

The subject property is located in eastern portion of Lee Jackson Community Planning Sector and is part of the Upper Potomac Planning District (Area III), in Fairfax County, Virginia. The site is generally located southeast of Rugby Road, northeast of Alder Woods Drive and southwest of West Ox Road. The site is comprised of eight parcels and is approximately 73-acres in area.

The details of land uses within the subject property under existing and proposed comprehensive plan along with the trips involved are presented in Table 1 below:

Table 1: APR Nomination – 08-III-3UP – INOVA Fair Oaks Hospital – Land Use and Trip Summary				
Nomination (lot size)	Location of Development	Land Use Existing Comp. Plan (SF, # units, etc)	Land Use Proposed Comp. Plan By Applicant (SF, # units, etc)	Trips: AM / PM - Existing Comp. Plan (Proposed Comp. Plan) <i>Difference</i>
APR 08-III-3UP 73.23 Acres / (3,189,689 Sq. Ft)	East of Rugby Road, north of Alder Woods Drive, and southwest of West Ox Road in Fairfax County, VA	0.3 FAR 555,773 SF of Hospital uses, 323,297 SF Medical-Office Buildings, 68,454SF of Assisted-Living Center, 9,380 SF of Day-Care Center	Option 1: 0.35 FAR 669,832 SF of Hospital uses, 368,722 SF Medical-Office Buildings, 68,454SF of Assisted-Living Center, 9,380 SF of Day-Care Center	1,405 / 1,311 (1,608/ 1,498) 203 / 187
			Option 2: 0.4 FAR 764,242 SF of Hospital uses, 433,796 SF Medical-Office Buildings, 68,454SF of Assisted-Living Center, 9,380 SF of Day-Care Center	1,405 / 1,311 (1,840/ 1,708) 435 / 397

The current adopted Comprehensive Plan allows a density of 0.3 FAR for the subject property. The comprehensive plan amendment application proposes land use development with density up to 0.4 FAR referred to as option 2 in the comments. Due to the nature of this land use and the trip generation characteristics of such a campus, an alternative scenario was also evaluated with a density of up to 0.35 FAR which is referred to as option 1 in the comments below.

The full build out of the property in accordance with the existing Comprehensive Plan, will result in approximately 1,400 vehicles being generated in the AM peak hour and approximately 1,300 vehicles being generated in the PM peak hour. These volumes are significant: approximately equal to the capacity of up to 2-lanes of a Minor Arterial Type B roadway facility or 4-lanes of an Urban Collector facility. The proposed comprehensive plan amendment (0.40 FAR) would result in approximately 400 additional trips in both of the peak hours, while the reduced level of the proposed comprehensive plan amendment (0.35 FAR) would result in approximately 200 additional trips in each of the peak hours.

The comprehensive plan amendment also studies the feasibility of constructing an additional site access along Rugby Road. This access would help distribute site generated traffic, and would improve the operation of the intersections along Alder Woods Drive.

STUDY AREA:

The study intersections and roadway links analyzed in the study and approved by Fairfax County Department of Transportation (FCDOT) are presented below. AM and PM peak periods were analyzed for this study.

Ten (10) Study Intersections: Five (5) Signalized and Five (5) Un-Signalized Intersections

1. Fairfax County Parkway at Rugby Road - *Signalized*
2. Rugby Road at Alder Woods Drive - *Signalized*
3. Alder Woods Drive at Joseph Siewick Drive - *Un-Signalized*
4. Rugby Road at Proposed Site Access - *Signalized (Future Intersection)*
5. Misty Creek Lane at Lamplight Drive - *Un-Signalized*
6. Rugby Road/Ox Trail at Misty Creek Lane - *Un-Signalized*
7. Ox Trail at Joseph Siewick Drive/Child Care Center Driveway - *Un-Signalized*
8. West Ox Road at Ox Trail - *Signalized*
9. Route 50 at Alder Woods Drive Right-Out, and - *Un-Signalized*
10. Route 50 at Alder Woods Drive/Dorforth Drive – *Signalized*

Four (4) Study Roadway Segments:

- Rugby Road South of Fairfax County Parkway – NB and SB (*2-lane minor collector*)
- Rugby Road South of Alder Woods Drive – NB and SB (*2-lane minor collector*)
- Rugby Road North of Alder Woods Drive – NB and SB (*2-lane minor collector*)
- Ox Trail West of W. Ox Road – EB and WB (*2-lane minor collector*)

KEY FINDINGS

1. **Summary of Application:** Table 2 presents the summary of the trips generated under the existing Comp plan and the proposed Comp plan.

Table 2: APR Nomination – 08-III-3UP – INOVA Fair Oaks Hospital – Trip Summary							
Land Use (ITE Land Use Code)	Net New Trips						
	AM Peak Hour			PM Peak Hour			ADT
	IN	OUT	TOTAL	IN	OUT	TOTAL	TOTAL
2009 Existing Development							
Total External Site Trips	671	177	848	200	581	781	-
Existing Comprehensive Plan – 0.3 FAR							
Add. Proposed Hospital (610)	95	66	161	60	84	144	1,875
Add. Proposed Medical Office	313	83	396	104	282	386	7,033
Total External Site Trips	1,079	326	1,405	364	947	1,311	-
Proposed Comprehensive Plan – Option 1 – 0.35 FAR							
Add. Proposed Hospital (610)	1,083	148	1,231	213	1,042	1,255	8,159
Add. Proposed Medical Office	184	117	301	156	139	295	4,102
Total External Site Trips	1,220	388	1,608	428	1,070	1,498	-
New External Site Trips	141	62	203	64	123	187	-
Proposed Comprehensive Plan – Option 2 – 0.4 FAR							
Add. Proposed Hospital (610)	1,083	148	1,231	213	1,042	1,255	8,159
Add. Proposed Medical Office	184	117	301	156	139	295	4,102
Total External Site Trips	1386	454	1840	496	1212	1708	-
New External Site Trips	307	128	435	132	265	397	-

In Summary, the full build out of the property, based on the approved existing comprehensive plan (0.3 FAR) will generate approximately 550 more trips in the AM and PM weekday peak hours than the site currently generates. These volumes are significant, approximately equal to the capacity of 1 lane of an Urban Collector facility. The proposed comprehensive plan amendment (0.4 FAR) would result in approximately 400 *additional* trips in the AM and PM weekday peak hours, or approximately 950 more trips than today in each peak hour, or 1 lane of a minor Arterial. Alternate conditions of the proposed comprehensive plan amendment (0.35 FAR) would result in approximately 200 *additional* trips in the AM and PM weekday peak hours, or approximately 750 more trips than today in each peak hour, approximately equivalent to 1 lane of a minor Arterial.

This broad comparison represents a planning level measure of the impact of the nomination to the surrounding local road network.

The application identified two (2) roadway improvements that are listed in the Fairfax County Transportation Plan within the study area. These improvements were also included in the Constrained Long Range Plan (CLRP). Only the improvements listed in the CLRP are assumed complete by 2030.

- Widening of Fairfax County Parkway to 6 Lanes
- Widening of Rugby Road to 4 lanes between Fairfax County Parkway to Route 50

2. Traffic Impacts - The trips generated by the INOVA Fair Oaks Hospital are noted to have significant impact in the year 2030 on few key intersections and roadway segments of the surrounding transportation system, even after including the planned improvements listed in the CLRP. However, the impact due to the proposed Comprehensive Plan Amendment (for both Options 1 and 2) is minimal when compared to the Existing Comprehensive Plan. Following are the impacted intersections and roadway links:

- Fairfax County Parkway / Rugby Road: This signalized intersection is currently operating at an unacceptable level of service LOS E. This intersection would continue to operate at LOS E in all future year scenarios for both AM and PM peak hours except for future year Option 2 with the proposed site access, where the intersection is anticipated to degrade to LOS F during PM peak hour. In order to improve the intersection performance, an additional left-turn lane along southbound and eastbound approaches is proposed (but not proffered) along with signal timing optimization. However, no analysis was performed to review how these improvements would affect the intersection performance.

Signal timing modifications may be acceptable for short and medium term improvements on a case by case basis but are not an adequate or sufficient mitigation recommendation at the comprehensive plan stage. 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. The feasibility and performance of any proposed signal timing modification would need further evaluation as part of the overall network. Subsequent analysis performed in conjunction with more detailed rezoning analyses should recognize these network characteristics.

- West Ox Road at Ox Trail: This signalized intersection is currently operating at an acceptable level of service, but is projected to fail (LOS F in the AM peak and LOS E in the PM peak) in 2030 with full build out of the site based on the existing comp plan. For future year proposed comp plan Options 1 and 2, the intersection is also anticipated to fail with or without the proposed site access condition, with a small degree of additional operational degradation to a number of turning movements. However, no improvements were recommended since the deterioration caused by the APR nomination is minimal.
- Table 3 below provides a summary of v/c ratio for the failing links during the AM and PM Peak hour:

Roadway Link	2030 with current comp plan		2030 with 0.35 FAR		2030 with 0.4 FAR	
	AM V/C	PM V/C	AM	PM	AM	PM
NB Rugby Rd. between Rte. 7100 and Alder Woods Dr.	1.45	-	1.55	-	1.66	-
SB Rugby Rd. between Alder Woods Dr and Route 7100	-	-	-	1.10	-	1.20
NB Rugby Rd. between Alder Woods Dr. and new site access	1.38	-	1.46	-	1.55	-
SB Rugby Rd. between new site access and Alder Woods Dr.	-	-	-	1.0	-	1.98

As shown in the traffic analysis and table above Rugby Road will operate at failing conditions (V/C > 1.00) under the future scenarios analyzed. The mitigation measure suggested is to reclassify the roadway to a Minor Arterial Type B instead of the current classification of Collector Street. This change as analyzed in the traffic study would result in a reduction in v/c from 1.66 to 1.11 but the link would still operate above capacity.

Summary –

1. Based on the traffic analysis discussed above the alternative option of 0.35 FAR will have lower impacts particularly to the Fairfax County Parkway / Rugby Road intersection.
2. The proposed new site entrance improves the distribution of site traffic and operations at the intersections of Joseph Siewick Drive / Alder Woods Dr and Alder Woods Drive / Rugby Road. However, it's location, feasibility and compliance with the access management guidelines need to be evaluated.
3. The Rugby Road link between the Fairfax County Parkway and the proposed new site entrance will operate at a V/C greater than 1 under all options. The County

Comprehensive Plan should be revised to show future widening of this section to 6 lanes to improve the operations.