



MEMORANDUM

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DATE: October 17, 2011

TO: Michael Sullivan, Town Administrator; Mark Bobrowski, Esq.

FROM: Douglas C. Prentiss, P.E., PTOE *DCP*

SUBJECT: Preliminary Traffic Assessment of Clock Tower Place Rezoning
Maynard, Massachusetts

INTRODUCTION

Clock Tower Place is a 1.1 million square foot fixed-sized development that occupies a 19th century mill complex that is 4-5 stories tall and situated in a total of 12 buildings. The site is bound by Main Street (Route 62) to the north, Sudbury Street to the west, Walnut Street and the Assabet River to the east, and Thompson Street and Park Street to the south. Total lot coverage of the site is approximately 40+/- acres on 5 contiguous parcels of land. Parking is provided on-site at a variety of locations, including large surface lots on the north and south side of Mill Pond and a 3-story parking garage adjacent to Building #1.

Access to the site is via the local roadway system noted above. A weekday shuttle service is provided by the proponents of Clock Tower Place to and from the South Acton commuter rail station. On the average, five (5) pick-ups occur at the commuter rail station in the weekday morning period and three (3) pick-ups from Clock Tower Place to the MBTA station occur in the afternoon period, accommodating approximately 2,500 employees.

Clock Tower Place is presently comprised of various commercial offices and small businesses, a conference center, copy and printing center, daycare facility, bank, Gold's gym and the Town Council of Aging and Senior Center. Many employee amenities are included in the Clock Tower Place Complex. Presently Clock Tower Place is approximately one-half vacant with much of the vacancy being commercial space. In the mid to late 1990's, 40,000 square feet of space was set aside to rezone for a Health Care Industrial District (HCID). This health care element has never been realized.

PROJECT PROPOSAL

The current project proposal is to rezone the health care industrial element of the site, plus create a zoning overlay for the existing vacant commercial floor space. This would include a residential component which is estimated to comprise approximately 300,000 square feet (or 300 units) and would be classified as extended stay units. In addition to the residential component, a portion of the commercial space would be devoted to restaurants, possibly a health food store and a brew pub. The sections to follow will present an overview of the transportation network, noting any

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capacity-constraint intersections and the likely traffic impacts on area roadways due to the change in zoning. Besides local traffic and vehicle occupancy count data that will be available in the nearby future, historical traffic studies used in this assessment of the Clock Tower Place rezoning project include the 129 Parker Street project¹ and the 350 unit residential project² in Concord, Massachusetts. Both those studies included intersections and roadways in the study area.

TRANSPORTATION NETWORK

Intersections

The key roadways serving the site include Main Street (Route 62), Powder Mill Road (Route 62), Sudbury Street, Walnut Street, Waltham Street, Summer Street, Acton Street (Route 27), Parker Street (Route 27) and Great Road (Route 117). With any change in use, the most impacted intersections would be the locations surrounding the site. At a minimum these locations would include:

- Acton Street/Summer Street/Main Street (signalized);
- Waltham Street/Parker Street/ Powder Mill Road (signalized);
- Great Road/Main Street (signalized); and
- Great Road/Parker Street (signalized).

In addition, a few ancillary or secondary locations surrounding the site would include:

- Main Street/Sudbury Road (unsignalized);
- Main Street/Walnut Street (unsignalized); and
- Summer Street/Nason Street (signalized).

Bicycle and Pedestrian Accommodations and Public Transportation

There are currently sidewalks provided on both sides of Acton and Summer Streets, all of Parker Street to Route 117, along a major portion of Waltham Street and both sides of Main Street past Mill Street. Crosswalks are designated along Summer Street Great Road, Waltham Street and Parker Street. While there are no bicycle provisions in the area, there is a proposed connection to the Assabet River Rail Trail that will connect Summer Street and run parallel to a portion of Main Street while connecting across Route 117 (Great Road). As noted earlier, the proponents of Clock Tower Place presently provide scheduled shuttle service to the South Acton commuter rail station for the weekday morning and afternoon periods. There is a proposal to increase shuttle service to additional outlying areas, depending upon employee demands.

SAFETY ANALYSIS

A key element in assessing the ability of intersections and roadways to accommodate additional traffic is an evaluation of the safety conditions. An accident summary at area intersections is

¹ Preliminary Traffic Impact and Access Study-129 Parker Street; VAI; August 2006

² Traffic Impact and Access Study-Proposed Residential Development; VAI; February 2008

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typically noted for evaluating area deficiencies, and likely mitigation measures. Using the MassDOT database, an accident summary of selected signalized study area intersections surrounding the site are noted in Table 1. For signalized intersections, the average statewide crash rate is 0.80 million vehicles entering the intersection, and the District 3 average, which includes Maynard, is 0.87 million vehicles entering the intersection. It can be seen that both the Summer Street/Main Street/Acton Street intersection and the Main Street/Waltham Street Powder Mill Road/Parker Street intersection have above-average crash rates and likely warrant measure to correct deficiencies.

Table 1 – Selected Signalized Intersection Accident Summary				
Time Period	Summer/Main/Acton	Main/Parker/Waltham	Parker/Great	Main/Great*
Year				
2004	8	19	5	3
2005	7	15	7	1
2006	8	10	6	4
Total	23	44	18	8
Average per year	7.7	14.7	6	2.7
CR**	0.93	1.74	0.70	0.40
Severity				
Property Damage	21	37	1	7
Non-Fatal Injury	2	7	5	1
Fatal Injury	0	0	0	0
Total	23	44	6	8
Type of Accident				
Fixed Object	1	3	0	0
Head-On	1	0	1	1
Angle	2	21	2	1
Rear-End	14	14	12	4
Sideswipe	4	5	2	2
*2002-2004; ** CR = crash rate = million entering vehicles through the intersection				

TRAFFIC OPERATIONS

The quality of traffic flow at area intersections is designated by Level of Service (LOS) where LOS A is noted as a free-flow condition and LOS F a constrained condition, usually identified with congestion and long delays. A Level of Service summary of the key signalized intersections surrounding the site, are noted in Table 2 below for the 2011-2012 existing conditions.

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Table 2 - 2011-2012 Existing Level of Service Summary								
	AM Peak				PM Peak			
Signalized Intersections	Delay ^a	LOS	v/c ^b		Delay ^a	LOS	v/c ^b	
Summer Street/Main Street/Acton Street								
OVERALL	38.2	D	0.81		27.6	C	0.86	
Main Street/Parker Street/Waltham Street/Powder Mill Road								
OVERALL	70.5	E	1.14		>80	F	1.19	
Parker Street/Great Road								
OVERALL	56.1	E	1.02		41.3	D	0.95	
Main Street /Great Road								
OVERALL	11.0^c	B^c	0.36^c		43.0	D	0.85	

a. Control Delay in seconds per vehicle; b. Volume-to-capacity ratio; c. Saturday mid-day results

From the above summery table, it can be seen there are some constraints at the Main Street/Parker Street/Waltham Street/Powder Mill Road intersection where the signal is operating very inefficient today and warrants corrective measures. The other intersections on Main Street do however provide sufficient capacity to accommodate additional traffic as a result of any traffic increases.

SITE ACTIVITY

Using various resources such as the Institute of Transportation Engineers (ITE) *Trip Generation Manual*³, and other empirical data⁴, vehicle trip estimates can be developed of existing vehicle activity at Clock Tower Place. Estimates of future activity with the proposed zoning changes to include residential extended stay units, along with additional retail and commercial space is also noted.

Review of the above-noted technical resources indicates that the ITE manual has limitations of data for local corporate centers or major office/retail complexes in town centers. The majority of data cited is for suburban office and retail complexes. The Kimley-Horn study verifies this characteristic, as the local empirical rates presented in the study are 50% different from the general office rate cited by ITE. The empirical trip rates account for downtown walk trips, transit and shuttle trips, and overall mode sharing, such as car/van pools and bicycle trips.

Existing Conditions

Based on 1.1 million square feet of mixed used space, the estimated existing vehicle trips to/from Clock Tower Place for the commuter peak periods i.e. 7:00 AM-9:00 AM and 4:00 PM-6:00 PM, as well as daily estimates are shown below in Table 3. These estimates were developed using a combination of ITE and empirical data for downtown areas. The data presented in Table 3, includes adjustments for transit and multi-modal trips.

³ *Trip Generation*; Institute of Transportation Engineers 8th Edition; 2008
⁴ *Trip Generation Rates for Urban In-Fill Land Uses*; Kimley-Horn and Associates, Inc. ; April 24, 2008/June 15, 2009

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Table 3 – Existing Clock Tower Place Vehicle Trip Summary* (1,100,000 gsf office/retail)			
Time Period	In	Out	Total
Daily	3,030	3,030	6,060
AM Peak	712	146	858
PM Peak	122	692	814
*Trip rates pro-rated based on Kimley-Horn Study, April 2008 and June 2009 and ITE data; Note: trips include adjustments for multi-modal trips			

Proposed Conditions

For the rezoning of Clock Tower Place the following conditions are assumed:

- A total of 1,100,000 gsf with replacement of 300,000 gsf of office space with 300 condominium units (1,000 gsf of extended stay residential units), plus 800,000 gsf of office/retail space. Vehicle trip reduction measures are assumed to continue in the future conditions. Expectations are that these reduction measures will improve.

Table 4 – Proposed Clock Tower Place Vehicle Trip Summary* (800,000 gsf office/retail and 300 condo units)			
Time Period	In	Out	Total
Daily	2,650	2,650	5,300
AM Peak	527	148	675
PM Peak	165	523	688
*Trip rates based on Kimley-Horn Study, April 2008 and June 2009 and ITE data; Note: trips include adjustments for multi-modal trips			

The net change in vehicle trip activity for the re-zoned Clock Tower Place is noted in Table 5 below.

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Table 5– Net Change in Vehicle Trip Activity Clock Tower Place* (800,000 gsf office/retail and 300 condo units)			
Time Period	In	Out	Total
Daily	-380	-380	-760
AM Peak	-185	+2	-183
PM Peak	-126	+43	-169
*Trip rates based on Kimley-Horn Study, April 2008 and June 2009 and ITE data; Note: trips include adjustments for multi-modal trips			

IMPROVEMENT MEASURES

With a change in the zoning for Clock Tower Place, a few transportation improvement measures have been identified in the public forum and are noted as follows as follows:

- Increased shuttle usage and possible expansion to other MBTA stations. Changes in the site parking ratio would clearly be influenced by this trip reduction measure;

Other measures such as Transportation Demand Management (TDM) measures that should either be incorporated or expanded include the following:

- Provide sheltered, protected bicycle parking areas on-site to encourage alternative measures of transportation;
- Provide car and vanpool preferential parking areas on site in close proximity to facility entrances; and
- Consideration of MBTA subsidized commuter passes.

In addition to the above site-specific measures, historically there have been some off-site roadway improvements that have been proposed by others that have not been realized. It is recommended that the proponent of Clock Tower Place take a lead role in initiating these measures, by either providing services or contributing to an infrastructure fund so that these measures can be realized.

- At the Acton Street/Summer Street/Main Street intersection, replace the traffic signal controller and install detector loops to upgrade operations to a fully actuated condition;
- At the Waltham Street/Parker Street/ Powder Mill Road intersection, replace the traffic signal controller and install detector loops to upgrade operations to a fully actuated condition;
- At the Summer Street/Nason Street intersection, replace the existing pedestrian signal heads and install a protected left turn arrow facing the westbound Summer Street approach;
- At the Sudbury Street/Main Street intersection, upgrade the signing and pavement markings;

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- Assist the Town by either providing services or contributing to the advancement of an intersection/roadway project so that it may be placed onto the state's Transportation Improvement Program (TIP) through the Metropolitan Area Planning Council; and
- Monitor traffic operations on a bi-annual basis to determine if vehicle trips estimates have been realized and if trip reductions measures have been effective.

CONCLUSION

Based on this preliminary traffic assessment there will be a slight reduction in vehicle trips over the course of the typical weekday as a result of the proposed re-zoning. During selected off-peak periods such as weekday late mornings, early afternoons and Saturdays, there may an increase in activity as a result of the expansion of the retail component of the project. Area intersections however can support these traffic increases during this time period. It is expected that the developers of Clock Tower Place will still be major players to enhance roadway/intersection projects with the Town and through the state projects and contribute to upgrading the locations cited earlier.