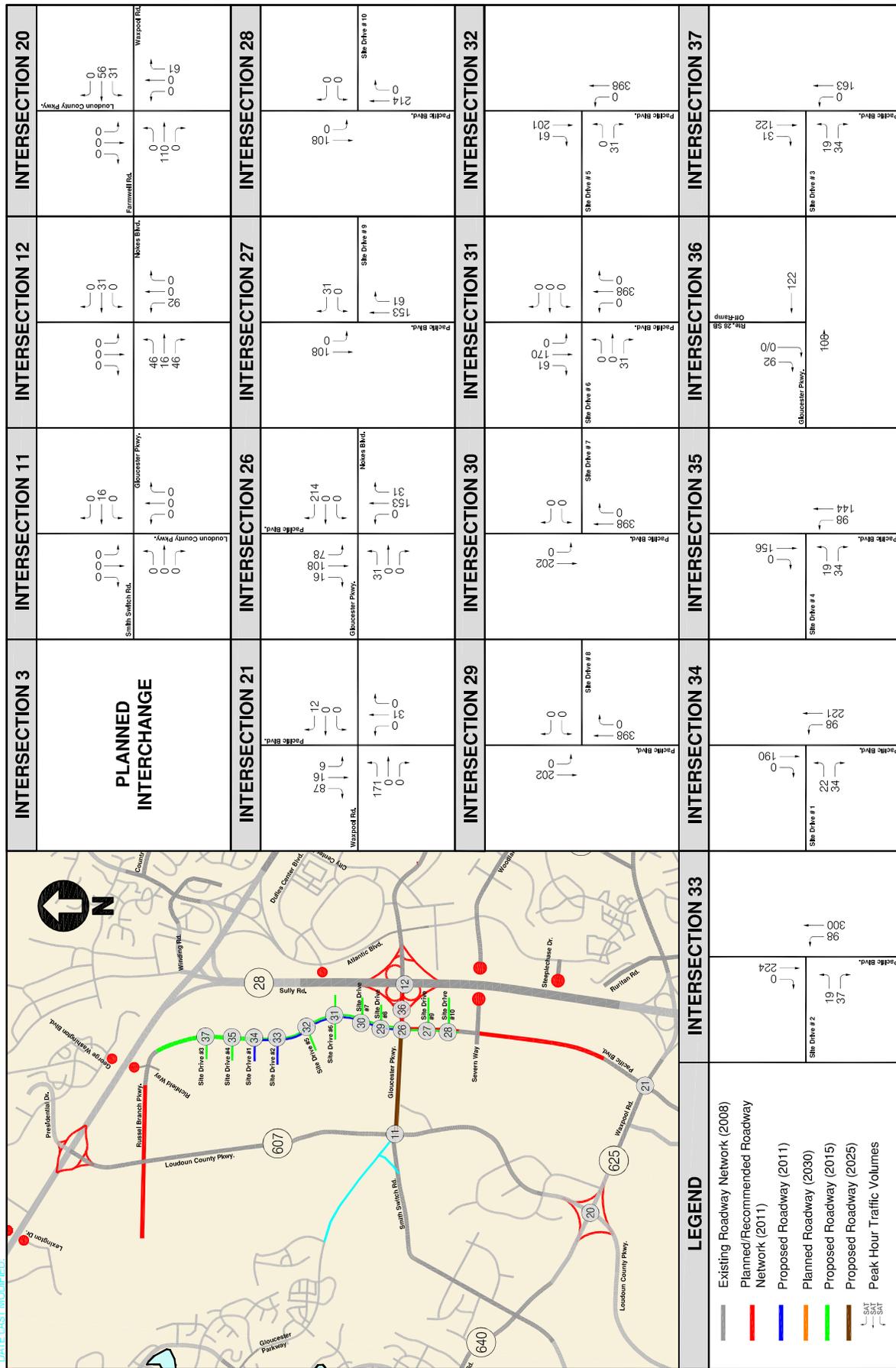


Figure 25B
Site Generated (2025) Traffic Volumes - Office Use - Saturday

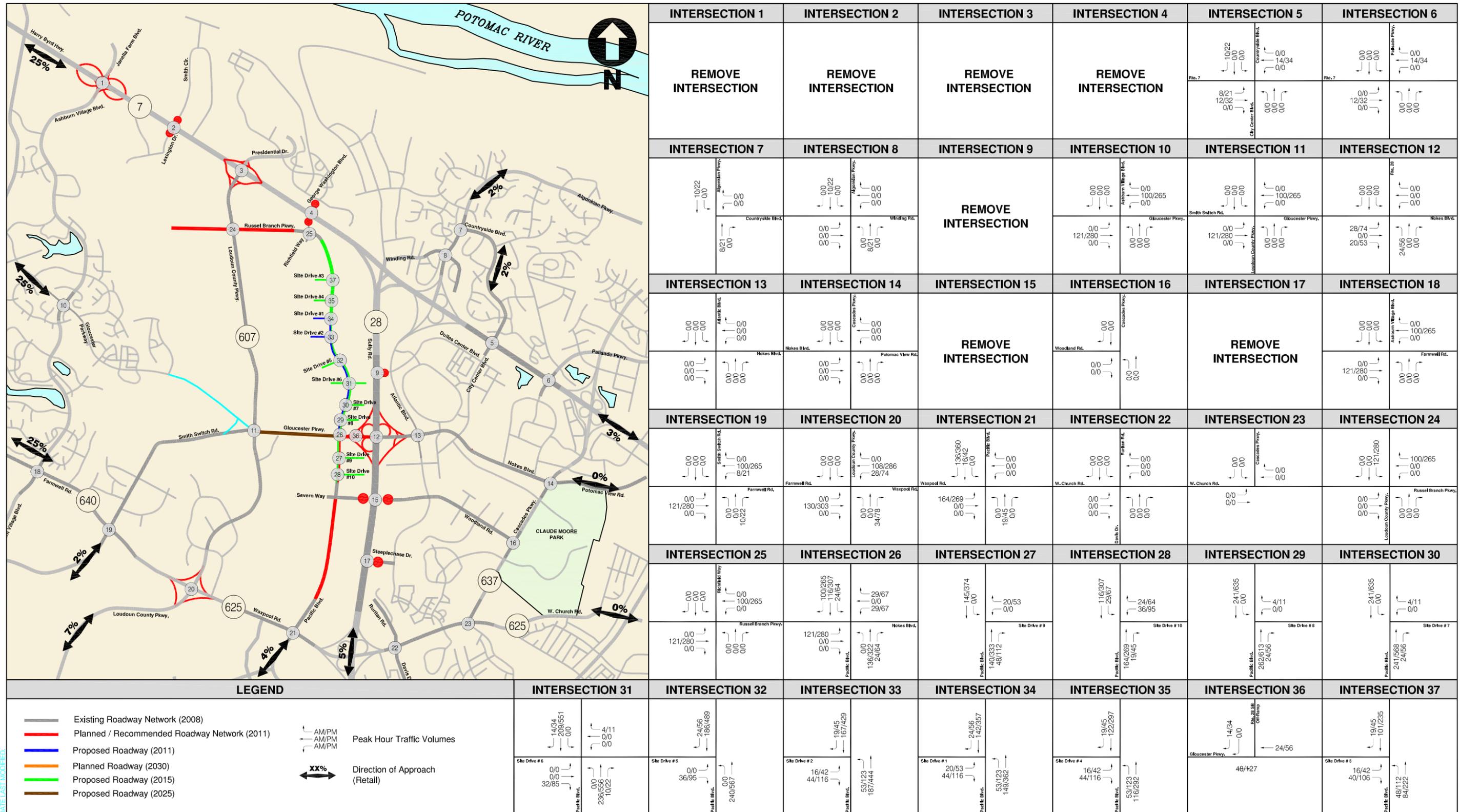


Figure 25C Site Generated (2025) Traffic Volumes - Retail Use - Weekday

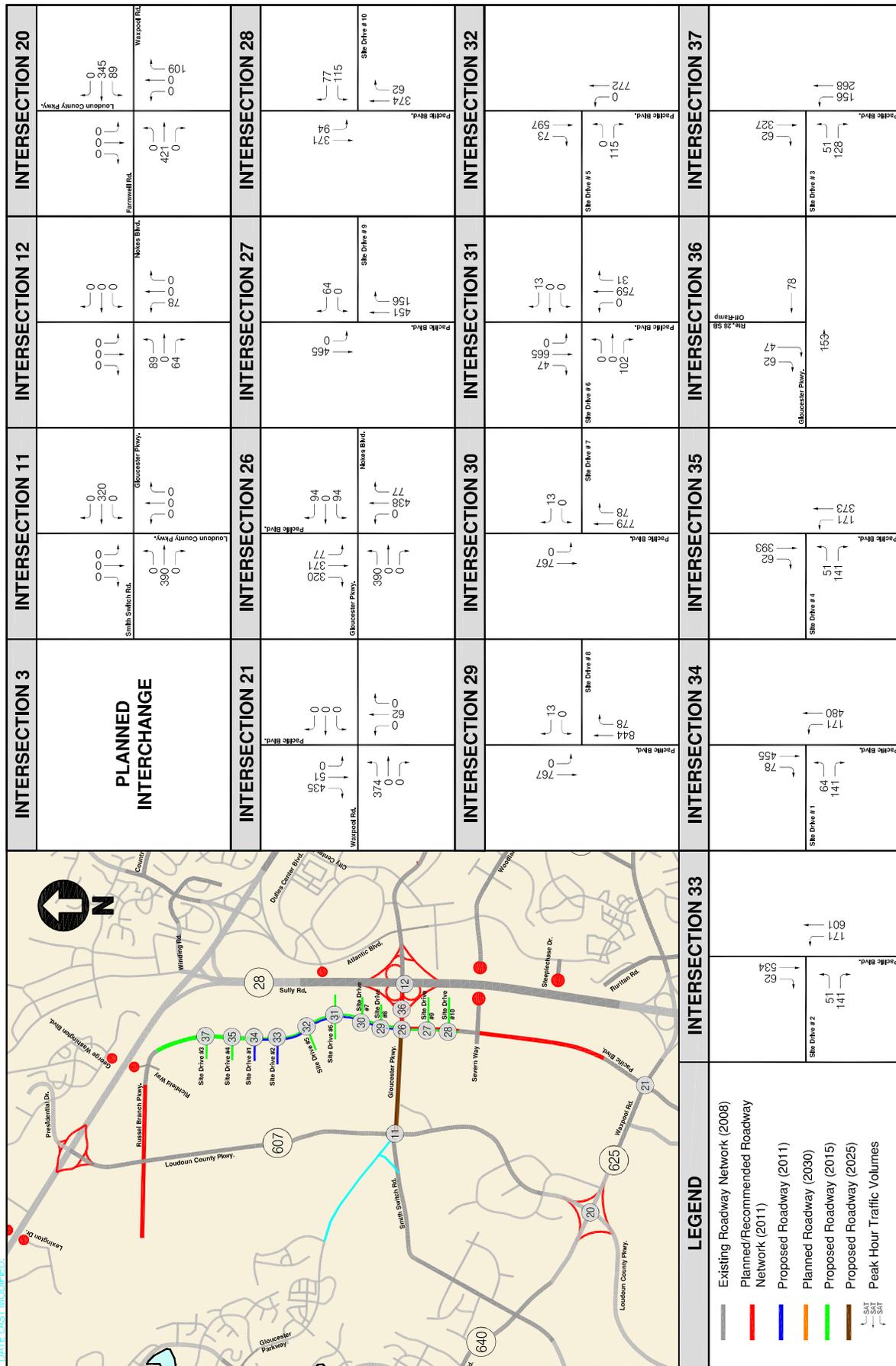


Figure 25D
Site Generated (2025) Traffic Volumes - Retail Use - Saturday

FILE PATH: PA\2041\010_Kincora_2008\Graphics\REPORT_GRAPHICS.dwg
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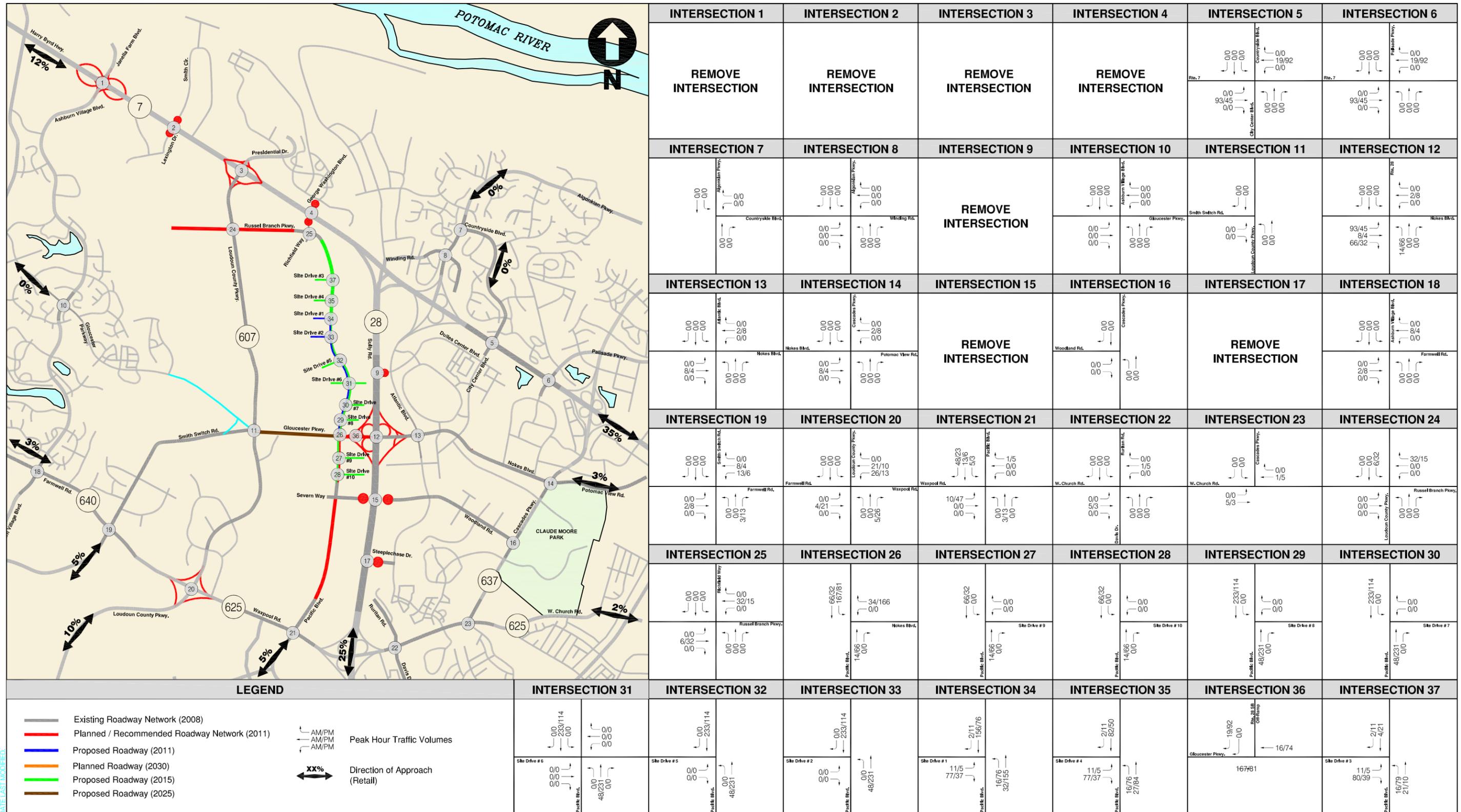


Figure 25E Site Generated (2025) Traffic Volumes - Residential Use - Weekday

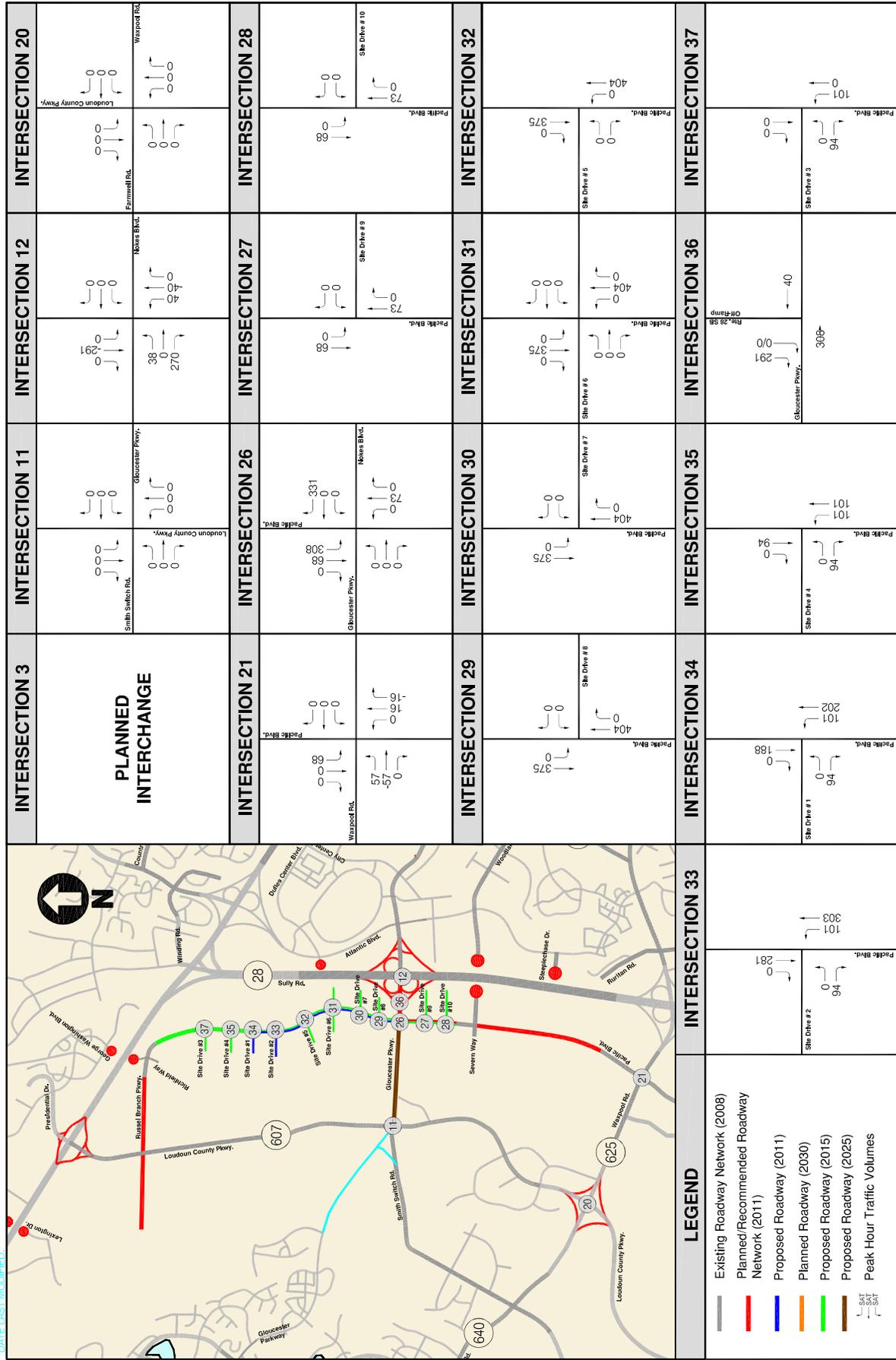


Figure 25H
Pass-by Trips (2025) - Saturday

FILE PATH: PA\2041\010_Kincora_2008\Graphics\REPORT_GRAPHICS.dwg
DATE LAST MODIFIED:

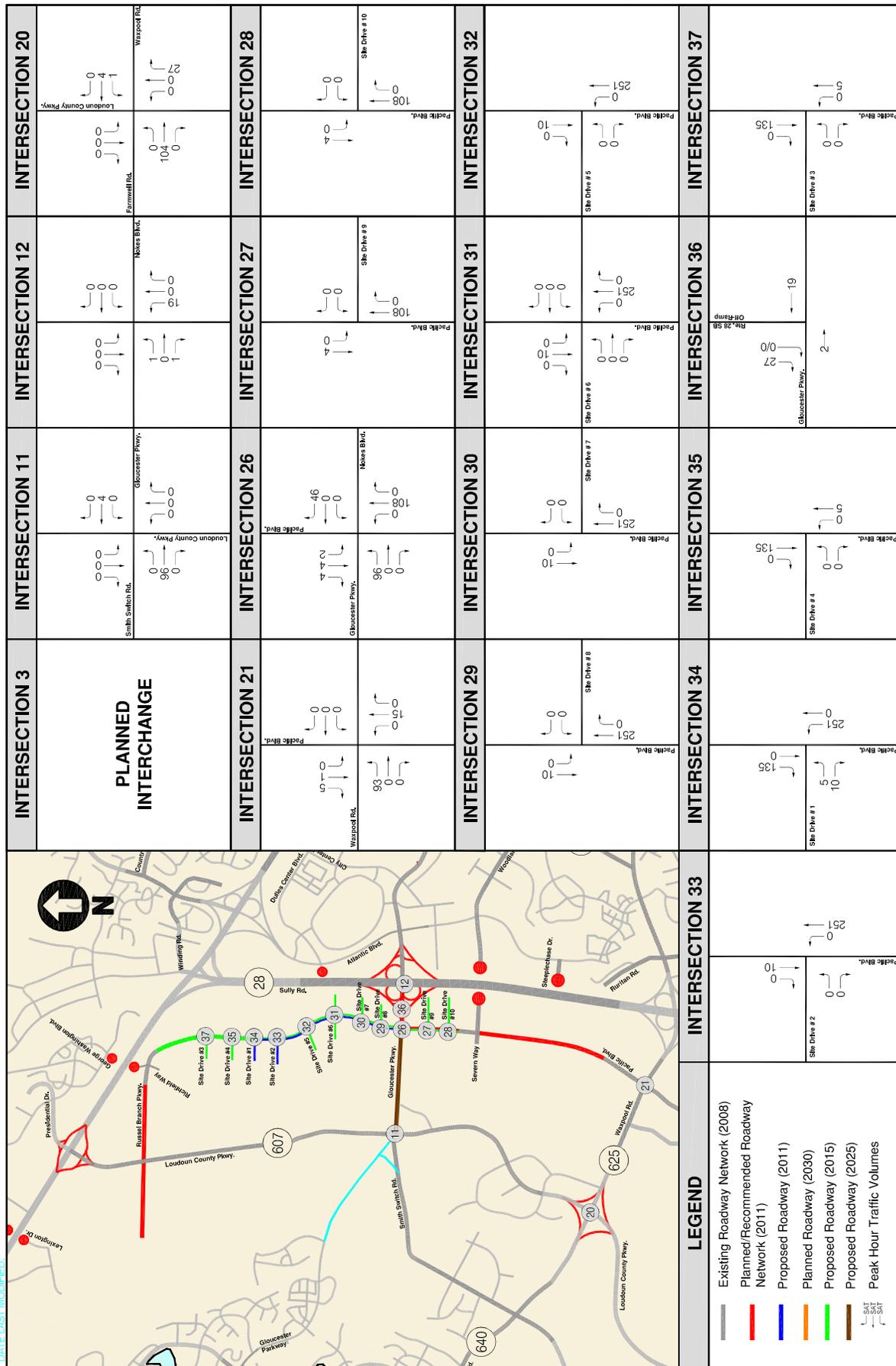


Figure 251
Site Generated (2025) Traffic Volumes - Stadium - Saturday

FILE PATH: PA\2041\010 Kincora 2008\Graphics\REPORT GRAPHICS.dwg
DATE LAST MODIFIED:

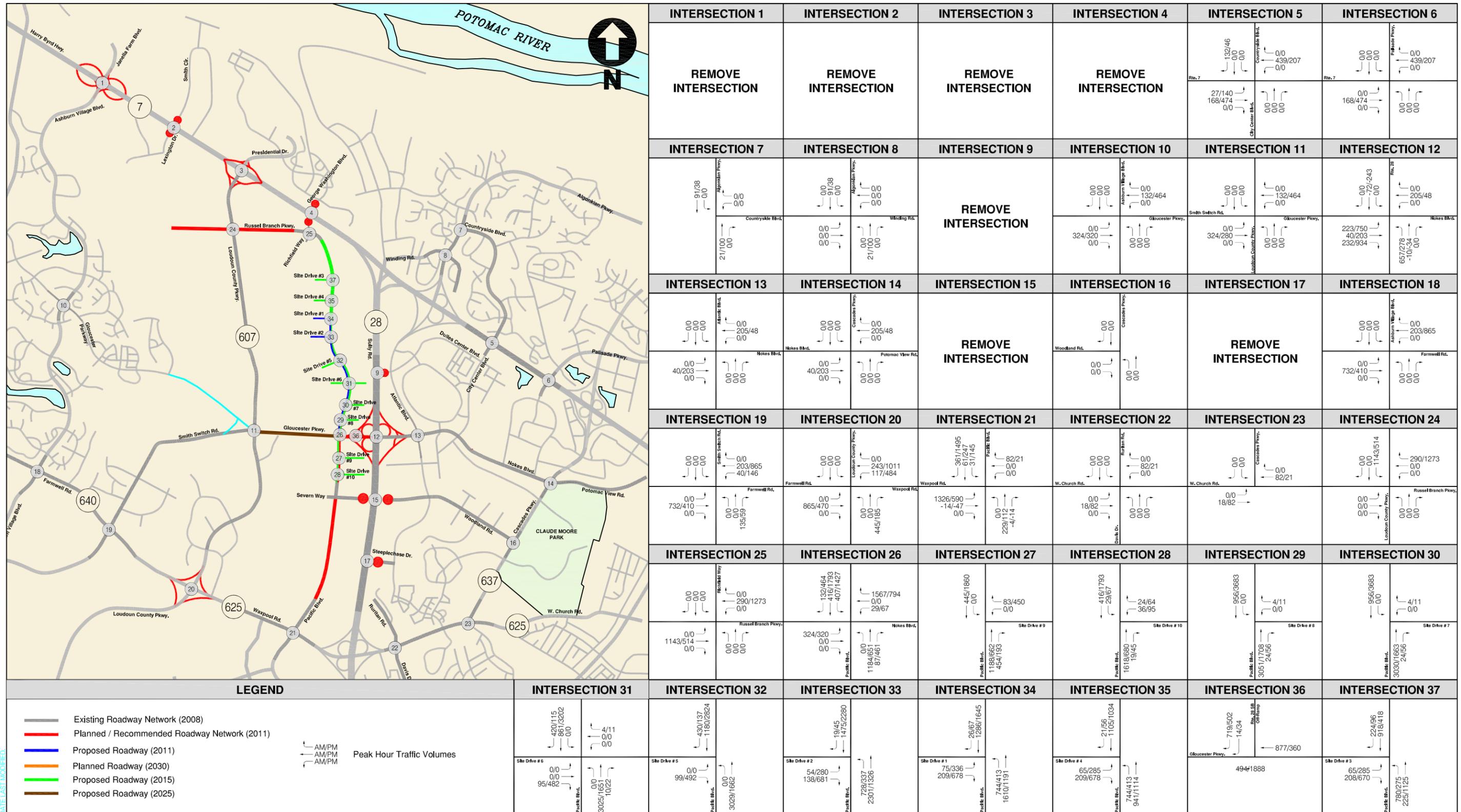


Figure 25J
Total Site Generated (2025) Traffic Volumes-Weekday



FILE PATH: File Path
DATE: LAST MODIFIED:

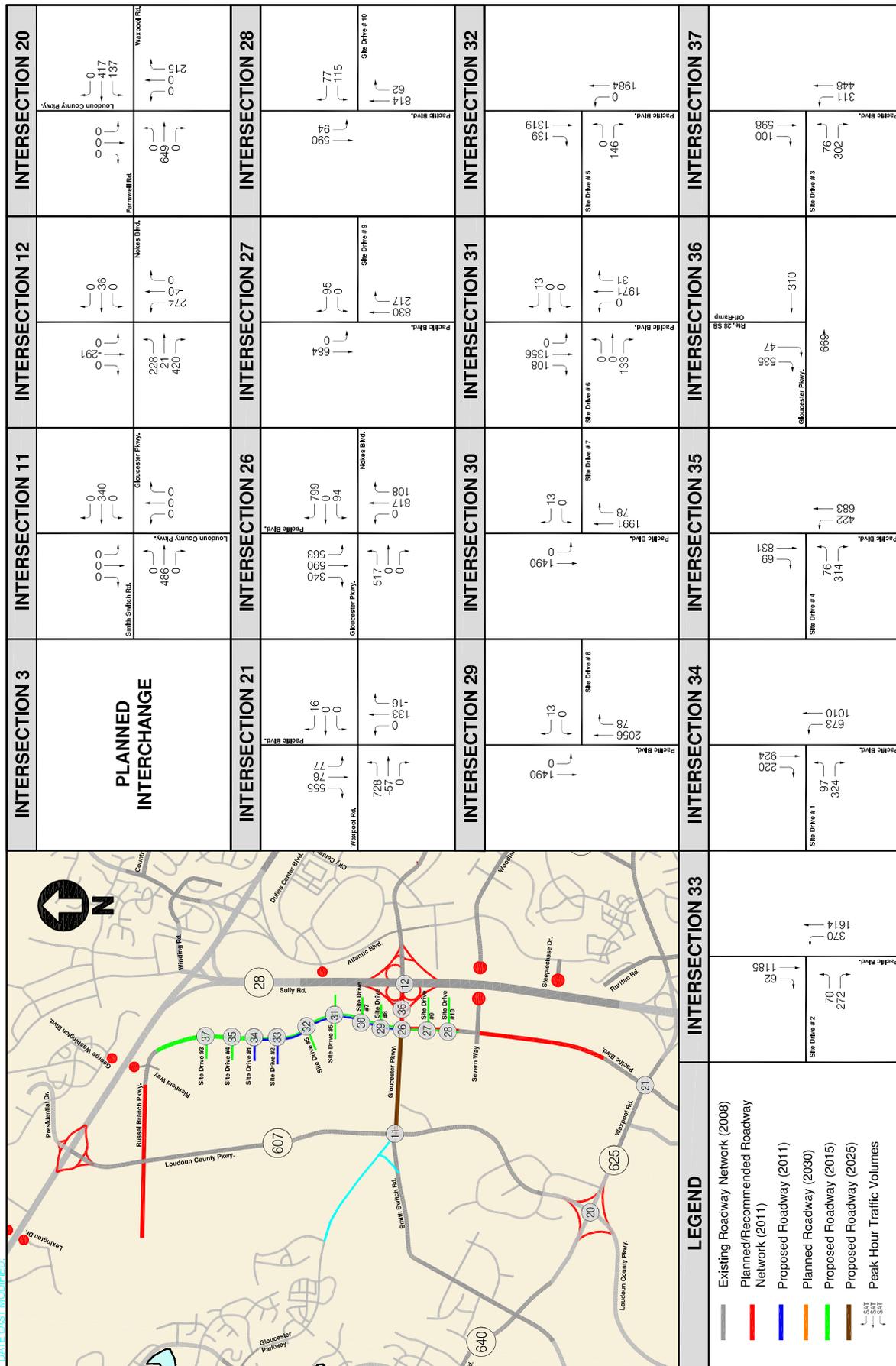


Figure 25K
Total Site Generated (2025) Traffic Volumes - Saturday



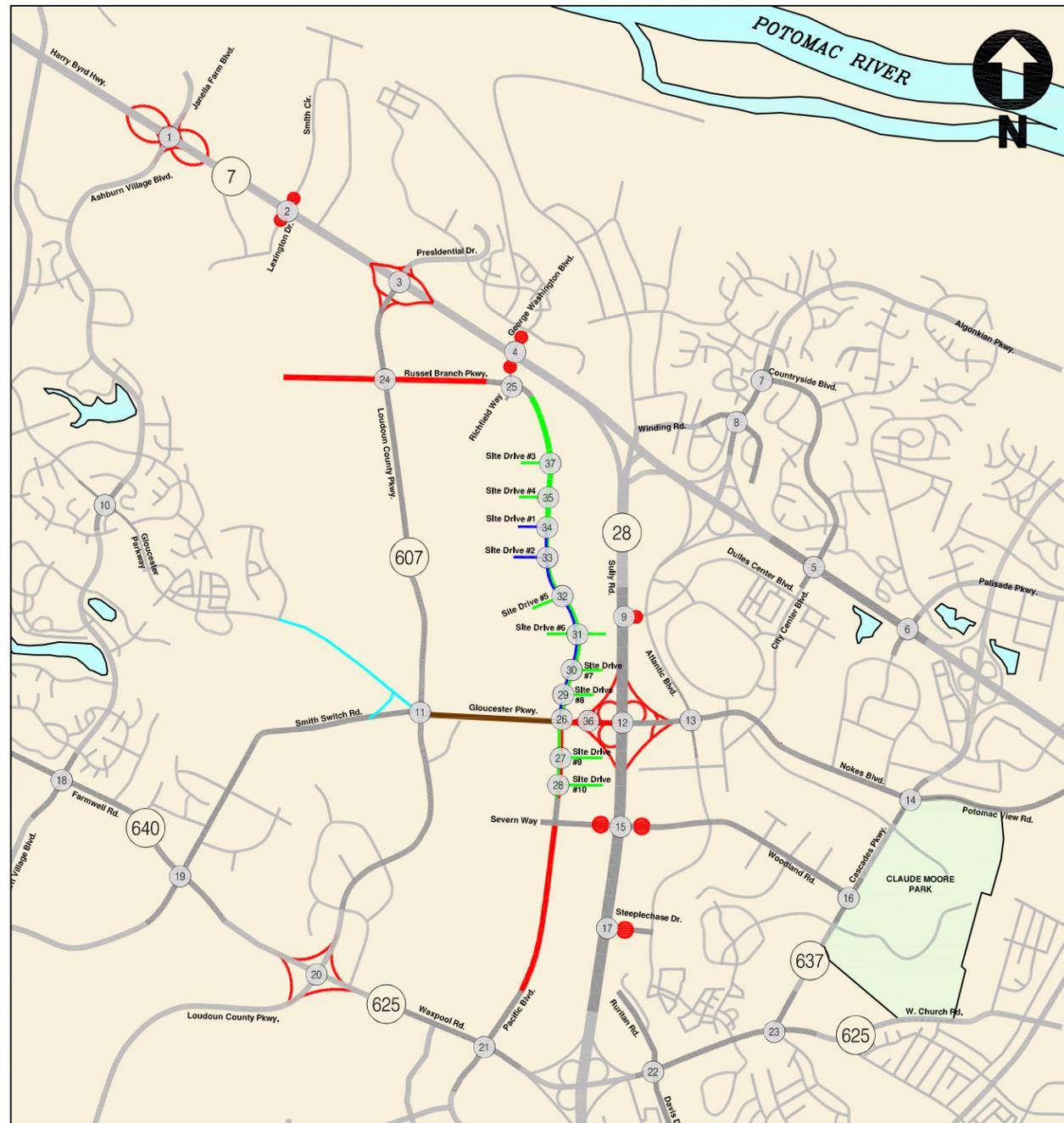
FUTURE CONDITIONS WITH DEVELOPMENT (PHASE III - 2025)

Future with Development Traffic Volumes

In order to determine the future conditions with development (2025) traffic volumes, the trips generated by the proposed development under the Phase III conditions were added to the future conditions without development (2025) traffic. The traffic volumes for total future traffic conditions (2025) are shown in **Figures 26A and B**.

Future with Development Capacity Analysis

Capacity analyses were performed at the existing, planned, and proposed intersections contained within the study area during the morning and afternoon peak hours under the total future 2025 traffic conditions. The results of the intersection capacity analysis are presented in **Table 18**, and are expressed in terms of level of service (LOS) and delay (seconds per vehicle). The detailed analysis worksheets are contained in the Technical Appendix.



INTERSECTION 1	INTERSECTION 2	INTERSECTION 3	INTERSECTION 4	INTERSECTION 5	INTERSECTION 6
REMOVE INTERSECTION	REMOVE INTERSECTION	REMOVE INTERSECTION	REMOVE INTERSECTION	Country Club Blvd. 372/333 947/163 165/186 108/214 2577/2827 134/651	Palisade Pkwy. 208/234 682/3030 131/225 73/161 2539/3030 123/74
643/603 159/250 191/262 89/112 326/733 70/117	39/72 777/608 9/29 41/29 145/82	38/30 9/0 71/37 35/148 293/871 15/63	81/501 491/1002 318/164 157/306 282/704 205/191 331/290 707/454 220/220	103/94 1205/1797 260/843 656/426 197/472 113/16 110/153 333/349 62/54	0/0 58/324 491/628 383/826 347/84 399/1470 1279/620 3455/6404 1752/732
164/602 154/336 39/63 483/458 349/792 469/433	65/93 651/649 121/223 378/1129 86/346 112/287	116/258 765/1004 4/4 72/329 119/647 79/260	18/33 602/239 190/238 161/244 702/406 220/298	REMOVE INTERSECTION	42/280 532/191 805/686 566/1246 658/2758 103/216 258/251 2150/1160 252/194
28/147 104/272 125/27 3008/2060 58/110	186/159 1170/3663 283/581 91/147 63/33 272/484	96/454 365/1269 710/996 221/177 3311/2199 40/326	423/1768 114/269 180/449 1009/1016 1437/4413 542/1742 253/195 992/571 181/874	368/358 2888/4553 438/102 1534/760 3878/2580 237/321	147 3/3 4/7 7/0 1434/1198 218/165 758/1251 514/756
0/0 0/0 0/0 1143/514 0/0	132/463 417/1793 407/1427 324/321 193/1033 0/0	1567/794 395/452 697/145 1183/651 103/533	1114/1938 0/0 83/450 0/0 1203/724 455/193	1085/1871 29/67 24/64 36/95 1634/751 19/45	956/3683 0/0 4/11 0/0 3050/1709 24/56
421/115 860/3201 0/0 4/11 0/0 0/0	430/137 1182/2824 0/0 99/493 0/0 0/0	19/45 1474/2279 54/281 138/681	26/67 1286/1646 75/336 208/679 744/414 1610/1192	21/55 1104/1033 65/286 208/679	719/502 321/185 1619/704 843/2984
0/0 0/0 95/482 0/0 0/0 3024/1652 10/22	0/0 0/0 0/0 0/0 0/0 3028/1663	0/0 0/0 0/0 0/0 0/0 2300/1326	0/0 0/0 0/0 0/0 0/0 0/0	0/0 0/0 0/0 0/0 0/0 0/0	225/96 918/418 65/286 207/670 780/276 225/1126

LEGEND		INTERSECTION 31	INTERSECTION 32	INTERSECTION 33	INTERSECTION 34	INTERSECTION 35	INTERSECTION 36	INTERSECTION 37
	Existing Roadway Network (2008)	421/115 860/3201 0/0 4/11 0/0 0/0	430/137 1182/2824 0/0 99/493 0/0 0/0	19/45 1474/2279 54/281 138/681	26/67 1286/1646 75/336 208/679 744/414 1610/1192	21/55 1104/1033 65/286 208/679	719/502 321/185 1619/704 843/2984	225/96 918/418 65/286 207/670 780/276 225/1126
	Planned / Recommended Roadway Network (2011)							
	Proposed Roadway (2011)							
	Planned Roadway (2025)							
	Planned Roadway (2030)							
	Proposed Roadway (2015)							
	Proposed Roadway (2025)							
	Peak Hour Traffic Volumes							

Figure 26A Future Conditions with Development (2025) Traffic Volumes - Weekday



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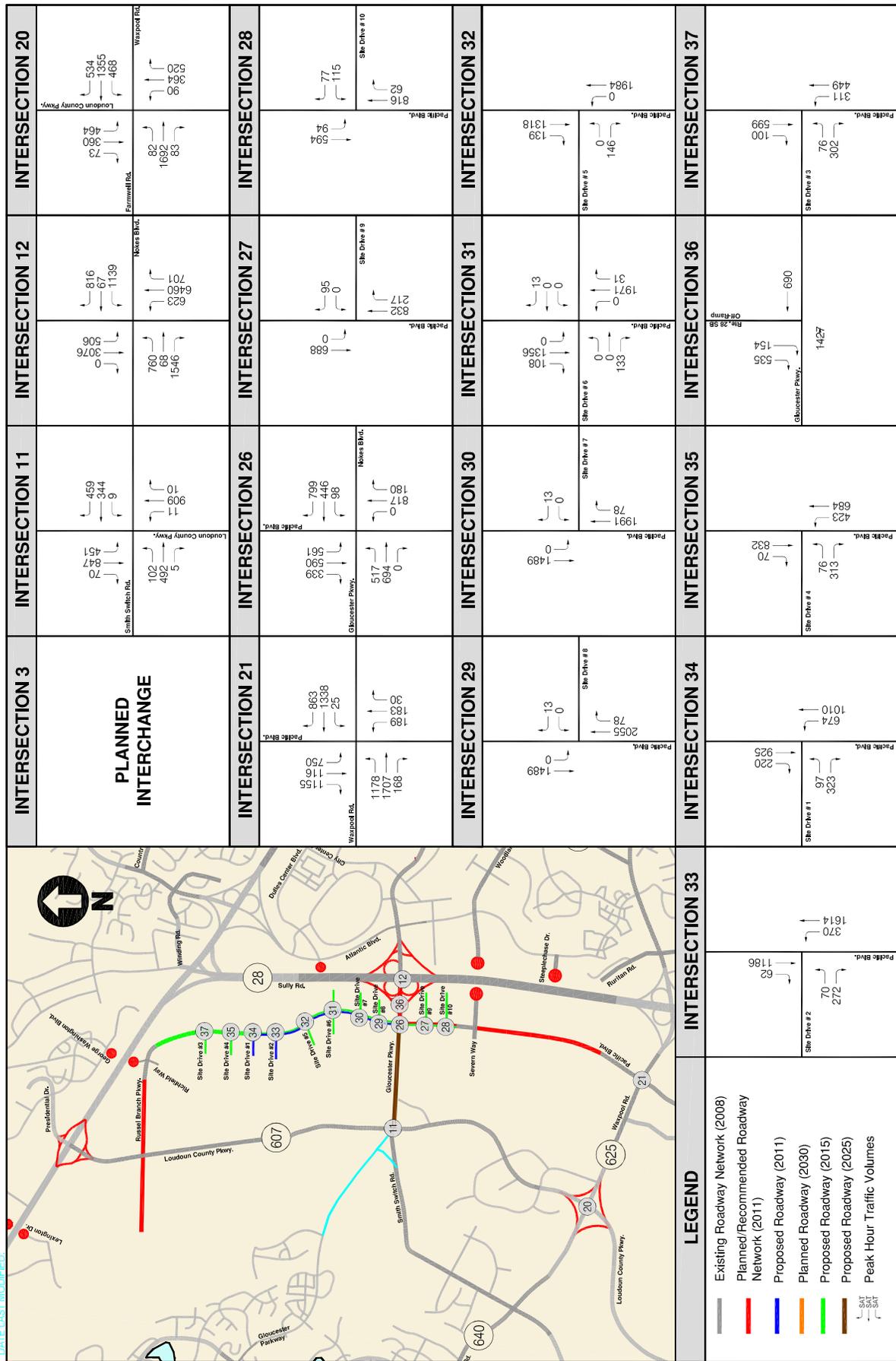


Figure 26B
Future Conditions with Development (2025) Traffic Volumes - Saturday



Table 10: Total Future (2025) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
2	Route 7 and Lexington Drive/Smith Circle						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
3	Route 7 and Loudoun County Parkway/Presidential Dr.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
4	Route 7 and Richfield Way/George Washington Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
5	Route 7 and City Center Blvd./Countryside Blvd.						
	Overall (Signalized)	C	32.8	D	44.6	--	--
	Eastbound	C	32.1	D	48.6	--	--
	Westbound	C	30.2	D	36.8	--	--
	Northbound	C	29.8	D	52.7	--	--
	Southbound	D	49.8	D	54.6	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway						
	Overall (Signalized)	C	21.4	D	36.5	--	--
	Eastbound	B	19.8	D	35.9	--	--
	Westbound	B	18.3	C	31.8	--	--
	Northbound	D	49.3	D	47.8	--	--
	Southbound	D	46.0	D	53.3	--	--
7	Algonkian Parkway and Countryside Boulevard						
	Overall (Signalized)	A	6.4	A	9.3	--	--
	Westbound	B	13.2	B	14.0	--	--
	Northbound	A	9.4	B	12.9	--	--
	Southbound	A	2.6	A	3.7	--	--
8	Algonkian Parkway and Winding Road/Sutherlin Lane						
	Overall (Signalized)	B	12.3	A	7.8	--	--
	Eastbound	C	34.3	C	32.4	--	--
	Westbound	D	35.6	D	36.0	--	--
	Northbound	A	4.8	A	4.9	--	--
	Southbound	A	7.0	A	5.7	--	--
9	Route 28 and Dulles Center Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway						
	Overall (Signalized)	D	38.6	D	45.7	--	--
	Eastbound	D	54.0	E	61.9	--	--
	Westbound	D	35.3	E	62.4	--	--
	Northbound	C	28.7	D	37.7	--	--
	Southbound	C	32.5	C	31.2	--	--
	Overall Mitigation –Change signal timing and cycle length	C	34.8	D	42.8	--	--
	Eastbound	D	35.2	D	39.3	--	--
	Westbound	D	38.7	D	49.5	--	--
	Northbound	C	32.2	D	45.0	--	--
	Southbound	C	35.0	D	38.1	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
11	Loudoun County Parkway and Smith Switch Road						
	Overall (Signalized)	F	135.3	F	837.8	F	90.6
	Eastbound	F	80.4	F	138.3	D	46.7
	Westbound	F	384.4	F	80.6	D	44.4
	Northbound	B	13.0	B	15.7	B	15.6
	Southbound	F	126.0	F	1687.0	F	188.0
	Overall Mitigation – Change signal timing and cycle length	C	34.6	D	42.9	C	27.6
	Eastbound –Add 2nd left turn lane and right turn bay	D	50.7	D	53.5	C	34.5
	Westbound –Add 2 left turn lanes and right turn bay	D	48.7	D	54.3	C	27.9
	Northbound –Add 3 rd through lane and right turn bay	D	39.2	D	52.8	C	28.8
	Southbound –Add 2 nd left lane, 3 rd through lane and right turn bay	B	16.0	C	31.9	C	23.6
12	Route 28 and Nokes Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
13	Nokes Boulevard and Atlantic Boulevard						
	Overall (Signalized)	C	25.5	D	37.3	--	--
	Eastbound	B	19.3	D	50.8	--	--
	Westbound	C	30.4	E	50.3	--	--
	Northbound	C	33.9	C	28.5	--	--
	Southbound	C	23.4	B	14.7	--	--
	Overall Mitigation – Change signal timing and cycle length	C	25.5	C	33.6	--	--
	Eastbound	B	19.3	D	36.4	--	--
	Westbound	C	30.4	D	45.1	--	--
	Northbound	C	33.9	C	34.0	--	--
	Southbound	C	23.4	B	14.9	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	28.5	D	37.4	--	--
	Eastbound	D	35.6	D	53.0	--	--
	Westbound	C	32.8	D	53.1	--	--
	Northbound	C	24.2	C	29.7	--	--
	Southbound	C	27.7	C	27.7	--	--
15	Route 28 and Severn Way						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	7.6	B	18.1	--	--
	Eastbound	C	23.8	D	35.5	--	--
	Northbound	A	3.9	B	11.5	--	--
	Southbound	A	9.8	C	22.4	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	E	59.0	E	69.4	--	--
	Eastbound	F	93.0	D	39.9	--	--
	Westbound	C	20.4	E	63.0	--	--
	Northbound	D	50.1	D	51.3	--	--
	Southbound	D	38.8	F	127.9	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Overall Mitigation – Change signal timing and cycle length	D	38.2	E	60.6	--	--
	Eastbound –Add 4 th through lane	D	37.4	D	54.6	--	--
	Westbound	C	20.5	D	55.0	--	--
	Northbound	E	57.4	E	65.3	--	--
	Southbound	D	48.4	F	80.3	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	D	36.0	D	43.5	--	--
	Eastbound	D	47.7	E	64.4	--	--
	Westbound	B	18.4	D	37.0	--	--
	Northbound	B	16.5	B	12.9	--	--
	Southbound	D	35.6	D	49.9	--	--
	Overall Mitigation – Change signal timing and cycle length	C	26.3	D	38.5	--	--
	Eastbound	C	31.0	D	49.4	--	--
	Westbound	B	18.5	D	35.1	--	--
	Northbound	B	16.5	B	14.4	--	--
	Southbound	D	38.4	D	53.8	--	--
20	Waxpool Road and Loudoun County Parkway						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	F	232.9	F	105.9	E	60.7
	Eastbound	F	393.6	D	54.3	F	109.6
	Westbound	D	47.9	F	124.4	C	23.1
	Northbound	F	103.8	F	85.8	E	58.8
	Southbound	C	28.0	F	154.6	C	28.4
	Overall Mitigation – Change signal timing and cycle length	D	54.8	F	106.5	C	29.1
	Eastbound	D	54.2	D	48.0	C	31.2
	Westbound	D	53.3	F	136.8	C	26.1
	Northbound	F	87.3	E	63.7	D	54.2
	Southbound	D	39.9	F	153.0	C	24.3
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	B	10.9	C	25.7	--	--
	Eastbound	B	13.6	C	28.6	--	--
	Westbound	A	5.7	B	12.5	--	--
	Northbound	C	28.7	D	51.4	--	--
	Southbound	C	30.0	D	42.9	--	--
23	Church Road and Cascades Parkway						
	Overall (Signalized)	C	20.6	D	45.3	--	--
	Eastbound	B	18.1	D	44.9	--	--
	Westbound	C	20.1	D	52.8	--	--
	Southbound	C	24.6	D	38.6	--	--
24	Loudoun County Parkway and Russell Branch Parkway						
	Overall (Signalized)	E	71.4	D	36.5	--	--
	Eastbound	A	3.9	E	55.8	--	--
	Westbound	A	4.2	B	10.4	--	--
	Northbound	C	29.6	C	27.2	--	--
	Southbound	F	122.5	E	56.3	--	--
	Overall Mitigation – Change signal timing	D	41.5	C	28.4	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	and cycle length						
	Eastbound	C	27.8	C	30.7	--	--
	Westbound	A	4.7	A	8.8	--	--
	Northbound	D	52.0	D	42.9	--	--
	Southbound	D	39.6	C	31.6	--	--
25	Russel Branch Parkway/Pacific Boulevard and Richfield Way/George Washington Boulevard						
	Overall (Signalized)	A	0.0	A	0.0	--	--
	Eastbound	A	0.0	A	0.0	--	--
	Westbound	A	0.0	A	0.0	--	--
	Northbound	E	43.0	D	34.1	--	--
	Southbound	A	0.0	A	0.0	--	--
26	Gloucester Parkway and Pacific Boulevard						
	Overall (Signalized)	F	339.4	F	219.6	F	377.9
	Eastbound	F	229.5	F	344.6	F	1393.2
	Westbound	F	431.5	E	67.8	E	56.4
	Northbound	F	318.2	F	298.3	F	101.0
	Southbound	F	171.0	F	205.8	C	27.5
	Overall Mitigation – Change signal timing and cycle length	E	60.2	D	50.0	C	34.0
	Eastbound – Add 2 left turn lanes, 2 through lanes and a through -right shared lane	D	47.4	D	54.5	D	48.4
	Westbound* – Add 2 nd left lane	E	73.0	D	46.2	C	23.7
	Northbound – Add left turn bay	D	50.7	D	50.6	D	37.6
	Southbound – Add 2 nd left turn lane and right turn bay	D	44.1	D	49.5	C	29.2
	*Westbound right turn is free flow, however the HCM result shows a delay for this movement						
27	Site Driveway #9 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	C	16.6	C	21.2	B	12.7
28	Site Driveway #10 and Pacific Boulevard						
	Overall (Signalized)	A	4.9	B	10.3	A	8.1
	Westbound	D	35.1	D	42.6	B	15.1
	Northbound	A	4.7	A	3.3	A	7.1
	Southbound	A	3.7	B	10.5	A	7.4
29	Site Driveway #8 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	D	25.6	C	17.4	C	22.1
	Northbound	A	0.0	A	0.0	A	0.0
	Southbound	A	0.0	A	0.0	A	0.0
30	Site Driveway #7 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	C	23.0	C	18.4	C	23.3
31	Site Driveway #6 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	C	17.1	F	907.8	C	31.8
	Westbound	C	22.8	C	17.9	C	30.2
32	Site Driveway #5 and Pacific Boulevard						
	Overall (Unsignalized) (Add southbound right turn bay)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	C	18.5	F	887.0	C	18.5



Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
33	Site Driveway #2 and Pacific Boulevard						
	Overall (Signalized)	F	385.6	F	219.2	F	164.0
	Eastbound	D	54.4	F	649.4	E	56.2
	Northbound	F	594.4	F	212.8	F	280.8
	Southbound	A	4.7	D	45.6	A	8.0
	Overall Mitigation –Change signal timing and cycle length	C	25.4	D	44.3	B	16.2
	Eastbound – Add right turn lane	B	18.9	D	54.4	C	27.6
	Northbound – And left turn lane.	B	16.2	C	28.2	B	10.3
Southbound – Add 3 rd through lane.	D	44.9	D	51.6	C	22.4	
34	Site Driveway #1 and Pacific Boulevard						
	Overall (Signalized)	F	218.2	F	255.8	F	125.5
	Eastbound	F	123.1	F	748.8	E	69.8
	Northbound	F	349.1	F	202.4	F	218.9
	Southbound	A	4.0	B	13.7	A	8.8
	Overall Mitigation –Change signal timing and cycle length	D	35.3	C	37.2	C	26.0
	Eastbound – Add free flow right turn lane	B	11.3	C	28.4	D	37.7
	Northbound – And left turn lane.	D	37.4	C	28.9	B	16.5
Southbound – Add right turn lane	D	36.7	D	50.1	D	35.7	
35	Site Driveway #4 and Pacific Boulevard						
	Overall (Signalized)	E	77.7	F	287.5	B	19.7
	Eastbound	F	93.4	F	898.4	D	41.9
	Northbound	F	124.6	F	101.7	C	22.3
	Southbound	A	3.7	A	6.6	A	6.9
	Overall Mitigation –Change signal timing and cycle length	C	31.0	C	22.6	B	16.3
	Eastbound – Add right turn lane	C	20.9	C	32.7	C	24.6
	Northbound – And left turn lane	C	28.9	B	10.8	B	10.1
Southbound	D	36.5	C	30.1	C	20.3	
36	Gloucester Parkway and Route 28 SB Off-Ramp						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	A	0.0	A	0.0	A	0.0
	Westbound	A	0.0	A	0.0	A	0.0
	Southbound	F	405.0	C	18.3	C	18.1
37	Site Driveway #3 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	F	**	F	2641.5	F	82.7
	Northbound	F	223.0	A	6.3	A	9.5
	Southbound	A	0.0	A	0.0	A	0.0
	Overall Mitigation – Install signal	D	39.5	B	12.7	B	10.2
	Eastbound – Add right turn lane	C	21.8	B	14.6	B	14.0
	Northbound – Add left turn lane	D	35.6	A	8.3	A	3.3
Southbound	D	47.1	C	20.9	B	15.7	

Note: N/A means not applicable.

- Intersection of Ashburn Village Boulevard with Gloucester Parkway:



- Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Smith Switch Road:*
 - Add second eastbound left turn bay
 - Add eastbound right turn bay
 - Add 2 westbound left turn lanes, 2 through lanes and a right turn lane
 - Add third northbound through lane
 - Add northbound right turn lane
 - Add third southbound through lane
 - Add southbound right turn lane
 - Add 2 southbound left turn lanes
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Nokes Boulevard with Atlantic Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Farmwell Road with Ashburn Village Boulevard:*
 - Add fourth eastbound through lane
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Farmwell Road with Smith Switch Road / Waxpool Road:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Waxpool Road with Pacific Boulevard:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Loudoun County Parkway with Russell Branch Parkway:*
 - Adjust AM and PM signal timings and cycle lengths.
- *Intersection of Pacific Boulevard with Gloucester Parkway:*
 - Adjust AM and PM signal timings and cycle lengths
 - Add 2 eastbound left turn lanes, 2 through lanes and a shared through right turn lane
 - Add second westbound left turn lane
 - Add northbound left turn lane
 - Add second southbound left turn lane and a right turn bay.
- *Intersection of Pacific Boulevard with Site Driveway #5:*
 - Add eastbound right turn lane



- *Intersection of Pacific Boulevard with Site Driveway #2:*
 - Add eastbound right turn lane
 - Add northbound left turn lane
 - Add southbound through lane.
 - Adjust AM and PM signal timings and cycle lengths.

- *Intersection of Pacific Boulevard with Site Driveway #1:*
 - Add eastbound free flow right turn lane
 - Add northbound left turn lane
 - Add southbound right turn lane
 - Adjust AM and PM signal timings and cycle lengths.

- *Intersection of Pacific Boulevard with Site Driveway #4:*
 - Add eastbound right turn lane
 - Add northbound left turn lane
 - Adjust AM and PM signal timings and cycle lengths.

- *Intersection of Pacific Boulevard with Site Driveway #3:*
 - Install traffic signal
 - Add eastbound right turn lane
 - Add northbound left turn lane

As mentioned earlier in the report, no analyses were performed at the recommended interchanges. No improvements were recommended at the intersection of Russell Branch Parkway with Richfield Way since adequate gaps would be created by adjacent signalized intersection to allow acceptable traffic operations at the conflicting movements of the unsignalized intersection. **Figures 27A and B** illustrate graphically the intersection capacity analysis results. **Figure 28** shows the recommended improvements under the full build-out year conditions with the proposed Kincora development.

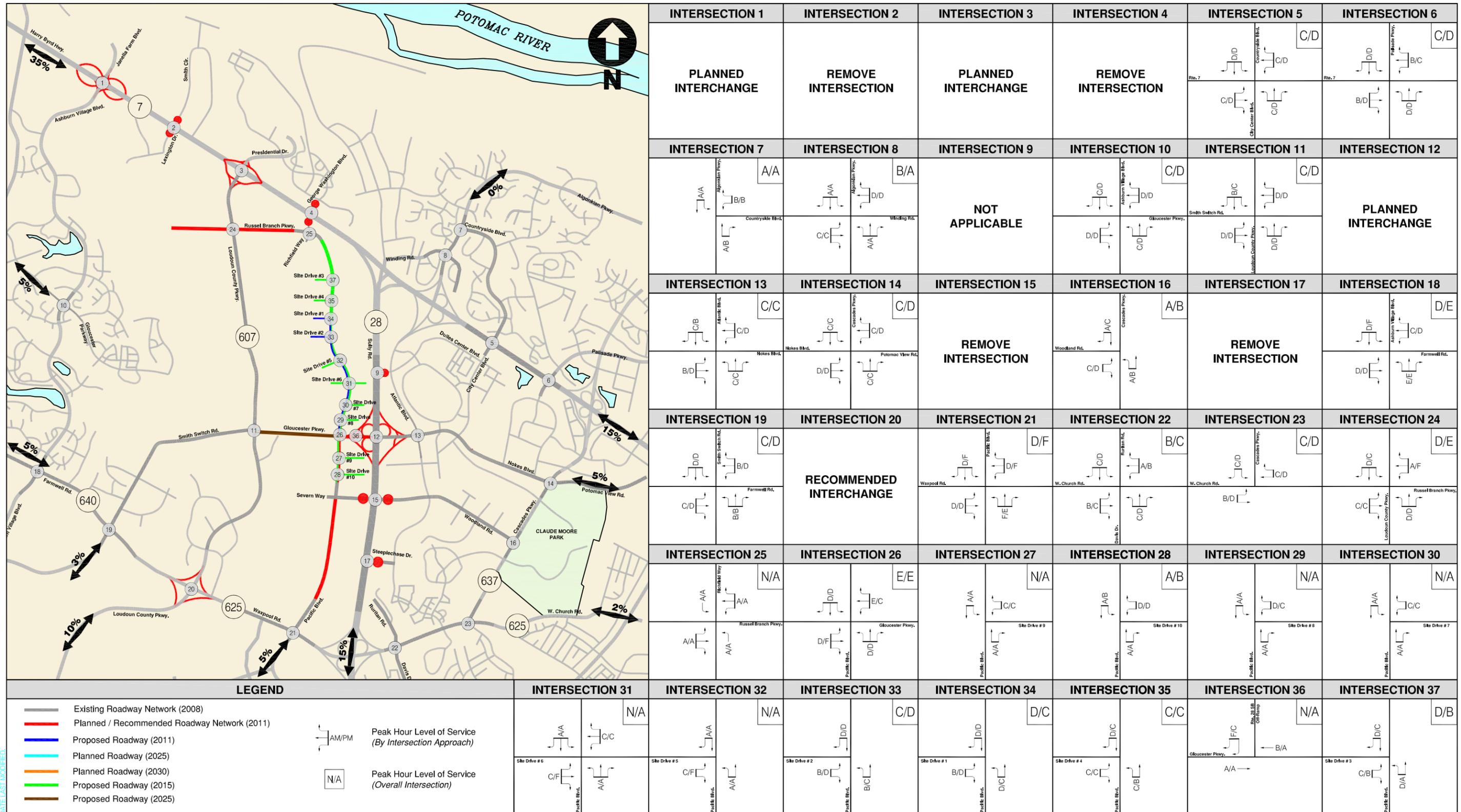


Figure 27A Future Conditions with Development (2025) Peak Hour Levels of Service - Weekday



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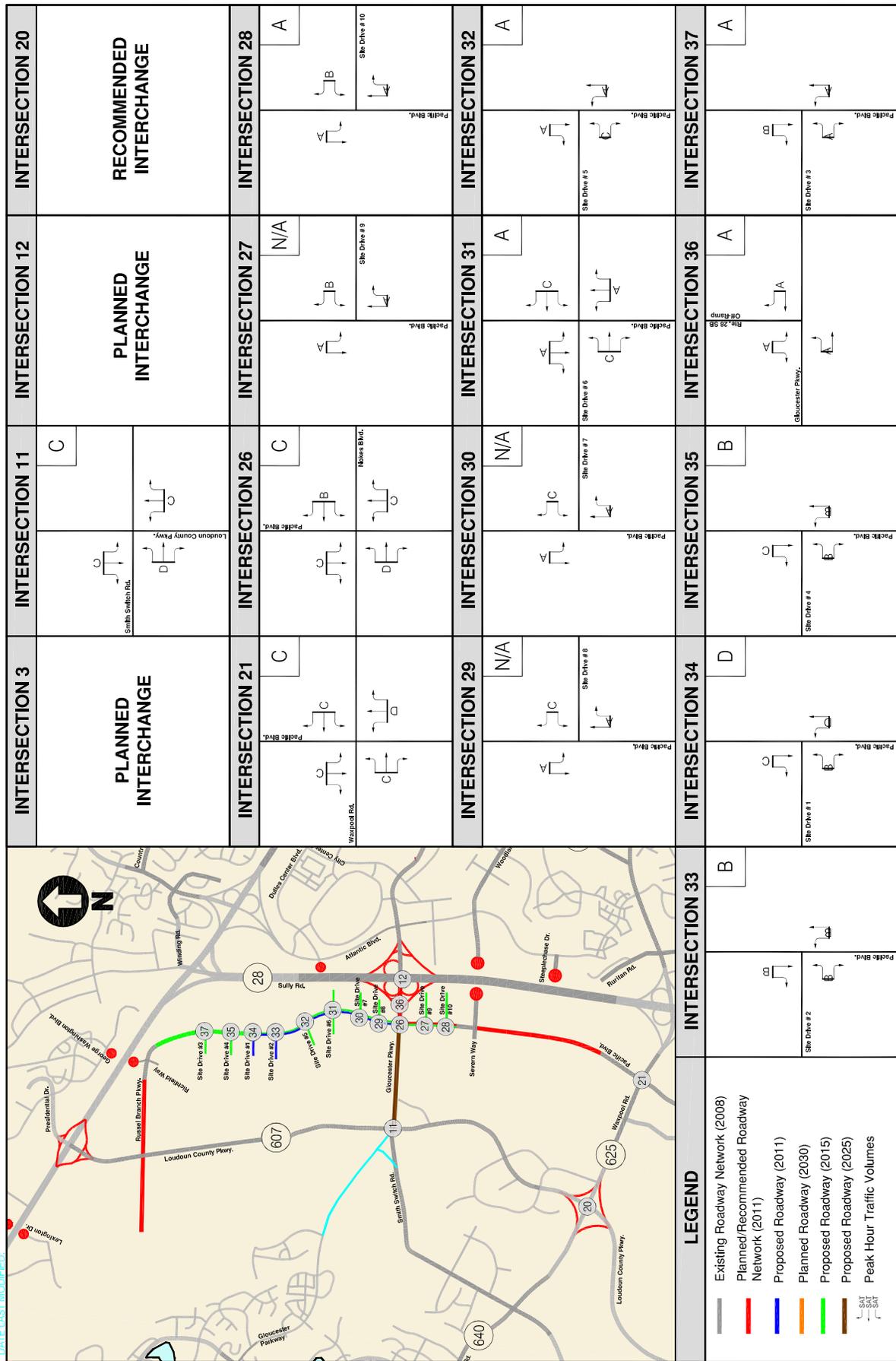


Figure 27B
Future Conditions with Development (2025) Peak Hour Levels of Service - Saturday

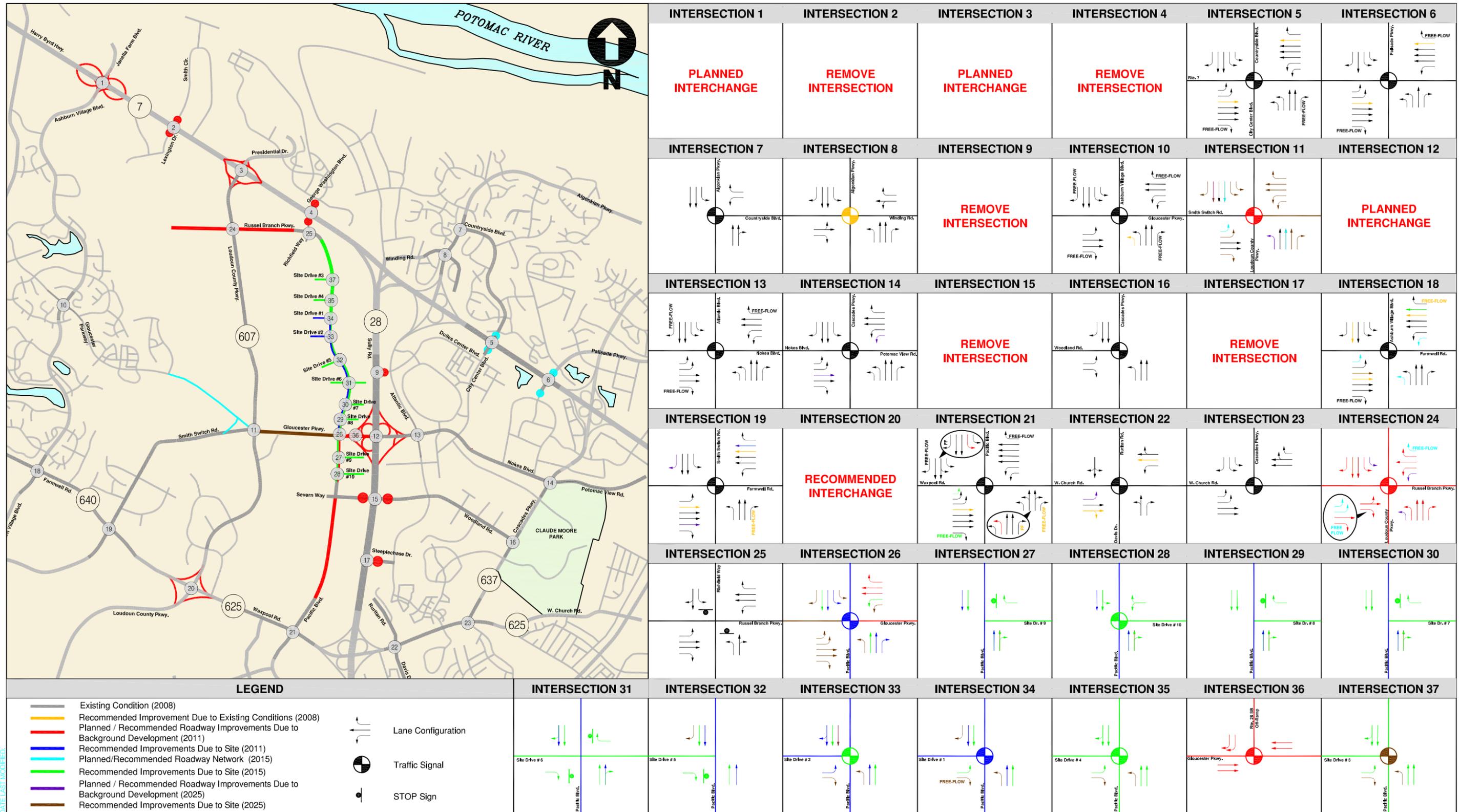


Figure 28 Future Conditions with Development (Phase III - 2025) Recommended Improvements



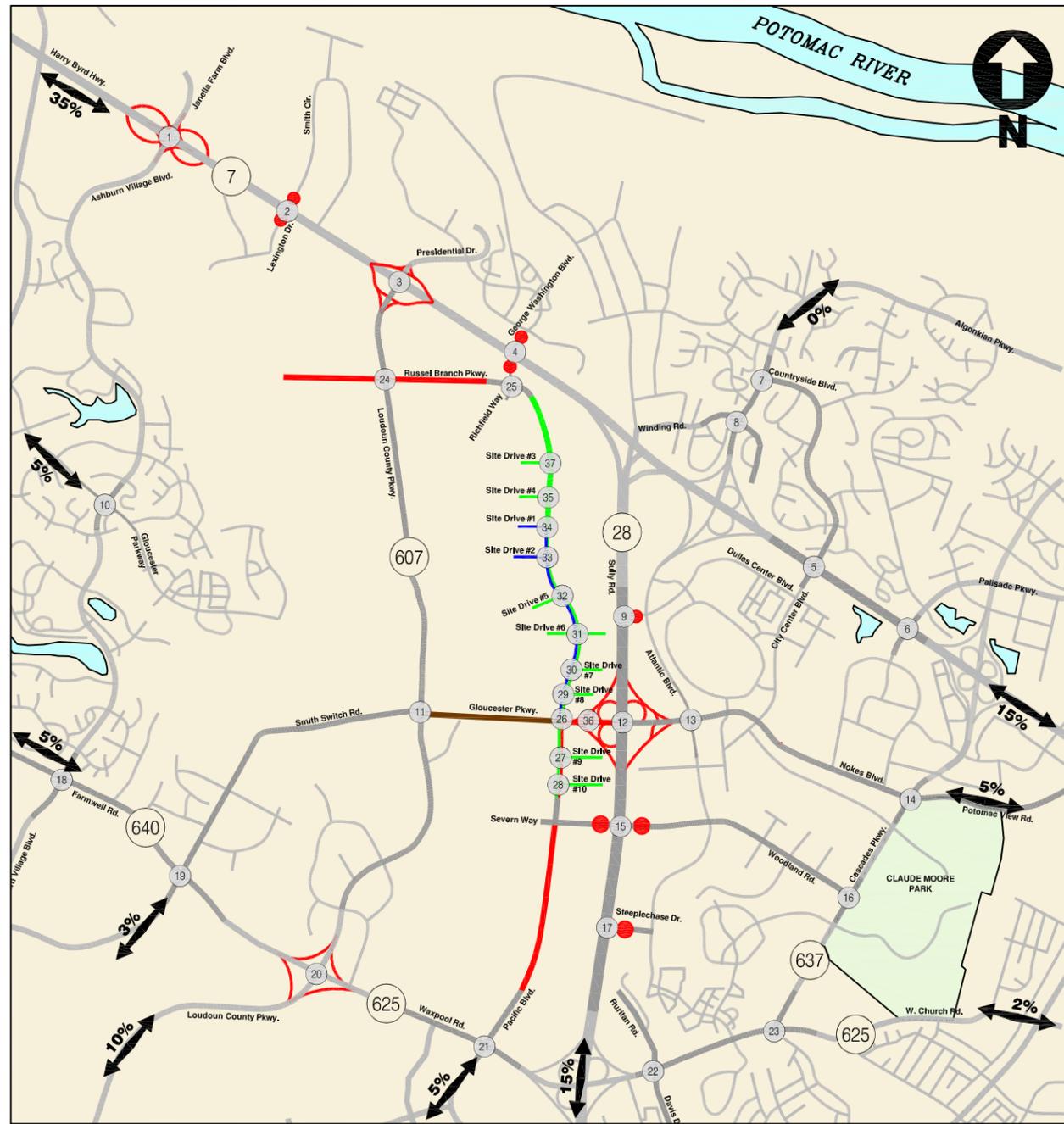
FUTURE CONDITIONS WITH DEVELOPMENT PLUS FIVE YEARS (2030)

Future with Development Traffic Volumes

In order to determine the future conditions with development (2030) traffic volumes, an inherent regional growth rate of four percent (4%) compounded annually on Route 28 and one percent (1%) compounded annually on Route 640, Route 625, and Route 637 over a twenty two-year period were applied to the existing traffic volumes on the major movements along these roads to account for regional increase in traffic due to background growth. The inherent growth was added to the future conditions with development (2025) traffic. The traffic volumes for total future traffic conditions (2030) are shown in **Figures 29A and B**.

Future with Development Capacity Analysis

Capacity analyses were performed at the existing, planned, and proposed intersections contained within the study area during the morning and afternoon peak hours under the total future 2030 traffic conditions. The results of the intersection capacity analysis are presented in **Table 18**, and are expressed in terms of level of service (LOS) and delay (seconds per vehicle). The detailed analysis worksheets are contained in the Technical Appendix.



INTERSECTION 1	INTERSECTION 2	INTERSECTION 3	INTERSECTION 4	INTERSECTION 5	INTERSECTION 6
REMOVE INTERSECTION	REMOVE INTERSECTION	REMOVE INTERSECTION	REMOVE INTERSECTION	372/333 947/163 165/186 Countrylane Blvd. 108/214 2577/2827 134/651 Chy. Center Blvd. 86/286 70/148 153/413	208/234 608/234 131/225 Palisade Pkwy. 73/161 2539/3030 123/74
INTERSECTION 7	INTERSECTION 8	INTERSECTION 9	INTERSECTION 10	INTERSECTION 11	INTERSECTION 12
643/603 159/250 Algonquin Pkwy. 191/262 89/112 Countrylake Blvd. 326/733 70/117	39/72 777/608 9/29 Algonquin Pkwy. 38/30 9/0 71/37 41/29 145/82 35/148 293/871 15/63	REMOVE INTERSECTION	81/501 491/1002 318/164 Ashburn Village Blvd. 157/306 282/704 205/191 331/290 707/454 220/220 118/334 708/948 298/146	103/94 1205/1797 260/843 Smith Switch Rd. 656/426 113/16 110/153 333/349 62/54 Louisian County Pkwy. 48/67 1557/1709 15/121	0/0 0/0 491/628 Nokes Blvd. 383/826 347/84 399/1470 324/1377 58/324 461/2232 1279/620 3455/6404 1752/732
INTERSECTION 13	INTERSECTION 14	INTERSECTION 15	INTERSECTION 16	INTERSECTION 17	INTERSECTION 18
164/602 154/636 39/63 Algonquin Blvd. 65/93 651/649 121/223 483/458 349/792 469/433 378/1129 86/346 112/287	116/258 804/1056 4/4 Nokes Blvd. 72/329 119/647 79/260 161/244 738/1477 220/298	REMOVE INTERSECTION	142/116 863/1389 Woodland Rd. 97/211 54/183 172/249 1133/1831	REMOVE INTERSECTION	42/280 532/318 805/686 Ashburn Village Blvd. 566/1246 680/2847 103/216 258/251 2214/1197 252/194 621/27 237/549 110/106
INTERSECTION 19	INTERSECTION 20	INTERSECTION 21	INTERSECTION 22	INTERSECTION 23	INTERSECTION 24
28/147 46/65 104/272 Smith Switch Rd. 186/159 1170/3792 283/581 91/147 63/33 272/484	96/454 365/1269 710/996 Farmwell Rd. 221/177 3311/2274 40/326 253/195 992/571 1811/874	423/1768 114/269 180/449 Farmwell Blvd. 368/358 2888/4774 438/102 147 3/3 4/7 7/0 1434/1256 218/165	147 3/3 4/7 W. Church Rd. 24/25 1124/2057 188/125 118/180 144/282	618/668 329/753 Concession Pkwy. 416/907 624/664 758/1314 514/785 139/354 0/0 281/768	237/18 161/808 1390/926 Russell Branch Pkwy. 324/1857 0/0 27/257 610/430 1444/1560 203/117
INTERSECTION 25	INTERSECTION 26	INTERSECTION 27	INTERSECTION 28	INTERSECTION 29	INTERSECTION 30
0/0 0/0 0/0 Russell Branch Pkwy. 1143/514 0/0	132/463 417/1793 407/1427 Gloucester Pkwy. 324/321 193/1033 0/0	1567/794 395/452 697/145 Nokes Blvd. 1183/651 103/533 0/0	1114/1938 0/0 83/450 0/0 1085/1871 29/67 24/64 36/95	956/3683 0/0 4/11 0/0 3050/1709 24/56	956/3683 0/0 4/11 0/0 3030/1664 24/56
INTERSECTION 31	INTERSECTION 32	INTERSECTION 33	INTERSECTION 34	INTERSECTION 35	INTERSECTION 36
421/115 860/3201 0/0 Site Drive #6 0/0 95/482 0/0 3024/1652 10/22	430/137 1182/2824 0/0 Site Drive #5 0/0 99/493 0/0 728/937 2300/1326	19/45 1474/2279 0/0 Site Drive #6 54/281 138/681 0/0 728/937 2300/1326	26/67 1286/1646 744/414 1610/1192	21/55 1104/1033 65/286 208/679 744/414 941/1115	719/502 321/185 0/0 1848/844 1619/704 65/286 207/670
INTERSECTION 37	225/96 918/418 780/276 225/1126				

LEGEND		INTERSECTION 31	INTERSECTION 32	INTERSECTION 33	INTERSECTION 34	INTERSECTION 35	INTERSECTION 36	INTERSECTION 37
	Existing Roadway Network (2008)	421/115 860/3201 0/0	430/137 1182/2824 0/0	19/45 1474/2279 0/0	26/67 1286/1646 744/414 1610/1192	21/55 1104/1033 65/286 208/679	719/502 321/185 0/0 1848/844	225/96 918/418 780/276 225/1126
	Planned / Recommended Roadway Network (2011)	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
	Proposed Roadway (2011)	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
	Planned Roadway (2025)	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
	Planned Roadway (2030)	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
	Proposed Roadway (2015)	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
	Direction of Approach (Retail)	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
	Proposed Roadway (2025)	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
	Peak Hour Traffic Volumes	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0

Figure 29A Future Conditions with Development (2030) Peak Hour Volumes - Weekday

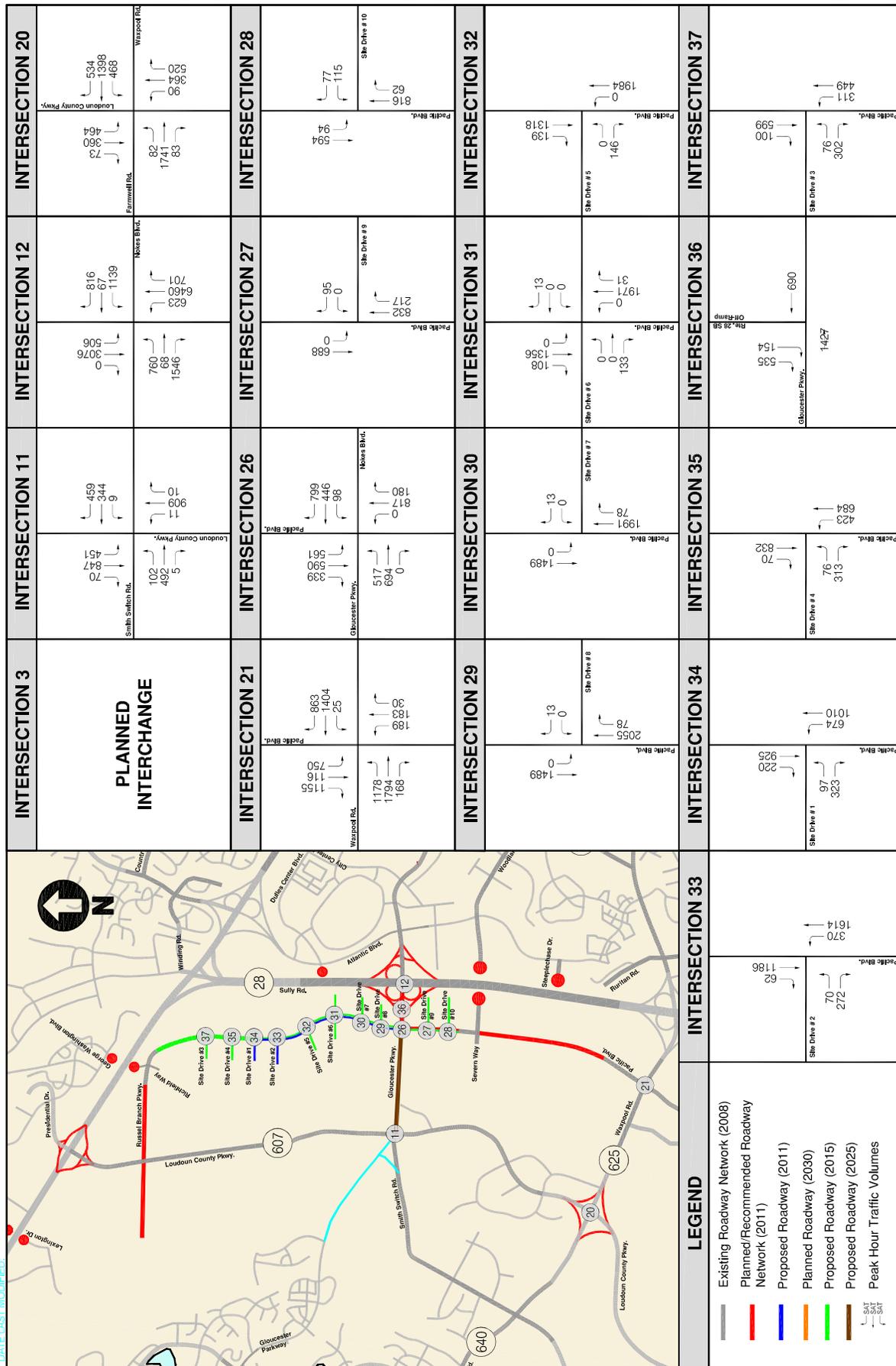


Figure 29B
Future Conditions with Development (2030) Peak Hour Volumes - Saturday

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Table 11: Total Future (2030) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2030) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
2	Route 7 and Lexington Drive/Smith Circle						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
3	Route 7 and Loudoun County Parkway/Presidential Dr.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
4	Route 7 and Richfield Way/George Washington Blvd.						
	Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions						
5	Route 7 and City Center Blvd./Countryside Blvd.						
	Overall (Signalized)	C	32.8	D	43.9	--	--
	Eastbound	C	32.1	D	45.9	--	--
	Westbound	C	30.2	D	37.7	--	--
	Northbound	C	29.8	D	52.7	--	--
	Southbound	D	49.8	D	54.6	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway						
	Overall (Signalized)	C	21.4	D	36.5	--	--
	Eastbound	B	19.8	D	35.9	--	--
	Westbound	B	18.3	C	31.8	--	--
	Northbound	D	49.3	D	47.8	--	--
	Southbound	D	46.0	D	53.3	--	--
7	Algonkian Parkway and Countryside Boulevard						
	Overall (Signalized)	A	6.4	A	9.3	--	--
	Westbound	B	13.2	B	14.0	--	--
	Northbound	A	9.4	B	12.9	--	--
	Southbound	A	2.6	A	3.7	--	--
8	Algonkian Parkway and Winding Road/Sutherlin Lane						
	Overall (Signalized)	B	12.3	A	7.8	--	--
	Eastbound	C	34.3	C	32.4	--	--
	Westbound	D	35.6	D	36.0	--	--
	Northbound	A	4.8	A	4.9	--	--
	Southbound	A	7.0	A	5.7	--	--
9	Route 28 and Dulles Center Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A
10	Ashburn Village Boulevard and Gloucester Parkway						
	Overall (Signalized)	C	34.8	D	42.9	--	--
	Eastbound	D	35.2	D	39.0	--	--
	Westbound	D	38.7	D	48.1	--	--
	Northbound	C	32.2	D	45.6	--	--
	Southbound	C	35.0	D	39.0	--	--
11	Loudoun County Parkway and Smith Switch Road						
	Overall (Signalized)	D	34.6	D	47.1	C	27.2
	Eastbound	D	50.7	D	50.6	D	35.6
	Westbound	D	48.7	D	55.0	C	27.8
	Northbound	D	39.2	D	48.6	C	27.7
	Southbound	B	16.0	D	43.8	C	22.9
12	Route 28 and Nokes Boulevard						
	Overall (All Free-Flow Movements)	N/A	N/A	N/A	N/A	N/A	N/A



Int. No.	Intersection (Approach/Movement)	Future Conditions (2030) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
13	Nokes Boulevard and Atlantic Boulevard						
	Overall (Signalized)	C	25.5	C	33.6	--	--
	Eastbound	B	19.3	D	36.4	--	--
	Westbound	C	30.4	D	45.1	--	--
	Northbound	C	33.9	C	34.0	--	--
	Southbound	C	23.4	B	14.9	--	--
14	Nokes Boulevard and Cascade Pkwy./Potomac View Rd.						
	Overall (Signalized)	C	30.1	D	35.2	--	--
	Eastbound	D	35.6	D	51.4	--	--
	Westbound	D	38.8	D	46.7	--	--
	Northbound	C	24.3	C	28.6	--	--
	Southbound	C	27.7	C	25.5	--	--
15	Route 28 and Severn Way						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
16	Potomac View Road and Woodland Road						
	Overall (Signalized)	A	7.6	B	19.2	--	--
	Eastbound	C	23.8	D	38.4	--	--
	Northbound	A	3.9	B	12.3	--	--
	Southbound	A	9.8	C	23.6	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Intersection Removed)	N/A	N/A	N/A	N/A	N/A	N/A
18	Farmwell Road and Ashburn Village Boulevard						
	Overall (Signalized)	D	38.6	D	53.6	--	--
	Eastbound	D	38.3	D	45.3	--	--
	Westbound	C	20.7	E	56.1	--	--
	Northbound	E	57.4	E	59.0	--	--
	Southbound	D	48.4	D	52.7	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	C	26.3	C	34.8	--	--
	Eastbound	C	31.0	C	28.9	--	--
	Westbound	B	18.5	D	38.9	--	--
	Northbound	B	16.5	B	15.3	--	--
	Southbound	D	38.4	D	51.7	--	--
20	Waxpool Road and Loudoun County Parkway						
Intersection converted into a grade-separated interchange in the Future Background (2011) Conditions							
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	E	55.0	F	101.0	C	29.5
	Eastbound	D	54.6	D	48.0	C	29.2
	Westbound	D	53.3	F	113.5	C	27.5
	Northbound	F	87.3	E	73.6	D	54.7
	Southbound	D	39.9	F	169.6	C	27.1
22	Church Road and Davis Drive/Ruritan Circle						
	Overall (Signalized)	B	10.9	D	39.6	--	--
	Eastbound	B	13.6	D	47.5	--	--
	Westbound	A	5.7	C	22.7	--	--
	Northbound	C	28.7	D	54.4	--	--
	Southbound	C	30.0	D	48.6	--	--



Int. No.	Intersection (Approach/Movement)	Future Conditions (2030) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
23	Church Road and Potomac View Road						
	Overall (Signalized)	C	20.6	C	32.6	--	--
	Eastbound	B	18.1	C	29.8	--	--
	Westbound	C	20.1	D	36.3	--	--
	Southbound	C	24.6	C	32.7	--	--
24	Loudoun County Parkway and Russell Branch Parkway						
	Overall (Signalized)	D	41.5	C	29.3	--	--
	Eastbound	C	27.8	C	20.5	--	--
	Westbound	A	4.7	A	7.9	--	--
	Northbound	D	52.0	D	47.1	--	--
	Southbound	D	39.6	D	36.1	--	--
25	Russel Branch Parkway/Pacific Boulevard and Richfield Way/George Washington Boulevard						
	Overall (Signalized)	A	0.0	A	0.0	--	--
	Eastbound	A	0.0	A	0.0	--	--
	Westbound	A	0.0	A	0.0	--	--
	Northbound	E	43.0	D	34.1	--	--
	Southbound	A	0.0	A	0.0	--	--
26	Gloucester Parkway and Pacific Boulevard						
	Overall (Signalized)	D	50.5	D	45.6	C	31.9
	Eastbound	D	54.2	D	54.6	D	44.6
	Westbound	D	45.6	C	24.9	C	20.9
	Northbound	D	50.7	D	35.9	C	38.3
	Southbound	D	50.9	D	53.1	C	27.4
27	Site Driveway #9 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	C	16.6	C	21.2	B	12.7
28	Site Driveway #10 and Pacific Boulevard						
	Overall (Signalized)	A	4.9	B	10.3	A	8.1
	Westbound	D	35.1	D	42.6	B	15.1
	Northbound	A	4.7	A	3.3	A	7.1
	Southbound	A	3.7	B	10.5	A	7.4
29	Site Driveway #8 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	D	27.0	C	17.4	C	22.1
	Northbound	A	0.0	A	0.0	A	0.0
	Southbound	A	0.0	A	0.0	A	0.0
30	Site Driveway #7 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	C	23.0	C	18.4	C	23.3
31	Site Driveway #6 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	C	17.1	F	907.8	C	31.8
	Westbound	C	22.8	C	17.9	C	30.2
32	Site Driveway #5 and Pacific Boulevard						
	Overall (Unsignalized) (Add southbound right turn bay)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	C	18.5	F	887.0	C	18.5
33	Site Driveway #2 and Pacific Boulevard						
	Overall (Signalized)	C	25.4	D	44.3	B	16.2



Int. No.	Intersection (Approach/Movement)	Future Conditions (2030) with Development					
		AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
	Eastbound	B	18.9	D	54.4	C	27.6
	Northbound	B	16.2	C	28.2	B	10.3
	Southbound	D	44.9	D	51.6	C	22.4
34	Site Driveway #1 and Pacific Boulevard						
	Overall (Signalized)	D	35.3	C	37.2	C	26.0
	Eastbound	B	11.3	C	28.4	D	37.7
	Northbound	D	37.4	C	28.9	B	16.5
	Southbound	D	36.7	D	50.1	D	35.7
35	Site Driveway #4 and Pacific Boulevard						
	Overall (Signalized)	C	31.0	C	22.6	B	16.3
	Eastbound	C	20.9	C	32.7	C	24.6
	Northbound	C	28.9	B	10.8	B	10.1
	Southbound	D	36.5	C	30.1	C	20.3
36	Gloucester Parkway and Route 28 SB Off-Ramp						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	A	0.0	A	0.0	A	0.0
	Westbound	A	0.0	A	0.0	A	0.0
	Southbound	F	405.0	C	18.3	C	18.1
37	Site Driveway #3 and Pacific Boulevard						
	Overall (Unsignalized)	D	39.5	B	12.7	B	10.2
	Eastbound	C	21.8	B	14.6	B	14.0
	Northbound	D	35.6	A	8.3	A	3.3
	Southbound	D	47.1	C	20.9	B	15.7

Note: N/A means not applicable.

As mentioned in previous sections of this report, it is desirable to achieve an overall and per approach LOS D or better at each intersection. Assuming that the mitigation measures recommended in the total future 2025 conditions were in place, the results presented in **Table 11** show that most of the study intersections would operate at acceptable levels of service under the total future 2030 conditions.

Figures 30A and B illustrate graphically the intersection capacity analysis results.

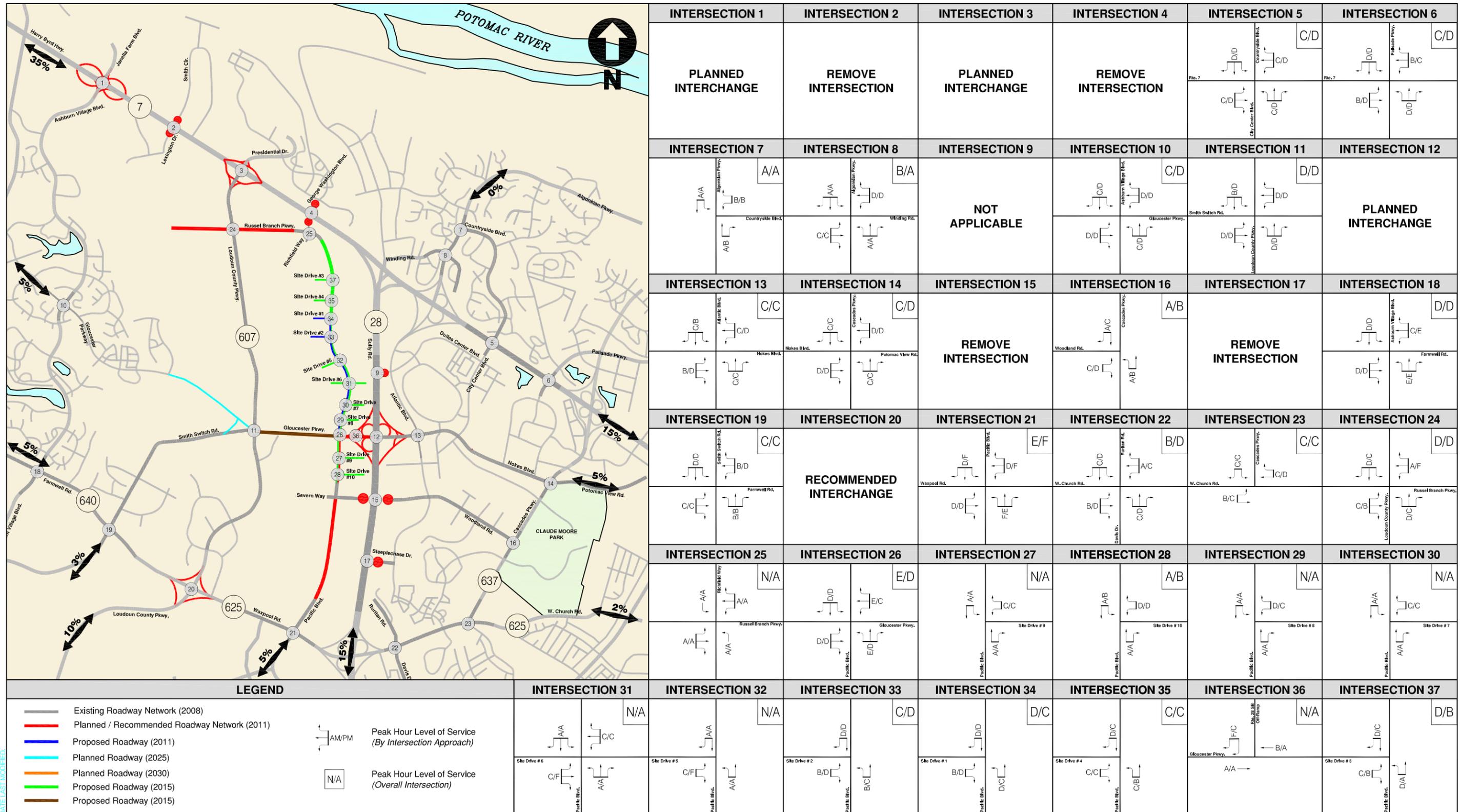


Figure 30A Future Conditions with Development (2030) Peak Hour Levels of Service - Weekday



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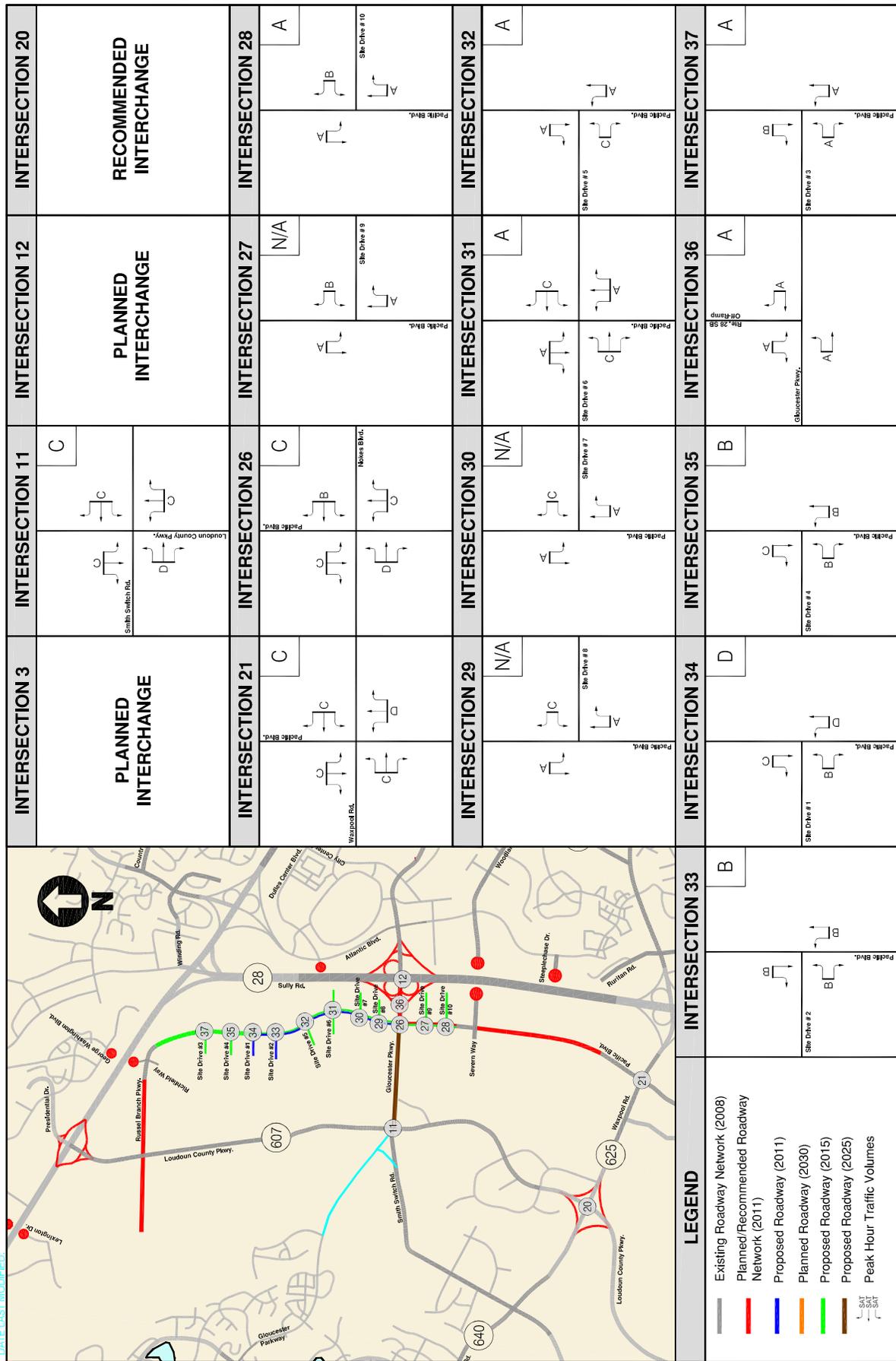


Figure 30B
Future Conditions with Development (2030) Peak Hour Levels of Service - Saturday



TRAVEL DEMAND MANAGEMENT PROGRAM AND TRIP REDUCTION ANALYSIS

The following trip generation reductions were considered to account for internal synergy, and mode split reduction, which are listed below:

- *Internal trips:* According to the VDOT's Chapter 527 methodology, a reduction was considered for mixed-use land bays during the morning, afternoon and Saturday peak periods.
- *Mode Split (TDM) reduction:* An interim travel demand management (TDM) program will be implemented to limit the number of vehicle trips through the use of mass transit, ride-sharing and/or other strategies. A 10% TDM reduction on proposed office, hotel and residential trips was considered for phase I. Of note, no TDM reduction was applied to the retail trips and baseball stadium. The TDM reduction was also applied to the net trips (excluding internal trips).
- *Pass By Trips:* According to VDOT's Chapter 527 methodology a 25% reduction was considered for the retail uses.

TDM Program

The planned TDM programs for the interim and ultimate conditions will include:

- *Telework/Alternative Work Arrangements* – Census data shows teleworking as a significant and growing mode of trip deferral. This will encourage employers to implement flexible work schedules and educate residents about the advantages of telework and flex time.
- *On-site amenities* – On site amenities such as, but not limited to, cafés, fitness center, basketball/volleyball/tennis courts, ATM, dry cleaning, car shop, and a bank will be provided/built in the complex. Additionally, the site will be designed to support and encourage multi-modal commuting with such amenities as consideration for transit access, pedestrian amenities and more. These amenities will have the secondary benefit of reducing the need for mid-day employee travel, thereby not adding to off-peak traffic (i.e. Lunch hour rush, etc.)
- *Bike/Walk programs*– New facilities with bicycle racks in covered locations will be provided. Additionally, shower and locker facilities on campus will be provided to support bicycle and walk commuters.
- *Transit Benefits Program* – Metro SmarTrip Cards on-site will be promoted to provide the most convenient form of transit fare medium and make it easier to ride transit. Employees who ride transit and vanpools will be enrolled in a SmartBenefits pre-tax benefits program to help them take advantage of automated and convenient tax savings on their transit fare.
- *Shuttle Service*– Shuttle service connecting to the nearest employment centers, area retail destinations or Park and Ride lots will be offered.
- *Work Schedule* – The implementation of work schedules that reduce trips during the peak hour



will be encouraged. This will include schedule alternatives to the traditional Monday through Friday work schedule such as four – ten hour days or eighty hours over nine work days as well as flextime giving employees the option to arrive and depart during non-peak hours.

- *Onsite Rideshare and Incentive program*– Web-based rideshare matching and incentives for car/vanpooling will be encouraged and promoted.
- *Managed parking* – A parking management and registration system for all employees, which are linked to providing limited access to specific parking areas will be promoted. As such, employees will be forced to actively choose driving and parking as a commute choice. Additionally through this system, carpools and vanpools will receive reserved parking spaces in the most proximate areas to the building access points.
- *Active marketing* – The site will designate a full-time transportation coordinator who will serve as the focal point for all commuter transportation initiatives. The transportation coordinator’s name and contact information will be posted in employee break areas and other locations. Additionally, the transportation coordinator will establish a calendar of events, provide regular employee communications, conduct targeted vanpool and transit marketing and more to keep commuting at the forefront of the employee environment. The site will also support bicycling efforts by sponsoring events such as “Bike to Work”.
- *Interactive intranet and internet resources* – As appropriate, the owner of the site will sponsor development of an intra/internet site that provides commute information, linked to external transportation services. Additionally, through the dedicated transportation coordinator, the site will sponsor/promote partnership in a regional self-directed commuter ride matching system.
- *A commitment to work with the jurisdiction to develop a robust supplemental program* – While the program and fallback measures provide for significant opportunity to meet the trip generation limitations, the site is highly committed to partnering with the local jurisdictions.

Utilizing national and local database, the trip generation adjustments for the individual TDM programs for the interim conditions (Pre Rail conditions) are shown in the following Tables 12A, B and C:

Table 12A: TDM Reduction Breakdown (Phase I – 2011)

TDM Reduction Breakdown		AM Peak Hour			PM Peak Hour			SAT Peak Hour			Daily
		In	Out	Total	In	Out	Total	In	Out	Total	Total
<i>Carpool/ VanPool/ Ride Sharing</i>	6%	-50	-19	-70	-22	-45	-67	-15	-10	-25	-762
<i>Telework</i>	1%	-8	-3	-12	-4	-8	-11	-3	-2	-4	-127
<i>Shuttle Bus Connections</i>	2%	-17	-6	-23	-7	-15	-22	-5	-3	-8	-254
<i>Flex Work Schedule</i>	1%	-8	-3	-12	-4	-8	-11	-3	-2	-4	-127
Total TDM Reduction	10%	-84	-32	-116	-36	-75	-111	-25	-16	-41	-1,270



Table 12B: TDM Reduction Breakdown (Phase II – 2015)

TDM Reduction Breakdown		AM Peak Hour			PM Peak Hour			SAT Peak Hour			Daily
		In	Out	Total	In	Out	Total	In	Out	Total	Total
<i>Carpool/VanPool/Ride Sharing</i>	6%	-97	-30	-127	-34	-88	-122	-23	-16	-39	-1371
<i>Telework</i>	1%	-16	-5	-21	-6	-15	-21	-4	-3	-7	-229
<i>Shuttle Bus Connections</i>	1%	-16	-5	-21	-6	-15	-21	-4	-3	-7	-229
<i>Public Transportation</i>	1%	-16	-5	-21	-6	-15	-21	-4	-3	-7	-229
<i>Flex Work Schedule</i>	1%	-16	-5	-21	-6	-15	-21	-4	-3	-7	-229
Total TDM Reduction	10%	-161	-50	-211	-56	-147	-203	-39	-26	-65	-2,285

Table 12C: TDM Reduction Breakdown (Phase III – Full Build Out - 2025)

TDM Reduction Breakdown		AM Peak Hour			PM Peak Hour			SAT Peak Hour			Daily
		In	Out	Total	In	Out	Total	In	Out	Total	Total
<i>Carpool/VanPool/Ride Sharing</i>	6%	-279	-64	-343	-77	-278	-355	-57	-34	-91	-3622
<i>Telework</i>	1%	-47	-11	-58	-13	-46	-59	-10	-6	-16	-604
<i>Shuttle Bus Connections</i>	1%	-47	-11	-58	-13	-46	-59	-10	-6	-16	-604
<i>Public Transportation</i>	1%	-47	-11	-58	-13	-46	-59	-10	-6	-16	-604
<i>Flex Work Schedule</i>	1%	-47	-11	-58	-13	-46	-59	-10	-6	-16	-604
Total TDM Reduction	10%	-465	-106	-571	-128	-463	-591	-95	-57	-152	-6,037

All of the on-site amenities of the proposed project, along with the other recommended TDM strategies (programs and budget levels), collectively in combination with an extensive marketing effort will achieve the trip reduction targets. With all elements in place, however, trip reductions should prove sustainable.



CONCLUSIONS

Site Location and Study Area

The site is located north of Route 847 (Severn Way), south of Route 7 (Harry Byrd Highway), east of Route 607 (Loudoun County Parkway), and west of Route 28 (Sully Road). The study area for the traffic study supporting the rezoning encompasses a number of intersections throughout the eastern portions of Loudoun County.

Description of Proposed Development

The proposed development is uniquely located in the epicenter of educational institutions and commercial developments in Loudoun County. The unique location coupled with the vibrant mixed use concept has resulted in an overall development mix, which will include commercial office, retail uses, hotels, recreational facilities, residential units, structured garage, street and surface parking, a baseball stadium, along with pedestrian walkways, sidewalks and alleyways, incorporating streetscape enhancements, including bicycle amenities. By providing corresponding uses on the same site, the proposed development will encourage self-contained pedestrian trips. The project will be completed in three phases with phase I in 2011, phase II in 2015 and full build-out (Phase III) of the development expected in 2025.

The project site consists of approximately 9.1 million square feet of developable land designated as keynote employment under the Loudoun County's Revised General Plan and currently zoned for "flex" industrial use (PD-IP). Consistent with the Revised General Plan, the proposed development program calls for a rezoning of the property to PD-MUB (Planned Development- Mixed Use Business District) to allow for a maximum of approximately 7.4 million square feet of mixed-use development consisting of approximately 4.7 million square feet of office use, approximately 500,000 square feet of retail development, approximately 1.8 million square feet of residential use, and a baseball stadium (5,500 seating capacity).

Principal Findings, Conclusions and Recommendations

The proposed development plan for the proposed Kincora project calls for a Special Exception to allow for a baseball stadium on the site. A rezoning of the property is also proposed to PD-MUB to allow for the proposed mixed-use development. In order to differentiate between the two applications, the conclusions and recommendations are listed separately for the sub applications:

Stadium Special Exception

1. The proposed baseball stadium will be constructed in the initial phase of the proposed development. The construction of the proposed stadium is scheduled to be complete by 2011



2. The proposed facility will compliment the current community, commercial, corporate, and residential benefits available to residents of both the county and neighboring counties, and serve as a significant economic stimulus and destination to the overall Loudoun County economy.
3. The proposed baseball stadium will have a seating capacity of approximately 5, 500 and is planned to host minor league baseball games.
4. The traffic generated by the proposed stadium will be in the off peak hours and will not interfere with the peak commute time period. Majority of the games will be held over the weekend. Per VDOT and County staff's request, a Saturday scenario was analyzed for the traffic generated by the baseball stadium.
5. A half-section of Pacific Boulevard (two-lane) from Gloucester Parkway to the stadium entrance will be constructed to serve the stadium patrons.
6. Of note, the existing and regional traffic on the roadway network in the vicinity of the proposed development is lower during the weekends. In addition, the trips generated by the office, retail and residential components of the proposed mixed-use development on a typical weekday are higher than the trips generated by the mixed-use development and the baseball stadium over the weekend.
7. Hence, the analysis reveals that the proposed roadway network combined with the roadway elements recommended by other private developers and public agencies will result in a roadway network that can accommodate the traffic generated by the special exception use (baseball stadium).

Rezoning Application

According to Loudoun County, it is desirable to achieve an overall and per approach level of service (LOS) D or better. Based on these guidelines, the analysis presented in this report supports the following major conclusions:

1. The Kincora site is planned as a mixed-use community with a live work environment that provides a full range of land uses including office, retail, and residential developments.
2. The site is uniquely located adjacent to two planned limited access highways (i.e. Route 7 and Route 28), and will be served by a future grade-separated interchange at the Route 28 and Nokes Boulevard intersection.
3. Full build-out site traffic can be accommodated by the existing, planned, and proposed roadway networks with local connections of Gloucester Parkway to Route 28, Pacific Boulevard to Russell Branch Parkway, and a grade-separated interchange at the existing Route 28 and Nokes Boulevard intersection.
4. The following is a summary of the roadway elements required to accommodate existing and future regional, local, and site traffic:



- a. The Route 7 and Route 28 corridors will be required to be widened to eight lanes and have grade-separated interchanges within the vicinity of the proposed development in order to handle the commuting traffic traveling to and from eastern Loudoun County, points west, Fairfax County, and Washington, D.C.
- b. Regional roadways like Waxpool Road and Loudoun County Parkway will require major lane improvements to accommodate commuter and local traffic.
- c. Roadway and signal improvements will be required at major intersections to accommodate regional, local, and site traffic.
- d. The following mitigation measures will be required under the Phase I (2011) conditions with the proposed Kincora development considering the Route 28 and Nokes Boulevard Interchange:
 - *Roadway and Signal Improvements:*
 - Gloucester Parkway and Pacific Boulevard
 - Pacific Boulevard and Future Site Drive #2
- e. The following mitigation measures will be required under the Phase II (2015) conditions with the proposed Kincora development:
 - *Roadway and Signal Improvements:*
 - Farmwell Road and Ashburn Village Boulevard
 - Waxpool Road and Pacific Boulevard
 - Gloucester Parkway and Pacific Boulevard
 - Pacific Boulevard and all proposed site driveways
 - *Signal Improvements:*
 - Route 7 with Loudoun Tech Drive/Palisade Parkway
 - Loudoun County Parkway and Smith Switch Road
 - Nokes Boulevard with Cascade Parkway/Potomac View Road
 - Farmwell Road with Smith Switch Road
 - Chruch Road with Davis Drive and Ruritan Circle
 - Loudoun County Parkway with Russel Branch Parkway
- f. The following mitigation measures will be required under the full build out, Phase III (2025) conditions with the proposed Kincora development:
 - *Roadway and Signal Improvements:*
 - Loudoun County Parkway and Smith Switch Road/Gloucester Parkway



- Farmwell Road and Ashburn Village Boulevard
- Waxpool Road and Pacific Boulevard
- Farmwell Road and Smith Switch Road/Waxpool Road
- Gloucester Parkway and Pacific Boulevard
- Pacific Boulevard and all proposed site driveways
- *Signal Improvements:*
 - Route 7 with City Center Boulevard
 - Ashburn Village Boulevard with Gloucester Parkway
 - Waxpool Road with Pacific Boulevard

The results of the study have identified that the roadway network planned as part of this project combined with the roadway elements recommended by other private developers and public agencies will result in a roadway network that can accommodate the combination of both the proposed development and the anticipated traffic as part of future non-site related traffic.