

**Laurie M. Rauseo, P.E., PTOE***Traffic Engineering • Transportation Planning*

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June 26, 2006

Mr. Karl Zahn  
K.M. Zahn & Sons  
P.O. Box 75  
Milford, New Hampshire

RE: Traffic Impact of Proposed Gravel Pit  
Map F, Lot 3, Isaac Frye Highway, Wilton

Dear Mr. Zahn:

Per your request, I have reviewed the proposed gravel pit operation on Map F, Lot 3 with respect to off-site traffic impacts. My observations and recommendations are presented herein and are based on a personal field visit, traffic counts conducted at the Route 101/Isaac Frye Highway intersection, and a review of the Wilton Zoning Board of Adjustment meeting minutes from May 9, 2006 and June 13, 2006.

**Proposed Development**

It is proposed to remove gravel from Map F, Lot 3, 536 Isaac Frye Highway. The site is a 12.78± acre parcel located on the east side of Isaac Frye Highway, approximately 800 feet from Route 101 in Wilton, New Hampshire. Based on statements made at the Town of Wilton Zoning Board of Adjustment, it is my understanding that truck traffic to and from the site would operate as follows:

- The gravel pit will operate on weekdays from 7:00 AM to 4:30 PM.
- The gravel would be excavated using eight trucks which would each visit the site four times per day. It was further confirmed in our conversations that the trucks are limited to a maximum four trips per day and on some days may only make three round trips.
- Based on our conversations, employees travel to the site in the morning with an empty truck and leave at the end of the day with a full truck, therefore, there are no additional trips associated with employee traffic.
- The truck traffic would be limited to Isaac Frye Highway to the south, i.e. no trucks would turn to the north and travel through Wilton Center.
- Trucks would not be permitted to travel on Route 101 westbound to and from the site.

Based on the expected gravel pit operations described above, the estimated daily traffic generated by the proposed gravel pit is 32 truck trips northbound and 32 truck trips southbound on Isaac Frye Highway between Route 101 and the site. These trips would utilize Route 101 to/from the east only.

**Existing Conditions**

The proposed site is on the east side of Isaac Frye Highway approximately 800 feet north of Route 101. Access to the site is proposed via a single driveway. At the proposed site driveway intersection, Isaac Frye Highway is 21 feet wide with 1-2 foot gravel shoulders and has recently been paved. Sight distance from the site driveway looking to the south is good. Sight distance to the

letter to Mr. Zahn  
RE: Gravel Pit, Wilton  
June 26, 2006  
page 2

north is slightly restricted by the embankment on the northeastern corner of the site driveway intersection.

As noted above, truck traffic will be restricted to Isaac Frye Highway south of the site and then to Route 101 to and from the east. At the intersection with Isaac Frye Highway, Route 101 is 35 feet wide including five foot wide paved shoulders on each side. At the intersection, Isaac Frye Highway is 23 feet wide. The Brookside Mini-mart/Mobil gas station is located on the south side of Route 101 opposite Isaac Frye Highway. Brookside has two driveways onto Route 101. The eastern most driveway is 46 feet wide and located to the east of Isaac Frye Highway. The western driveway to Brookside is 50 feet wide and located opposite Isaac Frye Highway. The posted speed limit on Route 101 transitions from 45 miles per hour at the intersection to 50 mph west of the intersection.

Isaac Frye Highway intersects Route 101 at a sharp angle and is sloped towards Route 101. Despite the angle, sight distance appears to be adequate for vehicles exiting Isaac Frye Highway and looking east or west on Route 101. The angle of the intersection improves the turning radius for vehicles turning to and from Route 101 to the east, however, this angle severely hampers turns to and from Route 101 west. A truck would not likely be able to turn from Isaac Frye Highway onto Route 101 west without crossing the centerline on one or both roads, therefore, the proposed gravel pit truck traffic has been limited to Route 101 east of Isaac Frye Highway.

It was also noted that the existing topography and layout of the intersection does not permit a flat platform at the end of Isaac Frye Highway at Route 101. However, provision of such a platform would require regrading a portion of Isaac Frye Highway or widening and realigning Route 101 to provide a wider shoulder.

#### Traffic Volumes

Manual turning movement counts were conducted at the intersection of Route 101/Isaac Frye Highway on Friday, June 23, 2006 from 6:30-9:00 AM and from 3:00-5:30 PM. Traffic at the intersection was found to peak from 7:15-8:15 AM and from 3:30-4:30 PM. Detailed traffic count data is attached to this letter and presented in Figure 1.

Assuming the worst case traffic flow at the gravel pit, eight trucks would enter and exit the site during the peak hours of the intersection. As shown in Table 1, the traffic volumes on Isaac Frye Highway between the site and Route 101 would increase from 37 vehicles in the AM peak hour and 67 vehicles in the PM peak hour to 53 and 83 vehicles in the AM and PM peak hours, respectively. While the percentage increase is relatively high, the resulting volumes are still considered low and well within the capacity of Isaac Frye Highway and the intersection of Route 101/Isaac Frye Highway.

letter to Mr. Zahn  
RE: Gravel Pit, Wilton  
June 26, 2006  
page 3

**TABLE 1 – TRAFFIC VOLUMES - ISAAC FRYE HIGHWAY NORTH OF ROUTE 101**

CONDITION	VEHICLES PER HOUR					
	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
	NORTHBOUND	SOUTHBOUND	TOTAL	NORTHBOUND	SOUTHBOUND	TOTAL
EXISTING	15	22	37	37	30	67
GRAVEL PIT	8	8	16	8	8	16
TOTAL	23	30	53	45	38	83

Recommendations

Based on the results of the field visit, traffic counts and consideration of the proposed traffic operations in the area, I have the following recommendations to offer:

1. The embankment on the northeast corner of the site driveway intersection with Isaac Frye Highway should be cut back to improve sight distance looking north from the site driveway;
2. The gravel pit truck traffic should be prohibited from turning right from Isaac Frye Highway onto Route 101 and from turning left from Route 101 onto Isaac Frye Highway; and,
3. The Town of Wilton should consult with NHDOT to determine if any improvements could be made to provide a platform for vehicles on Isaac Frye Highway at Route 101.

In summary, the proposed gravel pit traffic impact will be limited and well within the capacity of the existing roadway system. If the proposed travel restrictions are placed on the gravel pit operations, i.e. truck traffic limited to Route 101 to and from the east, there are no safety hazards created by the proposed gravel pit truck traffic.

I trust this information has been helpful. Please call me if you have any questions.

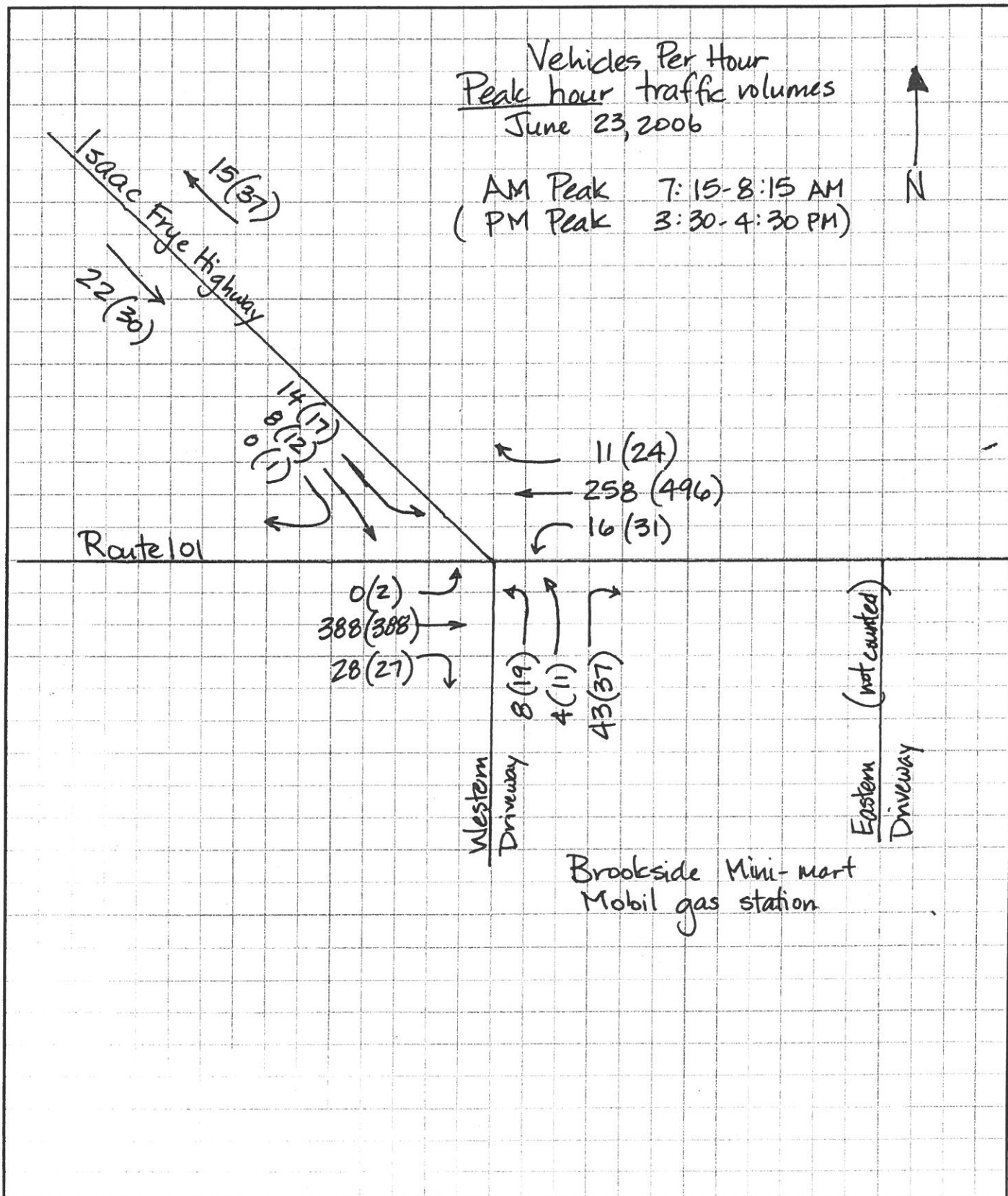
Sincerely,



Laurie M. Rauseo, P.E., PTOE

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152 Morrill Road  
Canterbury, NH 03224  
(603) 783-4802

PROJECT NO. 2006-11 DATE 6-26-06  
PROJECT NAME Wilton Gravel Pit  
SHEET NO. 1 OF 1  
ITEM Traffic Counts - Figure 1



N/S Street : Issac Frye Highway  
 E/W Street: Route 101  
 City/State : Wilton, NH  
 Weather : Rain

Accurate Counts  
 978-664-2565

File Name : 12410001  
 Site Code : 12410001  
 Start Date : 6/23/2006  
 Page No : 1

Groups Printed- Cars - Trucks

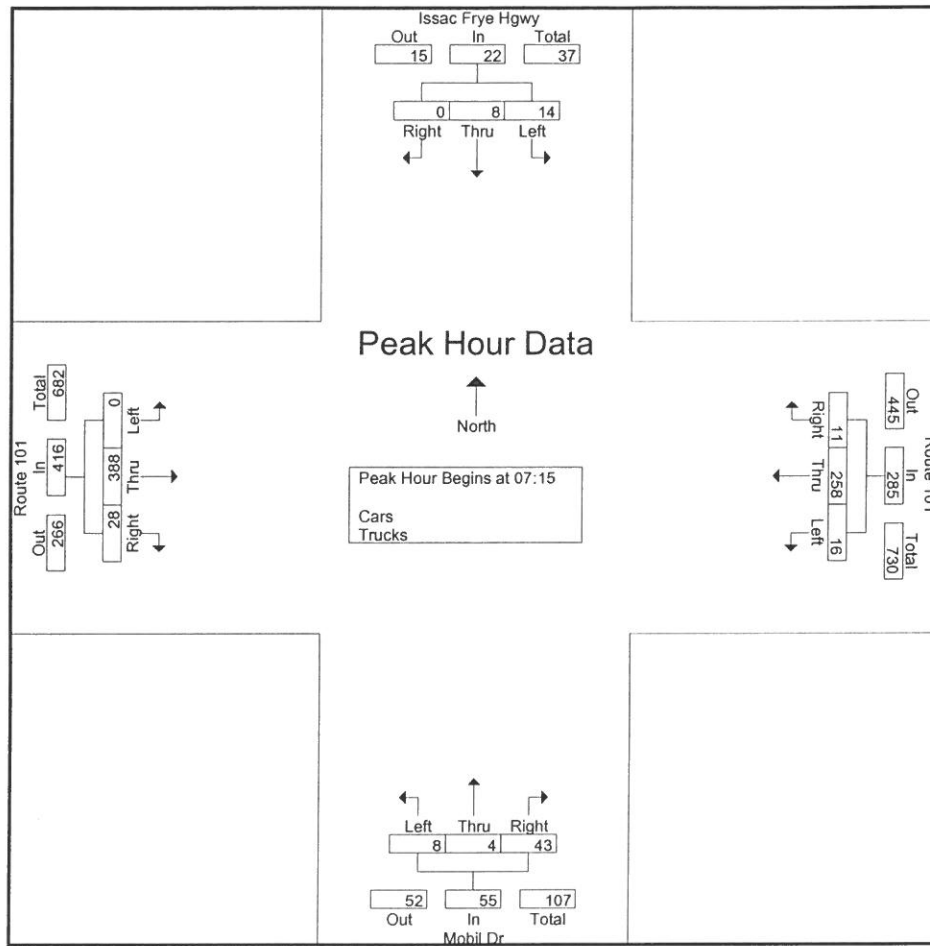
Start Time	Issac Frye Hgwy From North			Route 101 From East			Mobil Dr From South			Route 101 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30	4	1	0	3	57	1	5	1	6	0	97	6	181
06:45	2	1	1	2	54	1	1	1	5	0	78	5	151
Total	6	2	1	5	111	2	6	2	11	0	175	11	332
07:00	3	0	0	3	53	1	1	0	10	0	94	6	171
07:15	4	3	0	1	59	2	2	1	12	0	102	10	196
07:30	5	2	0	2	82	3	2	1	8	0	94	8	207
07:45	3	2	0	8	55	2	3	2	11	0	106	4	196
Total	15	7	0	14	249	8	8	4	41	0	396	28	770
08:00	2	1	0	5	62	4	1	0	12	0	86	6	179
08:15	7	0	0	7	71	3	2	2	9	0	85	5	191
08:30	5	0	0	2	73	0	3	2	4	0	87	4	180
08:45	6	0	0	5	68	3	5	2	10	0	90	7	196
Total	20	1	0	19	274	10	11	6	35	0	348	22	746
Grand Total	41	10	1	38	634	20	25	12	87	0	919	61	1848
Apprch %	78.8	19.2	1.9	5.5	91.6	2.9	20.2	9.7	70.2	0	93.8	6.2	
Total %	2.2	0.5	0.1	2.1	34.3	1.1	1.4	0.6	4.7	0	49.7	3.3	
Cars	40	9	1	34	558	19	22	12	82	0	850	60	1687
% Cars	97.6	90	100	89.5	88	95	88	100	94.3	0	92.5	98.4	91.3
Trucks	1	1	0	4	76	1	3	0	5	0	69	1	161
% Trucks	2.4	10	0	10.5	12	5	12	0	5.7	0	7.5	1.6	8.7

	Issac Frye Hgwy From North				Route 101 From East				Mobil Dr From South				Route 101 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	4	3	0	7	1	59	2	62	2	1	12	15	0	102	10	112	196
07:30	5	2	0	7	2	82	3	87	2	1	8	11	0	94	8	102	207
07:45	3	2	0	5	8	55	2	65	3	2	11	16	0	106	4	110	196
08:00	2	1	0	3	5	62	4	71	1	0	12	13	0	86	6	92	179
Total Volume	14	8	0	22	16	258	11	285	8	4	43	55	0	388	28	416	778
% App. Total	63.6	36.4	0		5.6	90.5	3.9		14.5	7.3	78.2		0	93.3	6.7		
PHF	.700	.667	.000	.786	.500	.787	.688	.819	.667	.500	.896	.859	.000	.915	.700	.929	.940

N/S Street : Issac Frye Highway  
E/W Street: Route 101  
City/State : Wilton, NH  
Weather : Rain

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Groups Printed- Cars - Trucks

Start Time	Issac Frye Hgwy From North			Route 101 From East			Mobil Dr From South			Route 101 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:00	7	3	0	3	88	2	3	1	6	1	85	10	209
15:15	3	0	0	7	133	8	6	1	3	1	88	7	257
15:30	2	3	0	2	123	7	2	2	13	1	90	7	252
15:45	5	3	0	5	129	8	4	3	7	1	95	5	265
Total	17	9	0	17	473	25	15	7	29	4	358	29	983
16:00	5	3	0	8	123	4	7	0	10	0	112	7	279
16:15	5	3	1	16	121	5	6	6	7	0	91	8	269
16:30	4	1	0	3	117	6	8	3	5	0	92	6	245
16:45	4	2	0	13	136	6	10	1	7	0	88	4	271
Total	18	9	1	40	497	21	31	10	29	0	383	25	1064
17:00	3	2	0	15	120	6	10	2	7	0	100	3	268
17:15	4	0	1	7	124	9	5	1	5	0	103	5	264
Grand Total	42	20	2	79	1214	61	61	20	70	4	944	62	2579
Apprch %	65.6	31.2	3.1	5.8	89.7	4.5	40.4	13.2	46.4	0.4	93.5	6.1	
Total %	1.6	0.8	0.1	3.1	47.1	2.4	2.4	0.8	2.7	0.2	36.6	2.4	
Cars	40	18	2	78	1176	60	60	18	69	4	886	61	2472
% Cars	95.2	90	100	98.7	96.9	98.4	98.4	90	98.6	100	93.9	98.4	95.9
Trucks	2	2	0	1	38	1	1	2	1	0	58	1	107
% Trucks	4.8	10	0	1.3	3.1	1.6	1.6	10	1.4	0	6.1	1.6	4.1

	Issac Frye Hgwy From North				Route 101 From East				Mobil Dr From South				Route 101 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 17:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:30																	
15:30	2	3	0	5	2	123	7	132	2	2	13	17	1	90	7	98	252
15:45	5	3	0	8	5	129	8	142	4	3	7	14	1	95	5	101	265
16:00	5	3	0	8	8	123	4	135	7	0	10	17	0	112	7	119	279
16:15	5	3	1	9	16	121	5	142	6	6	7	19	0	91	8	99	269
Total Volume	17	12	1	30	31	496	24	551	19	11	37	67	2	388	27	417	1065
% App. Total	56.7	40	3.3		5.6	90	4.4		28.4	16.4	55.2		0.5	93	6.5		
PHF	.850	1.000	.250	.833	.484	.961	.750	.970	.679	.458	.712	.882	.500	.866	.844	.876	.954

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