



Vanasse Hangen Brustlin, Inc.

101 Walnut Street
P. O. Box 9151
Watertown, MA 02471-9151
617 924 1770
FAX 617 924 2286

Memorandum

To: Ken Schwartz

Date: February 13, 2003

Project No.: 08157

From: Ana Fill, P.E.
Scott Schilt

Re: Symmes Hospital Reuse Alternatives
Transportation Assessment

This memorandum presents a planning level evaluation of the potential transportation impacts associated with three redevelopment alternatives for the Symmes Hospital site. Two of the three alternatives consist mostly of residential uses; the third contains a significant commercial component as part of the building program. For all three alternatives, site access is provided from two locations: Hospital Road intersecting with Summer Street and Woodside Lane. While this document focuses primarily on traffic and parking issues, pedestrian, bicycle and public transportation recommendations for the redevelopment scenarios are also provided.

SUMMARY OF FINDINGS

- Regardless of which of the redevelopment alternatives is selected by the Town, it is recommended that a formal transportation study be conducted when a final development plan is proposed. The study should identify the transportation impacts associated with the project, including the adequacy of local roadways to accommodate additional traffic, and recommend mitigation measures for these impacts.
- There are no recent counts available for specific traffic generated by the current uses at Symmes. However, using transportation industry standards, it is estimated that the 35,000 square feet of medical office uses currently at the site generates approximately 1,200 vehicle trips per day, including 85 vehicles in the morning peak hour and 128 vehicle trips during the evening peak hour.
- Prior to construction of the 61,500 square foot North Wing in 1984, the actual counts indicated that former hospital with approximately 112,000 square feet and Nurses Building with 25,000 square feet generated 245 vehicle trips during the morning peak hour and 255 vehicle trips during the evening peak hour, rates that are similar to industry standards for hospital uses.
- Depending upon the mix of uses, the proposed alternatives could generate between 240 and 525 vehicle trips during the morning peak hour, and between 310 and 770 vehicle trips during the evening peak hour.
- Alternative 2: Commercial/Medical Development is the most traffic intensive use and generates more than two-times as much traffic as the former hospital, primarily due to traffic generated for a medical office component. In this scenario, if general office is used rather than medical use, traffic is reduced by approximately one-half, but still carries more

than 800 vehicle trips more than the former hospital and over 1,100 vehicles than Alternatives 1 and 3.

- Alternative 1: Mixed Income Housing and Alternative 3: Infrastructure Reuse both generate trips in the same order of magnitude as the Hospital prior to construction of the 61,000 square foot North Wing in 1984.
- Alternative 2: Commercial Medical Development demonstrates the greatest demand for parking due to the rates required for office and commercial uses.
- Sufficient parking must be provided to meet the demands of a 65,000 square foot of medical offices and community wellness uses on “The Ridge.” Using zoning requirements of 3.3 spaces for every 1,000 square feet of development, the 65,000 square foot facility requires 215 parking spaces.
- Analysis indicates that parking demands generated by community centers and recreation facilities range from 2.4 to 6.4 spaces per 1,000 square feet. Many facilities contacted stated that parking provided according to zoning requirements is insufficient to meet peak parking demands.
- The close proximity of the existing Hospital Road to the Summer Street/Brattle Street/Hemlock Street intersection will make access and egress to/from the site difficult. If it can be achieved through the final layout of the site, it is recommended that the Hospital Road intersection be realigned further to the east. At the very least, provisions should be made to provide separate right and left-turning lanes at the Hospital Road exit onto Summer Street to enhance the flow of traffic through the intersection.
- Signalization may be required at the Hospital Road Intersection with Summer Street under all of the alternatives, and definitely will be required for Alternative 2. Mitigation at the Summer Street/Grove Street and the Summer Street/Oak Hill Drive intersections may warrant signalization due to the fact that these intersections already experience poor levels of service.
- The Woodside Lane access to the site should be designed to function as a secondary drive, with the intersection of Hospital Road at Summer Street designed to be the primary access point. The most likely users of the Woodside Lane access would be those parking at “The Top” and those residents accessing neighborhood schools and services. Given the topography and roadway characteristics in the neighborhoods adjacent to “The Top” of the site, it is not anticipated that many drivers accessing medical or community wellness uses on “The Ridge” would utilize the Woodside Lane access as a more convenient alternative to the Summer Street entrance.
- Sidewalks should be provided along Hospital Road, preferably with a landscaped buffer from the traffic lanes. Additional provisions should be made to provide pedestrian connections and access to the nearby Stratton and Bishop schools, and the Minuteman Bikeway—including a “formal” connection to the bikeway from Grove Street.
- An evaluation of potential bus ridership should be conducted to maintain the current MBTA bus service, including determination of the need to provide full access to “The Top” at select times while only stopping at the entrance at Summer Street at other times.

TRIP GENERATION

The rate at which any development generates traffic is dependent upon a number of factors, including the size and density of the project, its location, and the concentration of surrounding land uses. The number of vehicle-trips estimated to be generated by the three alternatives proposed for the Symmes site are based on trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation*¹ report. This section presents the assumptions for each of the proposed uses along with the estimated trip generation for each of the alternatives.

Proposed Uses

Residential

Three potential residential components were evaluated for the Symmes site, including:

- **Retirement Housing (55 and older):** Although this residential use is generally restricted to persons age 55 and older, ITE senior housing data are geared toward institutions for elderly residents that contain special services such as medical facilities, dining facilities and some limited, supporting retail facilities. Due to the potential demographics involved with age restricted housing, with more seniors leading active lifestyles, VHB determined that the most appropriate land use code (LUC) for this residential component is LUC 230 (Residential Condominium/ Townhouse). If the retirement housing program becomes more defined, the trip generation land use code may be modified. However, using the LUC 230 land use code for age restricted housing does provide a more conservative trip generation estimate than other typical ITE retirement uses.
- **Affordable Housing/Market Rate Housing:** The trip generation rates expected for affordable housing units and for market rate residential units are similar. Based on the envisioned housing development at the site, VHB determined that the most appropriate land use code for these residential components is LUC 230 (Residential Condominium/Townhouse).
- **Luxury Housing:** The most appropriate ITE land use code for this component of the residential program is deemed to be LUC 233 (Luxury Condominium/Townhouse). It should be noted that this land use's data should be used with care as the ITE rates are based on a limited number of studies (four). Furthermore, no data is available for the weekday daily and Saturday daily and midday peak hour traffic conditions. At these time periods, LUC 230 (Residential Condominium/Townhouse) was utilized to approximate the trip generation for luxury housing uses.

Community Wellness Center

The Community Wellness Center is envisioned to provide both health care and community recreational related activities, including medical offices and services, an aquatic pool, gymnasium and/or cardiovascular training facilities and other related multi-purpose space. Therefore, to estimate its trip generation, the Community Wellness Center was separated into two categories:

- **Medical Office:** The Community Wellness Center is envisioned to include some form of medical offices or services (approximately 45,000 square feet ±). VHB determined that the most appropriate ITE land use code for this use is LUC 720 (Medical-Dental Office Building).
- **Recreation Center:** The ITE database has relatively few data for land uses similar to the proposed Community Wellness Center. The closest approximation would be LUC 495 (Recreational Community Center). Although the characteristics of this ITE land use code reflect those anticipated for the Community Wellness Center, the trip generation rates were derived based on a limited number of studies (two). Therefore, the resulting estimates should be used with care.

¹ Institute of Transportation Engineers, *Trip Generation*, Sixth Edition, Washington, D.C., 1997.

Commercial

Three potential uses are envisioned for the commercial component of the Symmes site, including:

- Office: The ITE trip generation rate most appropriate for this use is LUC 710 (General Office Building).
- Research and Development: ITE land use code LUC 760 (Research and Development Center) is deemed the most appropriate for this proposed use.
- Medical Office: As mentioned previously, VHB determined that the most appropriate ITE land use code for this use is LUC 720 (Medical-Dental Office Building).

Site-Generated Traffic Volumes

Alternative 1: Mixed Income Housing

Alternative 1 presents mostly residential uses on “The Top” and “The Overlook,” with a Community Wellness Center located on “The Ridge”. The “Summer Street” area of this alternative remains as open space. The proposed building program for this alternative includes:

- “The Top”: Mixed Income Housing, including 14 units of Affordable Housing units and 39 units of Market Rate Housing;
- “The Overlook”: 10 units of Luxury Housing, 89 units of Market Rate Housing and 10 units of Affordable Housing; and
- “The Ridge”: a 65,000 square foot Community Wellness Center.

Table 1 depicts the building program for this alternative along with its associated daily vehicle trip generation by use category.

**TABLE 1
 ALTERNATIVE 1 TRIP GENERATION**

Location	“The Top”	“The Overlook”		“The Ridge”		
Land Use	Mixed Income Housing ^a	Luxury Housing ^b	Mixed Income Housing ^a	Recreation Center ^c	Medical Office ^d	Total
Size	53 units	10 units	99 units	20,000 sf	45,000 sf	---
Weekday						
<i>Daily</i>	385	90 ^e	645	460	1,625	3,205
<i>Morning</i>						
Enter	5	0	10	15	85	115
Exit	<u>25</u>	<u>5</u>	<u>40</u>	<u>10</u>	<u>20</u>	<u>100</u>
Total	30	5	50	25	105	215
<i>Evening</i>						
Enter	25	5	40	10	45	125
Exit	<u>10</u>	<u>5</u>	<u>20</u>	<u>25</u>	<u>120</u>	<u>180</u>
Total	35	10	60	35	165	305
Saturday						
<i>Daily</i>	625	465 ^e	785	180	405	2,460
<i>Midday</i>						
Enter	30	25 ^e	40	10	95	200
Exit	<u>30</u>	<u>20^e</u>	<u>35</u>	<u>15</u>	<u>70</u>	<u>170</u>
Total	60	45 ^e	75	25	165	370

- a. ITE Trip Generation LUC 230 (Residential Condominium/Townhouse)
- b. ITE Trip Generation LUC 233 (Luxury Condominium Townhouse).
- c. ITE Trip Generation LUC 495 (Recreational Community Center).
- d. ITE Trip Generation LUC 720 (Medical-Dental Office Building).
- e. No data available; used LUC 230.

Alternative 2: Commercial/Medical Development

Alternative 2 contains residential uses on “The Top”, commercial uses on “The Overlook” and a Community Wellness Center on “The Ridge”. The “Summer Street” area of this alternative, similar to Alternative 1, remains as open space. The proposed building program for this alternative includes:

- “The Top”: Mixed Income Housing, including 16 units of Affordable Housing and 36 units of Market Rate Housing;
- “The Overlook”: 140,000 square feet of Office, Research and Development or Medical Office space, 10 units of Luxury Housing and 43 units of Market Rate Housing; and
- “The Ridge”: a 65,000 square foot Community Wellness Center.

Table 2 depicts the building program for this alternative along with its associated trip generation. In the situations where a definite land use has not been determined all potential uses are presented with the most traffic intensive use shaded. The overall trip generation column presents the most conservative projection for this alternative.

**TABLE 2
 ALTERNATIVE 2 TRIP GENERATION**

	"The Top"	"The Overlook"					"The Ridge"		
Land Use	Mixed Income Housing ^a	General Office ^b	R&D Office ^c	Medical Office ^d	Luxury Housing	Market Rate Housing	Recreation Center ^e	Medical Office ^d	Total
Size	52 units	140,000 sf			10 units	43 units	20,000 sf	45,000 sf	---
Weekday									
<i>Daily</i>	375	1,720	1,135	5,510	90 ^e	320	460	1,625	8,380
<i>Morning</i>									
Enter	5	215	145	270	0	5	15	85	380
Exit	<u>25</u>	<u>30</u>	<u>30</u>	<u>70</u>	5	20	10	20	150
Total	30	245	175	340	<u>5</u>	<u>25</u>	<u>25</u>	<u>105</u>	530
<i>Evening</i>									
Enter	25	40	25	140	0	20	10	45	240
Exit	<u>10</u>	<u>195</u>	<u>130</u>	<u>375</u>	<u>5</u>	<u>10</u>	<u>25</u>	<u>120</u>	545
Total	35	235	150	515	<u>5</u>	<u>30</u>	<u>35</u>	<u>165</u>	785
Saturday									
<i>Daily</i>	615	330	270 ^e	1,260	465 ^e	585	180	405	3,510
<i>Midday</i>									
Enter	30	30	15 ^e	290	25 ^e	30	10	95	480
Exit	<u>25</u>	<u>25</u>	<u>15^e</u>	<u>220</u>	<u>20^e</u>	<u>25</u>	<u>15</u>	<u>70</u>	375
Total	55	55	30 ^e	510	45 ^e	55	25	165	855

- a. ITE Trip Generation LUC 230 (Residential Condominium/Townhouse)
- b. ITE Trip Generation LUC 710 (General Office)
- c. ITE Trip Generation LUC 760 (Research and Development Center).
- d. ITE Trip Generation LUC 720 (Medical-Dental Office Building).
- e. ITE Trip Generation LUC 495 (Recreational Community Center).

Alternative 3: Infrastructure Reuse

Alternative 3 contains residential uses on "The Top," "The Overlook" and "Summer Street" and a Wellness Center on "The Ridge". "The Top" is also envisioned to include a community park. The proposed building program for this alternative includes:

- "The Top": A community park and 13 units of Market Rate Housing and 2 units of Affordable Housing;
- "The Overlook": 76 units of retirement housing (61 Market Rate units and 15 Affordable units), 10 units of Luxury Housing and 76 units of Market Rate Housing;
- "The Ridge": a 60,000 square foot Community Wellness Center; and
- "Summer Street": 16 units of Affordable Housing and 14 units of Market Rate Housing

Table 3 depicts the building program for this alternative along with its associated trip generation. The overall trip generation column presents the total estimates for this alternative.

**TABLE 3
 ALTERNATIVE 3 TRIP GENERATION**

Location	"The Top"	"The Overlook"			"The Ridge"		"Summer Street"	
Land Use	Mixed Income Housing	Retirement Housing	Luxury Housing ^b	Market Rate Housing ^c	Recreation Center ^d	Medical Office ^e	Mixed Income Housing ^c	Total
Size	15 units	76 units	10 units	76 units	15,000 sf	45,000 sf	30 units	---
Weekday								
<i>Daily</i>	130	520	90 ^e	515	345	1,625	235	3,460
<i>Morning</i>								
Enter	0	5	0	5	15	85	5	115
Exit	<u>10</u>	<u>35</u>	<u>5</u>	<u>35</u>	<u>5</u>	<u>20</u>	<u>15</u>	<u>125</u>
Total	10	40	5	40	20	105	20	240
<i>Evening</i>								
Enter	10	35	5	35	10	45	15	155
Exit	<u>5</u>	<u>15</u>	<u>5</u>	<u>15</u>	<u>15</u>	<u>120</u>	<u>5</u>	<u>180</u>
Total	15	50	10	50	25	165	20	335
Saturday								
<i>Daily</i>	480	700	465 ^e	705	135	405	535	3,425
<i>Midday</i>								
Enter	25	35 ^f	25 ^e	35	10	95	30	255
Exit	<u>20</u>	<u>30</u>	<u>20^e</u>	<u>30</u>	<u>10</u>	<u>70</u>	<u>25</u>	<u>205</u>
Total	45	65	45 ^e	65	20	165	55	460

- a. ITE Trip Generation LUC 230 (Residential Condominium/Townhouse)
- b. ITE Trip Generation LUC 233 (Luxury Condominium Townhouse).
- c. ITE Trip Generation LUC 495 (Recreational Community Center).
- d. ITE Trip Generation LUC 720 (Medical-Dental Office Building).
- e. No data available; used LUC 230.

Trip Generation Comparison

Table 4 presents the most conservative projections of trip generation estimates for each alternative. It also includes the trip generation associated with the Symmes Hospital prior to construction of the 61,000 square foot North Wing in 1984. The hospital trip generation is presented using two different methodologies. The first methodology bases the trip estimates on counts conducted at the Symmes Hospital driveways on May 11th, 1982, when approximately two-thirds of the facility was in full operation. The second methodology, based on ITE trip generation rates for hospital uses, is included to provide a comparison basis between the projected trips with those that were actually observed at the former Hospital in 1982. .

**TABLE 4
 TRIP GENERATION COMPARISON**

	Former Hospital		Alternative 1	Alternative 2	Alternative 3
Weekday	Counts ^a	ITE Data ^b			
<i>Daily</i>	n/a	3,885	3,205	8,380	3,460
<i>Morning</i>					
Enter	195	155	115	380	115
Exit	<u>50</u>	<u>50</u>	<u>100</u>	<u>150</u>	<u>125</u>
Total	245	205	215	530	240
<i>Evening</i>					
Enter	75	55	125	240	155
Exit	<u>180</u>	<u>160</u>	<u>180</u>	<u>545</u>	<u>180</u>
Total	255	215	305	785	335
Saturday					
<i>Daily</i>	n/a	1,460	2,460	3,510	3,425
<i>Midday</i>					
Enter	n/a	135	200	480	255
Exit	<u>n/a</u>	<u>85</u>	<u>170</u>	<u>375</u>	<u>205</u>
Total	n/a	220	370	855	460

- a. Based on counts conducted at the hospital entrances, Hospital Road and Woodside Lane, on May 11th, 1982, when the Symmes Hospital facility consisted of an approximately 111,500 square foot hospital facility and 25,000 square foot medical office facility.
- b. Based on LUC 610 (Hospital) for 111,500 square feet and LUC 720 (Medical-Dental Office Building) for 25,000 square feet.

As can be seen in Table 4, Alternative 2 is the most traffic intensive alternative. The significant difference in trips between this alternative and the others is mostly due to the commercial/office component, which generates more traffic than residential uses. It should also be noted that the most conservative uses were utilized in these projections, namely all the commercial space in Alternative 2 was considered to be medical office. If general office were the proposed land use, the trip generation on weekdays would be reduced to close to one-half of the total trips (235 trips) during the evening peak hour, and would be reduced by approximately 45 percent throughout the day ($\pm 4,600$). During the weekends the trip reduction would be even more pronounced with the office component contributing to only approximately 55 trips during the midday peak hour instead of 510 trips. Regardless of the proposed office use, however, Alternative 2 will be the most traffic intensive alternative on weekdays, generating at least 60 percent more traffic than the other alternatives.

Table 4 also shows that the observed traffic generation for Symmes Hospital is somewhat similar to those expected for Alternatives 1 and 3. The observed counts were done in 1982 and tabulated the number of vehicles entering and leaving the hospital property during a 12-hour period. These counts are the only recent data available to measure vehicle trips when the hospital was in full operation. It should be noted that these counts were done prior to the construction of the 61,500 sq. ft. North Wing, which added to the size of the hospital by approximately one-third; consequently when the hospital was in full operation the volumes observed would have been higher. The ITE data reflect counts for a 111,500 sq. ft. hospital facility and 25,000 sq. ft. medical office use, and have been included to supplement the counts in 1982 in order to provide a basis for a more comprehensive comparison of the reuse alternatives to the traffic generated by the hospital.

Based on the trip generation estimates, the most critical traffic condition involves Alternative 2 during the evening peak hour. The traffic volumes for Alternatives 1 and 3 should not be significantly different than those present during the years Symmes Hospital was in full operation.

PARKING

Parking rates for the Symmes site were determined through discussions with the Town of Arlington and the Arlington Redevelopment Board at a Redevelopment Board meeting on December 9, 2002. At the meeting it was determined that the appropriate parking ratios to use should be based on what the current market dictates and those stated in the Town's Zoning Bylaw. This section compares these rates with other industry standards, namely the Urban Land Institute and the Institute of Transportation Engineers. It also evaluates the adequacy of the proposed parking supply at the site.

Parking Rates

Table 5 depicts parking rates for the different uses proposed for the site.

**TABLE 5
 PARKING RATES**

Land Use	Town of Arlington Rates	ULI Rates	ITE Rates
Office	3.3 spaces/1,000 sf	3.0 spaces/1,000 sf	2.79 spaces/1,000 sf
Medical Office ^a	3.3 spaces/1,000 sf	3.0 spaces/1,000 sf	4.11 spaces/1,000 sf
Luxury Housing ^b	2.0 spaces/D.U.	1.0 spaces/D.U.	1.11 spaces/D.U.
Market Rate Housing ^b	1.5 spaces/D.U.	1.0 spaces/D.U.	1.11 spaces/D.U.
Affordable Housing ^b	1.0 spaces/D.U.	1.0 spaces/D.U.	1.11 spaces/D.U.
Assisted Living ^c	0.4 spaces/D.U.	0.27 spaces/D.U.	0.27 spaces/D.U.
Recreational Center ^d	3.3 spaces/1,000 sf	3.0 spaces/1,000 sf	4.0 spaces/1,000 sf

- a. No separate rate available for the Town of Arlington and ULI; assumed same as office.
- b. No separate rate available for ULI and ITE; assumed residential condominium uses.
- c. No separate rate available for ULI; assumed same as ITE.
- d. No separate rate available for ULI; assumed same as office.

As can be seen in Table 5, the Town of Arlington parking rates are generally higher than those recommended by ULI and ITE, the exceptions being the medical office use for which ITE recommends 4.11 spaces/1,000 square feet and the Recreational Center with a recommended 4.0 spaces/1,000 square feet. The following section will evaluate the number of parking spaces required to accommodate the parking supply according to the three different rates.

As with vehicle trips for retirement uses, industry standards are geared toward institutions for elderly residents that contain special services. Given the potential demographics involved with age-restricted housing, with more seniors living active lifestyles, VHB determined that parking needs for such facilities should model those of other residential uses, and as such utilized the requirements for Market Rate Housing in this assessment.

It should also be noted that a Community Wellness Center is a use that does not have parking ratios defined by industry standards. Providing sufficient parking for the proposed Community Wellness Center on the Symmes site is especially important given the location does not provide opportunities to accommodate "spill-over" parking during peak hours. To help determine an appropriate parking rate

VHB contacted a number of recreation facilities and similar uses in the Boston Metropolitan Area to determine what parking ratios they utilized to determine an accurate comparison. While many of these facilities constructed parking sufficient to meet those spaces required by zoning, almost all of those facilities contacted are experiencing demand that exceed that which was originally provided. Some of these facilities have resorted to increasing the amount of parking provided on the site, utilizing valet parking and double parking in the current parking facility during peak hours or entering into shared parking arrangements with adjoining properties. Table 6 shows those establishments contacted for comparison.

**TABLE 6
 WELLNESS CENTER PARKING COMPARISON**

Facility	Size	Parking Spaces	Comments
Gold's Gym, Arlington	17,000 sq. ft.	55 3.2/1,000 sq. ft	Is in a mixed use building. Has shared parking Agreement with Arlington Coal and Lumber, across the street, for overflow parking after 5:00 pm
YMCA, Newton	30,000 sq. ft.	~100 3.3/1,000 sq. ft.	Facility Director said they do not have enough parking, additional spaces are being added with redevelopment of new gym and outdoor track.
YMCA, Peabody	38,500 sq. ft.	~110 2.85/1,000 sq. ft	Not built yet.
Healthpoint, Waltham	148,000 sq. ft.	360 2.4/1,000 sq. ft.	Facility Director said that they can not usually accommodate parking demands on site.
Super Fitness, Quincy	35,000 sq. ft.	~150 4.3/1,000 sq. ft.	Has 700 space public lot across the street. Parking demand study conducted last year estimated need of 6.25 spaces per 1,000 sq. ft.
Super Fitness, Watertown	45,000 sq. ft.	290 6.4/1,000 sq. ft.	Also utilizes valet parking services during peak hours to double park within the lot.

Parking Demand and Supply

Based on the building program, and the parking demand rates, the parking demand for the site for each of the proposed alternatives was determined. Opportunities for shared parking² among the site's tenants were also investigated for Alternative 2, due to its mixed-use program. For example, the peak parking demand for residential uses occur at night and early in the morning, while the peak demand for office uses occur in the middle of the day. Consequently, the demand requirements for these uses complement each other, providing an ideal condition for shared parking, which can be used to reduce the required parking supply. While shared parking was not utilized to accommodate the demand in any of the alternatives, it can be a technique to provide more open space or additional density within any of the alternatives.

Since it is recommended that the Community Wellness Center be able to accommodate its own parking demand it has been considered as a separate, stand-alone portion of the site. Table 7 summarizes the parking demands for each alternative in the worse case scenarios during the day and at night as well as the proposed parking supply.

² Based on Urban Land Institute, *Shared Parking*, Washington, D.C., 1983.

**TABLE 7
 PEAK PARKING DEMAND AND SUPPLY
 FOR SITE USES EXCLUDING THE COMMUNITY WELLNESS CENTER**

	<u>Alternative 1</u>		<u>Alternative 2</u>		<u>Alternative 3</u>	
	Day	Night	Day	Night	Day	Night
Town of Arlington	160	236	582	190	183	269
ULI	110	162	491	118	141	207
ITE	122	180	655	134	156	230
Supply	316		610		332	

As shown in Table 6, Alternative 2 demonstrates the most demand for parking, which as with the vehicle trip generation rates described earlier is due to the parking demands for office and medical uses. It should be noted that the parking supply in Table 6 shows the number of surface parking spaces provided in each of the alternatives, and does not include garage space for any of the housing units. The parking denoted for market rate and affordable residential uses at “The Top” and “Summer Street” locations on the site does not include garage space within the housing units. The townhouse or condominium units in these areas could be designed to include ground level garage space with the housing units above. Parking for all of the Luxury Housing units in each of the alternatives assumes covered parking below the buildings. Consequently, the supply noted in Table 7 will be somewhat higher, and the site can be designed to suitably accommodate the parking demands for all of the alternatives.

As discussed earlier, the parking provided adjacent to the Wellness Center should be sufficient to accommodate demands at the peak hour of use as there is a lack of a convenient location to accommodate “spill-over.” Based on the research of similar facilities discussed earlier, it was determined that the parking for a Community Wellness Center, consisting of a mix of medical and recreational uses, could be accommodated through shared parking, as medical uses would involve higher demands during daytime business hours and peak demands for recreational uses would be during evening hours and on weekends. As such it was decided that a parking ratio of 3 spaces per 1,000 square feet could be realistic for the facility.

As part of VHB’s assessment to maximize the size of the Community Wellness Center facility in line with the goals stated by the Symmes Advisory Committee and accommodate the parking demand, a number of options were considered. These options included construction of a parking structure to provide a sufficient number of spaces, locating additional parking facilities in the “Summer Street” zone, and building a larger Community Wellness Center in the “Summer Street” zone with parking provided in “The Ridge.” It was determined through discussions with the Symmes Advisory Committee that all of these options were either cost prohibitive, unrealistic given the significant impacts to the surrounding neighborhoods, or involved a significant loss of open space. Consequently, it was determined that sufficient parking should be provided adjacent to the building along “The Ridge” and the size of the facility would be reduced..

POTENTIAL TRANSPORTATION IMPACTS AND IMPROVEMENTS RECOMMENDATIONS

Traffic

Regardless of which alternatives become part of the final redevelopment program, the adequacy of the local roadways adjacent to the Symmes property will need to be further investigated in terms of capacity to accommodate increase traffic demands. It is recommended that an official traffic study be conducted when the development plans are finalized by the Town's selected developer. This traffic study should identify appropriate mitigation measures that should be developed to minimize neighborhood traffic impacts and improvements to the Summer Street at Oak Hill Road intersection to accommodate any additional site-generated traffic traveling through the neighborhood.

The trip generation estimates for the three Symmes Hospital site alternatives were presented previously along with an assessment of the observed traffic volumes when Symmes Hospital was in full operation. The projected trip generation for Alternatives 1 and 3 indicated that the traffic volumes associated with these alternatives should be similar to those experienced by the former hospital prior to construction of the 61,000 square foot North Wing in 1984. Alternative 2, which contains a commercial component, is expected to generate significantly more traffic than either Alternatives 1 and 3 or the Symmes Hospital.

Regardless of the final development program, the close proximity of Hospital Road (at its current location) to the Summer Street/Brattle Street/Hemlock Street intersection makes access and egress to/from the site difficult. Consequently, it is recommended that the Summer Street access to the site be moved further away from the signalized intersection. Ideally, Hospital Road should be aligned with Grove Street, however, site constraints may render this option unfeasible. If it can be achieved through the final layout of the site, it is recommended that Hospital Road be realigned further to the east. At the very least, provisions should be made to provide separate right- and left-turning lanes from Hospital Road onto Summer Street to enhance the flow of traffic through the intersection.

Under Alternative 2, the Hospital Road site access will very likely require the installation of a signal. The other alternatives, although generating traffic volumes similar to the volumes of two-thirds the program of the former hospital, may also require a signal at the Hospital Road access point given current industry standards. Summer Street traffic may cause significant delays for vehicles exiting off of Hospital Road without the presence of a signal. These delays could cause long vehicle queues on Hospital Road, which would be particularly problematic due to the geometry and slope of this driveway.

As mentioned in an earlier assessment, the intersections of Summer Street at Grove Street and Summer Street at Oak Hill Drive are both currently unsignalized and operating at a poor level of service during the morning and the evening peak hours. These intersections were also ranked by residents as problem intersections within the Town of Arlington, according to the Town of Arlington Transportation Assessment Study³. The development of the Symmes Hospital site is expected to, at a minimum, return the traffic volumes to those experienced when the hospital was operating at full capacity in 1984, and will place an additional burden at these locations. Therefore, some mitigation measures will likely be required at these intersections once the site is redeveloped. These improvements may involve the installation of a signal at the Summer Street/Grove Street intersection or/and at the Summer Street/Oak Hill Drive intersection. Any traffic signals installed should be timed to coordinate with the Summer Street/Brattle Street/Hemlock Street signal to ensure efficient traffic operations along Summer Street.

³ The Louis Berger Group, *Transportation Assessment Study – Town of Arlington, Massachusetts*, May 2002.

Counts conducted at the Hospital Road and Woodside Lane entrances to the site in 1984 indicate that the overwhelming majority of users (90 percent) accessed the site via the Summer Street entrance. Given that parking was provided at "The Top" portion of the site, this distribution indicates that drivers preferred to utilize the main entrance to the site even though the parking field was located closer to the Woodside Lane driveway. Part of this distribution may be due to the past nature of the facility, where patients and other users of the site may not have been familiar with the secondary access, and used the Hospital Road access because it was easily identifiable. However, it should also be noted that the access to the site from Summer Street is more directly connected to other primary access roads in Arlington than the Woodside Lane access. Therefore most users of non-residential components of the site's redevelopment would likely consider it to be the most convenient entry point for the site.

Although traffic volumes have slightly increased since the counts were conducted for the hospital in 1984, the overall trip distribution characteristics are not expected to significantly change with any of the alternatives. With redevelopment of the site, the Woodside Lane driveway should be designed to continue to function as a secondary drive, with the Hospital Road entrance designed to remain as the main access to the site. The most likely users of the Woodside Lane access are anticipated to be those parked at "The Top" of the site, and residents accessing neighborhood schools and amenities. While there should be an increase in the number of vehicles currently using Woodside Lane and Oak Hill Drive with redevelopment of the site, the topography and roadway characteristics in the neighborhoods adjacent to "The Top" of the site, make it unlikely that a significant amount of drivers would be inclined to utilize the Woodside Lane access to the site as a more convenient alternative access point to the Summer Street entrance. Although no major improvements are recommended for the Woodside Lane access, this location as well as the adequacy of the local roadways to accommodate additional traffic will need to be further investigated as part of an official traffic study. Appropriate mitigation measures should be developed to minimize neighborhood traffic impacts and improvements to the Summer Street at Oak Hill Road intersection should be included to accommodate any additional site-generated traffic traveling through the neighborhood.

Pedestrian and Bicycle

Pedestrian connectivity within the site should be provided for all the alternatives. Both sidewalks and paths should be considered to connect the different uses within the site. Although the specific pedestrian connections will depend on the final site design, all alternatives should consider providing sidewalks along Hospital Road preferably with a landscaped buffer from the traffic lanes. Sidewalk improvements should also be implemented off-site to connect the site with other uses in the Town. Since all the alternatives present a residential component, particular attention will be needed for pedestrian access to the nearby Stratton and Bishop schools.

Although the steep grades of the site present a challenge for bicyclists, bicycle accommodations should be provided within the site. Furthermore, a clear connection between the site and the Minuteman bikeway should be established. Other potential bicycle improvements include providing bike lanes on Summer Street between Grove Street and Brattle Street where wide shoulders currently exist and providing a "formal" connection to the Minuteman bikeway from Grove Street.

Public Transportation

Currently, an MBTA bus stop is provided within the site for the Route 67 bus service. Due to the steep grade of the primary site access roadway, however, the MBTA buses have to labor to climb the hill creating noise and air impacts on the site and in the adjacent neighborhood. The buses presence also competes with automobiles, pedestrians and bicyclists. Thus, an evaluation of the potential ridership associated with the final development program for the site should be conducted to achieve an appropriate balance of bus users and service. In addition to ridership potential, the type of use should

be considered (e.g., if senior citizens need to access the site). An appropriate scheme should be considered to address the needs of the site, which could include providing full access (to "The Top") at select times while only stopping at the entrance on Summer Street at other times.