

Appendix S
NOISE CALCULATIONS

Amount of Medium Trucks AM and PM Peak						
7:00	F5	F6	F7	F8	Totals	
Westbound	12	2	0	0	14	
Eastbound	37	6	0	1	44	
	Total Medium Trucks AM				58	
17:00						
Westbound	11	2	1	1	15	
Eastbound	40	3	0	8	51	
	Total Medium Trucks PM				66	

Amount of Large Trucks AM and PM Peak						
7:00	F9	F10	F11	F12	F13	Totals
Westbound	0	0	0	0	0	0
Eastbound	2	2	0	0	0	4
	Total Large Trucks AM				4	
17:00						
Westbound	3	0	0	0	0	3
Eastbound	2	3	0	0	0	5
	Total Large Trucks PM				8	

Medium and Large Truck Percentage Calculations				
AM Trucks			PM Trucks	
Type	Count	Percentage	Type	Percentage
Medium Trucks	58	94%	Medium Trucks	89%
Large Trucks	4	6%	Large Trucks	11%
Total Trucks AM	62		Total Trucks PM	74

Notes:

Count information gathered from New York State Department of Transportation Classification Count Average Weekday Data Report, US Route 6 from CR 50 to 22 OLAP ACC 841 & 6841;
 F5 - 2 Axle, 6-Tire Single Unit Trucks;
 F6 - 3 Axle Single Unit Trucks;
 F7 - 4 or More Axle Single Unit Trucks;
 F8 - 4 or Less Axle Vehicles, One Unit is a Truck;
 F9 - 5 Axle Double Unit Vehicles, One Unit is a Truck;
 F10 - 6 or More Double Unit Vehicles, One Unit is a Truck;
 F11 - 5 or Less Axle Multi-Unit Trucks;
 F12 - 6 Axle Multi-Unit Trucks;
 F13 - 7 or More Axle Multi-Unit Trucks.

Existing Traffic

	Total Vehicles ¹	% trucks ¹	Total Cars	Total Trucks	% Med Trucks ²	Total Med Trucks	Total Med PCE	% Large Trucks ²	Total Large Trucks	Total Large PCE	Truck PCE	TOTAL PCE
West of Site												
AM												
Westbound	1112	3%	1079	33	94%	31	403	6%	2	94	497	1576
Eastbound	193	5%	183	10	94%	9	117	6%	1	47	164	347
PM												
Westbound	346	1%	343	3	89%	3	39	11%	0	0	39	382
Eastbound	573	5%	544	29	89%	26	338	11%	3	141	479	1023
East of Site												
AM												
Westbound	1112	3%	1079	33	94%	31	403	6%	2	94	497	1576
Eastbound	193	5%	183	10	94%	9	117	6%	1	47	164	347
PM												
Westbound	346	1%	343	3	89%	3	39	11%	0	0	39	382
Eastbound	573	5%	544	29	89%	26	338	11%	3	141	479	1023

Notes/Sources:

¹TMA traffic counts;

²NYSDOT, US Route 6, June 2005;

PCE - Passenger Car Equivalent

Existing Saturday Traffic

	Total Vehicles ¹	% trucks ¹	Total Cars	Total Trucks	% Med Trucks ²	Total Med Trucks	Total Med PCE	% Large Trucks ²	Total Large Trucks	Total Large PCE	Truck PCE	TOTAL PCE
West of Site												
Peak												
Westbound	330	3%	320	10	89%	9	117	11%	1	47	164	484
Eastbound	284	5%	270	14	89%	12	156	11%	2	94	250	520
East of Site												
Peak												
Westbound	330	3%	320	10	89%	9	117	11%	1	47	164	484
Eastbound	284	5%	270	14	89%	12	156	11%	2	94	250	520

Notes/Sources:

¹TMA traffic counts;

²NYSDOT, US Route 6, June 2005;

PCE - Passenger Car Equivalent

No Build Traffic

	Total Vehicles ¹	% trucks ¹	Total Cars	Total Trucks	% Med Trucks ²	Total Med Trucks	Total Med PCE	% Large Trucks ²	Total Large Trucks	Total Large PCE	Truck PCE	TOTAL PCE
West of Site												
AM												
Westbound	1173	3%	1138	35	94%	33	429	6%	2	94	523	1661
Eastbound	204	5%	194	10	94%	9	117	6%	1	47	164	358
PM												
Westbound	385	1%	381	4	89%	4	52	11%	0	0	52	433
Eastbound	622	5%	591	31	89%	28	364	11%	3	141	505	1096
East of Site												
AM												
Westbound	1173	3%	1138	35	94%	33	429	6%	2	94	523	1661
Eastbound	204	5%	194	10	94%	9	117	6%	1	47	164	358
PM												
Westbound	385	1%	381	4	89%	4	52	11%	0	0	52	433
Eastbound	622	5%	591	31	89%	28	364	11%	3	141	505	1096

Notes/Sources:

¹TMA traffic counts;

²NYSDOT, US Route 6, June 2005;

PCE - Passenger Car Equivalent

No Build Saturday Traffic

	Total Vehicles ¹	% trucks ¹	Total Cars	Total Trucks	% Med Trucks ²	Total Med Trucks	Total Med PCE	% Large Trucks ²	Total Large Trucks	Total Large PCE	Truck PCE	TOTAL PCE
West of Site												
Peak												
Westbound	360	3%	349	11	89%	10	130	11%	1	47	177	526
Eastbound	314	5%	298	16	89%	14	182	11%	2	94	276	574
East of Site												
Peak												
Westbound	360	3%	349	11	89%	10	130	11%	1	47	177	526
Eastbound	314	5%	298	16	89%	14	182	11%	2	94	276	574

Notes/Sources:

¹TMA traffic counts;

²NYSDOT, US Route 6, June 2005;

PCE - Passenger Car Equivalent

Build Traffic

	Total Vehicles ¹	Projected Trucks ²	Total Cars	Total Trucks ³	Projected Med Trucks ²	Total Med Trucks ³	Total Med PCE	Projected Large Trucks ²	Total Large Trucks ³	Total Large PCE	Truck PCE	TOTAL PCE
West of Site												
AM												
Westbound	1220	1	1184	36	1	34	442	0	2	94	536	1720
Eastbound	330	2	318	12	1	10	130	1	2	94	224	542
PM												
Westbound	691	1	686	5	1	5	65	0	0	0	65	751
Eastbound	916	2	870	46	1	29	377	1	4	188	565	1435
East of Site												
AM												
Westbound	1216	0	1181	35	0	33	429	0	2	94	523	1704
Eastbound	245	1	234	11	1	10	130	0	1	47	177	411
PM												
Westbound	521	0	517	4	0	4	52	0	0	0	52	569
Eastbound	816	1	784	32	1	29	377	0	3	141	518	1302

Notes/Sources:

- ¹ TMA traffic counts;
 - ² Number of trucks added to traffic due to project, based on Table M-1 in Traffic Section;
 - ³ Number of total trucks adding No Build projections and project projected trucks;
- PCE - Passenger Car Equivalent

Build Saturday Traffic

	Total Vehicles ¹	Projected Trucks ²	Total Cars	Total Trucks ³	Projected Med Trucks ²	Total Med Trucks ³	Total Med PCE	Projected Large Trucks ²	Total Large Trucks ³	Total Large PCE	Truck PCE	TOTAL PCE
West of Site												
Peak												
Westbound	721	1	709	12	1	11	143	0	1	47	190	899
Eastbound	756	2	738.3	18	1	15	195	1	3	141	336	1074
East of Site												
Peak												
Westbound	558	0	547.2	11	0	10	130	0	1	47	177	724
Eastbound	544	1	527.3	17	1	15	195	0	2	94	289	816

Notes/Sources:

¹ TMA traffic counts;

² Number of trucks added to traffic due to project, based on Tabl M-1 in Traffic Section;

³ Number of total trucks adding No Build projections and project projected trucks;

PCE - Passenger Car Equivalent

Noise Calculations - No Build Condition							
	Existing Total PCE (E PCE)	Future No Build Total PCE (F PCE)	F PCE/E PCE	Log10	Log10 * 10 = F NL Increase (dBA)	E NL (dBA)	F NL (dBA)
West of Site AM							
Westbound	1576	1661	1.05	0.02	0.23	64.1	64.46
Eastbound	347	358	1.03	0.01	0.14		
Total Noise Increase for AM West of Site =					0.36		
PM							
Westbound	382	433	1.13	0.05	0.54	64.1	64.94
Eastbound	1023	1096	1.07	0.03	0.30		
Total Noise Increase for PM West of Site =					0.84		
East of Site AM							
Westbound	1576	1661	1.05	0.02	0.23	63.2	63.56
Eastbound	347	358	1.03	0.01	0.14		
Total Noise Increase for AM East of Site =					0.36		
PM							
Westbound	382	433	1.13	0.05	0.54	63.2	64.04
Eastbound	1023	1096	1.07	0.03	0.30		
Total Noise Increase for PM East of Site =					0.84		

Equation Used:

$$F\ NL = 10 * \log_{10} (F\ PCE/E\ PCE) + E\ NL$$

$$F\ NL\ IN = 10 * \log_{10} (F\ PCE/E\ PCE)$$

F NL IN - Future Noise Level Increase

F NL - Future Noise Level (Calculating)

F PCE - Future Passenger Car Equivalent (From previous No Build Traffic Tables)

E PCE - Existing Passenger Car Equivalent (From Previous Existing Traffic Table)

E NL - Existing Noise Level (collected by TMA on November 17, 2006-Weekday PM)

Noise Calculations - No Build Condition Saturday							
	Existing Total PCE (E PCE)	Future No Build Total PCE (F PCE)	F PCE/ E PCE	Log10	Log10 * 10 = F NL Increase (dBA)	E NL (dBA)	F NL (dBA)
West of Site Peak							
Westbound	484	526	1.09	0.04	0.36	70.9	71.69
Eastbound	520	574	1.10	0.04	0.43		
Total Noise Increase for Peak West of Site =					0.79		
East of Site Peak							
Westbound	484	526	1.09	0.04	0.36	72.0	72.79
Eastbound	520	574	1.10	0.04	0.43		
Total Noise Increase for Peak East of Site =					0.79		

Equation Used:

$$F\ NL = 10 * \log_{10} (F\ PCE/E\ PCE) + E\ NL$$

$$F\ NL\ IN = 10 * \log_{10} (F\ PCE/E\ PCE)$$

F NL IN - Future Noise Level Increase

F NL - Future Noise Level (Calculating)

F PCE - Future Passenger Car Equivalent (From previous No Build Traffic Tables)

E PCE - Existing Passenger Car Equivalent (From Previous Existing Traffic Table)

E NL - Existing Noise Level (collected by TMA on August 18, 2007-Saturday Peak)

Noise Calculations - Build Condition							
	Existing Total PCE (E PCE)	Future Build Total PCE (F PCE)	F PCE/ E PCE	Log10	Log10 * 10 = F NL Increase (dBA)	E NL (dBA)	F NL (dBA)
West of Site AM							
Westbound	1576	1720	1.09	0.04	0.38	64.1	66.42
Eastbound	347	542	1.56	0.19	1.94		
Total Noise Increase for AM West of Site =					2.32		
PM							
Westbound	382	751	1.97	0.29	2.94	64.1	68.51
Eastbound	1023	1435	1.40	0.15	1.47		
Total Noise Increase for PM West of Site =					4.41		
East of Site AM							
Westbound	1576	1704	1.08	0.03	0.34	63.2	64.27
Eastbound	347	411	1.18	0.07	0.74		
Total Noise Increase for AM East of Site =					1.07		
PM							
Westbound	382	569	1.49	0.17	1.73	63.2	65.98
Eastbound	1023	1302	1.27	0.10	1.05		
Total Noise Increase for PM East of Site =					2.78		

Equation Used:

$$F\ NL = 10 * \log_{10} (F\ PCE/E\ PCE) + E\ NL$$

$$F\ NL\ IN = 10 * \log_{10} (F\ PCE/E\ PCE)$$

F NL IN - Future Noise Level Increase

F NL - Future Noise Level (Calculating)

F PCE - Future Passenger Car Equivalent (From previous No Build Traffic Tables)

E PCE - Existing Passenger Car Equivalent (From Previous Existing Traffic Table)

E NL - Existing Noise Level (collected by TMA on November 17, 2006-Weekday PM)

Noise Calculations - Build Condition Saturday							
	Existing Total PCE (E PCE)	Future Build Total PCE (F PCE)	F PCE/ E PCE	Log10	Log10 * 10 = F NL Increase	E NL (dBA)	F NL (dBA)
West of Site Peak							
Westbound	484	899	1.86	0.27	2.69	70.9	76.74
Eastbound	520	1074	2.07	0.32	3.15		
Total Noise Increase for Peak West of Site =					5.84		
East of Site AM							
Westbound	484	724	1.50	0.17	1.75	72.0	75.71
Eastbound	520	816	1.57	0.20	1.96		
Total Noise Increase for Peak East of Site =					3.71		

Equation Used:

$$F\ NL = 10 * \log_{10} (F\ PCE/E\ PCE) + E\ NL$$

$$F\ NL\ IN = 10 * \log_{10} (F\ PCE/E\ PCE)$$

F NL IN - Future Noise Level Increase

F NL - Future Noise Level (Calculating)

F PCE - Future Passenger Car Equivalent (From previous No Build Traffic Tables)

E PCE - Existing Passenger Car Equivalent (From Previous Existing Traffic Table)

E NL - Existing Noise Level (collected by TMA on August 18, 2007-Saturday Peak)