

MEMORANDUM

TO: Mr. Josh Swerling, P.E.
Bohler Engineering, P.C.
352 Turnpike Road
Southborough, MA 01772

FROM: Mr. Robert D Vanasse P.E. *and* 
Mr. Shaun P. Kelly
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DATE: July 13, 2010

RE: 5779

SUBJECT: Updated Motor Vehicle Crash Analysis – Proposed TD Bank
408 Massachusetts Avenue - Acton, Massachusetts

Introduction

As requested by the Town of Acton Engineering Department, Vanasse and Associates, Inc. (VAI) has prepared this memorandum in order to review the motor vehicle crash history at the intersection of Massachusetts Avenue (Route 111) with the existing 408 Massachusetts Avenue site driveway (currently serves a Pro Tech gas station) and the access drive that serves the Roche Brothers shopping center, located on the opposite side of Massachusetts Avenue. This memorandum serves to supplement the April 15, 2010 traffic impact assessment prepared for the project, which evaluated the crash history at the intersection of Massachusetts Avenue with Main Street (Route 27).

As documented in this memorandum, a review of the motor vehicle crash history at the existing site driveway indicates that the crash frequency at this location falls well below MassDOT's average crash rate for unsignalized intersections, with the majority of collisions at this location resulting in property damage only.

Motor Vehicle Crash Data

Motor vehicle crash data were obtained from MassDOT for the three most recent years of data available (2006 to 2008) in order to identify reported motor vehicle crash trends and/or safety deficiencies at the existing site driveway onto Massachusetts Avenue. Motor vehicle crash data were researched to determine the type of collision, severity, and roadway conditions for each incident. In addition, motor vehicle crash rate calculations were performed to quantify the number of motor vehicle collisions per million entering vehicles and provide a basis for comparing reported motor vehicle crash rates to statewide averages. The MassDOT average motor vehicle crash rate for unsignalized intersections in District 3 is 0.69 collisions per million entering vehicles.

Based on a review of the collected data, a total of 4 motor vehicle collisions were reported at the existing site driveway intersection over the last 4 years, amounting to approximately 1 vehicle collision per year. The majority of collisions at this location were of the angle type. Of the four reported collisions, three resulted in property damage only, with one injury reported during the three year period. There were no fatalities reported at this location during the three year review period.

The calculated motor vehicle crash rate for this intersection amounts to 0.23 collisions per million entering vehicles, which falls well below the average unsignalized crash rate of 0.69 collisions per million entering vehicles.

It is noted that as part of the highway access permit application to MassDOT, sight lines to and from the proposed site driveway locations were evaluated. The results of this evaluation indicated that both proposed driveway locations meet or exceed the sight distance requirements as defined by the American Association of State Highway and Transportation Officials (AASHTO).

Conclusion

As documented in this report, a review of the motor vehicle crash history at the intersection of Massachusetts Avenue with the site driveway and Roche Brothers plaza access drive reveals only four motor vehicle collisions during the last three years. The crash history falls for this location falls well below state averages. The proposed TD Bank development and site access is not expected to result in adverse impacts to vehicular safety at this location.

cc: RDV, FGH, File

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Acton COUNT DATE : 2010

DISTRICT : 3 UNSIGNALIZED : SIGNALIZED :

MHD USE ONLY

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Massachusetts Avenue

ST #

MINOR STREET(S) : Gas Station Drive/Plaza Driveway

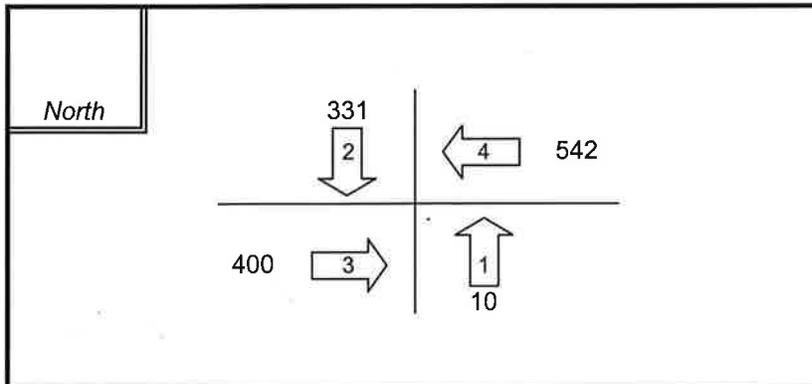
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM
(Label Approaches)**



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	10	331	400	542		1,197

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : # OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Accident Rate for District 3 signalized intersections = 0.87
Accident Rate for District 3 unsignalized intersections = 0.69

MASS HIGHWAY Mass Highway Crash Report for ACTON in the year 2007

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	TOSB Nonfatal Injuries	TOSB Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Landmark
2278664	ACTON	21-Nov-2007	10:38 AM	Property damage only (none injured)	3	0	0	Angle	V1: Turning left / V2: Travelling straight ahead / V3: Stopped in traffic	V1: Eastbound / V2: Westbound / V3: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car / V3: Passenger car	Dry	Daylight	Cloudy/Cloudy	MASSACHUSETTS AVENUE / MASSACHUSETTS AVENUE Rte 111	ACCESS ROAD TJ MAXX

MASS HIGHWAY Mass Highway Crash Report for ACTON in the year 2006

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicles Travel Directions	Most Harmful Events	Road Surface Condition	Ambient Light	Weather Condition	Distance from Nearest Roadway Intersection
2108172	ACTON	09-Oct-2006	10:56 AM	Property damage only (none injured)	2	0	0	Rear-end	V1:Eastbound / V2:Eastbound	Collision with motor vehicle	Dry	Daylight	Clear	408 MASSACHUSETTS AVENUE
2140349	ACTON	28-Dec-2006	6:15 AM	Property damage only (none injured)	1	0	0	Angle	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle / V2: Unknown with motor vehicle in traffic	Wet	Dark - lighted roadway	Cloudy/Rain	408 MASSACHUSETTS AVENUE / Rte 111
2069179	ACTON	28-Jun-2006	4:44 PM	Non-fatal injury	2	1	0	Angle	V2:Westbound		Dry	Daylight	Cloudy/Cloudy	408 MASSACHUSETTS AVENUE Rte 111 E