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ATTACHMENT 2

TECHNICAL
MEMORANDUM

To
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Traffic Engineer
Town of Chapel Hill

From
Craig Scheffler, P.E.
HNTB North Carolina, P.C.

Cc
HNTB Project File: 38435

Subject
Starbucks at Eastgate TIS –
Franklin Street Site Driveway
Analysis/Recommendation

Date
10/23/06

Per Town of Chapel Hill request on 10/19/06, the following information relates to a revised analysis of potential traffic operations related to the proposed Starbucks at Eastgate Traffic Impact Study (submitted May, 2005). The focus of the reanalysis is the existing site driveway along Franklin Street. Original analysis and recommendations for this driveway indicated that it a) operated acceptably for all peak hour traffic scenarios with the site fully built out per Town guidelines and b) would not be considered an unsafe connection to Franklin Street for full movement vehicular access. Per direction from Town Council, the driveway was reassessed in this technical memorandum to check if it would:

a) function acceptably (from an operations and safety standpoint) as a right-turn in/right-turn out only (RIRO) driveway and;
b) what impacts would occur on study area traffic operations if this driveway was closed completely to vehicular traffic.

RIRO Option

For this analysis, it was assumed that the existing full access driveway to the former gas station would be limited to right-tum in/right-turn out (RIRO) only access via a concrete median island constructed in the driveway. The limitation of left-turn access would force all entering traffic from Franklin Street southbound to make a left-turn at the Franklin/Eastgate traffic signal and the access the site from the proposed driveway along Eastgate Drive. All traffic exiting the site that would be seeking to continue along Franklin Street southbound would need to exit at the site driveway along Eastgate Drive and make a left-turn at the Franklin/Eastgate traffic signal. For the most conservative analysis, it was assumed that ALL northbound traffic on Franklin Street would use the RIRO driveway for site entry and exit, although the option for alternate access would exist via the Franklin/Eastgate signal and Eastgate Drive/proposed site driveway intersection.

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Table 1.2007 With Starbucks Site Traffic – Operations Analysis with RIRO

Peak Hour	Franklin/Eastgate Traffic Signal	Eastgate Drivel Site Driveway	Franklin Street/ RIRO Driveway
AM Peak	8.8 sec/LOS A	11.5 sec/LOS B	11.0 sec/LOS B
Noon Peak	10.0 sec/LOS A	14.1 sec/LOS B	12.4 sec/LOS B
PM Peak	10.6 sec/LOS B	13.3 sec/LOS B	13.1 sec/LOS B

Based on the results from **Table 1,** per vehicle delay to right-turning vehicles exiting the site and LOS would be acceptable, as would operations at the existing traffic signal at Franklin/Eastgate.

The other factor in the analysis is related to safety for turning movements into and out of the proposed site at the potential RIRO driveway. Site distance is not a major concern for operations – Franklin Street in the study area has no major horizontal or vertical curvature – the street has no horizontal curvature for 1,000 feet upstream of the Franklin/Eastgate intersection and 500 feet downstream of that intersection. There is a relatively constant slight (2 percent) vertical grade from the proposed driveway to the Franklin/Eliot Road intersection (see **Exhibits 1 and 2** below).

Exhibit 1. Franklin Street Northbound approaching Eastgate Drive Intersection

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Exhibit 2. Franklin Street Southbound Approaching Eastgate Drive Intersection

Existing accident patterns at the Franklin/Eastgate traffic signal show no major tendencies for "rear-end"-type crashes for right-turning vehicles on northbound Franklin Street (an indicator of congestion-related crashes). There were 10 total crashes over a three year period from 11/01 to 11/04 at this intersection – three of these crashes were "rear-end" crashes heading northbound on Franklin Street at the intersection.

Full Driveway Closure Option

This option would eliminate the existing driveway for the site along Franklin Street and force all site-related traffic using Franklin Street for access to use the existing traffic signal at Franklin/Eastgate and then use the proposed site driveway along Eastgate Drive as a single access point for all traffic accessing the Starbucks site. Rerouting all projected site traffic along Franklin Street (approximately 50-60% of all site trips) through the existing signal and single proposed driveway access will not cause any appreciable degradation of traffic operations at these two intersections in the 2007 design year (see **Table 2**.)

Table 2. 2007 With Starbucks Site Traffic – Operations Analysis with Franklin St. Driveway Closure

Peak Hour	Franklin/Eastgate Traffic Signal	Eastgate Drive/ Site Driveway
AM Peak	8.8 sec/LOS A	11.4 sec/LOS B
Noon Peak	9.9 sec/LOS A	13.3 sec/LOS B
PM Peak	10.5 sec/LOS B	12.3 sec/LOS B

Conclusions and Recommendations

Both potential options for the existing Starbucks Site Driveway do not cause any significant peak hour traffic operations problems for the proposed study area intersections of Franklin Street/Eastgate Drive, Franklin Street/Site RIRO Driveway, or Eastgate Drive/Proposed Site Driveway.

There are no significant traffic operations and/or safety issues allowing the existing Franklin Street Site Driveway to have RIRO access. Recent crash data does not indicate that this driveway would operate in an unsafe manner, sight distances are acceptable and the current speed limit (35 mph) and existing cross-section of Franklin Street (5-lane section with continuous center left-turn lane) do not preclude the access connection at this current location. There are numerous private driveway connections that have full access to Franklin Street in the project study area.

If a right-turn infright-turn out only driveway is allowed, the existing driveway will need to be redesigned to acceptable Town and NCDOT design guidelines for a RIRO driveway in terms of lane widths, pavement markings, and raised concrete median island design.