



Memorandum

To: Mr. Giancarlo Micozzi
Micozzi Management, Inc.
159 Cambridge Street
Arlington, MA 02134

Date: October 27, 2017

Project #: 14019.00

From: Randall C. Hart, Principal
Kathleen Keen, EIT

Re: Proposed Langley Road Redevelopment
Newton, Massachusetts

Introduction

VHB, Inc. has conducted a traffic impact and access study to assess the potential traffic impacts associated with the proposed redevelopment located at 392-404 Langley Road in Newton, Massachusetts. The proposed redevelopment Project will involve the demolition of one existing building and the construction of an approximately 20-unit residential building, supported by sub-surface parking.

To be responsive to questions raised at the October 24th, 2017 Land Use Committee Hearing (LUC) this memorandum has been prepared. The information presented in this memorandum is also contained in the Traffic Impact Memorandum that was submitted to the City prior to the LUC hearing. A question regarding the existing and future traffic operations at the Langley Road and Jackson Street intersection, located immediately to the south of the site, was raised. The following summarizes the analysis performed and results derived.

Traffic Operations Analysis

To assess quality of flow, intersection capacity analyses were conducted with respect to 2017 Existing, 2024 No-Build, and 2024 Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them. Roadway operating conditions are classified by calculated levels-of-service.

The evaluation criteria used to analyze the signalized study area intersection in this traffic study is based on the percentile-delay method (SYNCHRO results). The evaluation criteria used to analyze the unsignalized study area intersections is based on the *2010 Highway Capacity Manual (HCM)*¹. Level-of-service (LOS) is the term used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that considers a number of factors including roadway geometry, speed, travel delay, freedom to maneuver, and safety. Level-of-service provides an index to 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.

Intersection Capacity Analysis

Levels-of-service analyses were conducted for the 2017 Existing, 2024 No-Build, and 2024 Build conditions for the study area intersections. Tables 6 and 7 summarize the capacity analysis results for the signalized and unsignalized study area intersections, respectively. The capacity analyses worksheets are included in the Attachments.

¹ Highway Capacity Manual, Transportation Research Board, Washington D.C., 2010.

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Table 7 Unsignalized Intersection Capacity Analysis

Location / Movement	2017 Existing Conditions					2024 No-Build Conditions					2024 Build Conditions				
	D ^a	v/c ^b	Del ^c	LOS ^d	95 Q ^e	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS	95 Q
Langley Road at Jackson Street															
<i>Weekday Evening</i>															
EB L/R	90	0.20	14	B	18	100	0.23	15	B	23	100	0.23	15	B	23
WB L/T/R	260	0.32	11	B	35	280	0.35	11	B	40	280	0.35	11	B	40
<i>Saturday Midday</i>															
EB L/R	95	0.18	13	B	18	105	0.22	14	B	20	105	0.22	14	B	20
WB L/T/R	275	0.37	12	B	43	295	0.42	13	B	53	300	0.42	13	B	53

- a Demand, in vehicles
- b Volume to capacity ratio.
- c Average total delay, in seconds per vehicle.
- d Level-of-service.
- e 95th percentile queue, in feet.

As demonstrated in the table, the intersection of Langley Road at Jackson Street operates at LOS B during the critical peak hour periods under existing conditions. Future operations, both with and without the project show similar levels of operations, LOS B. No meaningful change in operations is expected as a result of the proposed redevelopment project.