

APPENDIX Q

Traffic Based Noise Analysis
Calculations

Noise Calculations - No Build Condition Friday PM							
	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)
Noise Location #1							
Friday PM							
St. Joseph's Road	62	78	1.26	0.10	1.00	51.1	52.10
Total Noise Increase for Noise Location #1, Friday PM =					1.00		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Friday PM							
	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)
Noise Location #1							
Friday PM							
St. Joseph's Road	62	64	1.03	0.01	0.14	51.1	51.24
Total Noise Increase for Noise Location #1, Friday PM =					0.14		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Interim 2016 Build Condition Friday PM							
	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)
Noise Location #1							
Friday PM							
St. Joseph's Road	62	79	1.27	0.11	1.05	51.1	52.15
Total Noise Increase for Noise Location #1, Friday PM =					1.05		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Full Build 2021 Condition Friday PM							
	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)
Noise Location #1							
Friday PM							
St. Joseph's Road	62	110	1.77	0.25	2.49	51.1	53.59
Total Noise Increase for Noise Location #1, Friday PM =					2.49		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Sunday							
	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)
Noise Location #1							
Sunday							
St. Joseph's Road	14	16	1.14	0.06	0.58	51.1	51.68
Total Noise Increase for Noise Location #1, Sunday =					0.58		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Sunday							
	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)
Noise Location #1							
Sunday							
St. Joseph's Road	14	16	1.14	0.06	0.58	51.1	51.68
Total Noise Increase for Site Access Sunday =					0.58		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Interium 2016 Build Condition Sunday							
	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)
Noise Location #1							
Sunday							
St. Joseph's Road	14	32	2.29	0.36	3.59	51.1	54.69
Total Noise Increase for Site Access Sunday =					3.59		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Full Build 2021 Condition Sunday							
	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)
Noise Location #1							
Sunday							
St. Joseph's Road	14	62	4.43	0.65	6.46	51.1	57.56
Total Noise Increase for Site Access Sunday =					6.46		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Friday PM							
	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)
Noise Location #2							
Friday PM							
St. Joseph's Road	62	78	1.26	0.10	1.00	52.6	53.60
Total Noise Increase for Noise Location #1, Friday PM =					1.00		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Friday PM							
	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)
Noise Location #2							
Friday PM							
St. Joseph's Road	62	64	1.03	0.01	0.14	52.6	52.74
Total Noise Increase for Noise Location #1, Friday PM =					0.14		

Equation Used:

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

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

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

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E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

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Partial = Phases I, II, and III built.

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	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)
Noise Location #2							
Friday PM							
St. Joseph's Road	62	79	1.27	0.11	1.05	52.6	53.65
Total Noise Increase for Noise Location #1, Friday PM =					1.05		

Equation Used:

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

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

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

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

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E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Full Build 2021 Condition Friday PM							
	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)
Noise Location #2							
Friday PM							
St. Joseph's Road	62	110	1.77	0.25	2.49	52.6	55.09
Total Noise Increase for Noise Location #1, Friday PM =					2.49		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Sunday							
	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)
Noise Location #2							
Sunday							
St. Joseph's Road	14	16	1.14	0.06	0.58	52.6	53.18
Total Noise Increase for Noise Location #1, Sunday =					0.58		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Sunday							
	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)
Noise Location #2							
Sunday							
St. Joseph's Road	14	16	1.14	0.06	0.58	52.6	53.18
Total Noise Increase for Site Access Sunday =					0.58		

Equation Used:

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

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

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E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Interim 2016 Build Condition Sunday							
	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)
Noise Location #2							
Sunday							
St. Joseph's Road	14	32	2.29	0.36	3.59	52.6	56.19
Total Noise Increase for Site Access Sunday =					3.59		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Full 2021 Build Condition Sunday							
	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)
Noise Location #2							
Sunday							
St. Joseph's Road	14	62	4.43	0.65	6.46	52.6	59.06
Total Noise Increase for Site Access Sunday =					6.46		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Friday PM							
	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)
Noise Location #3							
Friday PM							
St. Joseph's Road	62	78	1.26	0.10	1.00	56.0	57.00
Total Noise Increase for Noise Location #1, Friday PM =					1.00		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Friday PM							
	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)
Noise Location #3							
Friday PM							
St. Joseph's Road	62	64	1.03	0.01	0.14	56.0	56.14
Total Noise Increase for Noise Location #1, Friday PM =					0.14		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Interim 2016 Build Condition Friday PM							
	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)
Noise Location #3							
Friday PM							
St. Joseph's Road	62	79	1.27	0.11	1.05	56.0	57.05
Total Noise Increase for Noise Location #1, Friday PM =					1.05		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Full Build 2021 Condition Friday PM							
	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)
Noise Location #3							
Friday PM							
St. Joseph's Road	62	110	1.77	0.25	2.49	56.0	58.49
Total Noise Increase for Noise Location #1, Friday PM =					2.49		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Sunday							
	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)
Noise Location #3							
Sunday							
St. Joseph's Road	14	16	1.14	0.06	0.58	56.0	56.58
Total Noise Increase for Noise Location #1, Sunday =					0.58		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Sunday							
	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)
Noise Location #3							
Sunday							
St. Joseph's Road	14	16	1.14	0.06	0.58	56.0	56.58
Total Noise Increase for Site Access Sunday =					0.58		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Interim 2016 Build Condition Sunday							
	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)
Noise Location #3							
Sunday							
St. Joseph's Road	14	32	2.29	0.36	3.59	56.0	59.59
Total Noise Increase for Site Access Sunday =					3.59		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built.

Noise Calculations - Full Build 2021 Condition Sunday							
	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)
Noise Location #3							
Sunday							
St. Joseph's Road	14	62	4.43	0.65	6.46	56.0	62.46
Total Noise Increase for Site Access Sunday =					6.46		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Friday PM							
	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)
Noise Location #4							
Friday PM							
Cold Spring Road	157	189	1.20	0.08	0.81	46.0	46.81
Total Noise Increase for Site Access Weekday PM =					0.81		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Friday PM							
	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)
Noise Location #4							
Friday PM							
Cold Spring Road	157	174	1.11	0.04	0.45	46.0	46.45
Total Noise Increase for Site Access Weekday PM =					0.45		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built

Noise Calculations - Interim 2016 Build Condition Friday PM							
	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)
Noise Location #4							
Friday PM							
Cold Spring Road	157	381	2.43	0.39	3.85	46.0	49.85
Total Noise Increase for Site Access Weekday PM =					3.85		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built, year 2016

Noise Calculations - Full Build 2021 Condition Friday PM							
	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)
Noise Location #4							
PM							
Cold Spring Road	157	635	4.04	0.61	6.07	46.0	52.07
Total Noise Increase for Site Access Weekday PM =					6.07		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Sunday							
	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)
Noise Location #4							
Sunday							
Cold Spring Road	94	111	1.18	0.07	0.72	46.0	46.72
Total Noise Increase for Site Access Sunday =					0.72		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Sunday							
	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)
Noise Location #4							
Sunday							
Cold Spring Road	94	110	1.17	0.07	0.68	46.0	46.68
Total Noise Increase for Site Access Sunday =					0.68		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built, year 2016

Noise Calculations - Interim 2016 Build Condition Sunday							
	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)
Noise Location #4							
Sunday							
Cold Spring Road	94	414	4.40	0.64	6.44	46.0	52.44
Total Noise Increase for Peak East of Site at Intersection=					6.44		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built

Noise Calculations - Full Build 2021 Condition Sunday							
	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)
Noise Location #4							
Sunday							
Cold Spring Road	94	794	8.45	0.93	9.27	46.0	55.27
Total Noise Increase for Peak East of Site at Intersection=					9.27		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Friday PM							
	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)
Noise Location #5							
Friday PM							
Site Access	413	461	1.12	0.05	0.48	54.6	55.08
Total Noise Increase for Site Access Weekday PM =					0.48		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Friday PM							
	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)
Noise Location #5							
Friday PM							
Site Access	413	432	1.05	0.02	0.20	54.6	54.80
Total Noise Increase for Site Access Weekday PM =					0.20		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built

Noise Calculations - Interim 2016 Build Condition Friday PM							
	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)
Noise Location #5							
Friday PM							
Site Access	413	1845	4.47	0.65	6.50	54.6	61.10
Total Noise Increase for Site Access Weekday PM =					6.50		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built

Noise Calculations - Full Build 2021 Condition Friday PM							
	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)
Noise Location #5							
Friday PM							
Site Access	890	3900	4.38	0.64	6.42	54.6	61.02
Total Noise Increase for Site Access Weekday PM =					6.42		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - No Build Condition Sunday							
	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)
Noise Location #5							
Sunday							
Site Access	95	110	1.16	0.06	0.64	54.6	55.24
Total Noise Increase for Site Access Sunday =					0.64		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Noise Calculations - Interim 2016 No Build Condition Sunday							
	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)
Noise Location #5							
Sunday							
Site Access	95	97	1.02	0.01	0.09	54.6	54.69
Total Noise Increase for Site Access Sunday =					0.09		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built

Noise Calculations - Interim 2016 Build Condition Sunday							
	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)
Noise Location #5							
Sunday							
Site Access	95	2069	21.78	1.34	13.38	54.6	67.98
Total Noise Increase for Peak East of Site at Intersection=					13.38		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)

Partial = Phases I, II, and III built

Noise Calculations - Full Build 2021 Condition Sunday							
	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)
Noise Location #5							
Sunday							
Site Access	95	4840	50.95	1.71	17.07	54.6	71.67
Total Noise Increase for Peak East of Site at Intersection=					17.07		

Equation Used:

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

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

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

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

F NL IN - Future Noise Level Increase

E NL - Existing Noise Level (collected by TMA on June 17, 2009 - Weekday)

F NL - Future Noise Level (Calculating)