NO BUILD - Ldn

Calculate Average Hourly Daytime Leq:

	V=	942 vehicles

Project Increment

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 56.4 dBA

Calculate Average Hourly Nighttime Leq:

	V=	385 vehicles

Project Increment

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 52.5 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 77.9 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 56.4 mph

Nighttime Noise Level: Leq= 52.5 mph

Calculate Day-Night Ldn: Ldn= 59.7 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	77.9	59.7	78.0	65.0	75.0	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	70.9
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	75.5
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	1632 vehicles
Project Increment		
Measured Level	Leq(day)=	75.1 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 58.8 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	75.1	58.8	75.2	70.0	78.3	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	73.5
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	78.3
L_E >77	Lp=	80		

BUILD - Ldn

Calculate Average Hourly Daytime Leq:

		V=	1316 vehicles
Project Increment			
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA
Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.			
Calculate Average Hourly Project Noise Levels Leq:		Leq(h)=	57.9 dBA

Calculate Average Hourly Nighttime Leq:

		V=	506 vehicles
Project Increment			
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA
Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.			
Calculate Average Hourly Project Noise Levels Leq:		Leq(h)=	53.7 dBA

Calculate Day-Night Noise Level Ldn:

		Existing Ldn=	77.9 dBA
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Day and Night Noise Level:	Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8		
Daytime Noise Level:		Leq=	57.9 mph
Nighttime Noise Level:		Leq=	53.7 mph
Calculate Day-Night Ldn:		Ldn=	61.0 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	77.9	61.0	78.0	65.0	75.0	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	70.9
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	75.5
L_E >77	Lp=	75		

4.7 Weekend Detailed Caculation Spreadsheets

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	150 vehicles
Project Increment		
Measured Level	Leq(day)=	63.1 dBA
Project-Generated Noise Level:		
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.		
Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles: V		
Cemissions Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed: S	S=	25 mph
	SELref=	74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 48.4 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	63.1	48.4	63.2	64.6	70.1	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	64.6
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	70.1
$L_E>77$	Lp=	80		

NO BUILD - Ldn

Calculate Average Hourly Daytime Leq:

		V=	169 vehicles
Project Increment			

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq:	Leq(h)=	48.9 dBA

Calculate Average Hourly Nighttime Leq:

		V=	139 vehicles
Project Increment			

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq:	Leq(h)=	48.1 dBA

Calculate Day-Night Noise Level Ldn:

	Existing Ldn=	66.5 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level:	Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8		
Daytime Noise Level:		Leq=	48.9 mph
Nighttime Noise Level:		Leq=	48.1 mph

Calculate Day-Night Ldn:	Ldn=	54.6	dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	66.5	54.6	66.8	61.8	67.1	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	61.8
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	67.1
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	340 vehicles
Project Increment		
Measured Level	Leq(day)=	63.1 dBA
Project-Generated Noise Level:		
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.		
Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles: V		
Cemissions Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed: S	S=	25 mph
	SELref=	74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 52.0 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	63.1	52.0	63.4	64.6	70.1	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	64.6
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	70.1
$L_E>77$	Lp=	80		

BUILD - Ldn

Calculate Average Hourly Daytime Leq:

Project Increment		V=	512 vehicles

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 53.8 dBA

Calculate Average Hourly Nighttime Leq:

Project Increment		V=	202 vehicles

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 49.7 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 66.5 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 53.8 mph

Nighttime Noise Level: Leq= 49.7 mph

Calculate Day-Night Ldn: Ldn= 57.0 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	66.5	57.0	67.0	61.8	67.1	No Impact

Threshold of Impact - Land Use Category 2

$L_E<42$	Lp=	$11.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	61.8
$L_E>71$	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

$L_E<44$	Lp=	$17.322+0.940L_E$		
$44<=L_E<=77$	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	67.1
$L_E>77$	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	572 vehicles
Project Increment		
Measured Level	Leq(day)=	68.8 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 54.2 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	68.8	54.2	68.9	68.5	73.6	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.5
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.6
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	745 vehicles
Project Increment		
Measured Level	Leq(day)=	68.8 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 55.4 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	68.8	55.4	69.0	68.5	73.6	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.5
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.6
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	243 vehicles
Project Increment		
Measured Level	Leq(day)=	64.5 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 50.5 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	64.5	50.5	64.6	65.5	70.9	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	65.5
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	70.9
$L_E>77$	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	345 vehicles
Project Increment		
Measured Level	Leq(day)=	64.5 dBA
Project-Generated Noise Level:		
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.		
Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles: V		
Cemissions Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed: S	S=	25 mph
	SELref=	74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 52.0 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	64.5	52.0	64.7	65.5	70.9	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	65.5
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	70.9
$L_E>77$	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	111 vehicles
Project Increment		
Measured Level	Leq(day)=	66.1 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 47.1 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	66.1	47.1	66.1	66.5	71.9	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	66.5
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	$22.322+0.940LE$		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	71.9
$L_E>77$	Lp=	80		

NO BUILD - Ldn

Calculate Average Hourly Daytime Leq:

Project Increment		V=	124 vehicles

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 47.6 dBA

Calculate Average Hourly Nighttime Leq:

Project Increment		V=	102 vehicles

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 46.8 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 67.4 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 47.6 mph

Nighttime Noise Level: Leq= 46.8 mph

Calculate Day-Night Ldn: Ldn= 53.3 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	67.4	53.3	67.6	62.5	67.7	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	62.5
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	67.7
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	219 vehicles
Project Increment		
Measured Level	Leq(day)=	66.1 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 50.1 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	66.1	50.1	66.2	66.5	71.9	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	66.5
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	71.9
L_E >77	Lp=	80		

BUILD - Ldn

Calculate Average Hourly Daytime Leq:

	V=	321 vehicles

Project Increment

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 51.7 dBA

Calculate Average Hourly Nighttime Leq:

	V=	142 vehicles

Project Increment

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 48.2 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 67.4 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 51.7 mph

Nighttime Noise Level: Leq= 48.2 mph

Calculate Day-Night Ldn: Ldn= 55.3 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	67.4	55.3	67.7	62.5	67.7	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	62.5
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	67.7
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	30 vehicles
Project Increment		
Measured Level	Leq(day)=	75.9 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 41.5 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	75.9	41.5	75.9	70.0	78.9	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	74.1
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	78.9
$L_E>77$	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	70 vehicles
Project Increment		
Measured Level	Leq(day)=	75.9 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 45.1 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	75.9	45.1	75.9	70.0	78.9	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	74.1
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	78.9
$L_E>77$	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	294 vehicles
Project Increment		
Measured Level	Leq(day)=	69.0 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 51.3 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	69.0	51.3	69.1	68.6	73.8	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.6
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.8
L_E >77	Lp=	80		

NO BUILD - Ldn

Calculate Average Hourly Daytime Leq:

		V=	330 vehicles
Project Increment			

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 51.8 dBA

Calculate Average Hourly Nighttime Leq:

		V=	272 vehicles
Project Increment			

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 51.0 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 69.7 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 51.8 mph

Nighttime Noise Level: Leq= 51.0 mph

Calculate Day-Night Ldn: Ldn= 57.5 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	69.7	57.5	70.0	64.1	69.3	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	64.1
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	69.3
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	378 vehicles
Project Increment		
Measured Level	Leq(day)=	69.0 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 52.4 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	69.0	52.4	69.1	68.6	73.8	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.6
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.8
$L_E>77$	Lp=	80		

BUILD - Ldn

Calculate Average Hourly Daytime Leq:

Project Increment		V=	481 vehicles

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 53.5 dBA

Calculate Average Hourly Nighttime Leq:

Project Increment		V=	329 vehicles

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 51.8 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 69.7 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 53.5 mph

Nighttime Noise Level: Leq= 51.8 mph

Calculate Day-Night Ldn: Ldn= 58.5 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	69.7	58.5	70.0	64.1	69.3	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	64.1
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	69.3
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

		V=	429 vehicles
Project Increment			
Measured Level		Leq(day)=	68.1 dBA
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 53.0 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	68.1	53.0	68.2	67.9	73.2	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	67.9
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.2
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	545 vehicles
Project Increment		
Measured Level	Leq(day)=	68.1 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 54.0 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	68.1	54.0	68.2	67.9	73.2	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	67.9
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.2
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	128 vehicles
Project Increment		
Measured Level	Leq(day)=	65.0 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 47.7 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	65.0	47.7	65.1	65.8	71.2	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	65.8
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	71.2
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	293 vehicles
Project Increment		
Measured Level	Leq(day)=	65.0 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 51.3 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	65.0	51.3	65.2	65.8	71.2	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	65.8
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	71.2
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	631 vehicles
Project Increment		
Measured Level	Leq(day)=	69.1 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 54.7 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	69.1	54.7	69.2	68.7	73.8	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.7
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.8
L_E >77	Lp=	80		

NO BUILD - Ldn

Calculate Average Hourly Daytime Leq:

		V=	708 vehicles
Project Increment			
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA
Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.			
Calculate Average Hourly Project Noise Levels Leq:		Leq(h)=	55.2 dBA

Calculate Average Hourly Nighttime Leq:

		V=	583 vehicles
Project Increment			
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA
Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.			
Calculate Average Hourly Project Noise Levels Leq:		Leq(h)=	54.3 dBA

Calculate Day-Night Noise Level Ldn:

		Existing Ldn=	75 dBA
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Day and Night Noise Level:	Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8		
Daytime Noise Level:		Leq=	55.2 mph
Nighttime Noise Level:		Leq=	54.3 mph
Calculate Day-Night Ldn:		Ldn=	60.9 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	75.0	60.9	75.2	65.0	73.2	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.4
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.2
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	631 vehicles
Project Increment		
Measured Level	Leq(day)=	69.1 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 54.7 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	69.1	54.7	69.2	68.7	73.8	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.7
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.8
$L_E>77$	Lp=	80		

BUILD - Ldn

Calculate Average Hourly Daytime Leq:

		V=	708 vehicles
Project Increment			

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 55.2 dBA

Calculate Average Hourly Nighttime Leq:

		V=	663 vehicles
Project Increment			

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 54.9 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 75 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 55.2 mph

Nighttime Noise Level: Leq= 54.9 mph

Calculate Day-Night Ldn: Ldn= 61.3 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	75.0	61.3	75.2	65.0	73.2	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	68.4
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.2
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

		V=	173 vehicles
Project Increment			
Measured Level		Leq(day)=	66.4 dBA
Project-Generated Noise Level:			
Based on Table 6-6, FTA Manual, calculated Leq at 50ft.			
Hourly Noise Level:	Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6		
Hourly Volume of Vehicles:	V		
Cemissions	Ce = 40 LOG(S/50), for autos	Ce=	-12 mph
Average Vehicle Speed:	S	S=	25 mph
		SELref=	74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 49.0 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	66.4	49.0	66.5	66.7	72.1	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	66.7
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	72.1
$L_E>77$	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	228 vehicles
Project Increment		
Measured Level	Leq(day)=	66.4 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 50.2 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	66.4	50.2	66.5	66.7	72.1	No Impact

Threshold of Impact - Land Use Category 3

$L_E<42$	Lp=	$16.450+0.953L_E$		
$42<=L_E<=71$	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	66.7
$L_E>71$	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

$L_E<44$	Lp=	22.322+0.940LE		
$44<=L_E<=77$	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	72.1
$L_E>77$	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	414 vehicles
Project Increment		
Measured Level	Leq(day)=	71.5 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 52.8 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	71.5	52.8	71.5	70.0	75.5	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	70.5
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	75.5
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	505 vehicles
Project Increment		
Measured Level	Leq(day)=	71.5 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 53.7 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	71.5	53.7	71.5	70.0	75.5	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	70.5
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	75.5
L_E >77	Lp=	80		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

NO BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	365 vehicles
Project Increment		
Measured Level	Leq(day)=	68.0 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 52.3 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	68.0	52.3	68.1	67.9	73.1	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	67.9
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.1
L_E >77	Lp=	80		

NO BUILD - Ldn

Calculate Average Hourly Daytime Leq:

	V=	410 vehicles
Project Increment		

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 52.8 dBA

Calculate Average Hourly Nighttime Leq:

	V=	337 vehicles
Project Increment		

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 51.9 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 74.4 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 52.8 mph

Nighttime Noise Level: Leq= 51.9 mph

Calculate Day-Night Ldn: Ldn= 58.5 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	74.4	58.5	74.5	65.0	72.7	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	67.9
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	72.7
L_E >77	Lp=	75		

Methodology: Detailed Noise Analysis based on FTA Manual
Assumed average vehicle speed 25 mph.

BUILD - Leq (AM)

Calculate Hourly Daytime Leq:

	V=	456 vehicles
Project Increment		
Measured Level	Leq(day)=	68.0 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Hourly Project Noise Levels Leq: Leq(h)= 53.3 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 3 Leq						
Daytime	68.0	53.3	68.1	67.9	73.1	No Impact

Threshold of Impact - Land Use Category 3

L_E<42	Lp=	$16.450+0.953L_E$		
42<=L_E<=71	Lp=	$76.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	67.9
L_E >71	Lp=	70		

Threshold of Severe Impact - Land Use Category 3

L_E<44	Lp=	22.322+0.940LE		
44<=L_E<=77	Lp=	$101.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	73.1
L_E >77	Lp=	80		

BUILD - Ldn

Calculate Average Hourly Daytime Leq:

	V=	574 vehicles

Project Increment

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 54.3 dBA

Calculate Average Hourly Nighttime Leq:

	V=	405 vehicles

Project Increment

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Hourly Noise Level: Leq = SELref 10 LOG(V) + Cemissions - LOG (S/50) - 35.6

Hourly Volume of Vehicles: V

Cemissions Ce = 40 LOG(S/50), for autos — Ce= -12 mph

Average Vehicle Speed: S — S= 25 mph

SELref= 74 dBA

Based on Table 6-5, FTA Manual, SELref = 74 dBA at 50ft for automobiles.

Calculate Average Hourly Project Noise Levels Leq: Leq(h)= 52.7 dBA

Calculate Day-Night Noise Level Ldn:

Existing Ldn= 74.4 dBA

Project-Generated Noise Level:

Based on Table 6-6, FTA Manual, calculated Leq at 50ft.

Day and Night Noise Level: Ldn = 10 LOG [(15) * 10^(Leq(day)/10) + (9)*10^(Leq(night)/10) - 13.8

Daytime Noise Level: Leq= 54.3 mph

Nighttime Noise Level: Leq= 52.7 mph

Calculate Day-Night Ldn: Ldn= 59.4 dBA

Based on Appendix B-5, FTA Manual, calculate Impact Criteria:

	Existing	Project	Build	Impact	Severe Impact	
Category 2 Ldn						
Daytime	74.4	59.4	74.5	65.0	72.7	No Impact

Threshold of Impact - Land Use Category 2

L_E<42	Lp=	$11.450+0.953L_E$		
42<=L_E<=71	Lp=	$71.662 - 1.164L_E + 0.018L_E^2 - 4.088x10^{-5}L_E^3$	=	67.9
L_E >71	Lp=	65		

Threshold of Severe Impact - Land Use Category 2

L_E<44	Lp=	$17.322+0.940L_E$		
44<=L_E<=77	Lp=	$96.725 - 1.992L_E + 3.02x10^{-2}L_E^2 - 1.043x10^{-4}L_E^3$	=	72.7
L_E >77	Lp=	75		