



**ALLEN & MAJOR
ASSOCIATES, INC.**

100 Commerce Way
P.O. Box 2118
Woburn, MA 01888-0118
Tel: (781) 935-6889
Fax: (781) 935-2896

Mr. Edward S. Robertson
Chairman
City of Woburn Board of Appeals
10 Common Street
Woburn, MA 01801

Re: A&M Project #324-31
Ledges at Woburn
1042 Main Street
Response to ZBA Comments

Dear Mr. Robertson:

Allen & Major Associates, Inc. respectfully submits additional information requested at the March 15, 2012 Board of Appeals hearing regarding the Ledges at Woburn project proposed for 1042 Main Street. Included in this submission are:

- Sewer Flow Memo and accompanying record plans dated March 26, 2012 prepared by Allen & Major Associates, Inc.
- Updated Traffic Counts, dated April 11, 2012 prepared by TEC.
- Rock Crusher Noise Control Sketch, dated April 12, 2012, prepared by Allen & Major Associates, Inc.

If you have any questions or comments or require additional information please do not hesitate to contact our office.

Very truly yours,

ALLEN & MAJOR ASSOCIATES, INC.

Timothy J. Williams, P.E.
Vice President

TJWtjw
enclosures

Cc via email: The Dolben Companies, Inc.
Woburn 38
Regnante, Sterio & Osborne LLP



100 Commerce Way
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Woburn, MA 01888-0118
Tel: (781) 935-6889
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Memo

To: Edward S. Robertson, Chairman
Members of the Board
Board of Appeals
Office of the City Clerk,
Woburn City Hall
10 Common Street
Woburn, MA 01801

From: Carlton Quinn
A&M Project #: 324-31A
Date: March 26, 2012
Re: The Ledges @ Woburn
Comprehensive Permit

Copy:

- | | |
|---------------------------------------|---|
| <input type="checkbox"/> For approval | <input type="checkbox"/> For your use |
| <input type="checkbox"/> As requested | <input type="checkbox"/> For review and comment |

Chairman Robertson & Board Members,

At the request of the Board, A&M has provided the following discussion on the “seasonal effect” that may have skewed the recorded peak sewer flows provided in the Sewer Capacity Study (SCS) for the proposed The Ledges at Woburn project located at 1042 Main Street.

The existing flows were recorded between August 17, 2011 and August 31, 2011. It was noted by the Board that the Altavesta Elementary School, located at 990 Main Street, was not in session during flow recordings and that the existing peak flows maybe underestimated.

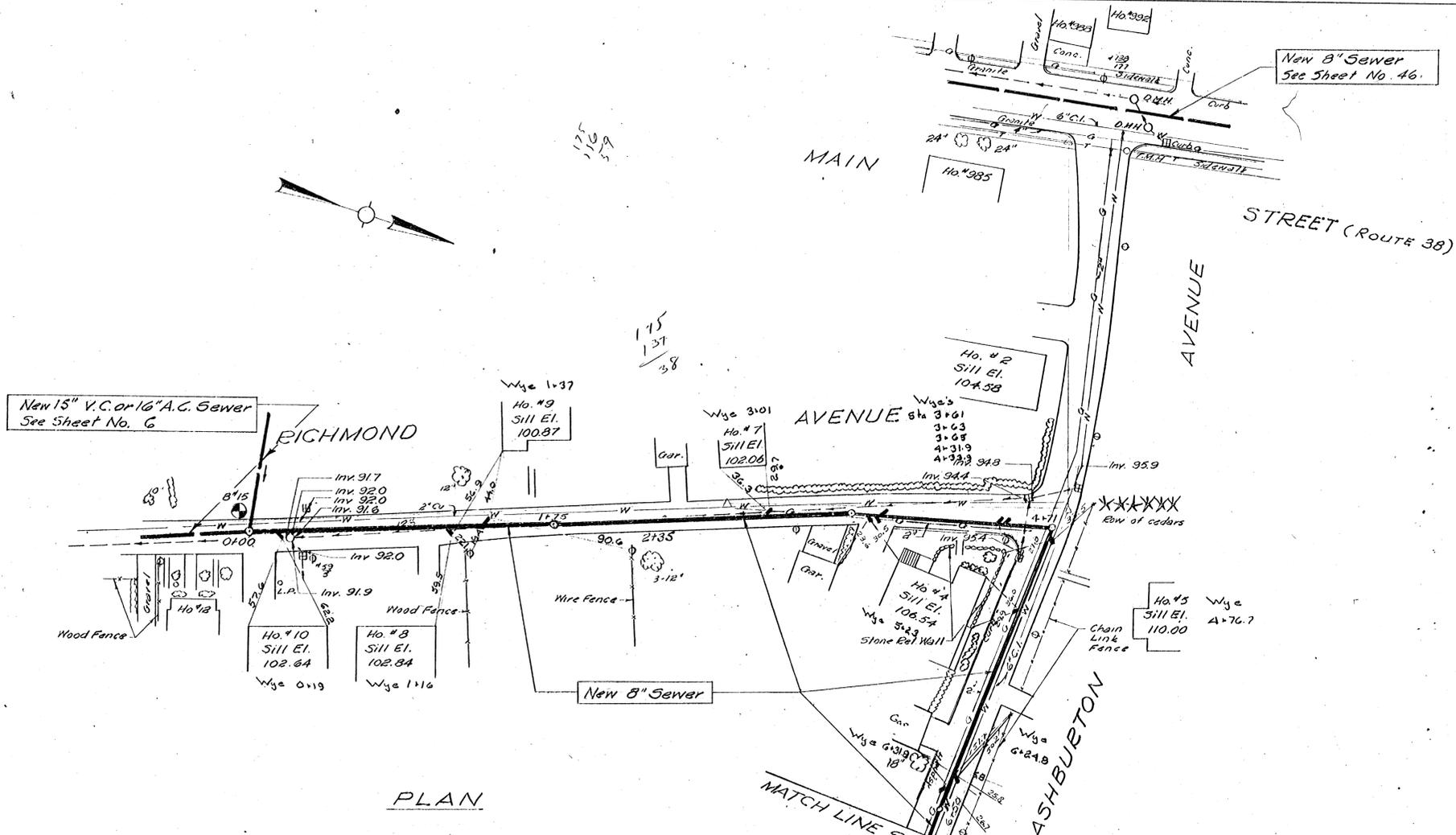
Upon further research and discussions with the City of Woburn Engineering Department our office has determined that the projects existing 8” sewer main located at 1042 Main Street does not extend to the Altavesta Elementary School.

As illustrated in the attached “Contract No. 9, Main St. – Kearsarge Ave.”, Sheet 6, Plan and Profile, by Camp, Dresser & McKee, dated February, 1966, revised February, 1968:

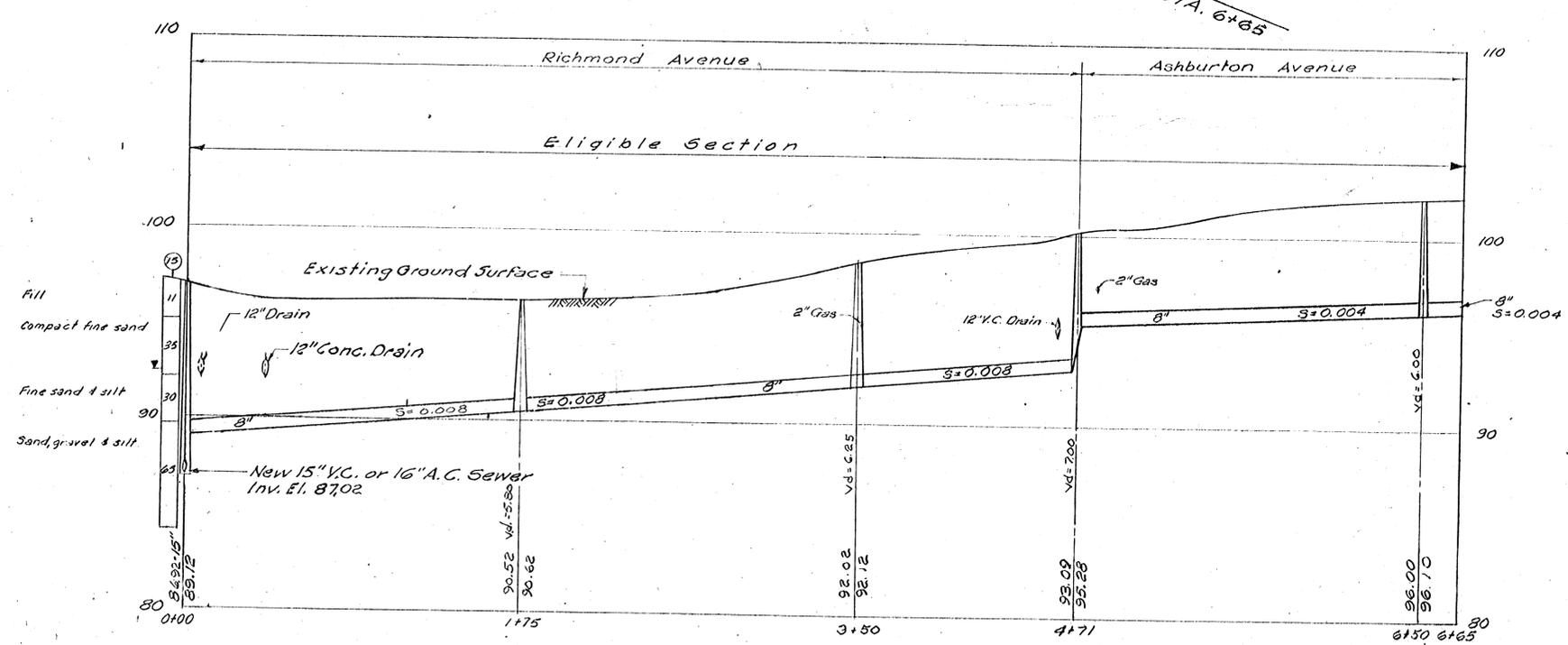
- The existing 8” sewer main, located at 1042 Main Street, begins at the intersection of Townsend Street & Kearsarge Avenue
- flows easterly to the intersection of Kearsarge Avenue & Main Street
- and continues northerly towards 1042 Main Street where the existing peak flows were recorded.

The Altavesta Elementary School discharges wastewater to a different sewer main located in Richmond Street as illustrated in the attached “Contract No. 8, Richmond Ave. – Ashburton Ave.”, Sheet 41, Plan and Profile, by Camp, Dresser & McKee, dated February, 1966, revised August, 1968.

It is the determination of our office that Altavesta Elementary School has no effect on the existing peak sewer flows and that the peak flows recorded are representative of peak flows expected for the existing 8” sewer main located at 1042 Main Street.



PLAN



PROFILE

RECORD DRAWING

Date	Chkd.	Revision
8/68	A.W.C.	Revised for Record
3/67	R.H.E.	Added elig. sect. - removed V.C. note

Drawn by: *DELL*
 Checked by: *R.H.E.*
 Approved by: *J.C.L.*

Date: February, 1966
 Hor. 1" = 40'
 Scale: Vert. 1" = 4'

CITY OF WOBURN, MASSACHUSETTS
 PUBLIC WORKS DEPARTMENT
 CONTRACT NO. 8
RICHMOND AVE.-ASHBURTON AVE.
STA. 0+00 TO STA. 6+65

CAMP, DRESSER & MCKEE
 Consulting Engineers
 Boston, Mass.

SHEET NO.
41
 230-6592





65 GLENN STREET |
TEL 978.794.1792 |

LAWRENCE, MA 01843
FAX 978.794.1793
WWW.TECMASS.COM

Ms. Edward Robertson, Chairman
City of Woburn Board of Appeals
Woburn City Hall
10 Common Street
Woburn, MA 01801

April 11, 2012

Ref: T0413.02

RE: Updated Traffic Counts
Ledges at Woburn, Main Street, Woburn, MA

Dear Chairman Robertson:

At the City of Woburn Board of Appeals meeting held on Thursday, March 15, 2012, TEC, Inc. presented updated traffic count data that was collected in February 2012 for preparation of an Environmental Notification Form (ENF) for Massachusetts Environmental Policy Act (MEPA) review for the proposed Ledges at Woburn residential development to be located at 1042 Main Street in Woburn, MA. The Board of Appeals requested that this information be provided to the Board for review. The intent of this letter is to provide the Board with the updated traffic count information and a comparison of the counts to previous traffic volume counts that were collected along Main Street to verify whether the findings of the Traffic Impact Assessment (TIA) prepared for this project are still valid. A more detailed analysis of the traffic operations and impacts of the project will be prepared as part of the ENF and will be submitted to the City of Woburn when filed with the MEPA office.

The updated turning movement counts were collected on Tuesday, February 28, 2012 during the weekday morning (7:00 to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak periods at the intersection of Main Street / Mountain Street. Updated turning movement counts were also collected on Tuesday, March 6, 2012 during the weekday evening (4:00 to 6:00 PM) peak period at the intersection of Main Street / School Street. In addition, Automatic Traffic Recorder (ATR) counts were collected on Main Street adjacent to the proposed site driveway from Thursday, March 8 to Saturday, March 10, 2012 to obtain weekday and Saturday daily traffic volumes along Main Street. All counts were collected on fair weather days when school was in session in order to avoid collecting data when traffic volumes may be lower than normal due to inclement weather or school vacations. The detailed count sheets partitioned into 15-minute intervals are included as an Attachment to this letter and a summary of the counts is provided below.

Traffic-volumes are typically adjusted to reflect average-month conditions in accordance with Massachusetts Department of Transportation (MassDOT) standards for preparation of a traffic study. A review of historic traffic-volume counts collected by MassDOT at the permanent count stations in the vicinity of the site indicated that traffic volumes in February are 4.7 percent lower than average-month conditions and traffic volumes in March are 2.5 percent lower than average-month conditions. Therefore, the February and March 2012 traffic-volumes were upwardly increased accordingly to reflect average-month conditions. The compiled seasonal adjustment

data is provided as an Attachment to this letter. The resulting 2012 Existing weekday morning and weekday evening peak-hour traffic-volume counts are summarized in Table 1.

Table 1. Comparison of Traffic Volumes at Study Area Intersections

Intersection / Time Period	Collected by TDC in February / March 2012	Collected by Conley Associates in June 2011	Collected by Edwards & Kelcey in November 2006	Collected by HTSD in May 2002
Main Street / Mountain Street Weekday Morning Peak	1,277	-	-	1,473
Weekday Evening Peak	1,261	-	-	1,492
Main Street / School Street Weekday Morning Peak	1,990	1,875	1,709	-
Weekday Evening Peak	1,917	1,951	1,892	-

Table 1 provides a comparison of the traffic volumes at the intersections of Main Street with Mountain Street and School Street to previous traffic-volume counts collected at these intersections as part of traffic studies completed for other projects in the area, which include:

- Traffic Impact Study – 880 Main Street Redevelopment, Woburn, Massachusetts by Conley Associates in June 2011
- Traffic Study Update – Trade Center Executive Park, Woburn, Massachusetts by Edwards & Kelcey in November 2006
- Supplemental Traffic Study – Woburn Heights, Main Street, Woburn, Massachusetts by Highway & Traffic Signal Design (HTSD) in June 2002

As shown in Table 1, traffic volumes at the intersection of Main Street / Mountain Street have decreased significantly since collected by HTSD in 2002, while the traffic volumes at the intersection of Main Street / School Street have grown by approximately 16.4 percent during the weekday morning peak hour and by only 1.3 percent during the weekday evening peak hour.

The original Supplemental Traffic Study prepared by HTSD as part of the permitting for the Woburn Heights project assumed a 1.5 percent per year compounded annual growth rate and added additional traffic to be generated by the Trade Center 128 project, which has resulted in the majority of traffic growth along Route 38 in this area. The combination of the annual background growth rate and traffic to be generated by the Trade Center 128 project were estimated to result in a total growth of 12.5 percent during the weekday morning peak period and of 12.0 percent during the weekday evening peak period, which is significantly higher than the actual traffic growth trend that has been experienced on Route 38 in the area. Therefore, the existing traffic volumes along Route 38 are actually less than the volumes originally projected in the traffic study prepared by HTSD for permitting of the Woburn Heights.

In June 2003, the Housing Appeals Committee (HAC) issued a decision on the Woburn Heights project noting that no traffic operations or safety issues will result from the construction of the proposed Woburn Heights project. As the traffic volumes projected in the study that led to this decision were higher than the actual traffic volumes along Route 38, it is reasonable to assume that no traffic operations or safety issues would result from the construction of the project at this time either.



Ms. Edward Robertson
Ledges at Woburn
April 11, 2012
Page 3 of 3

We hope that this letter addresses the Board's questions updated traffic volumes on Route 38. If you have any questions, please do not hesitate to contact us at (978) 794-1792. Thank you for your consideration.

Sincerely,
TEC, Inc.



Rebecca L. Brown, P.E.
Senior Transportation Engineer

cc: Theodore Regnante, Regnante, Sterio & Osborne, LLP
Andrew Dolben, The Dolben Company, Inc.
Joseph Tarby, Murtha Cullina



Transportation Data Corporation

Mario Perone, mperone1@verizon.net

t. (781) 587-0086 f. (781) 587-0189

Main Street (Route 38)
north of Kearsarge Avenue
City, State: Woburn, MA
Client: TEC/R. Brown

04217Avolume
Site Code: T-0413.02

Start Time	08-Mar-12 Thu	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		2	104			3	100				
12:15		4	102			2	93				
12:30		3	110			2	97				
12:45		3	101	12	417	0	104	7	394	19	811
01:00		2	130			5	92				
01:15		1	125			1	103				
01:30		1	128			5	103				
01:45		1	120	5	503	3	116	14	414	19	917
02:00		4	91			3	126				
02:15		1	119			5	98				
02:30		2	138			1	92				
02:45		4	126	11	474	3	102	12	418	23	892
03:00		12	121			4	89				
03:15		3	160			10	106				
03:30		18	182			18	129				
03:45		14	173	47	636	7	107	39	431	86	1067
04:00		11	154			21	106				
04:15		20	175			22	108				
04:30		20	172			38	111				
04:45		30	166	81	667	49	105	130	430	211	1097
05:00		30	158			78	137				
05:15		44	176			112	134				
05:30		58	174			143	126				
05:45		71	133	203	641	160	105	493	502	696	1143
06:00		64	152			145	80				
06:15		68	118			169	118				
06:30		90	119			216	94				
06:45		109	86	331	475	155	74	685	366	1016	841
07:00		72	85			153	66				
07:15		93	87			142	53				
07:30		78	67			186	40				
07:45		128	46	371	285	162	39	643	198	1014	483
08:00		85	37			168	53				
08:15		99	54			146	47				
08:30		107	51			131	74				
08:45		90	42	381	184	121	33	566	207	947	391
09:00		109	57			101	41				
09:15		76	37			99	34				
09:30		90	29			81	31				
09:45		93	32	368	155	108	33	389	139	757	294
10:00		90	34			93	23				
10:15		75	28			103	26				
10:30		97	21			86	24				
10:45		72	18	334	101	106	21	388	94	722	195
11:00		97	27			96	11				
11:15		98	26			104	8				
11:30		106	20			118	35				
11:45		87	16	388	89	104	8	422	62	810	151
Total		2532	4627			3788	3655			6320	8282
Percent		35.4%	64.6%			50.9%	49.1%			43.3%	56.7%

Transportation Data Corporation

Mario Perone, mperone1@verizon.net

t. (781) 587-0086 f. (781) 587-0189

Main Street (Route 38)
north of Kearsarge Avenue
City, State: Woburn, MA
Client: TEC/R. Brown

04217Avolume
Site Code: T-0413.02

Start Time	09-Mar-12 Fri	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		21	82			16	118				
12:15		9	106			8	102				
12:30		5	112			9	108				
12:45		5	117	40	417	5	112	38	440	78	857
01:00		12	118			10	105				
01:15		5	109			5	94				
01:30		6	117			4	110				
01:45		1	108	24	452	2	100	21	409	45	861
02:00		4	112			7	110				
02:15		3	120			4	88				
02:30		1	136			6	137				
02:45		4	138	12	506	2	101	19	436	31	942
03:00		8	126			2	108				
03:15		8	130			2	111				
03:30		3	148			5	123				
03:45		3	147	22	551	2	119	11	461	33	1012
04:00		8	153			5	102				
04:15		4	177			10	104				
04:30		12	151			13	113				
04:45		15	121	39	602	16	100	44	419	83	1021
05:00		16	171			18	131				
05:15		15	177			30	104				
05:30		22	155			37	123				
05:45		33	147	86	650	51	101	136	459	222	1109
06:00		24	139			83	76				
06:15		56	118			107	103				
06:30		66	117			141	109				
06:45		80	81	226	455	153	76	484	364	710	819
07:00		87	82			153	82				
07:15		81	71			151	83				
07:30		95	55			189	75				
07:45		118	69	381	277	145	60	638	300	1019	577
08:00		84	47			159	56				
08:15		108	54			136	39				
08:30		103	50			125	35				
08:45		107	38	402	189	124	37	544	167	946	356
09:00		98	69			102	39				
09:15		97	51			103	30				
09:30		89	39			102	39				
09:45		86	38	370	197	90	48	397	156	767	353
10:00		84	34			97	41				
10:15		103	44			79	20				
10:30		99	39			93	23				
10:45		93	35	379	152	81	21	350	105	729	257
11:00		99	28			112	25				
11:15		110	18			105	17				
11:30		105	27			100	34				
11:45		87	37	401	110	103	21	420	97	821	207
Total		2382	4558			3102	3813			5484	8371
Percent		34.3%	65.7%			44.9%	55.1%			39.6%	60.4%

Transportation Data Corporation

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Main Street (Route 38)
north of Kearsarge Avenue
City, State: Woburn, MA
Client: TEC/R. Brown

04217Avolume
Site Code: T-0413.02

Start Time	10-Mar-12 Sat	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		21	95			23	118				
12:15		16	85			16	124				
12:30		18	97			9	107				
12:45		13	101	68	378	13	114	61	463	129	841
01:00		13	100			17	103				
01:15		12	93			10	92				
01:30		5	101			13	106				
01:45		10	106	40	400	5	88	45	389	85	789
02:00		5	107			6	104				
02:15		5	113			4	106				
02:30		6	89			6	83				
02:45		7	112	23	421	2	88	18	381	41	802
03:00		5	92			1	82				
03:15		2	94			1	87				
03:30		6	92			2	83				
03:45		5	90	18	368	0	98	4	350	22	718
04:00		1	89			3	74				
04:15		4	88			2	70				
04:30		12	66			5	89				
04:45		8	90	25	333	8	86	18	319	43	652
05:00		4	84			6	86				
05:15		5	63			14	112				
05:30		8	74			14	76				
05:45		11	76	28	297	14	71	48	345	76	642
06:00		16	65			16	83				
06:15		12	71			26	89				
06:30		28	52			30	75				
06:45		18	66	74	254	21	70	93	317	167	571
07:00		25	70			40	61				
07:15		21	53			48	51				
07:30		34	61			56	47				
07:45		58	47	138	231	49	46	193	205	331	436
08:00		39	49			50	64				
08:15		46	40			44	27				
08:30		56	50			59	22				
08:45		92	44	233	183	71	47	224	160	457	343
09:00		65	36			46	32				
09:15		67	41			67	35				
09:30		62	38			79	29				
09:45		87	34	281	149	75	28	267	124	548	273
10:00		81	43			104	40				
10:15		86	34			78	21				
10:30		102	37			77	31				
10:45		109	24	378	138	96	22	355	114	733	252
11:00		111	27			143	28				
11:15		88	33			118	28				
11:30		99	20			99	27				
11:45		98	32	396	112	98	16	458	99	854	211
Total		1702	3264			1784	3266			3486	6530
Percent		34.3%	65.7%			35.3%	64.7%			34.8%	65.2%
Grand Total		6616	12449			8674	10734			15290	23183
Percent		34.7%	65.3%			44.7%	55.3%			39.7%	60.3%

ADT

ADT 12,824

AADT 12,824

Transportation Data Corporation

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t (781) 587-0086 f (781) 587-0089

N/S: Main Street (Route 38)

E: School Street

City, State: Woburn, MA

Client: TEC/R. Brown

File Name : 04229AA

Site Code : T0413.02

Start Date : 3/6/2012

Page No : 1

Groups Printed- Cars & Peds - Trucks

Start Time	Main Street (Route 38) From North			School Street From East			Main Street (Route 38) From South			Exclu. Total	Inclu. Total	Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds			
04:00 PM	115	32	5	56	56	0	30	131	0	5	420	425
04:15 PM	105	37	1	55	36	0	39	158	0	1	430	431
04:30 PM	129	47	0	76	41	0	38	136	1	1	467	468
04:45 PM	110	36	1	62	36	1	42	133	0	2	419	421
Total	459	152	7	249	169	1	149	558	1	9	1736	1745
05:00 PM	121	30	1	105	42	0	45	157	0	1	500	501
05:15 PM	136	42	0	74	43	0	35	154	0	0	484	484
05:30 PM	115	42	0	58	37	0	38	144	0	0	434	434
05:45 PM	96	26	1	59	36	0	34	143	0	1	394	395
Total	468	140	2	296	158	0	152	598	0	2	1812	1814
Grand Total	927	292	9	545	327	1	301	1156	1	11	3548	3559
Apprch %	76	24		62.5	37.5		20.7	79.3				
Total %	26.1	8.2		15.4	9.2		8.5	32.6		0.3	99.7	
Cars & Peds	919	291		544	325		290	1144		0	0	3524
% Cars & Peds	99.1	99.7	100	99.8	99.4	100	96.3	99	100	0	0	99
Trucks	8	1		1	2		11	12		0	0	35
% Trucks	0.9	0.3	0	0.2	0.6	0	3.7	1	0	0	0	1

Start Time	Main Street (Route 38) From North			School Street From East			Main Street (Route 38) From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	129	47	176	76	41	117	38	136	174	467
04:45 PM	110	36	146	62	36	98	42	133	175	419
05:00 PM	121	30	151	105	42	147	45	157	202	500
05:15 PM	136	42	178	74	43	117	35	154	189	484
Total Volume	496	155	651	317	162	479	160	580	740	1870
% App. Total	76.2	23.8		66.2	33.8		21.6	78.4		
PHF	.912	.824	.914	.755	.942	.815	.889	.924	.916	.935
Cars & Peds	494	154	648	316	160	476	157	574	731	1855
% Cars & Peds	99.6	99.4	99.5	99.7	98.8	99.4	98.1	99.0	98.8	99.2
Trucks	2	1	3	1	2	3	3	6	9	15
% Trucks	0.4	0.6	0.5	0.3	1.2	0.6	1.9	1.0	1.2	0.8

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Mario Perone, mperone1@verizon.net

t (781) 587-0086 f (781) 587-0089

N/S: Main Street (Route 38)
 E: School Street
 City, State: Woburn, MA
 Client: TEC/R. Brown

File Name : 04229AA
 Site Code : T0413.02
 Start Date : 3/6/2012
 Page No : 1

Groups Printed- Trucks

Start Time	Main Street (Route 38) From North		School Street From East		Main Street (Route 38) From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
04:00 PM	3	0	0	0	4	2	9
04:15 PM	1	0	0	0	3	4	8
04:30 PM	0	1	0	0	2	3	6
04:45 PM	1	0	0	2	0	2	5
Total	5	1	0	2	9	11	28
05:00 PM	0	0	0	0	0	1	1
05:15 PM	1	0	1	0	1	0	3
05:30 PM	1	0	0	0	1	0	2
05:45 PM	1	0	0	0	0	0	1
Total	3	0	1	0	2	1	7
Grand Total	8	1	1	2	11	12	35
Apprch %	88.9	11.1	33.3	66.7	47.8	52.2	
Total %	22.9	2.9	2.9	5.7	31.4	34.3	

Start Time	Main Street (Route 38) From North			School Street From East			Main Street (Route 38) From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	3	0	3	0	0	0	4	2	6	9
04:15 PM	1	0	1	0	0	0	3	4	7	8
04:30 PM	0	1	1	0	0	0	2	3	5	6
04:45 PM	1	0	1	0	2	2	0	2	2	5
Total Volume	5	1	6	0	2	2	9	11	20	28
% App. Total	83.3	16.7		0	100		45	55		
PHF	.417	.250	.500	.000	.250	.250	.563	.688	.714	.778

Transportation Data Corporation

Mario Perone, mperone1@verizon.net

t (781) 587-0086 f (781) 587-0089

N/S: Main Street (Route 38)

E: School Street

City, State: Woburn, MA

Client: TEC/R. Brown

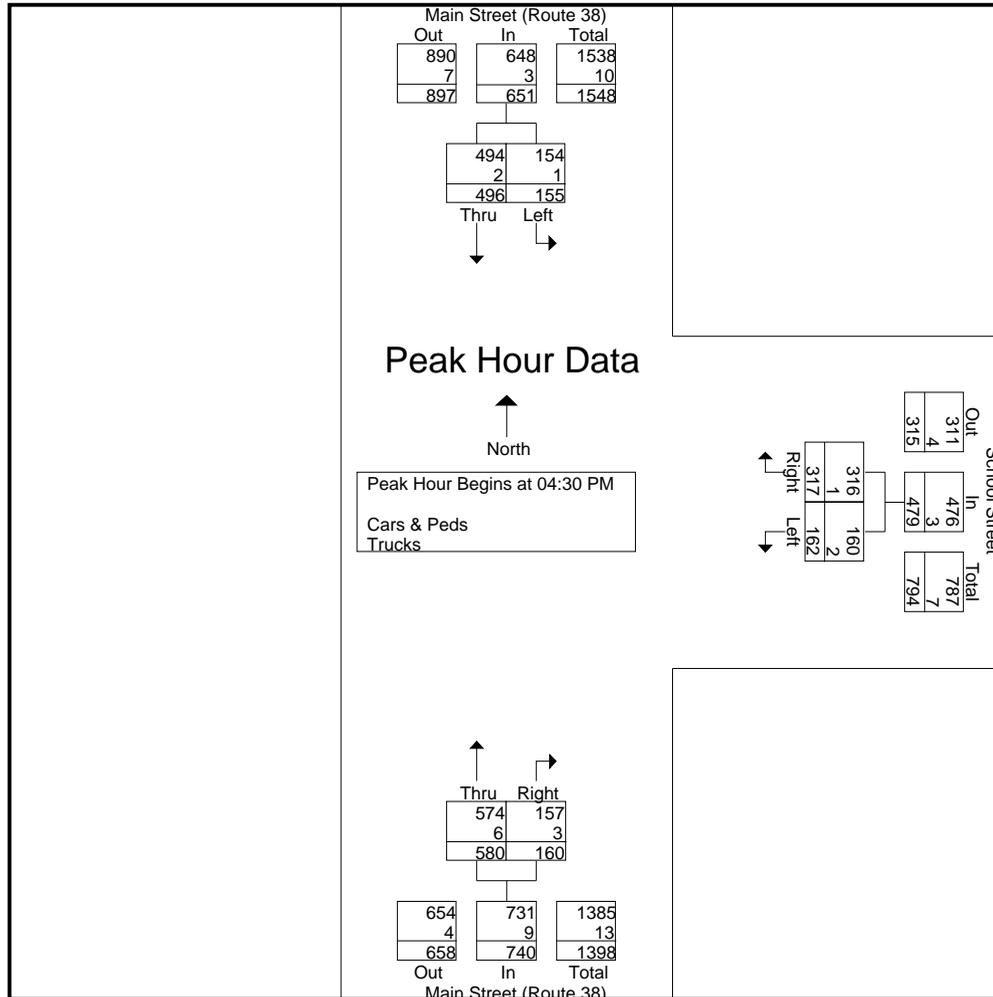
File Name : 04229AA

Site Code : T0413.02

Start Date : 3/6/2012

Page No : 1

Start Time	Main Street (Route 38) From North			School Street From East			Main Street (Route 38) From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	129	47	176	76	41	117	38	136	174	467
04:45 PM	110	36	146	62	36	98	42	133	175	419
05:00 PM	121	30	151	105	42	147	45	157	202	500
05:15 PM	136	42	178	74	43	117	35	154	189	484
Total Volume	496	155	651	317	162	479	160	580	740	1870
% App. Total	76.2	23.8		66.2	33.8		21.6	78.4		
PHF	.912	.824	.914	.755	.942	.815	.889	.924	.916	.935
Cars & Peds	494	154	648	316	160	476	157	574	731	1855
% Cars & Peds	99.6	99.4	99.5	99.7	98.8	99.4	98.1	99.0	98.8	99.2
Trucks	2	1	3	1	2	3	3	6	9	15
% Trucks	0.4	0.6	0.5	0.3	1.2	0.6	1.9	1.0	1.2	0.8



Transportation Data Corporation

Mario Perone, mperone1@verizon.net

t (781) 587-0086 f (781) 587-0089

N/S: Main Street (Route 38)

W: Mountain Street

City, State: Woburn, MA

Client: TEC/R. Brown

File Name : 04217A

Site Code : T0413.02

Start Date : 2/28/2012

Page No : 1

Groups Printed- Cars & Peds - Trucks

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds			
07:00 AM	6	184	0	60	2	0	4	8	1	1	264	265
07:15 AM	3	180	0	82	7	0	8	6	1	1	286	287
07:30 AM	6	192	0	80	0	0	6	9	1	1	293	294
07:45 AM	10	180	0	100	5	0	5	9	0	0	309	309
Total	25	736	0	322	14	0	23	32	3	3	1152	1155
08:00 AM	8	180	3	106	2	4	8	7	3	10	311	321
08:15 AM	2	164	0	92	12	3	20	16	0	3	306	309
08:30 AM	4	145	0	115	5	0	3	7	1	1	279	280
08:45 AM	1	127	0	102	5	0	4	5	0	0	244	244
Total	15	616	3	415	24	7	35	35	4	14	1140	1154
Grand Total	40	1352	3	737	38	7	58	67	7	17	2292	2309
Apprch %	2.9	97.1		95.1	4.9		46.4	53.6				
Total %	1.7	59		32.2	1.7		2.5	2.9		0.7	99.3	
Cars & Peds	40	1322		719	38		58	66		0	0	2260
% Cars & Peds	100	97.8	100	97.6	100	100	100	98.5	100	0	0	97.9
Trucks	0	30		18	0		0	1		0	0	49
% Trucks	0	2.2	0	2.4	0	0	0	1.5	0	0	0	2.1

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	6	192	198	80	0	80	6	9	15	293
07:45 AM	10	180	190	100	5	105	5	9	14	309
08:00 AM	8	180	188	106	2	108	8	7	15	311
08:15 AM	2	164	166	92	12	104	20	16	36	306
Total Volume	26	716	742	378	19	397	39	41	80	1219
% App. Total	3.5	96.5		95.2	4.8		48.8	51.2		
PHF	.650	.932	.937	.892	.396	.919	.488	.641	.556	.980
Cars & Peds	26	703	729	367	19	386	39	40	79	1194
% Cars & Peds	100	98.2	98.2	97.1	100	97.2	100	97.6	98.8	97.9
Trucks	0	13	13	11	0	11	0	1	1	25
% Trucks	0	1.8	1.8	2.9	0	2.8	0	2.4	1.3	2.1

Transportation Data Corporation

Mario Perone, mperone1@verizon.net

t (781) 587-0086 f (781) 587-0089

N/S: Main Street (Route 38)
 W: Mountain Street
 City, State: Woburn, MA
 Client: TEC/R. Brown

File Name : 04217A
 Site Code : T0413.02
 Start Date : 2/28/2012
 Page No : 1

Groups Printed- Trucks

Start Time	Main Street (Route 38) From North		Main Street (Route 38) From South			Mountain Street From West		Int. Total
	Right	Thru	Thru	Left	Right	Left		
07:00 AM	0	4	2	0	0	0	6	
07:15 AM	0	6	0	0	0	0	6	
07:30 AM	0	5	1	0	0	0	6	
07:45 AM	0	2	2	0	0	0	4	
Total	0	17	5	0	0	0	22	
08:00 AM	0	3	4	0	0	0	7	
08:15 AM	0	3	4	0	0	1	8	
08:30 AM	0	2	2	0	0	0	4	
08:45 AM	0	5	3	0	0	0	8	
Total	0	13	13	0	0	1	27	
Grand Total	0	30	18	0	0	1	49	
Apprch %	0	100	100	0	0	100		
Total %	0	61.2	36.7	0	0	2		

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	3	3	4	0	4	0	0	0	7
08:15 AM	0	3	3	4	0	4	0	1	1	8
08:30 AM	0	2	2	2	0	2	0	0	0	4
08:45 AM	0	5	5	3	0	3	0	0	0	8
Total Volume	0	13	13	13	0	13	0	1	1	27
% App. Total	0	100		100	0		0	100		
PHF	.000	.650	.650	.813	.000	.813	.000	.250	.250	.844

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City, State: Woburn, MA

Client: TEC/R. Brown

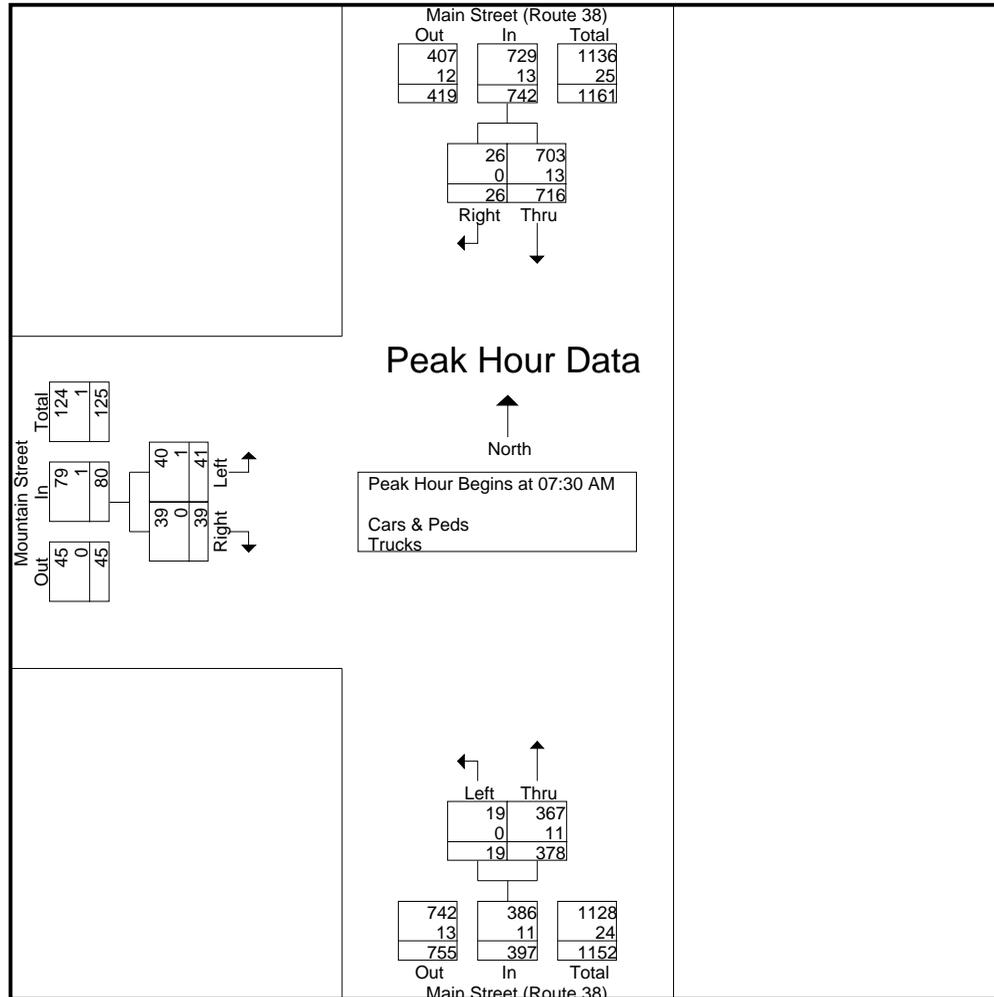
File Name : 04217A

Site Code : T0413.02

Start Date : 2/28/2012

Page No : 1

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	6	192	198	80	0	80	6	9	15	293
07:45 AM	10	180	190	100	5	105	5	9	14	309
08:00 AM	8	180	188	106	2	108	8	7	15	311
08:15 AM	2	164	166	92	12	104	20	16	36	306
Total Volume	26	716	742	378	19	397	39	41	80	1219
% App. Total	3.5	96.5		95.2	4.8		48.8	51.2		
PHF	.650	.932	.937	.892	.396	.919	.488	.641	.556	.980
Cars & Peds	26	703	729	367	19	386	39	40	79	1194
% Cars & Peds	100	98.2	98.2	97.1	100	97.2	100	97.6	98.8	97.9
Trucks	0	13	13	11	0	11	0	1	1	25
% Trucks	0	1.8	1.8	2.9	0	2.8	0	2.4	1.3	2.1



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t (781) 587-0086 f (781) 587-0089

N/S: Main Street (Route 38)

W: Mountain Street

City, State: Woburn, MA

Client: TEC/R. Brown

File Name : 04217AA

Site Code : T0413.02

Start Date : 2/28/2012

Page No : 1

Groups Printed- Cars & Peds - Trucks

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds			
04:00 PM	8	125	0	163	6	0	4	6	2	2	312	314
04:15 PM	4	125	0	148	5	0	7	4	2	2	293	295
04:30 PM	7	113	0	161	6	0	8	6	1	1	301	302
04:45 PM	7	112	0	145	8	0	5	11	0	0	288	288
Total	26	475	0	617	25	0	24	27	5	5	1194	1199
05:00 PM	7	137	0	152	6	0	5	5	0	0	312	312
05:15 PM	4	111	0	162	5	0	8	14	1	1	304	305
05:30 PM	7	104	0	144	5	0	5	7	1	1	272	273
05:45 PM	6	101	0	128	3	0	1	11	0	0	250	250
Total	24	453	0	586	19	0	19	37	2	2	1138	1140
Grand Total	50	928	0	1203	44	0	43	64	7	7	2332	2339
Apprch %	5.1	94.9		96.5	3.5		40.2	59.8				
Total %	2.1	39.8		51.6	1.9		1.8	2.7		0.3	99.7	
Cars & Peds	50	918		1192	44		43	64		0	0	2316
% Cars & Peds	100	98.9	0	99.1	100	0	100	100	71.4	0	0	99
Trucks	0	10		11	0		0	0		0	0	23
% Trucks	0	1.1	0	0.9	0	0	0	0	28.6	0	0	1

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

04:30 PM	7	113	120	161	6	167	8	6	14	301
04:45 PM	7	112	119	145	8	153	5	11	16	288
05:00 PM	7	137	144	152	6	158	5	5	10	312
05:15 PM	4	111	115	162	5	167	8	14	22	304
Total Volume	25	473	498	620	25	645	26	36	62	1205
% App. Total	5	95		96.1	3.9		41.9	58.1		
PHF	.893	.863	.865	.957	.781	.966	.813	.643	.705	.966
Cars & Peds	25	468	493	614	25	639	26	36	62	1194
% Cars & Peds	100	98.9	99.0	99.0	100	99.1	100	100	100	99.1
Trucks	0	5	5	6	0	6	0	0	0	11
% Trucks	0	1.1	1.0	1.0	0	0.9	0	0	0	0.9

Transportation Data Corporation

Mario Perone, mperone1@verizon.net

t (781) 587-0086 f (781) 587-0089

N/S: Main Street (Route 38)

W: Mountain Street

City, State: Woburn, MA

Client: TEC/R. Brown

File Name : 04217AA

Site Code : T0413.02

Start Date : 2/28/2012

Page No : 1

Groups Printed- Trucks

Start Time	Main Street (Route 38) From North		Main Street (Route 38) From South			Mountain Street From West		Int. Total
	Right	Thru	Thru	Left	Right	Left		
04:00 PM	0	2	1	0	0	0	3	
04:15 PM	0	1	3	0	0	0	4	
04:30 PM	0	0	1	0	0	0	1	
04:45 PM	0	1	4	0	0	0	5	
Total	0	4	9	0	0	0	13	
05:00 PM	0	3	0	0	0	0	3	
05:15 PM	0	1	1	0	0	0	2	
05:30 PM	0	1	1	0	0	0	2	
05:45 PM	0	1	0	0	0	0	1	
Total	0	6	2	0	0	0	8	
Grand Total	0	10	11	0	0	0	21	
Apprch %	0	100	100	0	0	0		
Total %	0	47.6	52.4	0	0	0		

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
04:00 PM	0	2	2	1	0	1	0	0	0	3
04:15 PM	0	1	1	3	0	3	0	0	0	4
04:30 PM	0	0	0	1	0	1	0	0	0	1
04:45 PM	0	1	1	4	0	4	0	0	0	5
Total Volume	0	4	4	9	0	9	0	0	0	13
% App. Total	0	100		100	0		0	0		
PHF	.000	.500	.500	.563	.000	.563	.000	.000	.000	.650

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

Transportation Data Corporation

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N/S: Main Street (Route 38)

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City, State: Woburn, MA

Client: TEC/R. Brown

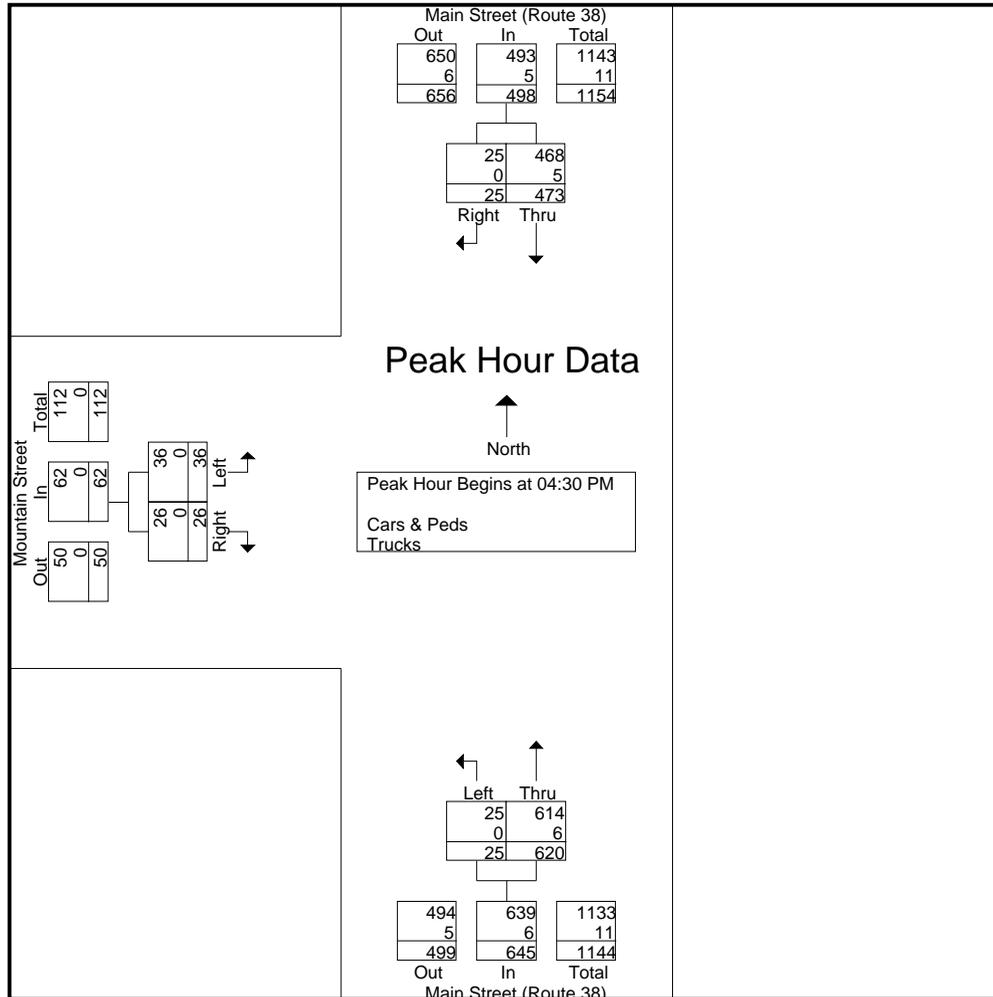
File Name : 04217AA

Site Code : T0413.02

Start Date : 2/28/2012

Page No : 1

Start Time	Main Street (Route 38) From North			Main Street (Route 38) From South			Mountain Street From West			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	7	113	120	161	6	167	8	6	14	301
04:45 PM	7	112	119	145	8	153	5	11	16	288
05:00 PM	7	137	144	152	6	158	5	5	10	312
05:15 PM	4	111	115	162	5	167	8	14	22	304
Total Volume	25	473	498	620	25	645	26	36	62	1205
% App. Total	5	95		96.1	3.9		41.9	58.1		
PHF	.893	.863	.865	.957	.781	.966	.813	.643	.705	.966
Cars & Peds	25	468	493	614	25	639	26	36	62	1194
% Cars & Peds	100	98.9	99.0	99.0	100	99.1	100	100	100	99.1
Trucks	0	5	5	6	0	6	0	0	0	11
% Trucks	0	1.1	1.0	1.0	0	0.9	0	0	0	0.9



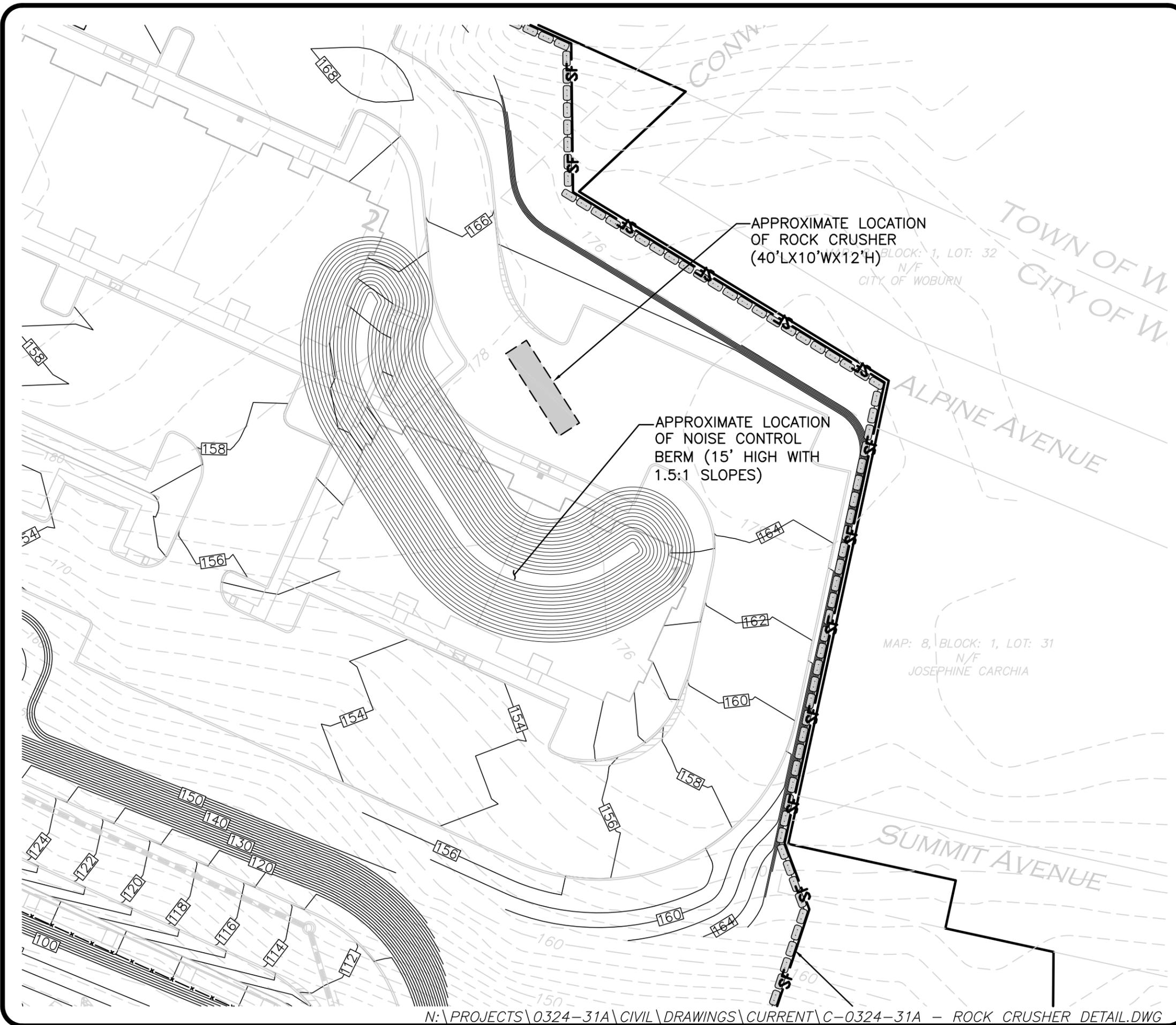
Seasonal Adjustment Factor Summary Table

Project: Woburn Heights Residential Development - EENF
 Date: March 1, 2012
 Analyst: TEC, Inc. / Samuel W. Gregorio, E.I.T.
 Source: MassDOT Permanent Count Stations 407, 4049

STATION 4049 - WOBURN - RTE. I-95(128) - SOUTH OF RTE. I-93													<u>February</u> <u>Seasonal</u> <u>Adjustment</u>	<u>March</u> <u>Seasonal</u> <u>Adjustment</u>	
<u>YR</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>YEAR</u>		
05	158,569	166,301	169,015	176,496	175,709	184,466	176,850	184,221	173,725	171,623	169,000	167,000	172,748	3.7%	2.2%
STATION 407 - STONEHAM - RTE. 28 - SOUTH OF READING T.L.													<u>February</u> <u>Seasonal</u> <u>Adjustment</u>	<u>March</u> <u>Seasonal</u> <u>Adjustment</u>	
<u>YR</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>YEAR</u>		
05	24,692	25,048	25,554	26,393	27,399	28,075	27,036	26,807	26,827	26,455	25,775	26,238	26,358	5.0%	3.1%
06	24,794	24,974	25,912	26,170	27,152	27,647	25,416	27,000	27,303	26,745	26,032	27,473	26,385	5.3%	1.8%
07	24,339	24,072	25,117	25,508	27,159	27,355	25,461	26,342	25,778	25,865	25,342	25,426	25,647	6.1%	2.1%
08	23,897	23,709	24,028	22,893	25,770	25,669	24,456	24,404	25,003	25,300	25,300	24,296	24,560	3.5%	2.2%
09	21,518	23,353	23,554	24,826	25,021	25,667	24,960	24,938	24,654	25,210	25,210	24,994	24,492	4.7%	3.8%
Average Adj. =													4.7%	2.5%	

*A seasonal adjustment factor of 4.7 percent will be used to reflect average-month conditions for TMCs conducted in February 2012.

**A seasonal adjustment factor of 2.5 percent will be used to reflect average-month conditions for ATRs conducted in March 2012.



N:\PROJECTS\0324-31A\CIVIL\DRAWINGS\CURRENT\C-0324-31A - ROCK CRUSHER DETAIL.DWG

APPLICANT/OWNER:

THE DOLBEN COMPANY, INC.
 150 PRESIDENTIAL WAY, SUITE 220
 WOBURN, MA 01801

PROJECT:

WOBURN HEIGHTS
 1042 MAIN STREET
 WOBURN, MA 01801

PROJECT NO.	324-31	DATE:	04-12-2012
SCALE:	1" = 40'	DWG. NAME:	324-31A
DESIGNED BY:	CMQ	CHECKED BY:	TJW

PREPARED BY:



ALLEN & MAJOR ASSOCIATES, INC.

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 environmental consulting ♦ landscape architecture
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