

APPENDIX:

Fairfax County Department of Transportation

&

Virginia Department of Transportation (VDOT)

Comments on

Chapter 527 Transportation Impact Analysis for

BRAC APR 08-IV-1FS

BRAC APR 08-IV-2FS



County of Fairfax, Virginia

MEMORANDUM

DATE: May 11, 2009

TO: Lindsay Mason
Policy and Plan Development Branch, DPZ

FROM: Nick Perfili
Transportation Planning Section, DOT

SUBJECT: BRAC APR #08-IV-1FS and 2FS, Franconia-Springfield

The Department of Transportation offers the following comments regarding the proposed changes to the Comprehensive Plan indicated in the subject Area Plan Review (APR) nominations.

- Access to this area is currently only via Loisdale Road. Improvements to Loisdale Road as well as additional access points and a direct connection to the Franconia-Springfield Metrorail Station must be considered in the replanning of this area. Added intensity at either site (in addition to approved development at Springfield Town Center) requires Loisdale Road be expanded to four lanes between Metropolitan Center Drive and Newington Road and expanded to six lanes between Metropolitan Center Drive and Spring Mall Drive. Findings from the 2FS Comprehensive Plan Chapter 527 report indicate several sections of Loisdale Road would operate beyond capacity based on the existing roadway configuration with added intensity. The report concludes that Loisdale Road needs to be widened between Metropolitan Center Drive and Newington Road from two to four lanes; and between Metropolitan Center Drive and Spring Mall Drive to six lanes. The results of the link analysis support the need for additional north-south capacity, including Loisdale Road widening, to accommodate the large number of vehicle trips from additional development in the area.
- A southerly extension of Frontier Drive from the Franconia-Springfield Parkway interchange has been recommended as a means of providing additional access to this area and improving pedestrian and vehicular access to the Franconia-Springfield Metro and VRE station. This improvement would be constructed as a four lane divided arterial roadway, with a southern terminus in the vicinity of Loisdale Road north of Newington. Location and final design studies for this improvement have not been completed. A plan amendment for the 2FS property should address the need for provision of right-of-way and access for this future facility (this provision is acknowledged in the 2FS Comprehensive Plan Chapter 527 transportation analysis on page 60).

Lindsay Mason

May 11, 2009

Page 2 of 5

- For any Plan Amendment approved in this area, developers should work with and accommodate elements identified in the Springfield Connectivity Study. The Springfield Connectivity Study outlines guidance to design, connect, integrate, and implement improvements within the Springfield commercial area.
- It is important to note that Loisdale Road is not identified for future improvements in the Comprehensive Plan south of Springfield Center Drive. Capacity on Loisdale Road, with or without corridor improvements, is constrained at either end – the Franconia Road bridge and Springfield Mall commercial area to the north and the I-95/Fairfax County Parkway interchange to the south at Newington. All Loisdale Road traffic must travel through either the Springfield Mall commercial or Newington areas.
- Future improvements to Loisdale Road, south of the subject sites, and a future extension of Frontier Drive could impact the residential Loisdale Estates neighborhood and other properties to the south.
- Tables below outline intersection level of service, road segment congestion, and net new trips for nominations within the Franconia-Springfield Cluster. All 2030 values assume build-out of the CLRP transportation network. The link analysis demonstrates the over-capacity challenged associated with Loisdale Road.

INTERSECTION LEVEL OF SERVICE

Intersection	2008 Existing	2030 Comp. Plan	2030 2FS Nomntn	2030 Cluster Cmltv
FRANCONIA RD EB/ LOISDALE	AM - C PM - C	AM - C PM - E	AM - C PM - E	
FRANCONIA RD EB/ LOISDALE (1)			AM - D PM - E	AM - F PM - F
FRANCONIA RD WB/ COMMERCE	AM - C PM - D	AM - D PM - D	AM - D PM - D	
FRANCONIA RD WB/ COMMERCE (2)			AM - C PM - D	AM - D PM - E
LOISDALE/95NB/ SPRING MALL RD	AM - C PM - D	AM - D PM - F	AM - E PM - F	
LOISDALE/95NB/ SPRING MALL RD (3)		AM - D PM - D	AM - D PM - D	AM - E PM - E
LOISDALE/ METROP CTR DR (4)	Stop sign intersection	AM - B PM - B	AM - D PM - C	
LOISDALE/ METROP CTR DR (5)			AM - C PM - C	AM - C PM - C
LOISDALE/	AM - A	AM - B	AM - B	AM - B

Lindsay Mason

May 11, 2009

Page 3 of 5

NEWINGTON RD	PM - B	PM - B	PM - C	PM - C
95NB RAMP/ 7100/NEWINGTON	AM - D PM - E	AM - F PM - F	AM - F PM - F	
I-95 NB RAMP/ 7100/NEWINGTON (6)			AM - F PM - F	AM - F PM - F
7900 WB RAMP/ FRONTIER DR	AM - C PM - C	AM - D PM - E	AM - D PM - E	
7900 WB RAMP/ FRONTIER DR (7)			AM - D PM - D	AM - D PM - E
7900 EB RAMP/ FRONTIER DR	AM - B PM - B	AM - D PM - C	AM - D PM - D	
7900 EB RAMP/ FRONTIER DR (8)			AM - C PM - D	AM - C PM - E

- (1) Signal timing modifications
- (2) Signal timing modifications
- (3) Channelize NB right; add SB left; optimize signal timing
- (4) Installation of a traffic signal
- (5) Optimize signal timing
- (6) Optimize signal timing
- (7) Optimize signal timing
- (8) Optimize signal timing

Signal timing and modification may be acceptable for short and medium term improvements on a case by case basis but is not an adequate or sufficient mitigation recommendation at the comprehensive plan stage. VDOT generally operates signals within networks where the cycle lengths and progression are determined by optimizing the performance of the network, rather than individual signals.

TRIP GENERATION – FRANCONIA-SPRINGFIELD CLUSTER (EST. NET NEW TRIPS)

NOMINATION	AM PEAK	PM PEAK	DAILY
08-IV-1FS	486	708	4,179
08-IV-2FS	576	736	5,529
SPRGD TWN CTR	344	611	7,811
TOTAL TRIPS	1,406	2,055	17,519

- To accommodate increased vehicle trips along Loisdale Road and at other locations in the vicinity, the following road improvements should to be made prior to site redevelopment^{1,2}.

¹ Noted improvements, with the exception of the Loisdale/I-95/VA-7100 improvement, were identified by FCDOT, within the Ft. Belvoir-BRAC Final EIS, or within the draft Springfield Connectivity Study report.

Lindsay Mason

May 11, 2009

Page 4 of 5

- Improvements to the Loisdale/GSA site (existing) access intersection;
- Improvements at Loisdale and Metropolitan Center Drive [**affirmed in the 2FS Comp. Plan Chapter 527 report**];
- Improvements to the Loisdale/Spring Mall Drive intersection [current level of service (LOS) identified as “C” in the AM peak; “D” in the PM peak];
- Improvements to the Spring Mall Drive/Frontier intersection;
- Improvements to the I-95 HOV access ramp intersection with the Franconia-Springfield Parkway (VA-7900) [current level of service (LOS) identified as “D” in the AM peak; “F” in the PM peak];
- Improvements to Loisdale Road.
- Improvements at Loisdale Road and the I-95/Fairfax County Parkway (VA-7100) interchange.
- Signal coordination, timing change, and modification measures are affirmed in the 2FS Comp. Plan Chapter 527 report for the Franconia-Springfield area.

RECOMMENDATIONS

- Provisions for the future extension of Frontier Drive should be maintained on the eastern portion of the 2FS site.
- Comprehensive Plan guidance (and an existing proffer) calls for construction of a four lane collector roadway to be constructed on the approximate alignments of Springfield Center Drive and Metropolitan Center Drive, interconnected to form a loop and provide a connection to Loisdale Road at two points. The eastern portion or “leg” of the future four lane collector loop could become a portion of the future extension of Frontier Drive. Development/redevelopment should correspond to improvements along the improved interconnected loop road.
- Added intensity at either the 1FS or 2FS site (in addition to approved development at the Springfield Town Center and 2FS-adjacent Boston Properties site) requires Loisdale Road be expanded to four lanes between Metropolitan Center Drive and Newington Road and expanded to six lanes between Metropolitan Center Drive and Spring Mall Drive as noted in the findings from the 2FS Comp. Plan Chapter 527 report. Development/redevelopment should correspond to improvements along Loisdale Road and at the intersections at the ends of and along Loisdale.
- Should a nomination be approved that changes the Comprehensive Plan, language should be included that calls for strict Travel Demand Management (TDM) strategies, including parking management programs, charging for parking, support for transit connections to the Franconia-Springfield Metrorail Station, or other FCDOT-approved TDM measures in conjunction with nearby land owners, where appropriate and determined by FCDOT staff.

² Levels of Service (LOS) identified in the “2008 BRAC-Related Area Plans Review Existing Conditions Report,” Figure 10.2.

Lindsay Mason

May 11, 2009

Page 5 of 5

Please contact Nick Perfili, Transportation Planner, at Nicholas.Perfili@FairfaxCounty.gov or 703-877-5685 should you need further information or clarification of these comments.

NP:np

cc: file
Leonard Wolfenstein, Transportation
Dan Rathbone, Transportation
Angela Rodeheaver, Transportation

S:\Transportation Planning Section\APR Central Files\BRAC 2008\PC-BOS BRAC APR Comments\Franc-Springd 1FS-2FS_postVDOT.doc



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

DAVID S. EKERN, P.E.
COMMISSIONER

14685 Avion Parkway
Chantilly, VA 20151
(703) 383-VDOT (8368)

May 4, 2009

Mr. Nicholas Perfili
Transportation Planning Section
Fairfax County DOT
12055 Government Center Parkway
Fairfax, VA 22035

Re: BRAC-APR #08-IV-2FS Fairfax County Comprehensive Plan Amendment Chapter 527

Dear Mr. Perfili:

In accordance with the Virginia Traffic Impact Analysis Regulations, 24 VAC 30-155, the proposed Comprehensive Plan Amendment (CPA) was submitted to the Virginia Department of Transportation (VDOT) for review on February 5, 2009. It was anticipated the plan amendment would create a substantial impact or change to the existing transportation network of state highways.

We have evaluated the CPA and prepared a report and written comments on the results of the evaluation. The report presents a summary of our key findings as well as detailed comments on the future transportation improvements that will be needed to support the current and planned development of the locality.

Our report is attached to assist the Planning Director, the Planning Commission and the Board of County Supervisors in the decision making process regarding the Comprehensive Plan Amendment.

It is asked you arrange to have the VDOT's comments included in the official public records, and to have both this letter and the VDOT report placed in the official file for the subject rezoning. VDOT will make these documents available to the public through various means, including future posting them to the VDOT website.

Please contact me if you have any further questions regarding this report.

Sincerely,

Hiren C. Joshi, P.E.
Transportation Engineer

Enclosure

Report/Review of APR Nomination BRAC #08-IV-2FS – Boston Properties / Springfield Metro Center II (part of Springfield-Franconia Cluster)

INTRODUCTION

In preparation for review of BRAC-related APR applications, Fairfax County staff completed several efforts that became the starting point for applicants' subsequent Traffic Impact Analyses (TIA). These efforts included:

- Grouping of applications. Applications were grouped into “clusters” based on professional judgment of the common transportation network elements impacted by the proposals. All applicants were required to assess the impact of their individual site, as well as the cumulative impact of their cluster, on common road network elements identified by County staff in the vicinity of the cluster.
- Traffic counts. Turning volume traffic counts were conducted by Fairfax County during 2008 at approximately 40 intersections throughout the area of the applications, and were used as the basis for the County's future projections. Traffic count information was also made available to applicants to conduct their existing conditions operational and link capacity analyses.
- Traffic Projections of Year 2030 “Background” Traffic. The methodology used by Fairfax County to derive the projections is an important element of the overall process since these projections are part of the input applicants used to complete their analyses. Summary of our understanding of the methodology used, and brief comments, are included below. Year 2030 “Background” traffic conditions are those that would occur in the year 2030 with the existing Comprehensive Plan land use, and before consideration of the subject nominations. County guidelines to the BRAC APR applicants required analysis by each application of Existing Conditions, as well as the following three year-2030 scenarios: 2030 “Background” Conditions, 2030 Conditions with APR nominated site, 2030 Conditions with all APR-nominated sites in the cluster.
- Planning-level Capacity Determinations. Fairfax County Department of Transportation (FCDOT) recently developed New Capacity Level-Of-Service (LOS) boundaries for 7 facility types, for use in planning analysis of BRAC-related Comprehensive Plan amendments. Applicants used these capacities in their assessment of volume-capacity (v/c) conditions along specific road segments, for each of the four scenarios required by the County guidelines, listed above. Overview of the new planning-level capacities used in this process is included in the next section.

OVERVIEW OF INPUT DATA DEVELOPMENT

1. Traffic Projections of Year 2030 “Background” Traffic. Fairfax County staff developed background 2030 traffic forecasts for the BRAC APR analyses, and provided these forecasts to applicants' representatives to maintain consistency in the forecasting process and analysis. For this land development stage (Comprehensive Plan Amendment), the focus was to produce reasonable link volumes (needed for capacity evaluations), rather than exact 2030 turn volumes. Since County staff also desired limited operational analysis of selected intersections, estimates of turn volumes were also derived for use by applicants in their TIAs.

Each cluster's existing AM and PM traffic counts (turns) were factored to 2030 by individual approach growth factors. The growth factors were applied only to approach volumes, and not the departure end. Estimates of future turn volumes were rounded.

The Fairfax County travel demand model was used to derive growth factors. This model is based on the MWCOCG/ TPB travel demand model, with additional detail for both road network and analysis zones (Fairfax County model has approximately 5 times the number of Traffic Analysis Zones, or TAZs, that the TPB model has). Growth factors were developed by comparing link volumes under 2 scenarios: "Existing" conditions (year 2008) and "2030" conditions. County staff used the latest information available at the time the process was initiated, and incorporated detailed data from recent subarea studies. The basic land use version used was modified 7.0, with data adjustments and enhancements derived from studies such as the Springfield Area Study (Huntington cluster area) and BRAC EIS (Fairfax Co. Parkway and Backlick Rd. area).

Based on the information provided to date by County staff, we believe the above steps represent a reasonable methodology to estimate future 2030 traffic turning volumes, based on the information available to staff, adjusted with local detail from recent previous analyses, along with combined very experienced professional judgment.

2. Planning Level Capacity Determinations. As indicated in the 6/30/08 report TPB Travel Forecasting Model, Version 2.2: Specification, Validation, and User's Guide, the TPB Travel Forecasting Model uses area type codes, ranging from 1 (very dense) to 7 (less dense), based on both population density and employment density within 1 mile of a given traffic analysis zone (TAZ). Thus the area type code represents both the intensity of land use development and mix of home and job locations. This variable is also used as a basis for highway link capacities for each roadway facility type. For example, LOS E Capacity of a Major Arterial ranges from a low of 800 passenger vehicles per hour per lane (vphpl) in the densest area type (AT=1), to a high of 1,260 vphpl in the more rural areas (AT=7); the equivalent values for a Collector are 300 to 800 vphpl.

Fairfax County Department of Transportation (FCDOT) recently developed New Capacities – Level of Service (LOS) boundaries for 7 facility types, for use in planning analysis of the BRAC-related Comprehensive Plan amendments. A review of mid LOS E values suggests that the capacities assumed by FCDOT, compared to TPB's for the corresponding area types, may be relatively high for Freeways and Arterials, but similar or even slightly low for Collectors. For purposes of Comprehensive Plan Amendment applications, we believe the capacity and LOS values provided by FCDOT to the BRAC- APR applicants are a reasonable approximation for planning analysis. Volume/capacity ratios are used as one of the factors indicative of impact of traffic generation and potential need for mitigation and/or improvements. Additional care should be exercised when evaluating the performance of specific arterial road segments when results indicate the road is at/near capacity, as defined by FCDOT: the combination of capacity definition, underestimated trip generation, and/or trip distribution assumptions, may all combine to obscure overall impact on road segments operating near their capacity threshold. For more detailed analysis and improvement decisions, these values should not substitute for capacities established based on more detailed and localized engineering analysis.

OVERVIEW OF KEY FINDINGS -- IMPACT OF BRAC #08-IV-2FS, AND CUMULATIVE IMPACT OF SPRINGFIELD-FRANCONIA CLUSTER

1. Summary of Application and the Cluster:

APR Nominations in Springfield- Franconia Cluster				
Nomination (lot size)	Location of Development	Land Use Existing Comp. Plan	Land Use Proposed Comp. Plan By Applicant	Trips: AM / PM / ADT - Existing Comp. Plan (Proposed Comp. Plan)
BRAC 08-IV-1FS	N. Springfield Center Dr., S. Metropolitan Center Dr., East Loisdale Rd	131,762 SF Office	379,440 SF Office, and 42,160 SF Retail	56 / 22 / 750 (542 / 730 / 6,459)
Springfield Town Center Out-of-Turn Plan Amendment	South of Franconia Rd, East Loisdale Rd, West of Frontier Dr.	22,000 SF Office and 5,445,000 SF Retail	225-Room Hotel, 171,000 SF Office, 1,995,000 SF Retail, 2150-Seat Cinema	814 / 3,860 / 40,908 (1,158 / 4,471 / 48,719)
BRAC 08-IV-2FS Boston Properties / Springfield Metro Center II (5.94 Acres)	North and West of Springfield Center Dr, South of Franconia-Springfield Pkwy	129,419 SF Light Industrial	491,792 SF General Office and 25,884 SF Retail	53 / 18 / 735 (629 / 754 / 6,264)
Net New Cluster Trips (Prop. Comp. Plan trips – Existing Comp. Plan trips) >>				1,406/ 2,055 / 19,049

Springfield -Franconia Cluster							
Site	Net New Trips						ADT
	AM Peak Hour			PM Peak Hour			
	IN	OUT	TOTAL	IN	OUT	TOTAL	
BRAC 08-IV-1FS	407	80	486	216	493	708	5,709
BRAC 08-IV-2FS Boston Properties/ Springfield Metro Ctr. II	492	86	576	194	543	736	5,529
Springfield Town Center Out-of-Turn Amendment	271	71	344	276	335	611	7,811
Total Cluster Trips	1,170	237	1,406	686	1,371	2,055	19,049

This application will generate approximately 700 additional weekday PM peak hour trips (total, both directions). With all access to the site based from Loisdale Road (via Springfield Center Drive), this volume is approximately equivalent to the capacity of almost 1 additional minor arterial lane. For the Springfield-Franconia Cluster, the proposed Comprehensive Plan Amendments will generate over 2,000 new vehicle trips during the weekday PM peak hour (total, both directions); this volume is proportionally equivalent to the capacity of over 2 additional lanes of an arterial roadway (one lane in each direction). This broad comparison represents a measure of the substantial cumulative impact of the three cluster's nominations to the surrounding local road network. The need to widen Loisdale Road is clearly supported by the more detailed volume/capacity analysis conducted in the study, as summarized in the next section.

2. Impact on Selected Elements of Transportation System

The trips generated by the proposed APR nomination 2FS and particularly by the combined nominations in the Franconia-Springfield cluster are noted to have significant impact in 2030 on the surrounding road system.

- Intersections (Table 4-12 in TIS report; operational analysis):
 - Loisdale Rd/I-95 NB Ramp/ Spring Mall Dr: poor 2030 PM Peak signal operation under Existing Comp. Plan conditions (average delays over 95 seconds) deteriorates almost 30% to delays over 120 seconds with subject nomination. To mitigate this congestion, the report refers to improvements proffered by others (additional southbound lane, channelization of northbound right, signal timing improvements). It is noted that VDOT generally operates signals within networks where cycle lengths and progressions are determined by optimizing the performance of the network (rather than of individual signals). The feasibility and performance of any proposed signal timing modification would need further evaluation as part of the overall network. Also see additional note on signal timing modifications at the end of this section.
 - Fairfax County Parkway/ I-95 NB Ramp/ Newington Road: Existing Comp. Plan average intersection delay (over 100 seconds) deteriorates 30% to over 140 seconds with the proposed nomination, and almost doubles with all nominations in the cluster (to almost 200 seconds, more than 2.5 times the threshold for LOS F conditions) in spite of proposed optimization of signal timings. Again, the feasibility and performance of any proposed signal timing modification would need further evaluation as part of the overall network.
 - Franconia Road EB and WB ramps at Loisdale Road/Commerce Street. Analysis of conditions with all nominations in the cluster, before "signal timing optimization" are not presented. Even with "signal timing optimization" the analysis results (Table 4-12) indicate the EB ramp intersection will be severely congested in the PM peak (average delays exceeding 200 seconds, more than 2.5 times the threshold for LOS F conditions). Please refer to comment below regarding the limitation of signal timing recommendations for long-term improvements associated with Comprehensive Plans.
- Road Segments (capacity analysis).
 - Loisdale Road is the only road for which link analyses were performed in the study. It provides the only access to the APR nominated site 2FS. Link analysis results indicate the following segments are under capacity with or without the proposed comprehensive plan amendment:

- SB, between Spring Mall Dr. and Newington Road
- NB, south of Metropolitan Center Dr.
- This road is affected by the proposed development particularly in the southbound direction during the AM peak, and northbound direction in the PM peak hour. The segment south of Metropolitan Center Drive (1 lane in each direction) experiences poor levels of service (v/c's ranging from 1.53 in AM peak up to 2.47 in the PM peak hour), even before trips from the proposal (2FS) are added. With all nominations in the cluster, the entire portion of Loisdale Road analyzed (Spring Mall Drive to Newington Drive) would operate at failing conditions (v/c of 1.0 or above), experiencing very poor levels (up to v/c approaching 3.0) south of Metropolitan Center Drive). Adding or extending existing auxiliary lanes at high volume intersections of Loisdale Road between Metropolitan Center Dr. and Newington road may be necessary to improve intersection performance.
- Widening of Loisdale Road: The report concludes that Loisdale Road needs to be widened between Metropolitan Center Drive and Newington Road (from 2 to 4 lanes), and between Metropolitan Center Drive and Spring Mall Drive (from existing 2 and 3 lanes, to 6 lanes). The results of the link analysis support the need for additional north-south capacity, including Loisdale Road widening, to accommodate the large number of vehicle trips from additional development in the area on top of background growth. The report for 2FS acknowledges that “a portion of this improvement cost should be made by the Springfield Metro Center II project in proportion of its impact.”
- Except for the segment between Metropolitan Center Dr. and Springfield Center Dr. (widen to 4 lanes) widening of Loisdale Road is not envisioned in the current Fairfax County Comprehensive Plan or the MWCOG's Constrained Long Range Plan (CLRP).
- The report notes that Frontier Drive extension is under review (by others) between its current terminus at the Franconia-Springfield interchange (Rte 7900, in the vicinity of the Metrorail station), south toward the Fairfax County Parkway (Route 7100). The improvement would provide congestion relief to the segment of Loisdale Road that the extension would approximately parallel, as it would create an alternative for some of the north-south trips along and to the north of the area. The Frontier Drive extension is not yet included in the current Fairfax County Transportation Plan. The report for the 2FS submission did not analyze the revised trip distribution that would result from the Frontier Drive extension being considered, but did acknowledge the need for future development plans to take into account the alignment of the extension. If this nomination is approved, right of way dedication and revised traffic distribution should be addressed in more detail in any subsequent submission for the site.
- Connecting Springfield Center Drive and Metropolitan Center Drive would provide additional desirable connectivity, particularly in conjunction with Frontier Drive extension.

The analysis in the report demonstrated the substantial impact of the auto trips generated by the Springfield-Franconia cluster nominations on the road system, in spite of the minor modifications analyzed (mostly signal timing revisions).

Signal timing modification may be acceptable for short and medium term improvements on a case by case basis but are not by themselves an adequate or sufficient mitigation recommendation at the comprehensive plan stage. Comprehensive plans and amendments to comprehensive plans are based on predicted future (long term) requirements of the street network. Therefore, the long term improvements to the system should be based on capacity improvements and not shorter term improvements. In addition VDOT generally operates signals within networks where the cycle lengths and progression are determined by optimizing the performance of the network, rather than individual signals. Subsequent analysis performed in conjunction with more detailed rezoning analyses should recognize these network characteristics.

There are several intermediate and major improvements recommended or considered (Loisdale Road widening, Frontier Drive extension, possible connection of Springfield Center Dr. and Metropolitan Center Dr., enhanced access for pedestrians and shuttles to the Franconia-Springfield station). Not included in the analysis are the possible additional impacts on the same road network of two large deferred nominations with access along Loisdale Road (I-95 East). Fairfax Study is conducting a special study to evaluate those two deferred nominations. It is recommended that the effect of nominations impacting Loisdale and surrounding roads be analyzed together and in sufficient detail to evaluate feasibility and performance of the road network with the suggested improvements, and that the findings be considered in all decisions concerning proffers, recommendations and approvals for the various nominations.

3. Additional Recommendations

The subject APR nomination mentions the proximity between the site and the Franconia-Springfield Metrorail station, and states that “a direct connection exists [accent added] to accommodate pedestrians and shuttle bus traffic to encourage non-auto travel” (page 59). The report’s section on conclusions, states that “a direct connection would be made ... [accent added].” Providing new or enhancing existing connections to/from the Joe Alexander Transportation Center/ Franconia-Springfield Metrorail station can be an effective way to encourage non-auto travel; any such direct connections should be safe, reliable and properly maintained to provide sustainable auto trip reductions. The report further refers to a comprehensive Transportation Demand Management (TDM) program, which should be incorporated as part of the development approval to reduce peak hour vehicle trips generated by the site. Such a program would further reduce auto dependence and should be pursued in a way to insure long-term continuation of reductions of auto trips from the site (such as through a mechanism for sites to manage the program and the County to monitor or insure follow-through).

For any approved nomination, it is anticipated that a more detailed analysis will be submitted at the rezoning stage, which will: provide a full impact assessment; identify location and phasing of specific mitigation measures and improvements to road elements and analyze how these affect performance of the system; identify related right-of-way considerations.

TIS TECHNICAL REVIEW ELEMENTS

The review performed for this Comprehensive Plan Amendment is limited to the level of detail provided by the applicant. Several issues have been identified during this review that would need further explanation, revision, or greater analysis during subsequent stages of the Chapter 527 process, should the proposed nomination be approved; some of the details below are provided for

consideration at that stage. If the application proceeds forward to the Traffic Impact Analysis phase, VDOT reserves the right to recommend modifications to assumptions used in these analyses.

- Study Area: According to the traffic report and the scope of work agreement with Fairfax County Department of Transportation (FCDOT), the study limits were selected as directed by FCDOT. The study area seems reasonable as it includes nearly all the relevant junctions and/or access points surrounding the proposed site. However, the only intersection currently providing direct access to the site (Loisdale Road at Spring Center Drive) was not analyzed.
- Trip Generation: According to the scope of work agreement, as well as the BRAC APR nomination application form and the report, the proposed development will consist of office and specialty retail land uses. The Shopping Center land use code (820) with the corresponding ITE equations was applied instead of the land use code (814) for Specialty Retail. For comparison purposes, trips were also generated during this review assuming ITE's Specialty Retail code. The results of the comparison indicate that the trips generated by land use Code 820 (Shopping Center) as assumed in the report, are more than the Specialty Retail land use would generate.
- Trip Distribution and Trip Assignment: It was stated in the traffic report that the trip distribution and traffic assignments were based on the existing site access system, the current and forecasted travel patterns and engineering judgment. The directional distribution percentages included in the scope of work agreement have been approved by the Fairfax County staff. However, the narrative for the trip distribution and trip assignment methodologies in the report is rather limited. The report does not detail the trip distribution percentages at the study intersections, which would be helpful in understanding how the trip assignments were determined. Given the limited description, it is not possible to provide detailed comments on the appropriateness of the trip distribution and trip assignment analysis. We anticipate subsequent submission will have additional backup.
- Traffic Volumes: Some discrepancies were identified when the traffic volumes shown in the report figures were compared against volumes modeled in Synchro and the raw traffic counts. The report did not indicate that traffic volumes were balanced between adjacent intersections or that any adjustment factors were applied. A review of the traffic models for various analysis scenarios indicated that traffic volume balancing was not performed.
- Traffic Analyses: The intersection traffic analyses discussions were solely based on the overall levels of service. For subsequent stages (Rezoning submission) Chapter 527 TIS regulations require the results of the lane groups as well. The overall intersection LOS may not provide the clearest picture of the intersections performance.
- Recommended Improvements: Several mitigation measures included in the report were mentioned above. The report does not propose any turn lane additions for the study intersection; though some of the turning traffic volumes exceed the thresholds for turn-lane additions based on VDOT's Roadway Design Manual and AASHTO's A Policy on Geometric Design of Highways and Streets (AASHTO Green Book). This level of recommendations are typically covered in later (Rezoning) submissions.
- Capacity: (Refer to summary table at end of this report). There are two (2) segments along Loisdale Road that currently exceed the roadway capacity (defined as a V/C ratio greater than 1.0) during the PM peak hour. Under the existing comprehensive plan amendment, the links operating beyond capacity increased to four (4) and five (5) during the AM and PM peak, respectively. With the proposed comprehensive plan amendment for the subject nomination, the roadway segments exceeding capacity increased to six (6) in the AM peak hour and seven (7) in

the PM peak hour. With all nominations in the cluster, all intersection in the study area would operate at v/c greater than 1.0.

Planning Assumptions: the following are a few inconsistencies identified:

- The Scope of Work document indicates that the Loisdale Road link analysis will be performed between Springfield Center Drive and Newington Road. However, Section 4.2 - Assumptions contradicts the limits of the link analysis specified in the Scope of Work documents. Section 4.2 states that the link analysis will begin from Metropolitan Center Dr.
- The lane configurations shown in Figure 4-2 - 2030 Future Lane Use are exactly the same as the existing geometry shown in Figure 4-1. The only difference is the signalization at Node 4 – Loisdale Road at Metropolitan Center Drive. Based on Figure 4-2, it is assumed there will be no future roadway improvements to the transportation network. However, a review of the future Synchro analysis revealed that there were some intersection improvements assumed, including a SBL lane addition at Node 3 – Loisdale Road at Spring Mall Drive (as shown in Table 4-6 but not shown in Figure 4-2).
- The analysis did not consider the roadway widening planned in the Fairfax County Comprehensive Plan (as shown in Figure 2-2) for Loisdale Road between Metropolitan Center Drive and Springfield Center Drive. This widening project would increase capacity and hence may change (improve) the results of the future capacity analysis.

Traffic Volumes:

- There are some volume discrepancies between the peak hour volumes extracted from the traffic count data and the volumes used for the capacity analyses as depicted in Figure 4-3. A close review of the traffic count data revealed that each of the peak hour traffic volumes used in the analyses were extracted from two different hours within the same 3-hour peak period and combined to represent the traffic data for a single peak hour. This observation relates to the intersections of Frontier Drive and Franconia-Springfield Parkway during both AM and PM peak hours. The reason for these discrepancies is not known.
- The traffic volumes used to model the traffic conditions for various analysis scenarios were generally consistent with data represented in the respective figures including (Figures 4-3, 4-5, 4-7, and 4-10) with the exception of some minor discrepancies associated with some of the lane movements. For example, there are errors associated with the EBR volumes of Node 3 – Loisdale Road at Spring Mall Drive under 2008 Existing PM peak hour conditions as well as the EBL and EBT volumes of Node 7 – Frontier Drive at Franconia-Springfield Parkway during the AM and PM peak hours of the 2030 proposed comprehensive plan scenarios.

Trip Analysis of Other APR Nominations within the Cluster: A review of the trip analysis results for the surrounding APR nominations indicate that:

- The report lacks the official source for the trips generated by the “Other Nominations within the Cluster, including the Approved Area Out-of-Turn APR Nomination”.
- The trip generation summary for the Out-of-Turn Plan amendment does not indicate the related ITE Land Use Codes, trip reduction assumptions, or information regarding the ITE equations applied. The proposed expansion includes a retail land use that will occupy approximately 1,995,000 sq-ft including a 2150-seat cinema facility. There are no specific details regarding how the retail land use trips were generated.

- Figure 4-9 does not show the locations of the other APR nominations within the Franconia-Springfield TSA Cluster. The new trip assignments depicted in Figure 4-9 for the other APR nominations could not be verified.

Pedestrian Analysis: The study area is located in an urban environment and the subject parcel is in close proximity to major attractions such as the Springfield Mall and Franconia Springfield Metrorail station. Pedestrian traffic within the transportation network should be analyzed in subsequent submissions. A review of the Synchro files indicates that pedestrian accommodations were considered at all signalized intersections with the exception of the Fairfax County Parkway at Newington Road intersection. Pedestrian volumes were not coded into the model; if pedestrian counts are unavailable, a brief discussion explaining the assumptions in the report would be helpful.

SUMMARY OF SELECTED RESULTS

The LOS results discussed under various analyses scenarios in the TIS report were focused on the overall intersection LOS conditions. The analysis did not include a separate evaluation of the study network based on future recommended improvements designed to mitigate the impacts of 2FS development. The results from various traffic analyses including LOS and delay and link analysis are briefly discussed or summarized in tables below.

Intersection Capacity Analysis: Capacity analyses were performed for all eight (8) study intersections. A review of the capacity analysis results in Table 4-6 for the future scenarios revealed that the LOS results for a few lane groups deteriorated even after implementing the future programmed improvements as well as optimizing the signal timings. For example, doubling the SBL lane capacity at Node 3 – Loisdale Road at Spring Mall Drive did not improve the LOS conditions. Also, the addition of the subject nomination would not cause the overall intersections to degrade beyond the conditions experienced under the existing comprehensive plan; however the conditions at two (2) additional lane groups would worsen during the PM peak hour, under the proposed comprehensive plan amendment. The intersection analysis summaries for various scenarios are shown in the table below.

Summary Table for Intersection Capacity Analysis								
Description of LOS and Delay	2008 Existing		2030 Exist. Comp Plan		2030 Prop. Comp Plan		2030 w/ all APR Nominations	
	AM	PM	AM	PM	AM	PM	AM	PM
No. of Intersections at LOS “A” – “D”	8	7	7	5	7	6	5	2
No. of Intersections at LOS “E”	-	1	-	2	-	1	1	4
No. of Intersections at LOS “F”	-	-	1	1	1	1	2	2
Number of Lane Groups with major Control Delays (i.e. Delay > 180sec)	-	-	2	2	1	4	2	8

Link Analysis: Link analyses, preformed for various analyses years, indicated that Loisdale Road is currently operating below capacity during the AM peak and mostly during the PM peak, with the exception of two (2) approaches. According to the Fairfax County Comprehensive Plan, a section of this roadway (between Metropolitan Center Drive and Springfield Center Drive) will be widened to a four-lane facility by 2030. This programmed improvement was not considered during the link

analysis for the future scenarios. It was also determined from reviewing the analysis worksheets, that the southbound traffic volumes along Loisdale Road between Spring Mall Drive and Metropolitan Center Drive are unbalanced although there are no access points (sources or sinks) or median breaks along the segment. The following shows the roadway links that degrade (i.e. V/C > 1.0) with the addition of traffic generated from various scenarios:

Existing Conditions:

- Southbound Loisdale Rd from Metropolitan Center Dr. to Newington Rd. – PM peak hour

Existing Comprehensive Plan:

- Northbound Loisdale Rd. north of Metropolitan Center Drive – AM peak hour
- Northbound Loisdale Rd, south of Metropolitan Center Drive – AM and PM peak hours
- Southbound Loisdale Rd., Springfield Center Dr. to Metropolitan Center Dr.–PM peak hour
- Southbound Loisdale Road, Metropolitan Center Dr. to Newington Rd.– AM and PM peak hours

Proposed Comprehensive Plan Amendment

- Northbound Loisdale Rd., north of Metropolitan Center Drive – AM peak hour
- Northbound Loisdale Rd., south of Metropolitan Center Drive – PM peak hour
- Northbound Loisdale Rd., Spring Mall Dr. to Metropolitan Center Dr. – PM peak hour
- Northbound Loisdale Rd., Metropolitan Center Dr. to Newington Rd. – AM peak hour
- Southbound Loisdale Rd., Springfield Center Dr. to Metropolitan Center Dr.–AM and PM peak hours
- Southbound Loisdale Rd., Metropolitan Center Dr. to Newington Rd. – AM and PM peak hours

Future Conditions with surrounding Nominated land uses:

- Loisdale Rd., Springfield Center Dr. to Metropolitan Center Dr. – AM / PM peak hours
- Loisdale Rd., Metropolitan Center Dr., to Newington Rd. – AM and PM peak hours

The table below shows a comparison of the link analyses results for various scenarios.

Summary of Roadway Link Capacity Analysis								
Description	2008 Existing		2030 Exist. Comp Plan		2030 Prop. Comp Plan		2030 w/ all APR Nominations	
	AM	PM	AM	PM	AM	PM	AM	PM
No. of Links at v/C ratio ≤ 1.0	8	6	4	3	2	1	-	-
No. of Links at v/C ratio > 1.0	-	2	4	5	6	7	8	8