



**MEMORANDUM**

**TO:** Lou Mosurak  
Marchant Schneider

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**DATE:** March 25, 2010

Loudoun County OTS  
Loudoun County  
HCA Capital Division  
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**SUBJECT:** StoneSpring Medical Center – Traffic and Trip Generation Assessment

**INTRODUCTION**

The purpose of this memorandum is to summarize a trip generation comparison between the approved and proposed conditions for the proposed StoneSpring Medical Center. The subject site is approximately 24 acres located along the north side of Route 50, west of the existing Gum Spring Road, and east of the future Stone Springs Boulevard (relocated Gum Spring Road), in Loudoun County, Virginia. The application is a Special Exception for hospital and medical care facility, outpatient uses. This use will generate less traffic than an equivalent sized by-right office use contemplated in ZMAP 2006-0007, which established the underlying PD-OP zoning on the Property. The project is anticipated to be complete with full build-out of the development between 2015 and 2020. A regional map showing the location of the site is shown in Figure 1.

At a transportation scoping meeting held in 2007, it was decided that a full traffic study for the special exception would not be necessary if the proposed development plan would generate fewer trips than the development plan proposed with ZMAP 2006-0007, since a traffic study was performed for that rezoning application. Because the proposed special exception development will generate fewer vehicle trips, the results from the original rezoning application represent a worst-case traffic scenario and, therefore, the improvements required by that application will ensure that the roadway network will continue to operate at acceptable levels with the revised development plan. A copy of the agreed upon scope of the study is attached.

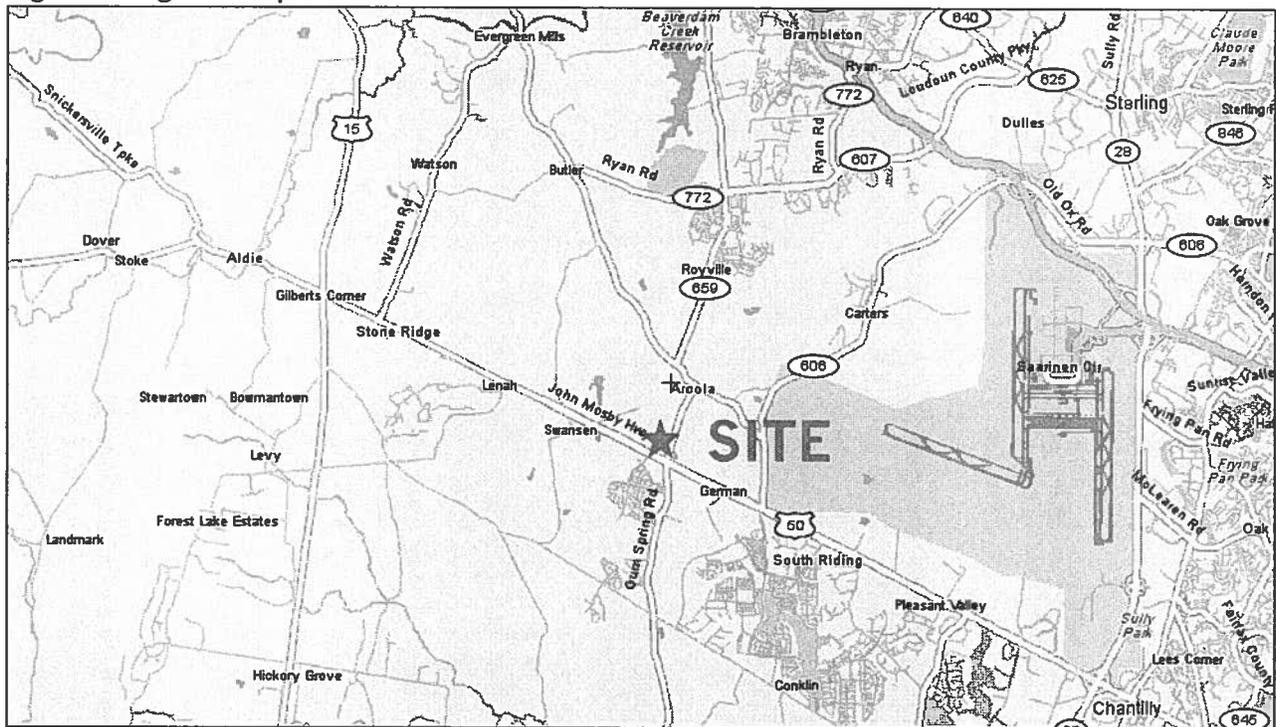
## EXISTING CONDITIONS

### *Existing Roadway Network*

Route 50 (John Mosby Highway) is an east-west highway that runs through Northern Virginia. It is generally a four to six lane median-divided minor arterial with variable design speed. In the vicinity of the proposed site, the road is four lanes with wide medians and turning lanes at intersections. The current posted speed limit on this road is 55 mph.

Route 659 (Gum Spring Road) is generally a two lane undivided local access road with variable design speed. In the vicinity of the site, the road is two lanes with 8 to 10-foot travel lanes. The current posted speed limit on this road is 35 mph north of Route 50.

**Figure 1: Regional Map and Site Location**



### *Hazardous Locations*

A field inspection was conducted of the roadways and intersections in the vicinity of the site. No hazardous conditions were discovered as a result of the field inspection.

## CURRENT PLAN

Rezoning application ZMAP 2006-0007 (Glascok Field at Stone Ridge) rezoned the property to PD-OP to allow development of up to 733,036 square feet of general office use. The hospital proposed with this application is approximately 337,000 square feet in its initial phase. Therefore, this memo and the trip generation calculations presented in the subsequent sections analyze the difference in trips between the proposed hospital and an equivalent square footage of approved office development for the site. Table 1 below summarizes the total number of trips that could be generated by the approved office development of 337,000 square feet. All trip generation calculations contained in this memorandum were based on the Institute of Transportation Engineers' (ITE) Trip Generation, 8<sup>th</sup> Edition.

**Table 1: Site Trip Generation for Approved Land Use**

Land Use	ITE Code	Size	Units	Weekday						
				AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	Total
<b>APPROVED</b>										
General Office Building	710	337	kSF	437	59	496	78	379	457	3,400

## PROPOSED DEVELOPMENT CONDITIONS

### *Future Roadway Network*

According to the Loudoun County Countywide Transportation Plan and the Route 50/Arcola CPAM, Route 50 will ultimately be a six-lane limited access median-divided rural arterial, with consideration for bicycle accommodation. Grade-separated interchanges will be constructed at Route 50 and relocated Gum Spring Road as well as at neighboring Route 50 and Route 606.

According to ZMAP 2006-0007, the intersection of Route 50 and Gum Spring Road will become a right-in/right-out access once Stone Springs Boulevard (Gum Spring Road Relocated) is constructed. At that time, existing Gum Spring Road north of proposed Road B may be abandoned. If this happens, the existing southern portion of Route 659 will be rerouted as Road B and "T" into Stone Springs Boulevard.

Access to the site will be provided along Route 50 at the existing Gum Spring Road and the proposed Stone Springs Boulevard (relocated Gum Spring Road). The Gum Spring Road access may be removed once Route 50 becomes limited access.

### ***Proposed Land Use***

The current proposed development plan for the StoneSpring Medical Center is to construct a 164-bed hospital. Table 2 below summarizes the total number of trips that could be generated by the hospital.

**Table 2: Site Trip Generation for Proposed Land Use**

Land Use	ITE Code	Size	Units	Weekday						
				AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	Total
<b>SPECIAL EXCEPTION*</b>										
Hospital	610	164	Beds	133	54	187	78	137	215	2,951

### **APPROVED VS. PROPOSED DEVELOPMENT CONDITIONS**

Table 3 represents the difference between the current approved development plan and the proposed StoneSpring Medical Center in Loudoun County, Virginia.

**Table 3: Approved Condition vs. Proposed Condition**

Land Use	ITE Code	Size	Units	Weekday						
				AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	Total
<b>APPROVED</b>										
General Office Building	710	337	kSF	437	59	496	78	379	457	3,400
<b>PROPOSED BY SPECIAL EXCEPTION</b>										
Hospital	610	164	Beds	133	54	187	78	137	215	2,951
<i>Difference in Trips (Special Exception Minus Approved)</i>				-304	-5	-309	0	-242	-242	-449
<i>% Difference</i>				-70%	-8%	-62%	0%	-64%	-53%	-13%

As indicated in Table 3, the proposed development plan for the StoneSpring Medical Center will generate less traffic as compared to the currently approved land use. The proposed plan will generate approximately 62% fewer trips than the currently approved land use during the AM peak hour, 53% fewer trips during the PM peak hour, and 13% fewer trips throughout the day.

**Table 4: Equivalent Office Development – Compared to the Proposed Medical Center**

Land Use	ITE Code	Size	Units	Weekday						
				AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	Total
<b>APPROVED</b>										
General Office Building	710	282	kSF	379	51	430	68	327	395	2,964
<b>PROPOSED BY SPECIAL EXCEPTION</b>										
Hospital	610	164	Beds	133	54	187	78	137	215	2,951
<i>Difference in Trips (Special Exception Minus Approved)</i>				-246	3	-243	10	-190	-180	-13
<i>% Difference</i>				-56%	5%	-49%	13%	-50%	-39%	0%

As indicated in Table 4, the proposed development plan for the StoneSpring Medical Center will generate daily trips equivalent to 282,000 square feet of office development, however on the whole generate significantly less peak hour trips. The proposed plan will generate approximately 49% fewer trips than 282,000 square feet of office during the AM peak hour, 39% fewer trips during the PM peak hour, but an equivalent amount of trips throughout a typical weekday.

**ADDITIONAL SPEX USES (125,000 SF)**

In addition to the 164-bed hospital use, up to an additional 125,000 square feet of special exception uses are planned for the property. These uses will either be an expanded hospital or medical care facility, outpatient only uses, which would be located within the hospital itself or in an adjacent by-right medical office building. Notably, the ITE manual does not provide specific trip generation rates for Medical Care facilities, outpatient. Accordingly, such uses would be part of or in lieu of the approved office development, which as shown in this memo is more traffic intensive. Therefore, no additional traffic impacts are expected from such additional uses and square footage (125,000 SF), as the trips already are accounted for as part of or will be deducted from the approved Office/Medical Office Building square footage.

A comparison of the trips generated by the approved and proposed use under both the scenarios is presented in Tables 5A and 5B on the next page.

**Table 5A: Trip Generation Comparison**

Land Use	ITE Code	Size	Units	Week day						
				AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	Total
<b>APPROVED</b>										
Medical Office Building	720	125	kSF	228	60	288	93	251	344	4,897
<b>PROPOSED SPECIAL EXCEPTION</b>										
Hospital	610	125	kSF	143	98	241	120	165	285	3,459
<i>Difference in Trips (Special Exception Minus Approved)</i>				-85	38	-47	27	-86	-59	-1,438
<i>% Difference</i>				-37%	65%	-16%	29%	-34%	-17%	-29%

**Table 5B: Trip Generation Comparison – Worst Case Scenario**

Land Use	ITE Code	Size	Units	Week day						
				AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	Total
<b>APPROVED</b>										
Medical Office Building	720	125	kSF	228	60	288	93	251	344	4,897
<b>PROPOSED SPECIAL EXCEPTION</b>										
Medical Office Building	720	125	kSF	228	60	288	93	251	344	4,897
<i>Difference in Trips (Special Exception Minus Approved)</i>				0	0	0	0	0	0	0
<i>% Difference</i>				0%	0%	0%	0%	0%	0%	0%

As indicated in Tables 5A and 5B, the 125,000 of additional SPEX uses will generate no additional trips than the approved Medical Office facility.

## CONCLUSION

This memorandum presents the findings of a traffic impact brief for the proposed StoneSpring Medical Center in Loudoun County, Virginia. The analysis presented in this memorandum supports the following major conclusions:

- The proposed development plan will generate fewer trips than the approved development plan, thereby having less of an impact on the surrounding roadway network.
  - The proposed hospital will generate approximately **62% fewer trips** during the AM Peak Hour.
  - The proposed hospital will generate approximately **53% fewer trips** during the PM Peak Hour.
  - The proposed hospital will generate approximately **13% fewer trips** throughout a typical weekday.
- The trips generated daily by the proposed hospital are equivalent to those generated by approximately 282,000 square feet of office use, which is less than what is already approved for the site.
- The proposed 125,000 square feet of special exception uses, which will either be an expanded hospital or medical care facility, outpatient only uses would be part of or in lieu of the approved office development. Therefore, no additional traffic impacts are expected from such additional uses and square footage (125,000 SF), as the trips already are accounted for as part of or will be deducted from the approved Office/Medical Office Building square footage.
- Access to and from the site will be via two entrances: Route 50 at the proposed Stone Springs Boulevard (relocated Gum Spring Road) and existing Gum Spring Road. The (existing) Gum Spring Road entrance may be removed in the future when Route 50 becomes a limited access highway.

# SCOPING DOCUMENT



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Figure 1: Area Map and Site Location

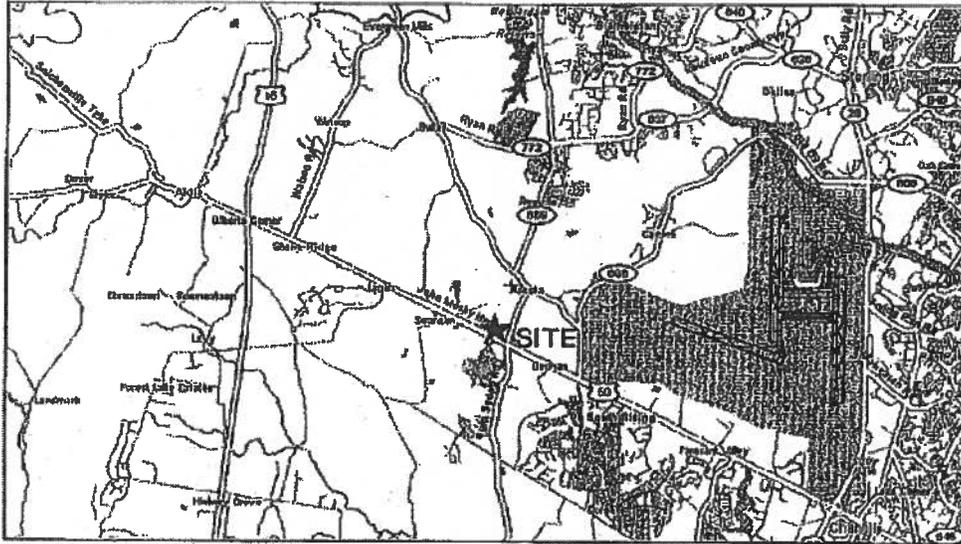


Table 1: Trip Generation Comparison

Land Use	ITE Code	Size	Units	Week day						
				AM Peak Hour			PM Peak Hour			Daily Total
				In	Out	Total	In	Out	Total	
<b>REZONING (GENERAL OFFICE)</b>										
General Office Building	710	464	kSF	565	76	641	102	497	599	4,350
<b>SPECIAL EXCEPTION AFTER REZONING (HOSPITAL)</b>										
Hospital	810	108	Beds	87	36	123	51	90	141	1,276
Difference in Trips (Special Exception Minus Rezoning)				-478	-40	-518	-51	-407	-458	-3,074
% Difference				-86%	-53%	-81%	-50%	-82%	-76%	-71%

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**Site Access:** Access to the proposed development will be provided via Route 50 at the existing Gum Spring Road and the proposed Stone Springs Boulevard (relocated Gum Spring Road). The detailed assessment will assume that Route 50 will become a limited access highway in the future.

**Traffic Counts:** As stated previously, the traffic generated by the hospital will be less than the amount of traffic generated by the allowed office use. As was discussed at the scoping meeting, a memorandum summarizing/ describing the trips generated by the proposed site, site access, and any particular notable items in the transportation network will address all of the County's Office of Transportation Service's issues for this Special Exception application in lieu of a full traffic study. Traffic counts will not be performed, but field observations of existing conditions will be documented for roads adjacent the site for roadway lane configurations, traffic controls, speed limits, general roadway design characteristics, and surrounding land uses.

*Safety issues* *MRP*

**Recommendations:** We will not be providing any additional recommendations through this memorandum. As the proposed hospital will be generating fewer trips than the office use allowed in the proposed PD-OP zone, the traffic study currently being performed for ZMAP 2006-0007, showing the recommendations with the office trips, would be a more intense scenario. This Special Exception application is subject to ZMAP 2006-0007 and all its proffers.

Please review the traffic assessment scope described above for the proposed development and sign for agreement and approval to continue with the study.

Loudoun County's Representative Signature/ Date: *[Signature]* 5/11/07

Traffic Consultant's Representative Signature/ Date: *[Signature]* 5/09/07

VDOT's Representative Signature/ Date: \_\_\_\_\_