



Area Plans Review

2008-2009 North County

A P P E N D I X :

Fairfax County Department of Transportation

&

Virginia Department of Transportation (VDOT)

Comments on

Chapter 527 Transportation Impact Analysis for

APR# 08-III-3UP



County of Fairfax, Virginia

MEMORANDUM

DATE: November 5, 2009

TO: Bernard Suchicital
Policy and Plan Development Branch, FCDPZ

FROM: Leonard Wolfenstein, Chief *L.W.*
Transportation Planning Section, TPD, FCDOT

SUBJECT: North County APR #08-III-3UP, INOVA Fair Oaks Hospital (IFOH)

The Fairfax County Department of Transportation (FCDOT) offers the following comments regarding the traffic impact study submitted per the Chapter 527 requirements regarding the proposed changes to the Comprehensive Plan indicated in the subject Area Plan Review (APR) nomination. VDOT has prepared comments, which have been acknowledged in this memo and are attached to the final staff report. FCDOT's comments are as follows:

Current Comprehensive Plan Guidelines and Background Information

- Many of the road improvements identified on the Fairfax County Transportation Plan Map have been constructed in the immediate area including the widening of West Ox Road to four lanes and the widening of Rugby Road along the entire IFOH site to 4 lanes. The two transportation improvements identified on the Map that have not been constructed are the widening of Rugby Road south of the Fairfax County Parkway to four lanes and the widening of the Fairfax County Parkway to six lanes. Rugby Road is currently two lanes in the southbound direction and one lane in the northbound direction from Route 50 to the Fairfax County Parkway while the Fairfax County Parkway in the IFOH vicinity is four lanes.
- Fairfax Connector bus route 605 currently provides service to the site. It runs every 60 minutes from the Fairfax County Government Center through the site to the Reston Town Center Transit Station. The County is currently developing a Draft Transit Development Plan (TDP), which is a comprehensive 10-year plan for bus service (Fairfax Connector and Metrobus) throughout the entire County. The draft plan recommends increased service on route 605 from every hour to every 30 minutes and it will connect to the future Reston Parkway Metrorail station.
- There are currently only two points of vehicle access to the hospital. One is located on the north side at Joseph Siewick Drive and Ox Trail and the other is on south at Joseph Siewick Drive and Alder Woods Drive. To alleviate congestion within the site, the nominator proposes an additional full access along Rugby Road. The nominator originally proposed two additional accesses in the APR nomination but only one was examined in the traffic study submitted; therefore, only one additional access was

evaluated. The current Comprehensive Plan states that no additional vehicle access should be provided on Rugby Road into the site.

Traffic Impact Analysis Results from the 3UP Traffic Study (Includes FCDOT Comments)

- No trip reductions are assumed in the traffic impact analysis in order to present a conservative estimate of the vehicular traffic that could be generated from the proposed increase in density. FCDOT does recognize that some trip reductions will occur because of synergy between the medical office and the hospital as well as bus service to the site. Transportation Demand Management (TDM) measures will be needed in order to minimize the impacts to Rugby Road and the surrounding road network from the proposed increased density.
- Tables 1-5 below outline intersection level of service, road segment congestion, and total trips for both the 0.40 FAR original proposed density increase and the reduced proposed density increase of 0.35 FAR. All 2030 values assume build-out of the Constrained Long Range Plan (CLRP) transportation network. The analysis assumed four lanes on Rugby Road between Route 50 and the Fairfax County Parkway. This improvement is not currently in the CLRP; however, as development occurs, justification for adding this road improvement to the CLRP is possible. Not all of the improvements identified in the County's Transportation Plan Map are in the CLRP. This can be due to a multitude of factors such as growth, need, and even fiscal constraints.
- The number bullets under Tables 1 and 2 are suggested improvements from the nominator. They have not been factored into the analysis are meant to serve as suggested mitigation measures. Evaluation of these recommendations could possibly improve the intersection level of service but they would need to be evaluated with a more detailed traffic analysis at rezoning.

Table 1
Intersection Level of Service (LOS) – With the Proposed Density of 0.40 FAR

#	Intersection	2008 Existing	2030 Comp Plan	2030 with 0.40 FAR	2030 0.40 FAR w/ Access
(1)	Rugby Road/ Fairfax County Parkway (1)	AM - E PM - E	AM - E PM - E	AM - E PM - E	AM - E PM - F
(2)	Rugby Road/ Alderwoods Drive (2), (3)	AM - B PM - C	AM - B PM - C	AM - C PM - E	AM - A PM - B
(3)	Joseph Siewick Drive/ Alderwoods Drive * (3)	AM - A/D PM - A/C	AM - B/F PM - A/F	AM - B/F PM - A/F	AM - A/C PM - A/C
(4)	Rugby Road/ Proposed Site Access	N/A N/A	N/A N/A	N/A N/A	AM - A PM - C
(5)	Lamplight Drive/ Misty Creek Lane *	AM - A PM - A			
(6)	Misty Creek Lane/ Ox Trail *	AM - A/D PM - A/C	AM - A/D PM - A/C	AM - A/D PM - A/D	AM - A/D PM - A/C
(7)	Ox Trail/ Joseph Siewick Drive * (3)	AM - A/C PM - A/C	AM - A/C PM - A/C	AM - A/F PM - A/E	AM - A/D PM - A/C
(8)	West Ox Road/ Ox Trail/Falkirk Drive	AM - C PM - B	AM - F PM - E	AM - F PM - F	AM - F PM - F
(9)	Alderwoods Drive Right Out/ Route 50 *	AM - B PM - B			
(10)	Alderwoods Drive/Dorforth/ Route 50	AM - B PM - B	AM - B PM - C	AM - C PM - C	AM - C PM - C

* Denotes a non-signalized intersection

Recommended Improvements from the Nominator that have not been factored into the Traffic Analysis:

- (1) Add SB left turn lane; Add EB left turn lane; signal timing adjustments
 - (2) Extension of NB right turn lane; signal timing adjustments
 - (3) Add new site access (Rugby Road/Proposed Site Access)
- Five of the intersections analyzed in the traffic study are not signalized. Two of the five non-signalized intersections are at the hospital's two existing entrances. Both of the existing hospital intersections (3 and 7) have failing approaches with the proposed increased in density of 0.40 FAR or 0.35 FAR. However, the failing approaches are located within the hospital and are not on Alder Woods Drive or Ox Trail. With the proposed new full signalized access on Rugby Road, the current approaches within the hospital at its two existing intersections would operate at acceptable levels of service. With this new full access the intersection of Rugby Road and Alder Woods has an

improved level of service; however, the failing levels-of-service outside the hospital's property are not improved with this new full access.

- The traffic study shows that the two existing hospital intersections (with no additional access) at the 0.40 FAR scenario are significantly failing while the 0.35 FAR scenario only shows one approach that is significantly failing. The approach that is failing is the southbound left turn lane from Joseph Siewick Drive to Alder Woods Drive. Under both scenarios, the new proposed access would allow vehicles to utilize the signal to turn left out of the hospital onto southbound Rugby Road. Without the proposed access, these same vehicles would be turning right out of the hospital onto Alder Woods Drive to make the left onto southbound Rugby Road. The reason that the existing intersection at Joseph Siewick Drive operates acceptably with the proposed access is because the vehicles that are turning left out of the site onto eastbound Alder Woods can do so without the vehicles turning left into the site from Alder Woods. Currently, these vehicles turn right onto Alder Woods and then left into the site. The new proposed access on Rugby Road would allow these vehicles to continue straight on Rugby Road and turn right into the site at the new proposed access.
- The new proposed access alleviates the intersection at Joseph Siewick Drive and Ox Trail by allowing vehicles to utilize the signal to turn left from the hospital to southbound Rugby Road. Currently, these vehicles have to wait for an opening in traffic to make the left (non-signalized intersection).
- Both scenarios show that a new access is beneficial to the hospital site in terms of vehicle ingress/egress and wait times for vehicles turning onto the public streets. However, neither scenario shows that a new full access with a signal is justified. The hospital would then have a total of three full accesses. FCDOT recommends that a partial access (right in/right out) be explored in place of a third full access.
- The traffic study shows that under both scenarios, the new full signalized access onto Rugby Road would increase the delay times on Rugby Road at Fairfax County Parkway south of Alder Woods Drive as vehicles will turn left onto Rugby at the new signal.
- The intersection at West Ox and Ox Trail fails under buildout of the Comprehensive Plan in the AM peak hour. The intersection delay increases by approximately 2% in the AM peak hour under the 0.40 FAR scenario. The failing level of service can be greatly attributed to vehicles turning left onto West Ox Road from Ox Trail. The level of service at the approach for vehicles turning left onto northbound West Ox is already failing under buildout of the existing Comprehensive Plan. The 0.40 FAR density increases delay (also known as wait time) at this intersection by 6% or approximately 15 seconds. The PM peak hour falls from a level of service E under buildout of the existing Comprehensive Plan to level of service F. The delay is an increase of approximately 15%. The level of service is barely an F under the proposed density increase of 0.40 FAR and fails because of through traffic in both directions on West Ox Road. The through traffic on West Ox Road has no bearing on the hospital as these vehicles are not utilizing the hospital's services.

- The intersections at Misty Creek Lane/Lamplight Drive, Route 50/Alder Woods Drive Right-Out, and Route 50/Alder Woods Drive/Dorforth Drive are minimally affected by the proposed increase in density.

Table 2
Intersection Level of Service (LOS) – With the Reduced Density of 0.35 FAR

#	Intersection	2008 Existing	2030 Comp Plan	2030 with 0.35 FAR	2030 0.35 FAR w/ Access
(1)	Rugby Road/ Fairfax County Parkway (1)	AM - E PM - E			
(2)	Rugby Road/ Alderwoods Drive (2)	AM - B PM - C	AM - B PM - C	AM - B PM - D	AM - A PM - B
(3)	Joseph Siewick Drive/ Alderwoods Drive * (3)	AM - A/D PM - A/C	AM - B/F PM - A/F	AM - B/F PM - A/F	AM - A/C PM - A/C
(4)	Rugby Road/ Proposed Site Access	N/A N/A	N/A N/A	N/A N/A	AM - A PM - B
(5)	Lamplight Drive/ Misty Creek Lane *	AM - A PM - A			
(6)	Misty Creek Lane/ Ox Trail *	AM - A/D PM - A/C			
(7)	Ox Trail/ Joseph Siewick Drive * (3)	AM - A/C PM - A/C	AM - A/C PM - A/C	AM - A/E PM - A/D	AM - A/C PM - A/C
(8)	West Ox Road/ Ox Trail/Falkirk Drive	AM - C PM - B	AM - F PM - E	AM - F PM - E	AM - F PM - F
(9)	Alderwoods Drive Right Out/ Route 50 *	AM - B PM - B			
(10)	Alderwoods Drive/Dorforth/ Route 50	AM - B PM - B	AM - B PM - C	AM - C PM - C	AM - C PM - C

* Denotes a non-signalized intersection

Recommended Improvements from the Nominator that have not been factored into the Traffic Analysis:

- Add SB left turn lane; Add EB left turn lane; signal timing adjustments
 - Extension of NB right turn lane; signal timing adjustments
 - Add new site access (Rugby Road/Proposed Site Access)
- Signal timing and modifications was offered as a mitigation measure at select intersections within the study area. It should be noted that VDOT operates traffic signals in networks where signal cycles are determined to allow for network optimization (as

opposed to a single intersection). The feasibility of signal modifications would need to be evaluated as part of a network and not a single intersection.

- The mitigations listed above are potential improvements suggested in the traffic study. The suggested potential improvement of a third left turn lane on southbound Rugby Road to southbound Fairfax County Parkway might be difficult to implement due to right-of-way needs on the western side of the road segment. There are currently two homes that are approximately 30 feet from Rugby Road. Acquisition of right-of-way on the eastern side of the road is more feasible as this is undeveloped land. However, acquiring right-of-way on the east side of the road to accommodate road improvements on southbound Rugby Road would be very difficult to implement as the road could be substantially offset. This means that through lanes on northbound Rugby Road would not line up correctly crossing the Fairfax County Parkway.
- Additionally, the inclusion of a second eastbound left turn lane from the Fairfax County Parkway to Rugby Road could also have right-of-way implications. There are already designs for expanding the Parkway to six lanes and these plans do not include an additional left turn lane. This additional left may be possible but it will need to be resolved with a more detailed traffic analysis at rezoning.

Table 3
2030 Link Analysis – With the Proposed Density of 0.40 FAR

Roadway	Section	AM/PM Peak Hour	2030 Comp Plan V/C Ratio	2030 0.40 FAR V/C Ratio	2030 0.40 FAR V/C Ratio w/ Access
NB Rugby Road	South of Fairfax Parkway	AM	0.43	0.48	0.48
SB Rugby Road	South of Fairfax Parkway	AM	0.18	0.20	0.20
NB Rugby Road	South of Alder Woods	AM	1.45	1.66	1.66
SB Rugby Road	South of Alder Woods	AM	0.44	0.53	0.53
NB Rugby Road	North of Alder Woods	AM	0.90	0.94	1.55
SB Rugby Road	North of Alder Woods	AM	0.32	0.34	0.50
NB Ox Trail	West of West Ox Road	AM	0.76	0.78	0.78
SB Ox Trail	West of West Ox Road	AM	0.41	0.46	0.46
NB Rugby Road	South of Fairfax Parkway	PM	0.16	0.18	0.18
SB Rugby Road	South of Fairfax Parkway	PM	0.62	0.66	0.66
NB Rugby Road	South of Alder Woods	PM	0.59	0.68	0.68
SB Rugby Road	South of Alder Woods	PM	1.01	1.20	1.20
NB Rugby Road	North of Alder Woods	PM	0.38	0.40	0.60
SB Rugby Road	North of Alder Woods	PM	0.68	0.73	1.08
NB Ox Trail	West of West Ox Road	PM	0.36	0.40	0.40
SB Ox Trail	West of West Ox Road	PM	0.62	0.82	0.82

Table 4
2030 Link Analysis – With the Reduced Density of 0.35 FAR

Roadway	Section	AM/PM Peak Hour	2030 Comp Plan V/C Ratio	2030 0.35 FAR V/C Ratio	2030 0.35 FAR V/C Ratio w/ Access
NB Rugby Road	South of Fairfax Parkway	AM	0.43	0.45	0.45
SB Rugby Road	South of Fairfax Parkway	AM	0.18	0.19	0.19
NB Rugby Road	South of Alder Woods	AM	1.45	1.55	1.55
SB Rugby Road	South of Alder Woods	AM	0.44	0.48	0.48
NB Rugby Road	North of Alder Woods	AM	0.90	0.92	1.46
SB Rugby Road	North of Alder Woods	AM	0.32	0.33	0.46
NB Ox Trail	West of West Ox Road	AM	0.76	0.77	0.77
SB Ox Trail	West of West Ox Road	AM	0.41	0.43	0.43
NB Rugby Road	South of Fairfax Parkway	PM	0.16	0.17	0.17
SB Rugby Road	South of Fairfax Parkway	PM	0.62	0.64	0.64
NB Rugby Road	South of Alder Woods	PM	0.59	0.63	0.63
SB Rugby Road	South of Alder Woods	PM	1.01	1.10	1.10
NB Rugby Road	North of Alder Woods	PM	0.38	0.39	0.57
SB Rugby Road	North of Alder Woods	PM	0.68	0.70	1.00
NB Ox Trail	West of West Ox Road	PM	0.36	0.38	0.38
SB Ox Trail	West of West Ox Road	PM	0.62	0.81	0.81

- FCDOT asked the nominator to do a link capacity analysis on Rugby Road. A volume to capacity ratio above 1.0 (highlighted in yellow) means that the roads are saturated with vehicles. The link analysis shows that northbound Rugby Road (south of Alder Woods Drive) in the AM peak hour has a v/c ratio above 1.0 under the current Comprehensive Plan and increases with either the 0.40 FAR or the 0.35 FAR proposed densities. The same is also true for southbound Rugby Road (south of Alder Woods Drive) in the PM peak hour. The study shows that many of the vehicles on northbound Rugby Road in the AM peak hour are turning right onto Alder Woods to make a left into the hospital. This is proven by comparing the link analysis for northbound Rugby Road north of Alder Woods Drive with and without the proposed access. This link has a v/c ratio above 1.0 when the proposed access is factored into the analysis.
 - VDOT has recommended that Rugby Road should be widened to six lanes (three in each direction) based on the link capacity analysis.
 - FCDOT does not recommend that the road be widened based on the buildout of the Comprehensive Plan and with the proposed increases in density. As the traffic analysis for the intersections and the link capacity indicates, many of these vehicles are turning right at Alder Woods from northbound Rugby Road. FCDOT believes that the traffic impacts can be mitigated through intersections improvements and improvements with access to the IFOH site.

- *In instances where a road improvement is identified as needed, the developer should try in some form to accommodate it, reduce their development intensity, and/or create a TDM package that is tiered to appropriate levels of development and monitored.*

RECOMMENDATIONS

- Rugby Road should be improved to four lanes from Route 50 to the Fairfax County Parkway prior to any development above the current Comprehensive Plan density of 0.30 FAR. The traffic study indicated that the through/left approach on northbound Rugby Road at the intersection with the Fairfax County Parkway is performing below an acceptable level of service in the future.
- In consideration of a density increase, the northern most access point at Joseph Siewick Drive and Ox Trail should be examined for possible alignment with Misty Creek Lane along with exploring the potential closing of the existing northern access. There are current site distance issues with vehicles turning left from the hospital onto southbound Rugby Road. Also, the Office for Facilities Planning with the Fairfax County Public Schools expressed the need for improvements at Misty Creek and Ox Trail due to the nearby Navy Elementary School.
 - Additionally, the potential of installing a signal at the realigned Misty Creek/Joseph Siewick Drive and Ox Trail intersection should be explored. This could better facilitate the safe movement of vehicles turning left out of the site onto southbound Rugby as well as provide a safer point of crossing for pedestrians at Misty Creek and Ox Trail.
- FCDOT does not support a new full signalized access at the proposed new entrance and Rugby Road. As stated above, the analysis does not warrant this full access. Instead, the potential of a limited right-in/right-out access at the proposed new site entrance on Rugby could be explored. This would be subject to VDOT Access Management Guidelines and FCDOT approval upon the submission of a more detailed traffic analysis at rezoning. This new access could be reviewed only after the access improvements at Joseph Siewick Drive/Misty Creek Lane/ Ox Trail are examined for implementation.
- Upon reviewing the potential new limited access on Rugby Road, intersection improvements should be explored at Rugby Road/Alder Woods Drive and Rugby Road/Fairfax County Parkway. The following are potential improvements to be explored and have not been analyzed (in FCDOT or the traffic study submitted) for implementation, traffic operations, or an engineering analysis completed. They are:
 - The addition of an exclusive left turn lane on westbound Alder Woods at Rugby Road. The left-through lane would remain as well as the right-turn lane.
 - With this left turn lane, improvements would be needed to southbound Rugby Road. This could include the extension of the second southbound left turn to the intersection with Alder Woods.

- The extension of the left turn lane would require lane shifts on northbound Rugby Road.
- Again, a detailed traffic study along with VDOT and FCDOT approval is needed for any improvements made to these intersections.
- The Comprehensive Plan states that parcels located on Tax Map 45-2 ((2)) 38 and 39A (along with other parcels) should be dedicated to the Fairfax County Park Authority. These parcels should still be dedicated but only after improvements are made at Rugby Road/Alder Woods Drive and Rugby Road/Fairfax County Parkway as well as along Rugby Road.
- It is recommended that any future development of the IFOH site be phased as transportation improvements are identified and constructed. This includes improvements to the roads and intersections on the road network surrounding the IFOH site.
- A TDM program must also be established and include FCDOT-approved TDM measures. Fairfax County's Draft Transit Development Plan (TDP) shows enhanced bus service to the site in the future connecting directly to the Reston Parkway Metrorail station. The IFOH site should contribute to the increase headways on Fairfax Connector Route 605.

Please contact Mike Garcia at Michael.Garcia3@fairfaxcounty.gov or 703-877-5673 should you need further information or clarification of these comments.

cc: Dan Rathbone, FCDOT
Angela Rodeheaver, FCDOT
Dan Southworth, FCDOT
Alan Kessler, FCDOT
Mike Davis, FCDOT
Mike Garcia, FCDOT

Attachments: Aerial of Existing and Proposed Access Points.

W:\mgarc8\North County APR 2008-09\VDOT\INOVA Fair Oaks (III-3UP)\08-III-3UP TIA Comments.doc

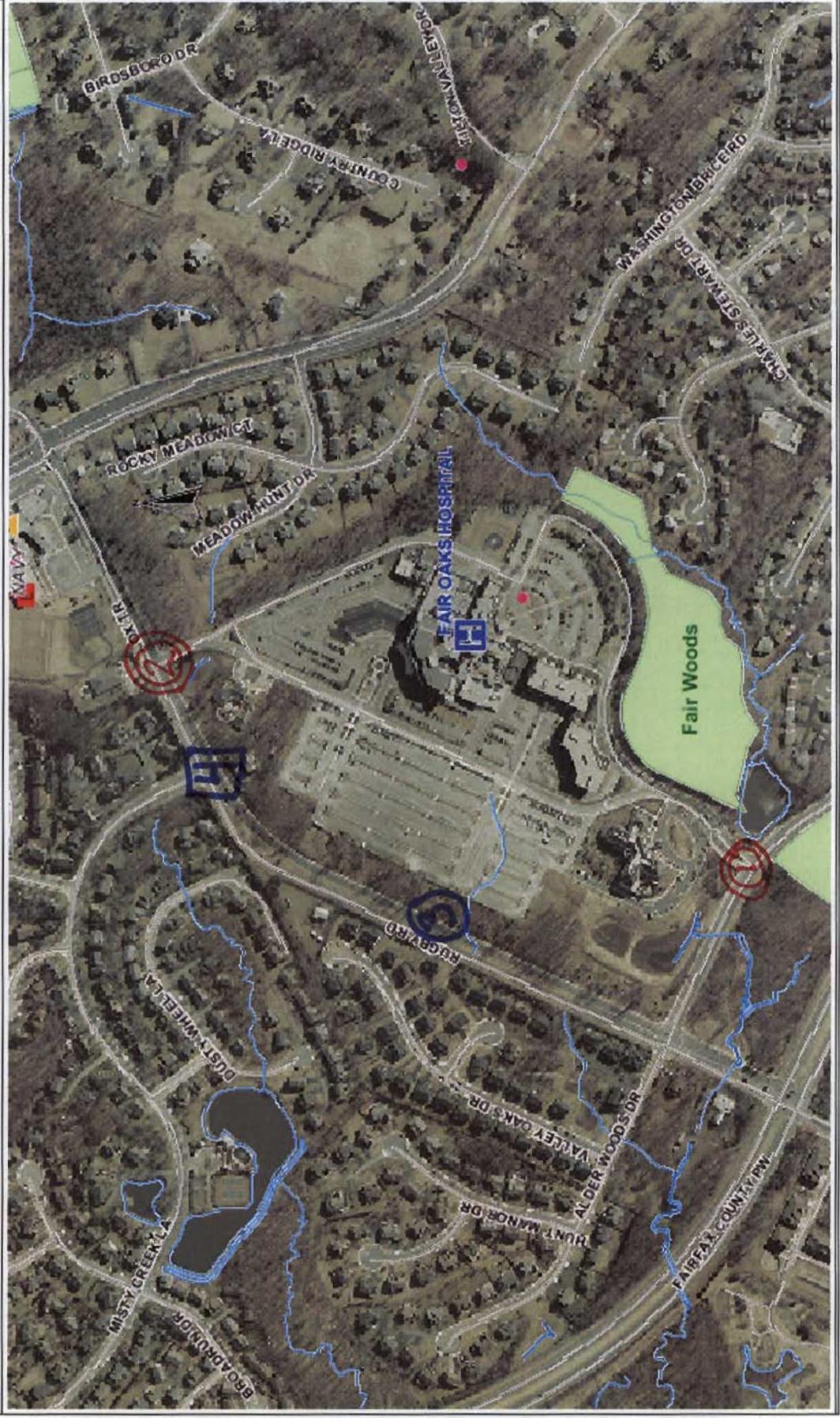
ATTACHMENT

INOVA Fair Oaks Hospital



- ① - Existing Access
- ② - Existing Access

- ③ - Proposed Access (Nominator)
- ④ - Realigned Access (FCDOT)



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.