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Memorandum

To: Ken Schwartz
Scott Schilt

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Project No.: 0815700

From: Ana Fill, P.E.

Re: Symmes Hospital - Preliminary
Transportation Findings

This memorandum documents the existing transportation infrastructure in the vicinity of the Symmes Hospital site and highlights observed deficiencies. The data utilized to develop this document were obtained from various sources including: Town of Arlington Transportation Assessment Study¹, Route 2A - Summer Street Roadway Reconstruction Project², Town of Arlington Pavement Management Database, Town of Arlington Street List (January 1, 1997), and field observations.

This memorandum is organized into five transportation functional areas:

- Traffic;
- Site access;
- Pedestrian facilities;
- Bicycle facilities; and,
- Public transportation.

The following sections describe each of these areas in detail.

TRAFFIC

Roadways in the vicinity of the Symmes site consist of urban primary and minor arterials and local streets. The urban primary arterial consists of Massachusetts Avenue, while the three minor urban arterials include Summer Street, Grove Street and Brattle Street.

Roadways

Summer Street (Route 2A) is under local jurisdiction east of Brattle Street, and under MassHighway jurisdiction from Brattle Street to the Lexington town line. In the vicinity of the site, Summer Street consists of one lane in each direction. Parking is allowed on both sides in the local jurisdiction portion of Summer Street, while no parking is allowed in the sections under state jurisdiction. Based on counts conducted for the Route 2A - Summer Street Roadway Reconstruction Project on October 1998, Route 2A carries approximately 18,000 vehicles on a typical weekday (approximately 9,640 eastbound and 8,400 westbound). Based on counts included in the Town of Arlington Transportation Assessment Study, Summer Street carried approximately 17,700 vehicles on a typical weekday in February 1994. A

¹ Transportation Assessment Study - Town of Arlington, Massachusetts; The Louis Berger Group, Inc., May 2002.

² Route 2A - Summer Street Roadway Reconstruction Project, Arlington, MA: Functional Design Report; Fay, Spofford & Thorndike, Inc, February 2000.

comparison of these volumes shows that very little vehicular growth occurred on Summer Street from 1994 through 1998. Given that these years experienced considerable economic growth, it is conceivable that the traffic volumes on Summer Street have not grown due to lack of available capacity on the roadway. A significant reconstruction project is planned along Route 2A (Summer Street) as described later in this memorandum.

Massachusetts Avenue, classified as an urban primary arterial, runs generally in an east/west direction parallel to Route 2. It consists primarily of one lane in each direction with parking allowed on both sides. Massachusetts Avenue, according to the Town of Arlington Transportation Assessment Study, carried approximately 20,500 vehicles on a typical weekday in February 1994 in the vicinity of Highland Avenue. Land uses along Massachusetts Avenue are primarily commercial and higher density residential.

Grove Street is classified as an urban minor arterial and runs in a north/south direction connecting Massachusetts Avenue to Summer Street. It consists of one lane in each direction with parking allowed on the east side of the street. According to counts presented in the Town of Arlington Transportation Assessment Study, it carried approximately 5,050 vehicles on a typical weekday in October 1998. Land uses along Grove Street are primarily residential and community services.

Brattle Street also connects Massachusetts Avenue to Summer Street. It is an undivided urban minor arterial with one lane in each direction in this segment. Land uses along this portion of Brattle Street, south of Summer Street, are primarily residential. North of Summer Street, Brattle Street becomes a private roadway with primarily residential land uses in its vicinity. Brattle Street carried approximately 3,445 vehicles south of Summer Street and approximately 420 vehicles north of Summer Street based on October 1998 counts.

The remaining streets in the vicinity of the site are local streets, and many of them are private roads. All these roadways are less than 30 feet wide according to the Town of Arlington Transportation Assessment Study with many of them being between 10 and 25 feet wide. Very few of these roadways have sidewalks. Land uses around these roadways are primarily residential. Oak Hill Drive, reported by residents as presenting a cut-through problem, carried approximately 1,825 vehicles in a typical weekday in September 2001 according to the Town of Arlington Transportation Assessment Study.

Intersections

Three key intersections for the Symmes Hospital site are located along Summer Street: Oak Hill Drive, Grove Street and Brattle Street/Hemlock Street. According to the Route 2A – Summer Street Roadway Reconstruction Project Functional Design Report, in 1998 the Summer Street/Brattle Street/Hemlock Street signalized intersection operated at LOS E during the morning peak hour and at LOS C during the evening peak hour.³ In their future design year, 2020, it is expected to deteriorate to LOS F and LOS D during the morning and evening peak hours, respectively. The proposed improvements to the intersection, aside from providing safety benefits, will also improve the intersection's operations with a predicted LOS C during the morning peak hour and LOS B during the evening peak hour.

The analysis performed as part of the Town of Arlington Transportation Assessment Study indicates that the northbound left turning movement at the Summer Street/Grove Street unsignalized

³ Level of service (LOS) denotes different operating conditions that occur under various traffic volumes. It is a qualitative measure that considers a number of factors, including roadway geometry, travel speed, travel delay, freedom to maneuver and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Generally, intersections are considered to operate at an acceptable level of service if they operate at LOS D or better.

intersection currently operates at LOS F during both the morning and evening peak hours. The other movements operate at acceptable levels of service.

As part of the same analysis efforts, the study determined that the Summer Street/Oak Hill Drive unsignalized intersection also has a movement (southbound left turn) operating at LOS F during both the morning and evening peak hours. The other movements operate at acceptable levels of service.

Both the Summer Street at Grove Street and Summer Street at Oak Hill Drive were ranked by residents as problem intersections within the Town of Arlington, according to the Town of Arlington Transportation Assessment Study.

The unsignalized intersection between Grove Street and Massachusetts Avenue was evaluated as part of the Stop and Shop Post Development Traffic Study⁴ for the weekday evening peak hour and the Saturday midday peak hour. This analysis indicates that the Grove Street southbound movement operated at LOS F at the time of the study while the Massachusetts Avenue eastbound left-turn operated at LOS B during the evening peak hour.

The Brattle Street Office Building Traffic Impact Study⁵ analyzed the signalized Brattle Street/Massachusetts Avenue intersection. The analysis indicated that the intersection operated at LOS C during the morning peak hour and LOS B during the evening peak hour in 2001.

Available Capacity

Given that the primary access to the site is provided along Summer Street, regardless of the future land uses on the site, traffic will be added to the three intersections adjacent to the site. Consequently, mitigation measures at some locations may be needed to improve existing deficiencies as well as to accommodate the additional project-related traffic.

Planned Roadway Improvements

The Summer Street Reconstruction Project proposes improvements on Route 2A from Brattle Street to Park Avenue Extension. In the vicinity of the site, this project will realign the Summer Street/Brattle Street/Hemlock Street intersection, which will remove Brattle Street north of Summer Street from the intersection. Instead, Brattle Street will intersect Hemlock Street to the north of the intersection. The traffic signal at this location will also be upgraded. The Route 2A – Summer Street Roadway Reconstruction Project is included in the State Transportation Improvement Program Fiscal Year 2004 with a projected cost of \$3,100,000.

As part of the Brattle Street Office Building Traffic Impact Study, signal timing improvements are proposed at the Brattle Street/Massachusetts Avenue intersection to improve the level of service of the eastbound left turn onto Brattle Street during the morning peak hour. These proposed changes entail the lengthening of the green interval for Massachusetts Avenue movements.

SITE ACCESS

Site access is currently provided via two existing entry/exit points. The primary drive, Hospital Road, is located on Summer Street (Route 2A) within 100 feet of the Summer Street/Brattle Street/Hemlock Street intersection. The secondary Hospital Road access is located on Woodside Lane. Finally, a third access is shown on assessors plans for the site via a “paper” street located on Brattle Street opposite Millet Street.

⁴ Stop and Shop Post Development Traffic Study, Arlington MA; The BSC Group, January 1999.

⁵ Brattle Street Office Building, Arlington MA; The BSC Group, March 2001.

Current Access Operations

The close location of Hospital Road to the Summer Street/Brattle Street/Hemlock Street intersection creates several access problems for the site. The potential blockage of Hospital Road by the Summer Street westbound queue from the signal at Summer Street/Brattle Street/Hemlock Street intersection makes turning left to and from the site difficult. Furthermore, signalization of the Hospital Road/Summer Street intersection, if deemed adequate, would be difficult given the close proximity to the other intersection.

The primary concern associated with the site's secondary access point, on Woodside Lane, involves potential cut-through traffic on the residential roadways surrounding the Symmes site. The community also expressed the desire of not having the site's third "paper" access used. Most residents were concerned with the traffic implications these new access points would present to the adjoining neighborhood.

Potential Redevelopment Access Modifications

As previously mentioned, the neighborhoods surrounding the site are concerned about the impacts the site's redevelopment will have on their roadways. These concerns are mostly directed at the "cut-through" traffic resulting from the site's secondary access locations. Although the site's primary access along Summer Street should be able to accommodate all the site traffic, the provision of the other site's access locations may allow for a better integration of the site with the surrounding community. This integration would be vital for the site, especially if residential or community uses are present.

The type of access provided by the secondary locations (i.e., remain operational for vehicles, full closure, pedestrian and bicycle only access, etc...) needs to be evaluated within the site's land use context. The secondary access on Woodland Road should be at least be preserved for emergency vehicle usage independently of any proposed development program. The "paper" street access can provide a direct connection to Summer Street via Brattle Street. This potential should also be evaluated although several constraints, in particular Brattle Street being a private road in this area, may render this alternative unfeasible. A partial access at this location, however, may be beneficial to the site since it can provide the needed connectivity between the site, any public uses that are developed, and the surrounding neighborhoods.

The close proximity of the Hospital Road to the Summer Street/Brattle Street/Hemlock Street intersection creates several access concerns for the site. Due to these difficulties, alternate access configurations along Summer Street should also be considered. An option would involve locating an access drive opposite Grove Street and potentially installing a traffic signal. This alternative may present a range of benefits including better access to the site, potentially better operations at the Summer Street/Grove Street intersection, and good pedestrian connectivity to various locations including Massachusetts Avenue and Arlington High School. To provide good bicycle connectivity to the Minuteman bikeway, the opportunity to "formalize" the Grove Street connections to the trail should be investigated.

Any further modification to site access will require consideration of the proposed uses, the neighborhood concerns, and physical constraints including grade and bedrock. Further study in conjunction with the proposed redevelopment process will be required.

PEDESTRIAN FACILITIES

The Town of Arlington maintains a sidewalk inventory that includes the roadways containing sidewalks as well as whether the sidewalks are present on one side or both sides, the length of the sidewalk and the conditions of the sidewalk. Based on this information along with field inspections,

the presence of sidewalks in the vicinity of the Symmes site was reviewed. The town wide sidewalk network is presented in the Town of Arlington Transportation Assessment Study.

The roadways within the Symmes site do not have sidewalks, and do not provide any connection with the Town's sidewalk network. Moreover, the majority of the roadways within the residential neighborhoods around the site also do not contain sidewalks. Consequently, there is a lack of pedestrian connectivity to the site, especially to the north.

As a result, redevelopment of the site should consider sidewalk improvements not only within the site, but also off-site to improve pedestrian connectivity. The specific pedestrian connection needs will depend on the final uses for the site. For instance, if the development of the site involves residential uses, particular attention should be paid to pedestrian access to the nearby schools.

BICYCLE FACILITIES

The Minuteman bikeway traverses the Town of Arlington in generally an east/west direction from the Town of Lexington line to approximately Jason Street (east of the site); from this point it bends in a southerly/ northerly alignment to the Alewife Station in the City of Cambridge. The Minuteman bikeway starts in the City of Bedford and ends at the Alewife Station where it connects to the Somerville Community Path. No additional exclusive bike lanes are provided within Arlington. The Minuteman bikeway passes relatively close to the site, and it can be most directly accessed from the site via Brattle Street. Brattle Street currently has formal connections to the Minuteman bikeway in the form of both stairs and a ramp. Grove Street, on the other hand, only has informal, dirt path, connections to the Minuteman bikeway ending at the trail's guardrail. No Share-the-Road signs exist in the vicinity of the site. Nevertheless, as part of the Route 2A Reconstruction project the Summer Street/Brattle Street/Hemlock Street intersection is being designed to accommodate bicycles by providing bike loop detectors.

The steep grades of the site present a challenge for bicyclists. Nevertheless, bicycle accommodations should be investigated both within the site, and off-site to provide a clear connection to the Minuteman bikeway. Some potential improvements could include providing bike lanes on Summer Street between Grove Street and Brattle Street where wide shoulders currently exists, and "formalizing" the connections from Grove Street to the Minuteman bikeway.

PUBLIC TRANSPORTATION

Direct public transportation access is provided at the Symmes site via the Route 67 bus service. This route connects Turkey Hill in northwestern Arlington to the MBTA Red Line Alewife Station via Arlington Center. Through these two transportation nodes (Arlington Center and Alewife Station), the site is very well connected to the MBTA regional public transportation system.

The stop at the site, however, is currently underutilized. Furthermore, the steep grade of the primary site access roadway taxes the MBTA buses, which need to labor to climb the hill and create noise impacts on the site and in the adjacent neighborhood. Finally, the buses presence 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 uses and service. In addition to ridership potentials, the type of use should be considered (e.g., if senior citizens need to access the site). Depending on the analysis, alternative schemes could be considered such as providing full access (to the "top") at select times while only stopping at the entrance (the "bottom") at other times.