APPENDIX F
Noise Data

Site Number: 1			
Recorded By: Jessica Ditto			
Job Number: 151800			
Date: September 21, 2016			
Time: 10:20 a.m.			
Location: On Ponderosa Street approximately 380 feet north of E. 17th Street			
Source of Peak Noise: Street Traffic on Ponderosa Street, E. 17th Street, and N. Tustin Avenue, as well as pedestrians talking.			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
58.8	48.0	88.5	90.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	2548189	1/4/2016	
	Microphone	Brüel & Kjær	4189	2543364	1/4/2016	
	Preamp	Brüel & Kjær	ZC 0032	4265	1/4/2016	
	Calibrator	Brüel & Kjær	4231	2545667	1/4/2016	

Weather Data			
Est.	Duration: 10 minutes		Sky: ☼ Sunny
	Note: dBA Offset = 0.01		Sensor Height (ft): 5 ft
	Wind Ave Speed (mph / m/s)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	< 5	81	29.90 in

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.4
Start Time:		09/21/2016 10:20:17
End Time:		09/21/2016 10:30:17
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		138.75

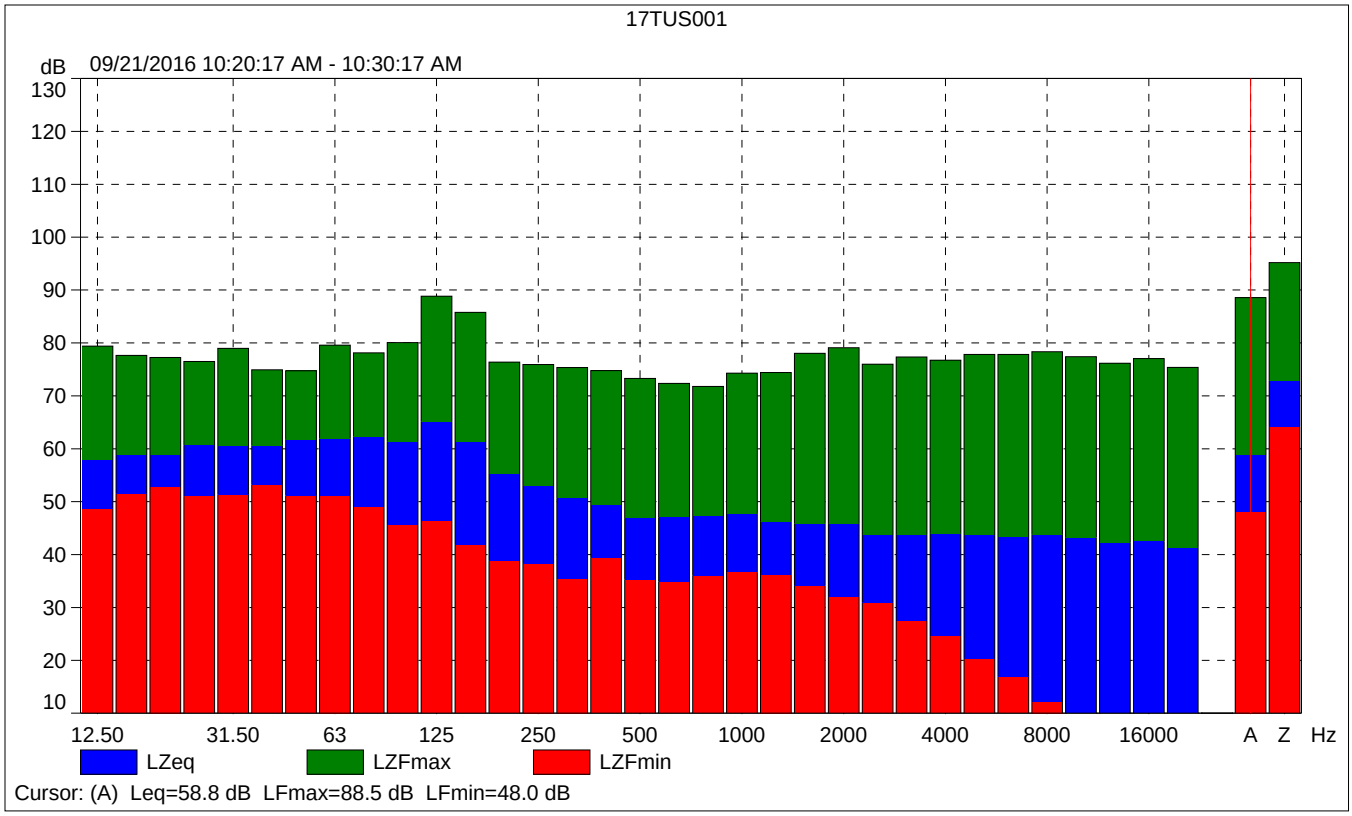
	Time	Frequency
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		C
Spectrum:	FS	Z

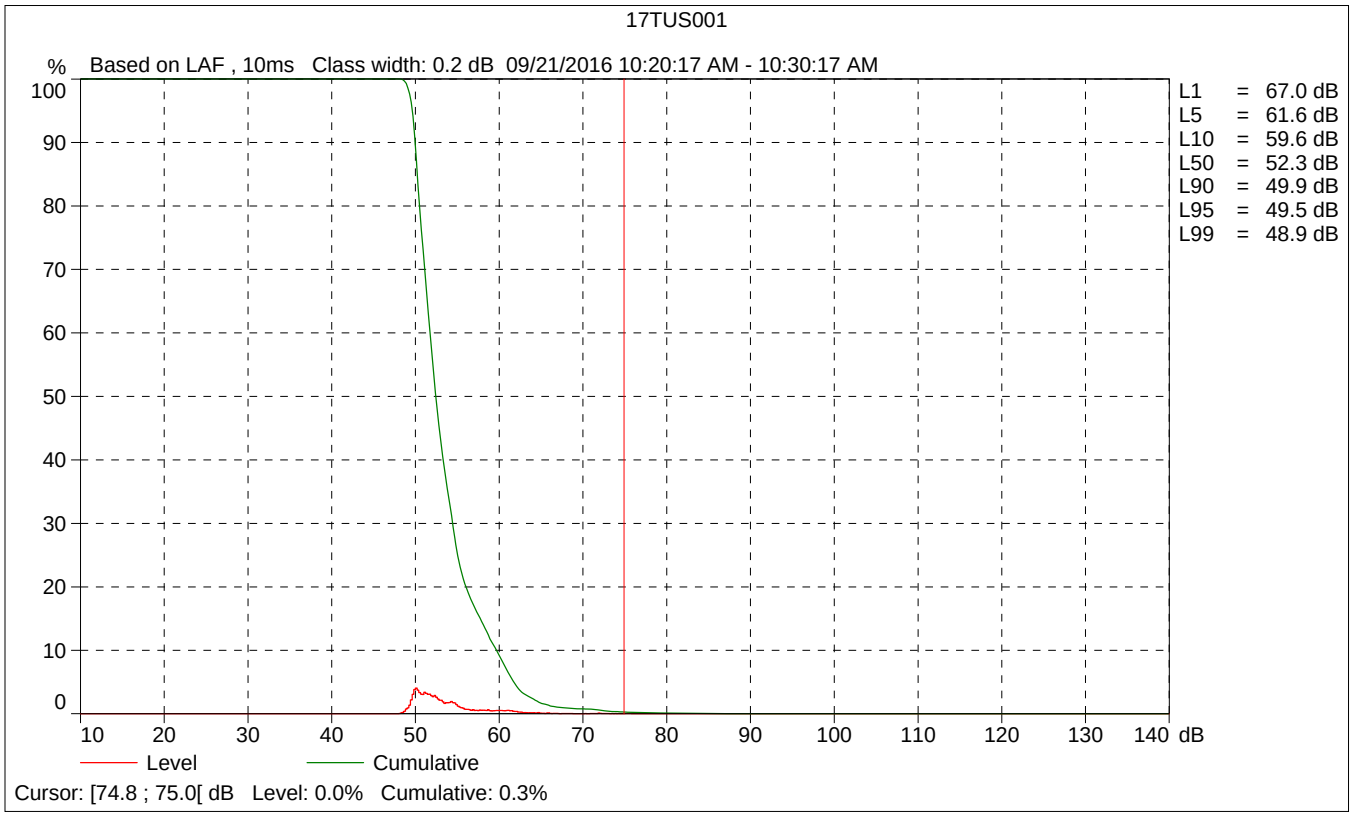
Instrument Serial Number:		2548189
Microphone Serial Number:		2543364
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field

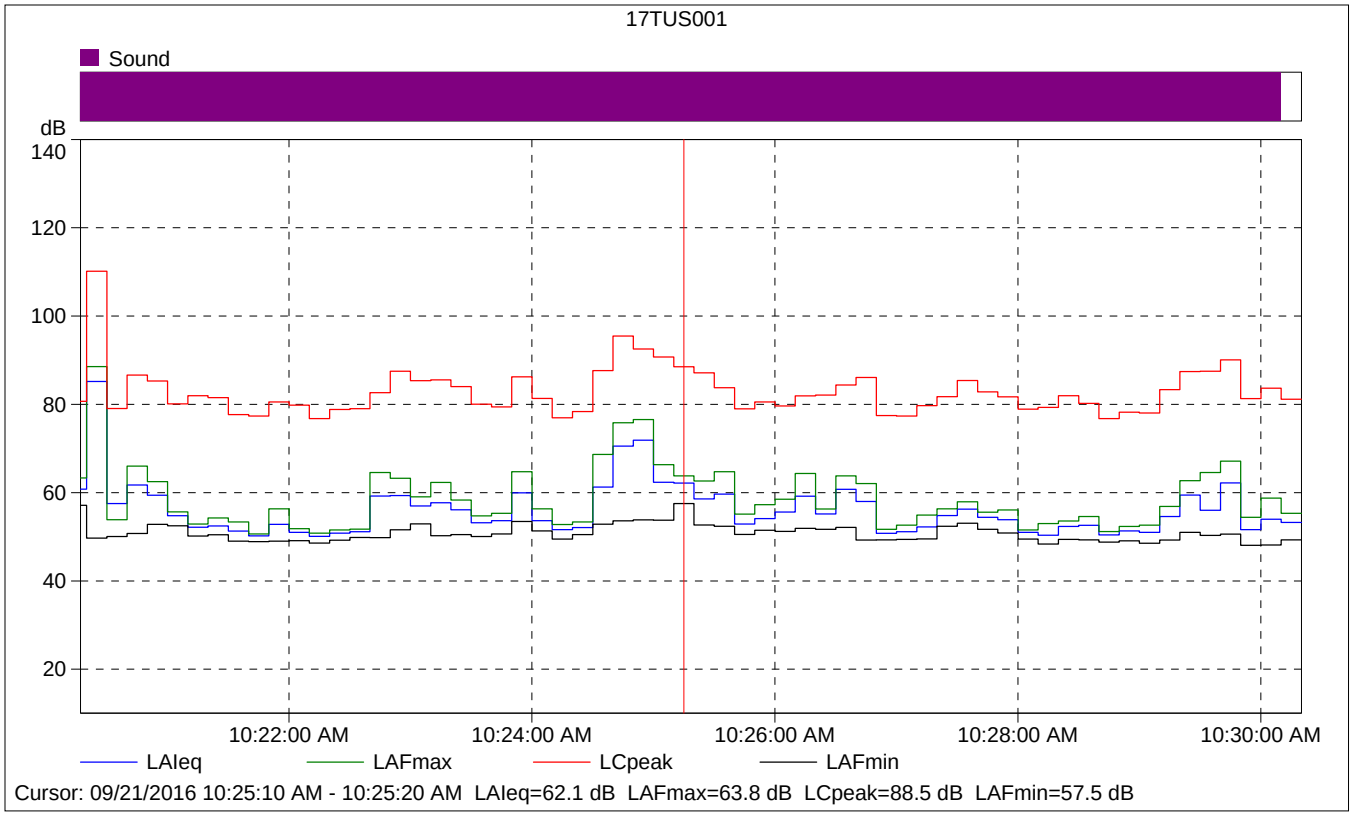
Calibration Time:		09/20/2016 10:05:18
Calibration Type:		External reference
Sensitivity:		64.4001141190529 mV/Pa

17TUS001

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	58.8	88.5	48.0
Time	10:20:17 AM	10:30:17 AM	0:10:00				
Date	09/21/2016	09/21/2016					

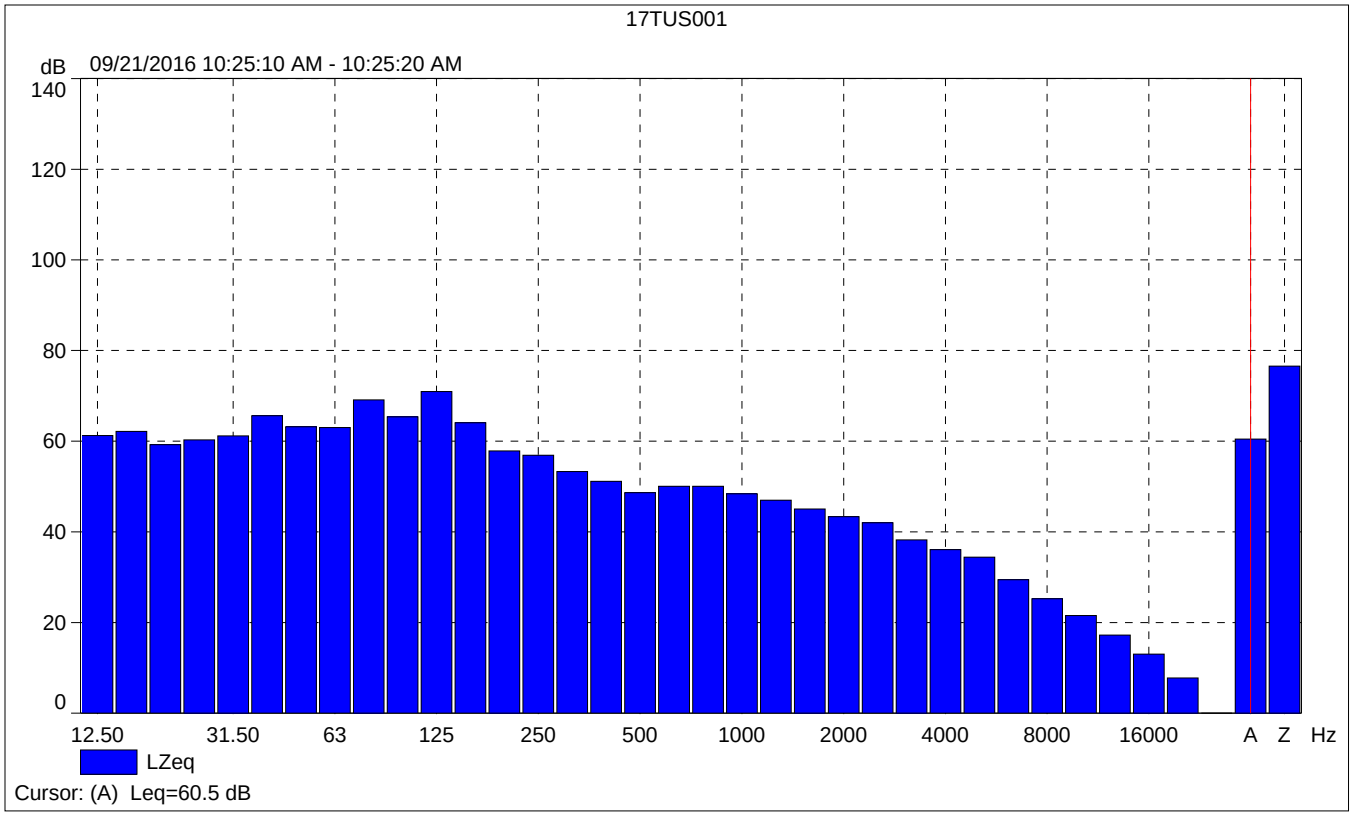

17TUS001
dB
09/21/2016 10:20:17 AM - 10:30:17 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
Z
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=58.8 dB LFmax=88.5 dB LFmin=48.0 dB

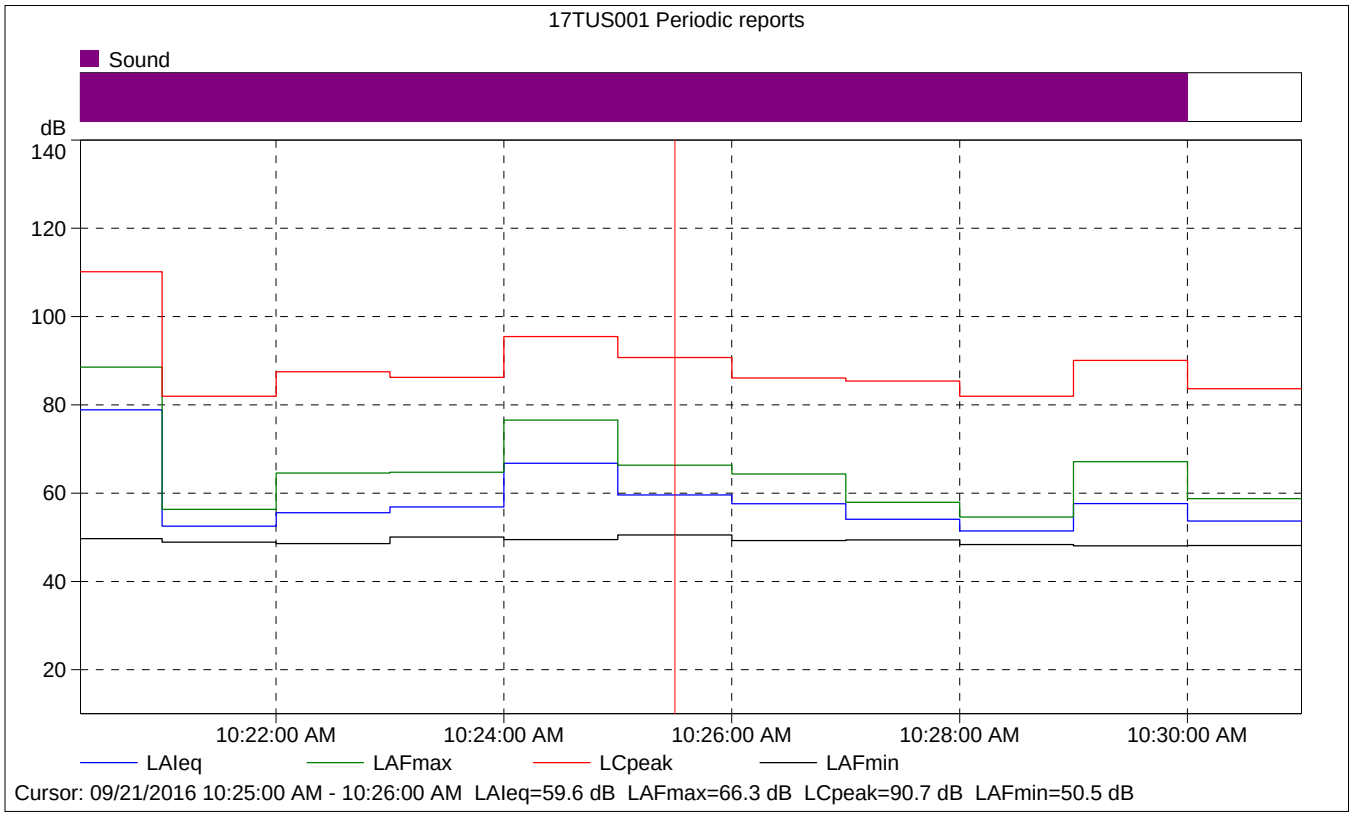

17TUS001
%
Based on LAF , 10ms Class width: 0.2 dB 09/21/2016 10:20:17 AM - 10:30:17 AM
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 67.0 dB
L5 = 61.6 dB
L10 = 59.6 dB
L50 = 52.3 dB
L90 = 49.9 dB
L95 = 49.5 dB
L99 = 48.9 dB
Level
Cumulative
Cursor: [74.8 ; 75.0[dB Level: 0.0% Cumulative: 0.3%



17TUS001

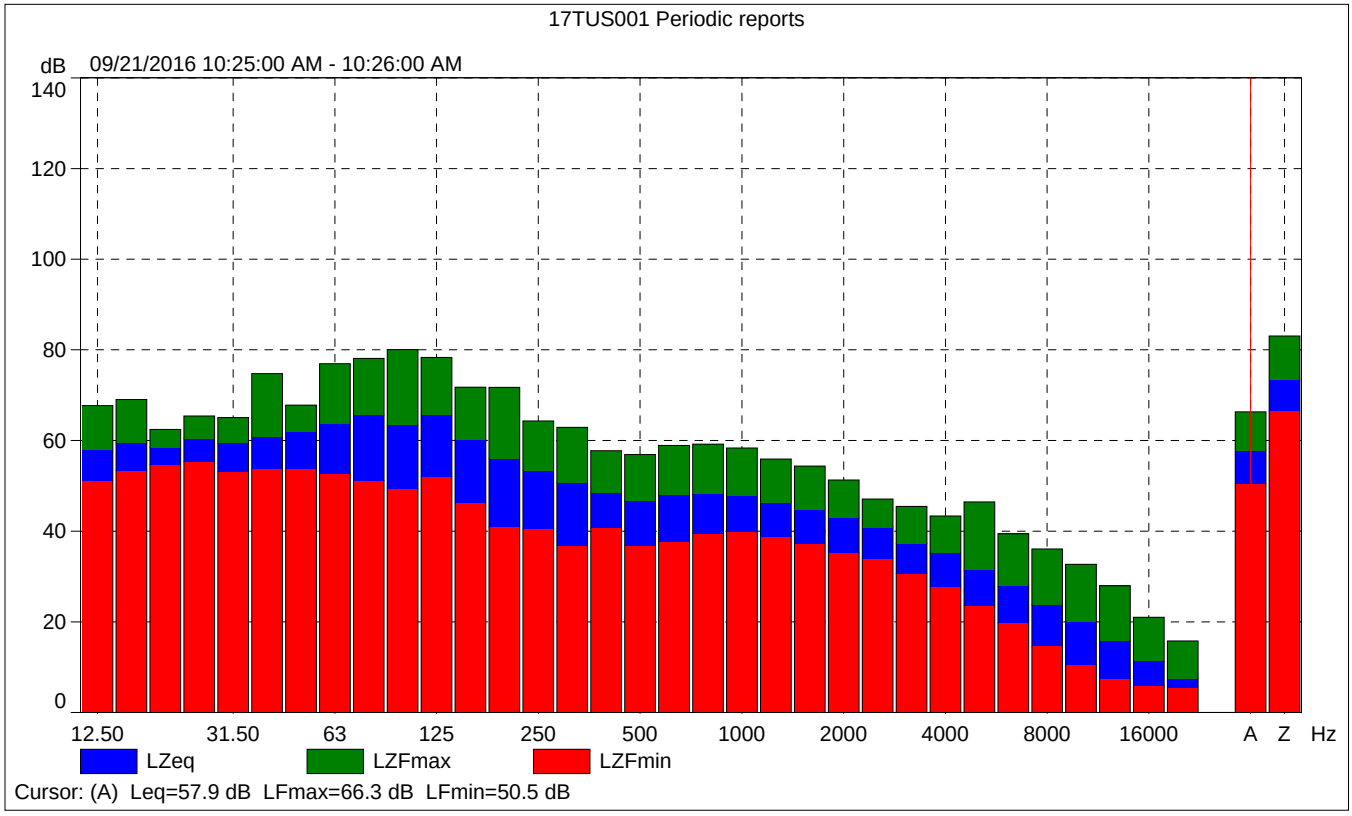
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			62.1	63.8	57.5
Time	10:25:10 AM	0:00:10			
Date	09/21/2016				

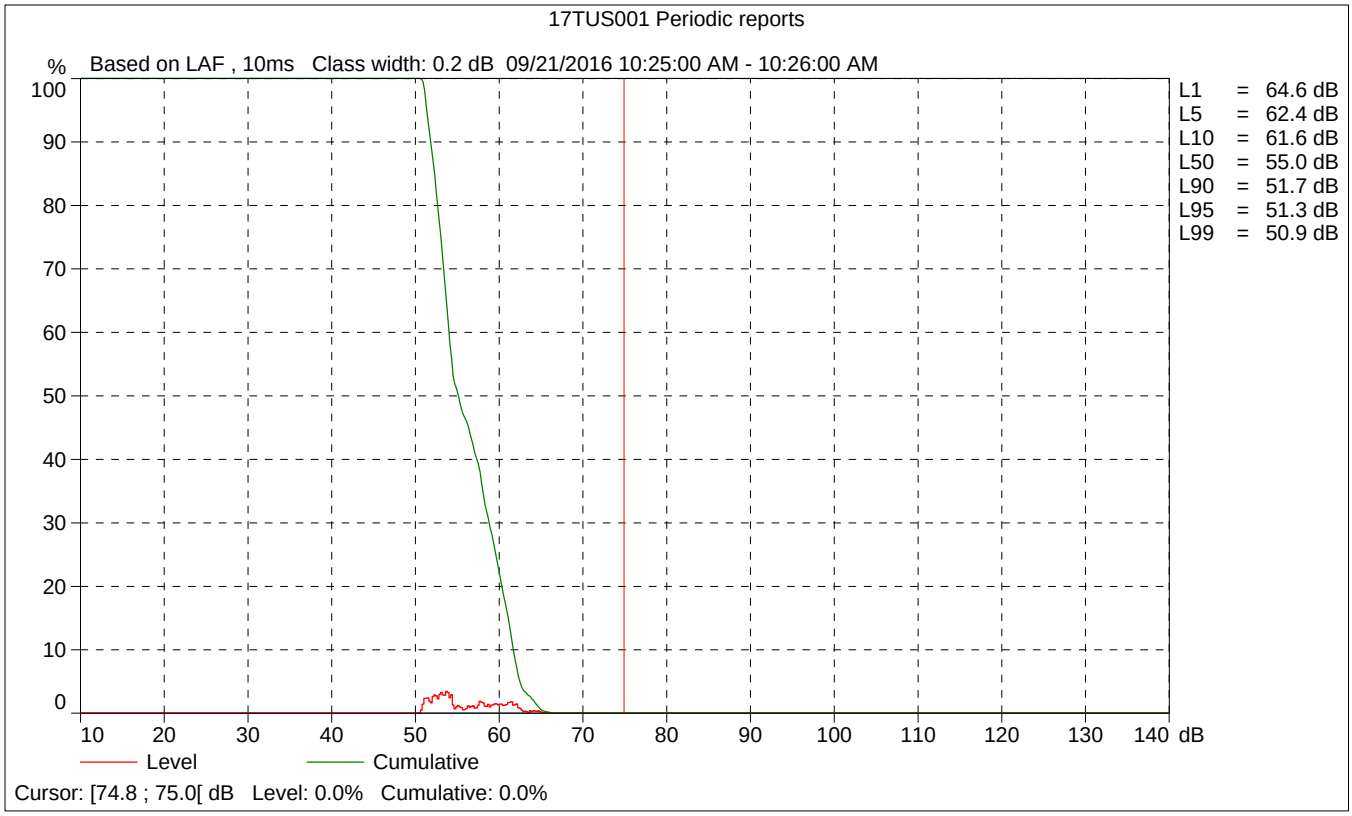

17TUS001
dB
09/21/2016 10:25:10 AM - 10:25:20 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
Z
Hz
LZeq
Cursor: (A) Leq=60.5 dB


17TUS001 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:22:00 AM
10:24:00 AM
10:26:00 AM
10:28:00 AM
10:30:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 09/21/2016 10:25:00 AM - 10:26:00 AM LAIeq=59.6 dB LAFmax=66.3 dB LCpeak=90.7 dB LAFmin=50.5 dB

17TUS001 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	59.6	66.3	50.5
Time	10:25:00 AM	0:01:00				
Date	09/21/2016					




17TUS001 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 09/21/2016 10:25:00 AM - 10:26:00 AM
100
90
80
70
60
50
40
30
20
10
0
10 20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 64.6 dB
L5 = 62.4 dB
L10 = 61.6 dB
L50 = 55.0 dB
L90 = 51.7 dB
L95 = 51.3 dB
L99 = 50.9 dB
Level
Cumulative
Cursor: [74.8 ; 75.0[dB Level: 0.0% Cumulative: 0.0%

Site Number: 2			
Recorded By: Jessica Ditto			
Job Number: 151800			
Date: September 21, 2016			
Time: 10:34 a.m.			
Location: On Ponderosa Street approximately 580 feet north of E. 17th Street			
Source of Peak Noise: Street traffic on Ponderosa Street and N. Tustin Avenue, as well as dogs barking, pedestrians talking, and an air plane.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
55.1	46.5	82.3	86.0

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**2548189**	**1/4/2016**	
	Microphone	**Brüel & Kjær**	**4189**	**2543364**	**1/4/2016**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**4265**	**1/4/2016**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**1/4/2016**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** ☼ Sunny
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	< 5	81	29.90 in

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.4
Start Time:		09/21/2016 10:33:28
End Time:		09/21/2016 10:43:28
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		138.75

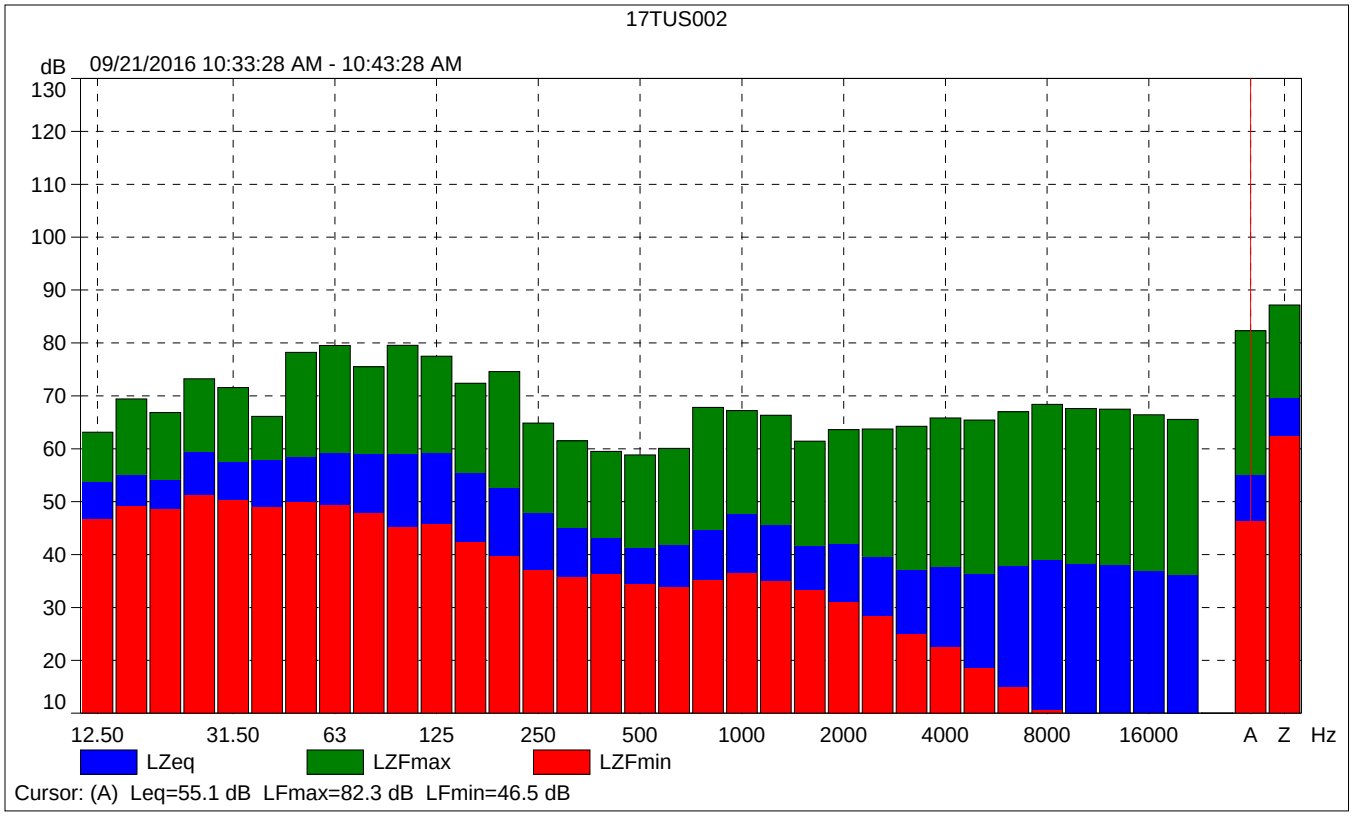
	Time	Frequency
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		C
Spectrum:	FS	Z

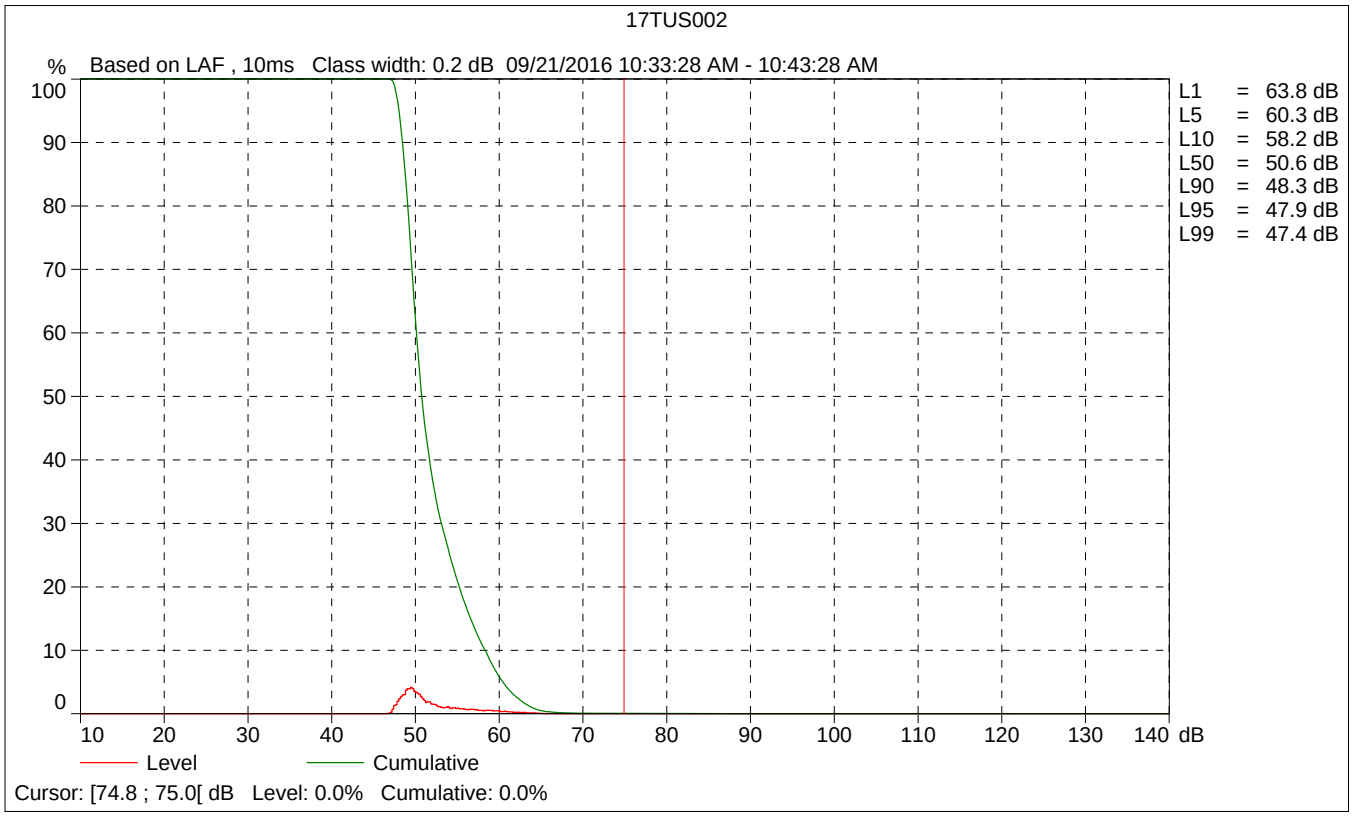
Instrument Serial Number:		2548189
Microphone Serial Number:		2543364
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field

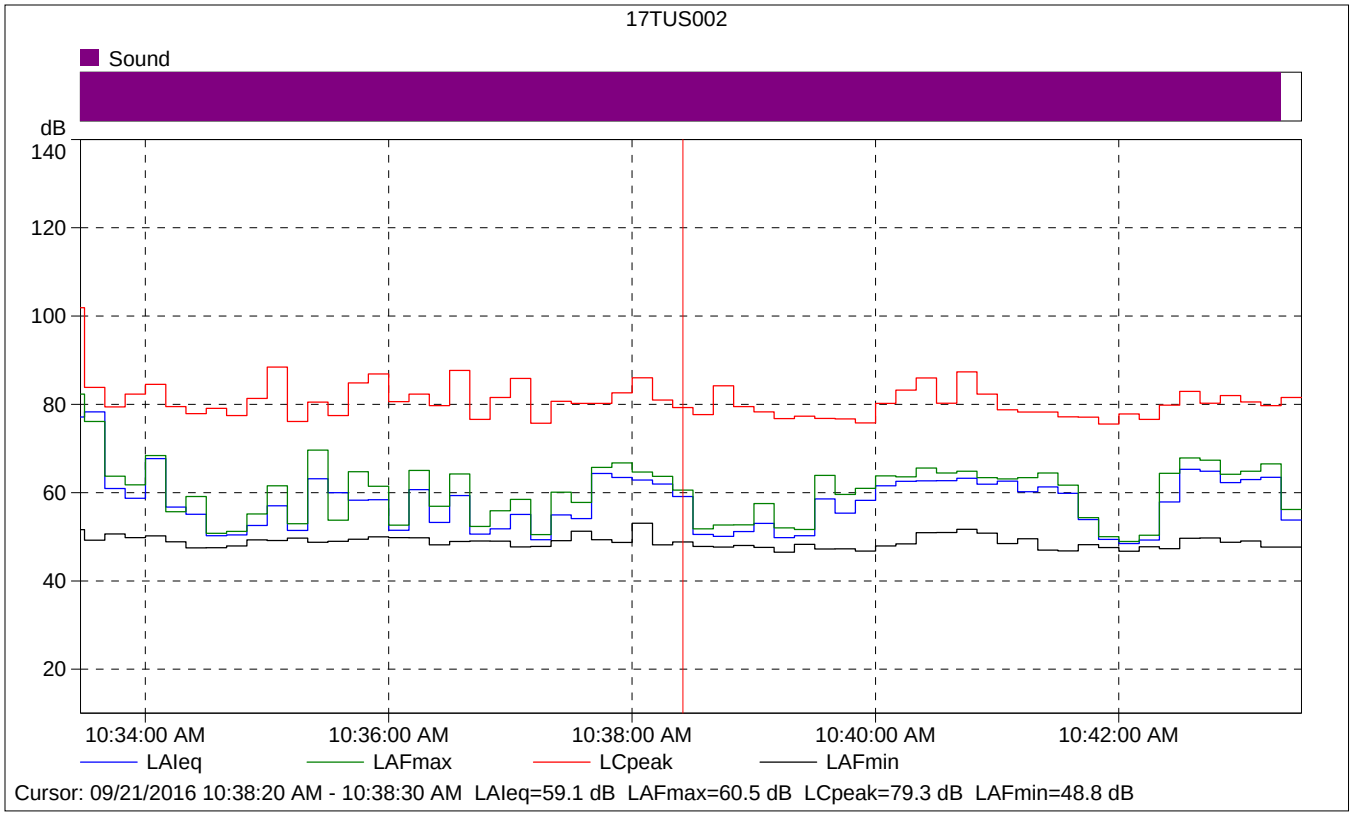
Calibration Time:		09/20/2016 10:05:18
Calibration Type:		External reference
Sensitivity:		64.4001141190529 mV/Pa

17TUS002

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	55.1	82.3	46.5
Time	10:33:28 AM	10:43:28 AM	0:10:00				
Date	09/21/2016	09/21/2016					

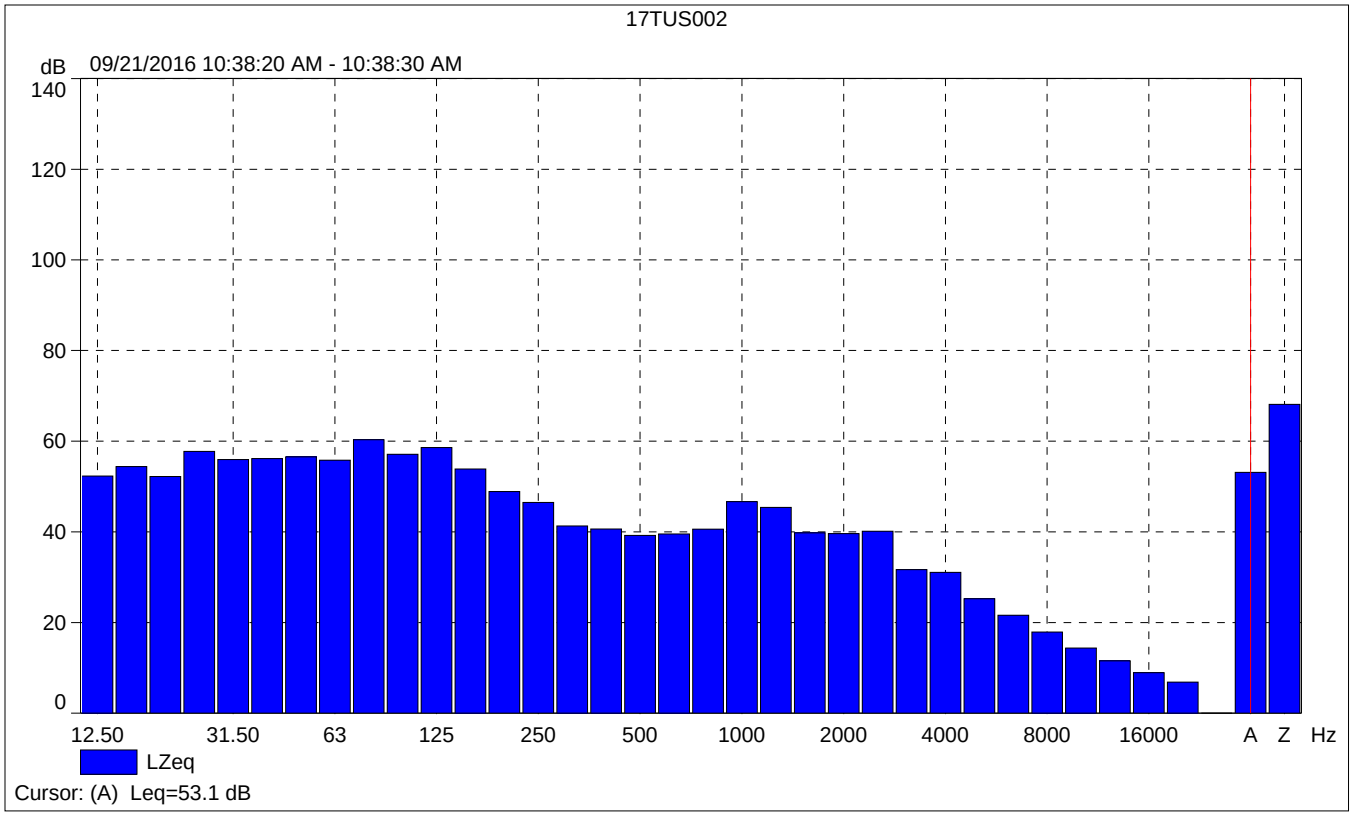

17TUS002
dB
09/21/2016 10:33:28 AM - 10:43:28 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
Z
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=55.1 dB LFmax=82.3 dB LFmin=46.5 dB

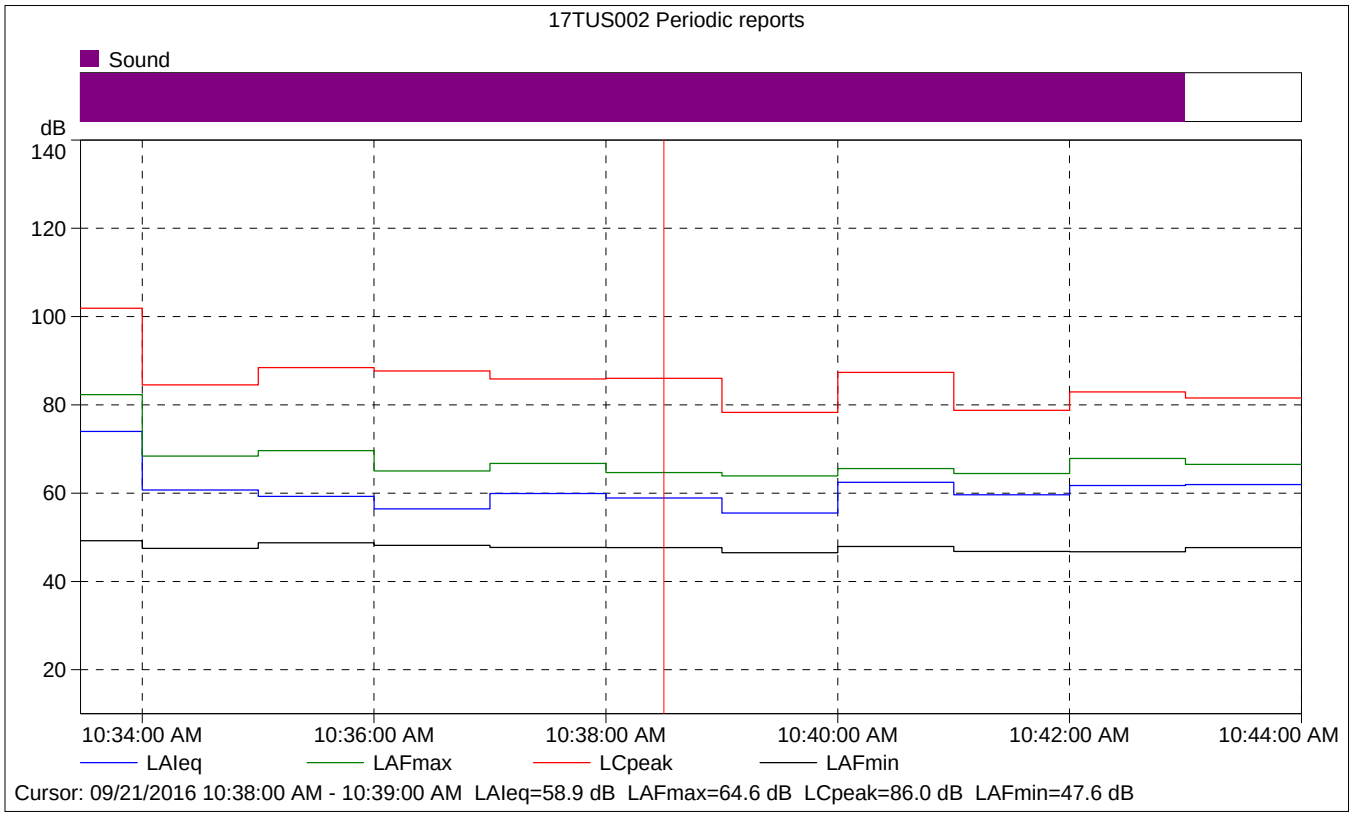

17TUS002
%
Based on LAF , 10ms Class width: 0.2 dB 09/21/2016 10:33:28 AM - 10:43:28 AM
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 63.8 dB
L5 = 60.3 dB
L10 = 58.2 dB
L50 = 50.6 dB
L90 = 48.3 dB
L95 = 47.9 dB
L99 = 47.4 dB
Level
Cumulative
Cursor: [74.8 ; 75.0[dB Level: 0.0% Cumulative: 0.0%



17TUS002

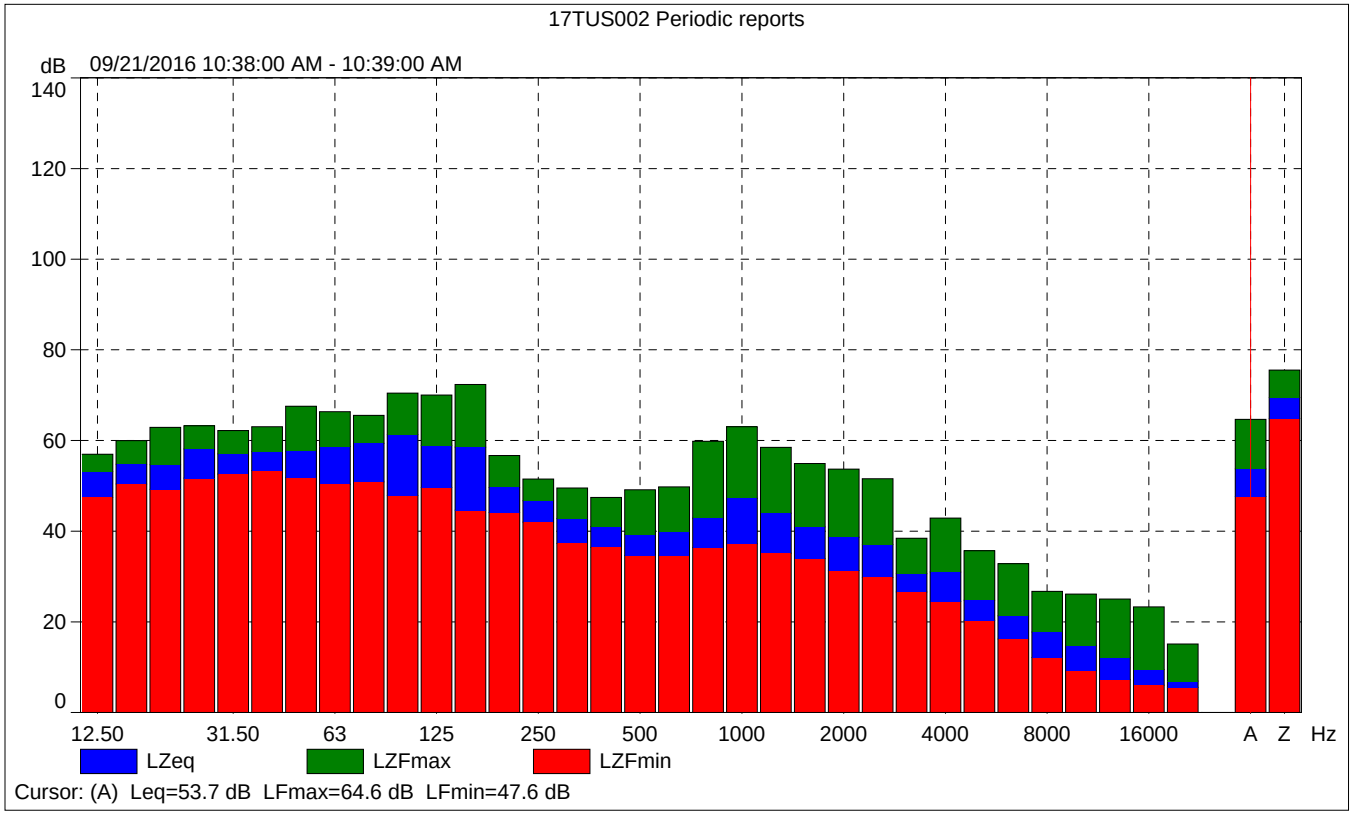
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			59.1	60.5	48.8
Time	10:38:20 AM	0:00:10			
Date	09/21/2016				

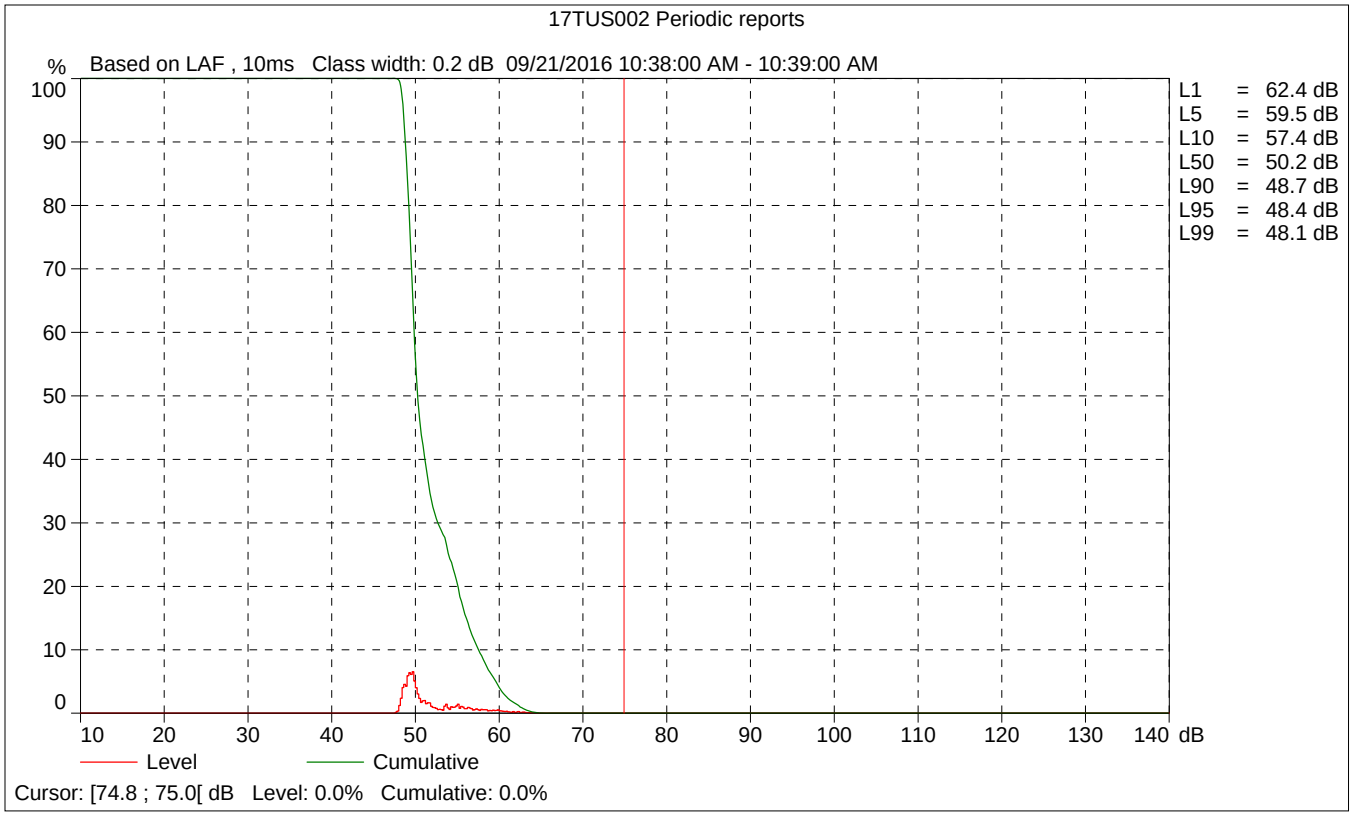

17TUS002
dB
09/21/2016 10:38:20 AM - 10:38:30 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
Z
Hz
LZeq
Cursor: (A) Leq=53.1 dB


17TUS002 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:34:00 AM
10:36:00 AM
10:38:00 AM
10:40:00 AM
10:42:00 AM
10:44:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 09/21/2016 10:38:00 AM - 10:39:00 AM LAIeq=58.9 dB LAFmax=64.6 dB LCpeak=86.0 dB LAFmin=47.6 dB

17TUS002 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	58.9	64.6	47.6
Time	10:38:00 AM	0:01:00				
Date	09/21/2016					




17TUS002 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 09/21/2016 10:38:00 AM - 10:39:00 AM
100
90
80
70
60
50
40
30
20
10
0
10 20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 62.4 dB
L5 = 59.5 dB
L10 = 57.4 dB
L50 = 50.2 dB
L90 = 48.7 dB
L95 = 48.4 dB
L99 = 48.1 dB
Level
Cumulative
Cursor: [74.8 ; 75.0[dB Level: 0.0% Cumulative: 0.0%

Site Number: 3	
Recorded By: Jessica Ditto	
Job Number: 151800	
Date: September 21, 2016	
Time: 10:48 a.m.	
Location: On Ponderosa Street approximately 720 feet north of E. 17th Street	
Source of Peak Noise: Street traffic on Ponderosa Street and N. Tustin Avenue, as well as dogs barking and an air plane.	

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
61.8	45.6	83.7	97.4

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**2548189**	**1/4/2016**	
	Microphone	**Brüel & Kjær**	**4189**	**2543364**	**1/4/2016**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**4265**	**1/4/2016**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**1/4/2016**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** ☼ Sunny
	Note: dBA Offset = 0.01		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	< 5	81	29.90 in

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.4
Start Time:		09/21/2016 10:47:43
End Time:		09/21/2016 10:57:43
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		138.75

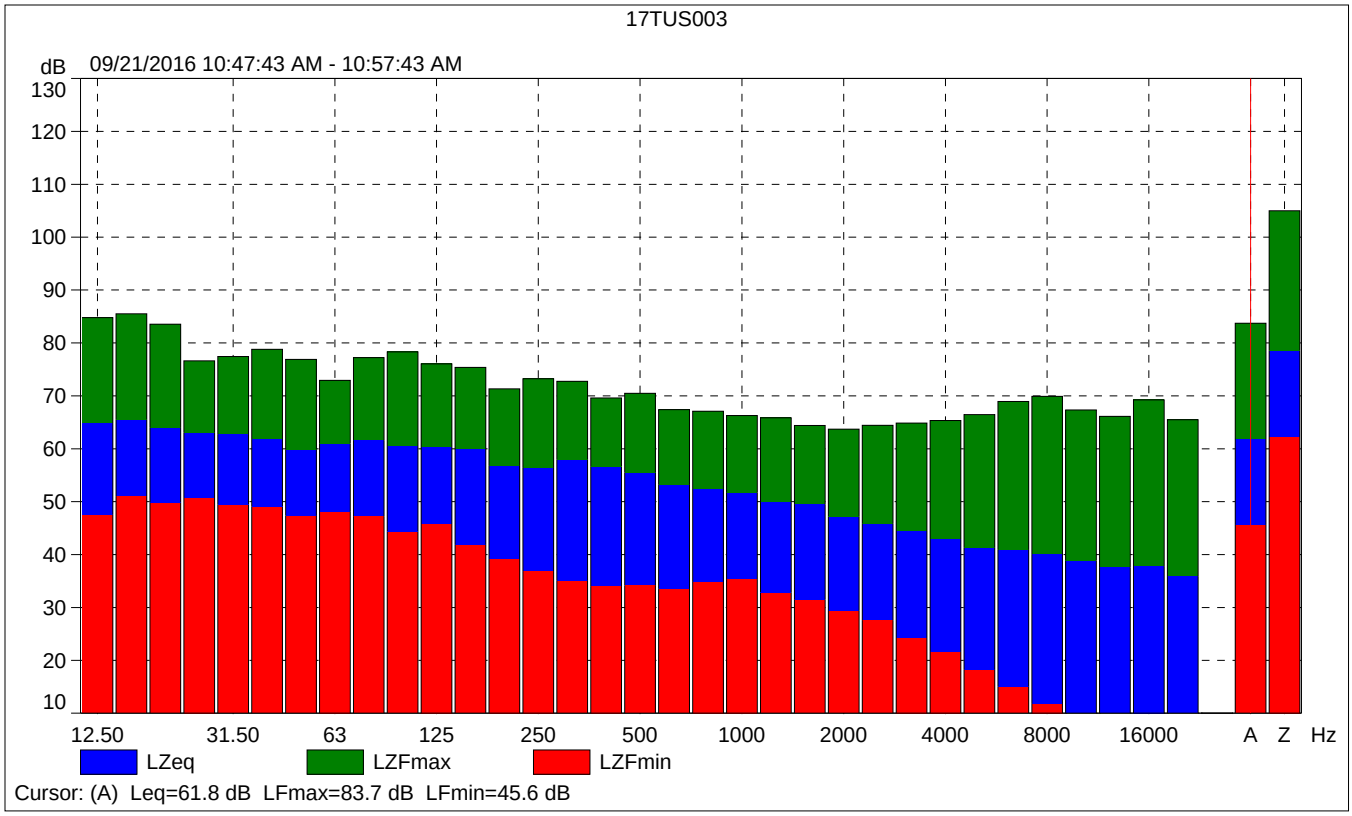
	Time	Frequency
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		C
Spectrum:	FS	Z

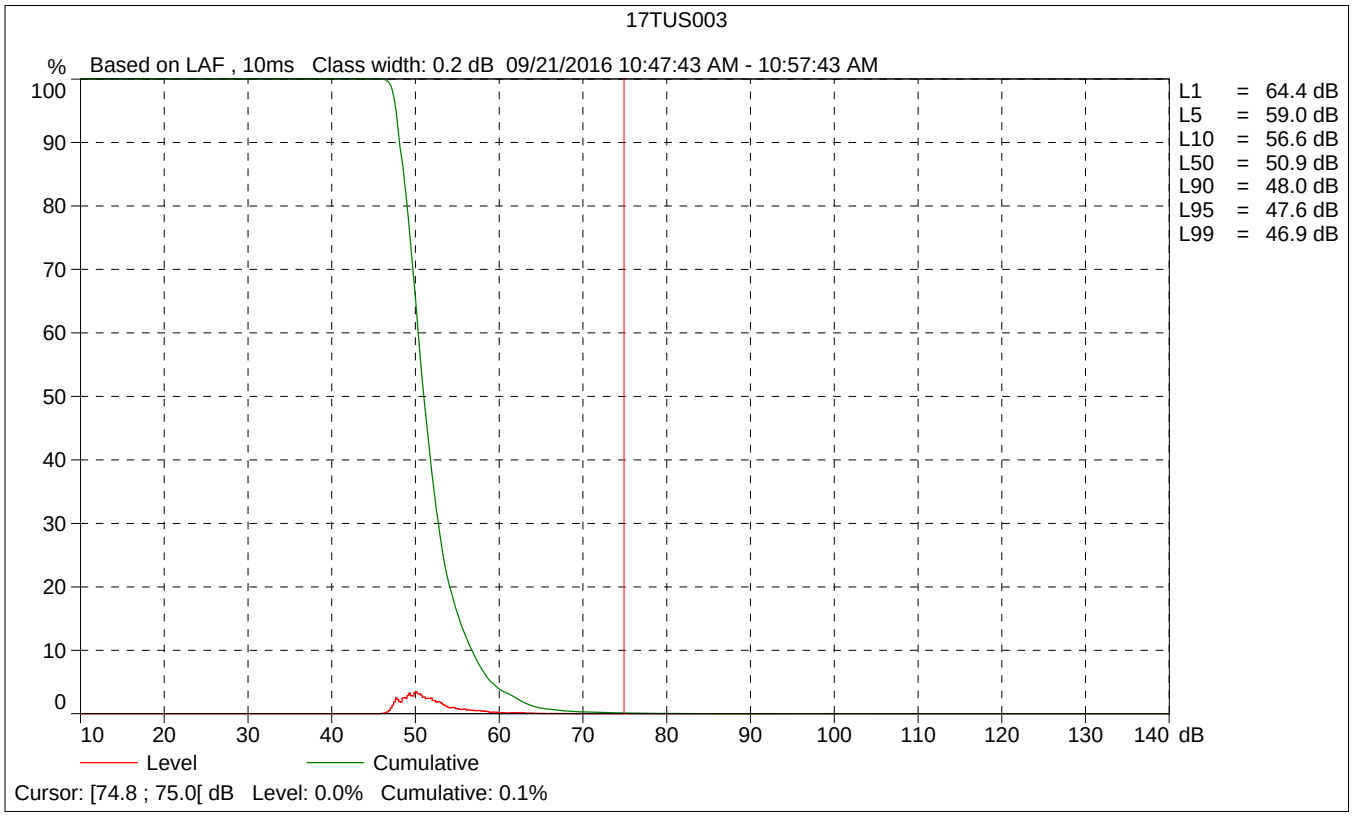
Instrument Serial Number:		2548189
Microphone Serial Number:		2543364
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field

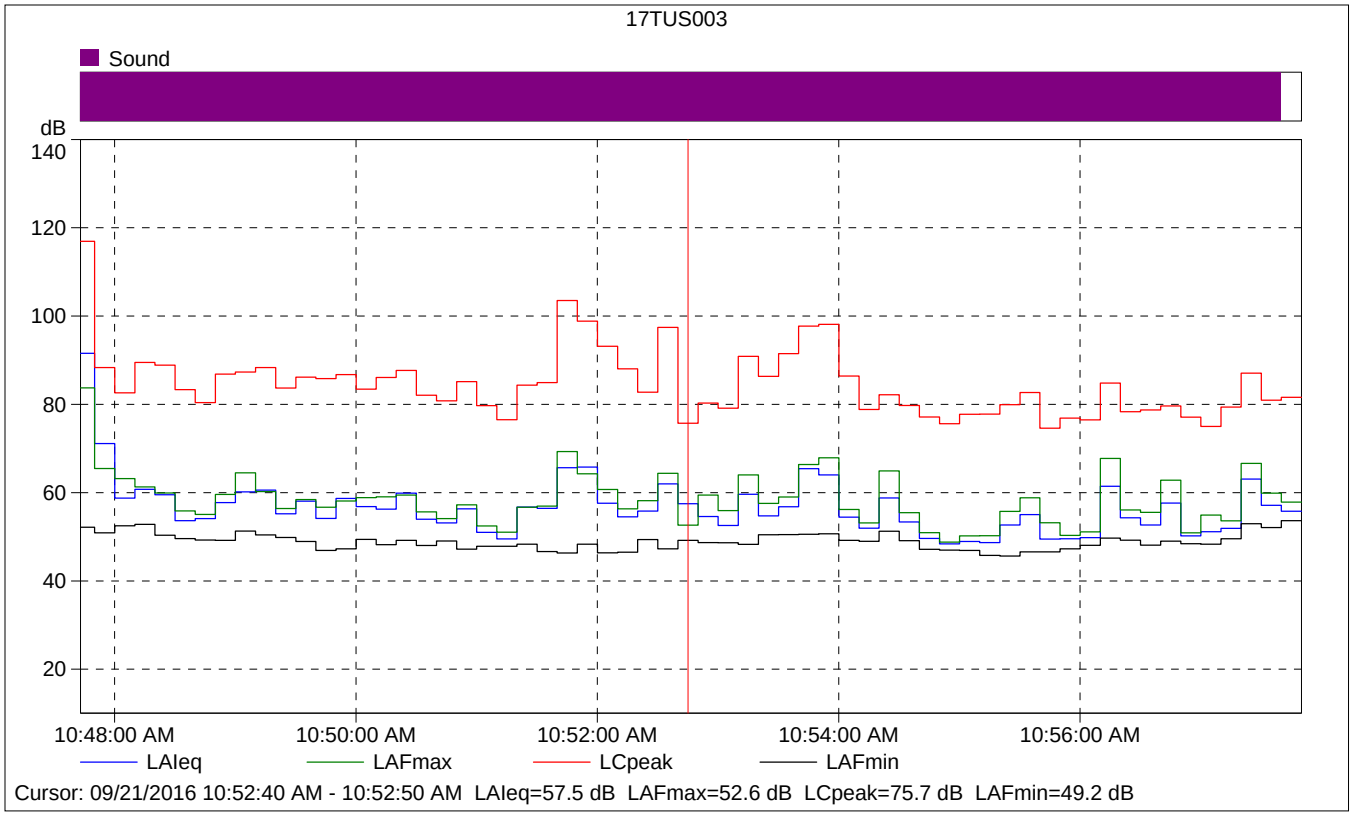
Calibration Time:		09/20/2016 10:05:18
Calibration Type:		External reference
Sensitivity:		64.4001141190529 mV/Pa

17TUS003

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	61.8	83.7	45.6
Time	10:47:43 AM	10:57:43 AM	0:10:00				
Date	09/21/2016	09/21/2016					

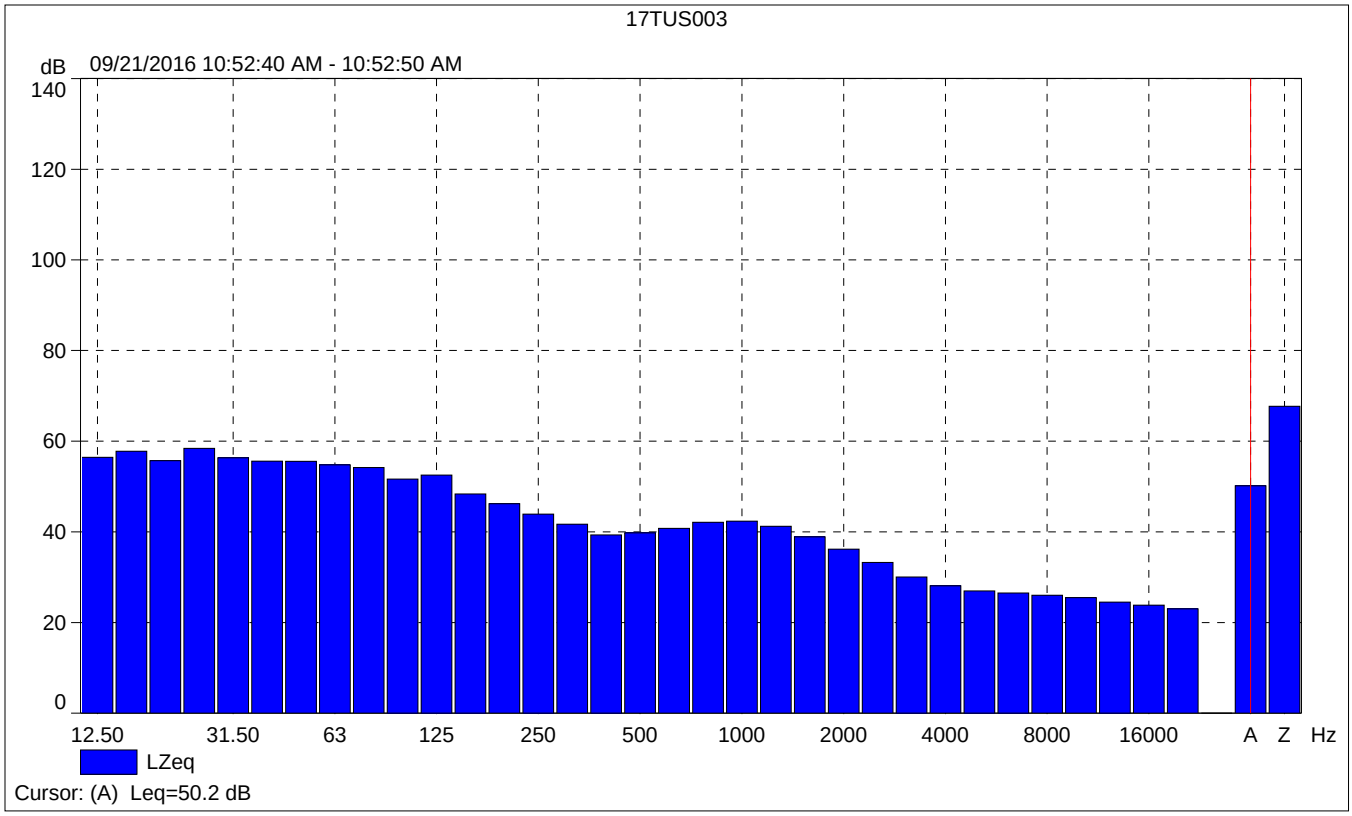

17TUS003
dB
09/21/2016 10:47:43 AM - 10:57:43 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
Z
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=61.8 dB LFmax=83.7 dB LFmin=45.6 dB

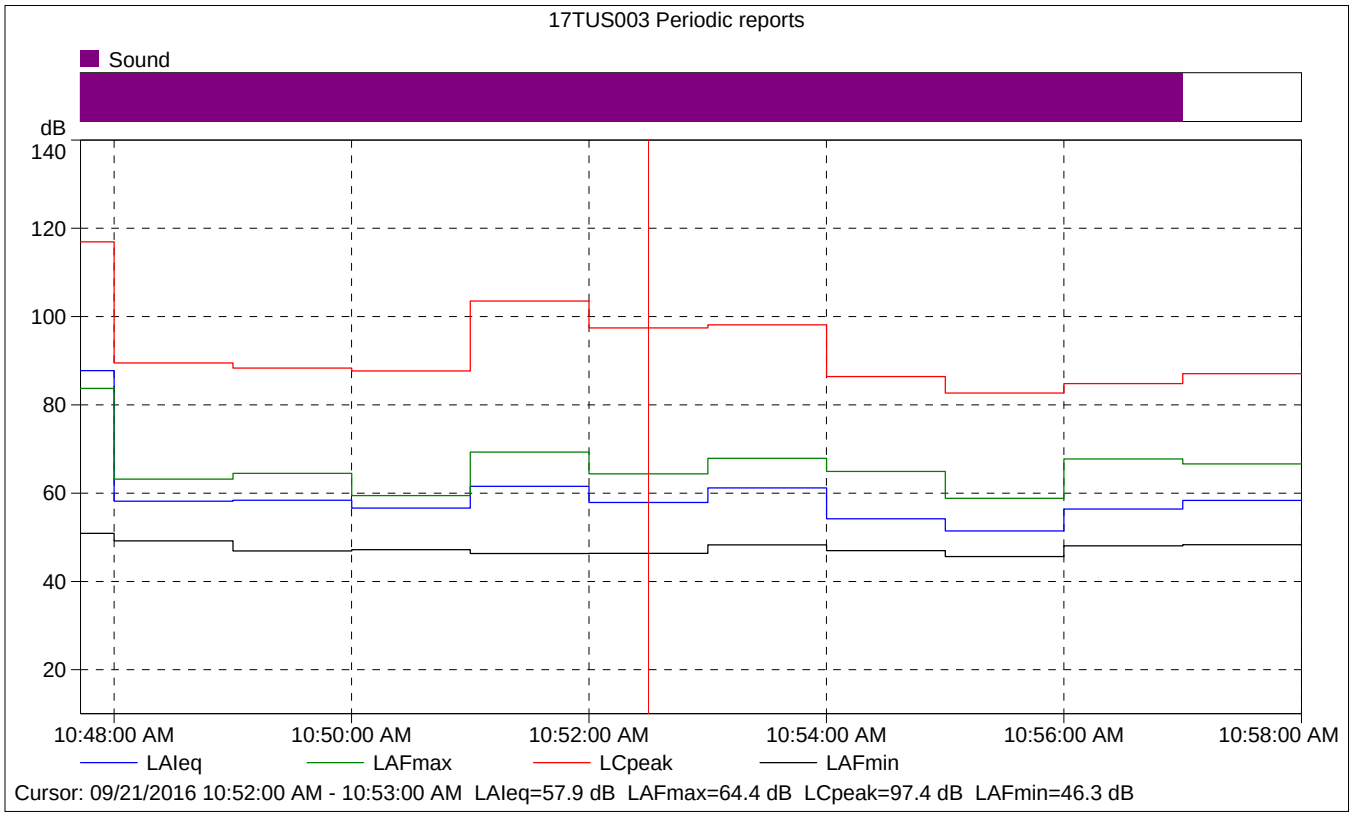

17TUS003
%
Based on LAF , 10ms Class width: 0.2 dB 09/21/2016 10:47:43 AM - 10:57:43 AM
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 64.4 dB
L5 = 59.0 dB
L10 = 56.6 dB
L50 = 50.9 dB
L90 = 48.0 dB
L95 = 47.6 dB
L99 = 46.9 dB
Level
Cumulative
Cursor: [74.8 ; 75.0[dB Level: 0.0% Cumulative: 0.1%



17TUS003

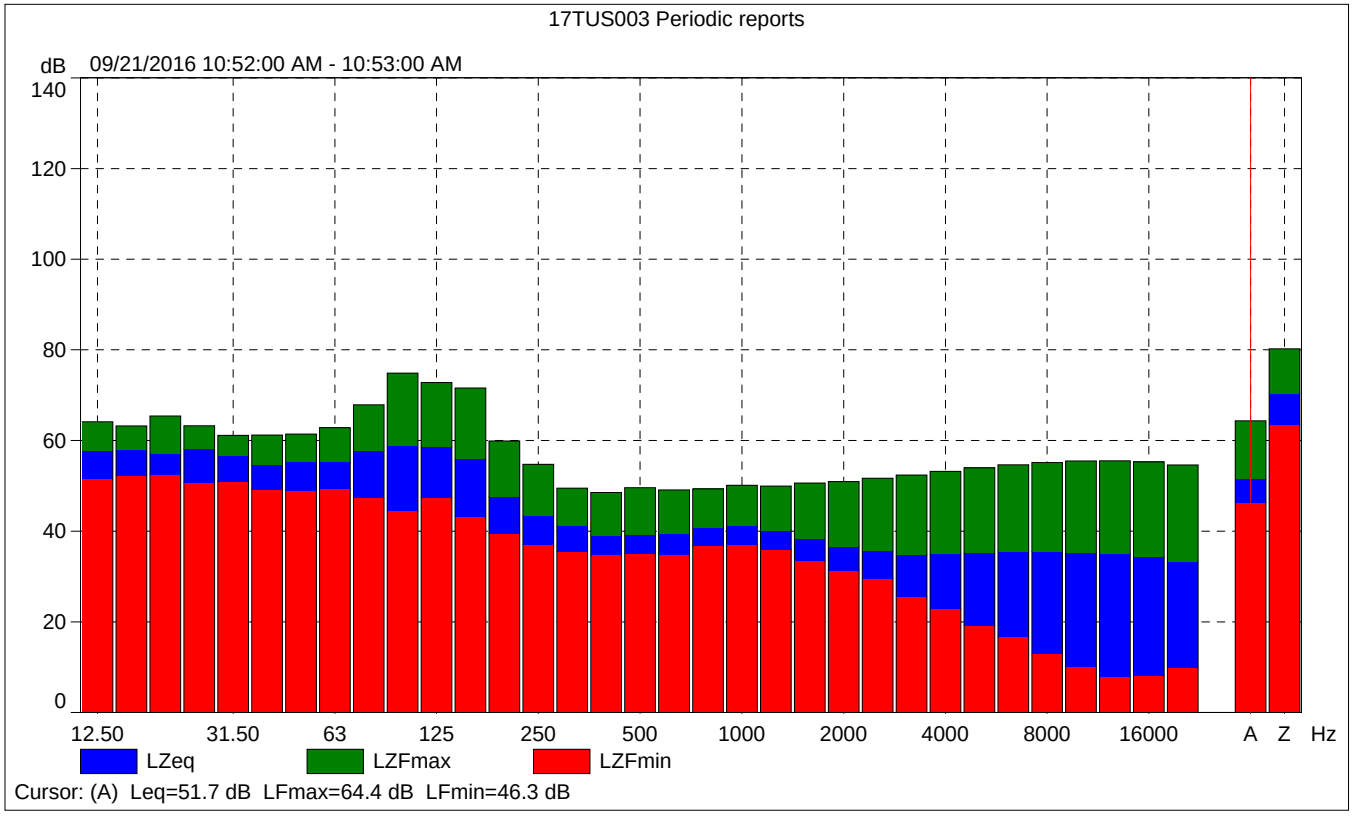
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			57.5	52.6	49.2
Time	10:52:40 AM	0:00:10			
Date	09/21/2016				

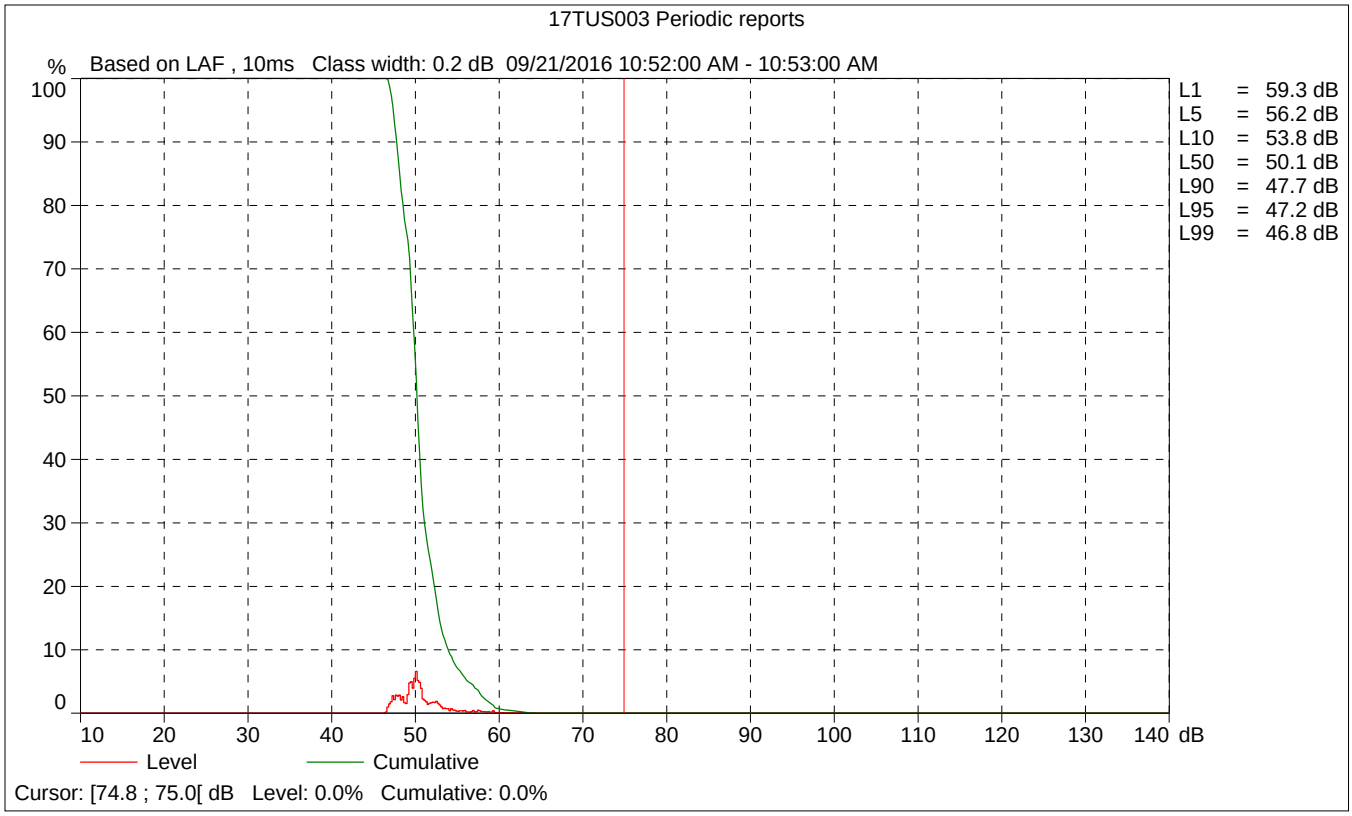

17TUS003
dB
09/21/2016 10:52:40 AM - 10:52:50 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
Z
Hz
LZeq
Cursor: (A) Leq=50.2 dB


17TUS003 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:48:00 AM
10:50:00 AM
10:52:00 AM
10:54:00 AM
10:56:00 AM
10:58:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 09/21/2016 10:52:00 AM - 10:53:00 AM LAIeq=57.9 dB LAFmax=64.4 dB LCpeak=97.4 dB LAFmin=46.3 dB

17TUS003 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	57.9	64.4	46.3
Time	10:52:00 AM	0:01:00				
Date	09/21/2016					




17TUS003 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 09/21/2016 10:52:00 AM - 10:53:00 AM
100
90
80
70
60
50
40
30
20
10
0
10 20 30 40 50 60 70 80 90 100 110 120 130 140 dB
L1 = 59.3 dB
L5 = 56.2 dB
L10 = 53.8 dB
L50 = 50.1 dB
L90 = 47.7 dB
L95 = 47.2 dB
L99 = 46.8 dB
Level
Cumulative
Cursor: [74.8 ; 75.0[dB Level: 0.0% Cumulative: 0.0%

Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	North of Santa Clara Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	30200
Peak Hour Traffic:	**3020**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

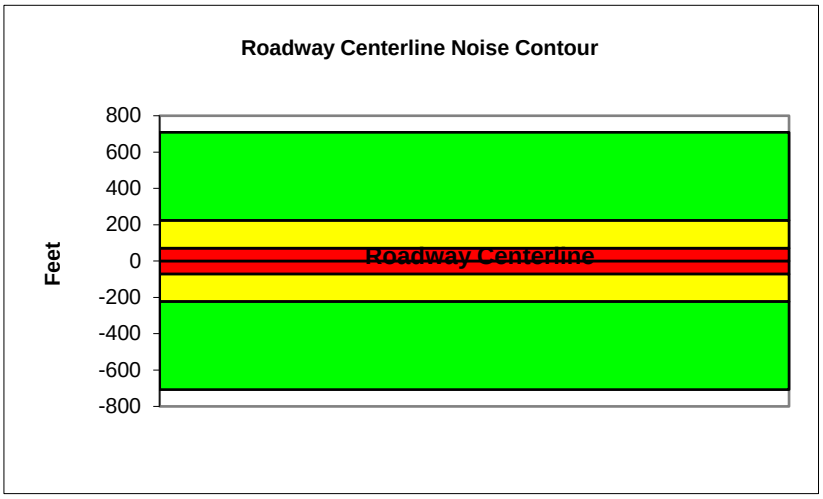
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.1	64.9	63.1	57.0	65.7	66.3
Medium Trucks:	65.1	57.0	50.6	49.0	57.5	57.8
Heavy Trucks:	69.9	58.0	48.9	50.1	59.8	60.0
Vehicle Noise:	**72.3**	**66.5**	**63.5**	**58.6**	**67.2**	**67.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	708
65 dBA	224
70 dBA	71
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	Santa Clara Avenue to North Driveway		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	29900
Peak Hour Traffic:	**2990**
Vehicle Speed:	40
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

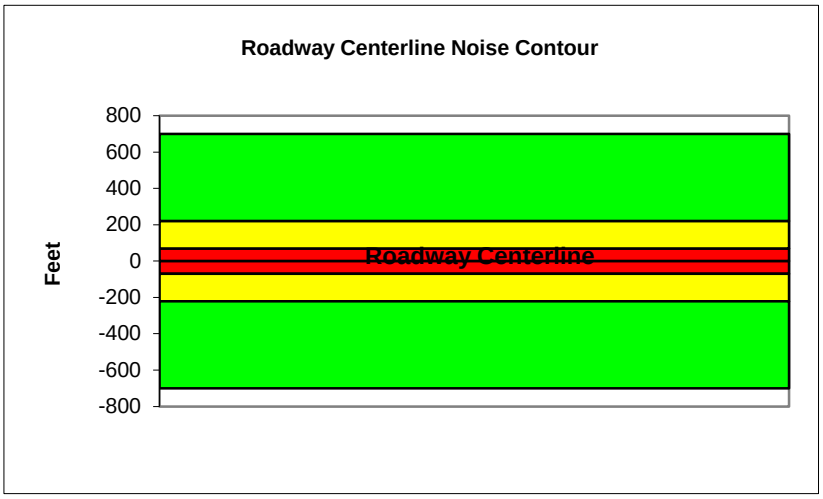
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	65.1	63.3	57.2	65.9	66.5
Medium Trucks:	65.3	57.2	50.8	49.2	57.7	58.0
Heavy Trucks:	70.1	58.2	49.1	50.3	60.0	60.2
Vehicle Noise:	**72.5**	**66.7**	**63.7**	**58.8**	**67.4**	**67.9**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	700
65 dBA	221
70 dBA	70
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	North Driveway to South Driveway		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	28600
Peak Hour Traffic:	**2860**
Vehicle Speed:	40
Centerline Separation:	40

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

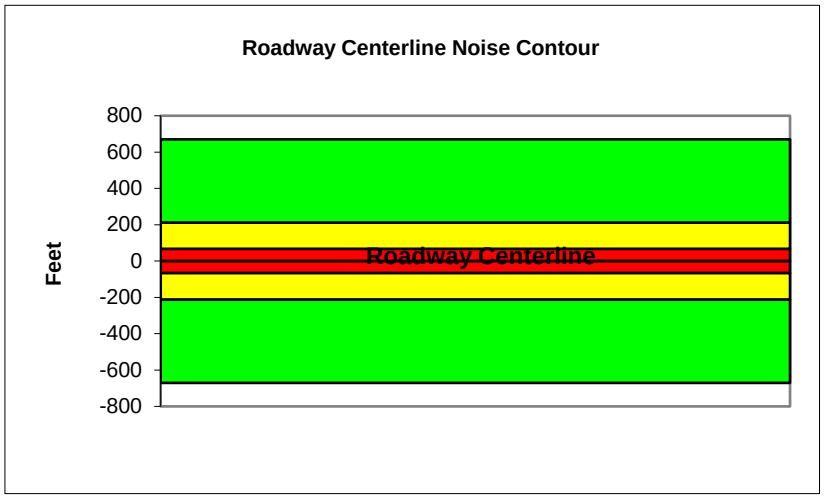
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.0	64.8	63.0	56.9	65.5	66.2
Medium Trucks:	64.9	56.9	50.5	48.9	57.4	57.6
Heavy Trucks:	69.8	57.8	48.8	50.0	59.7	59.9
Vehicle Noise:	**72.2**	**66.3**	**63.4**	**58.5**	**67.1**	**67.5**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	670
65 dBA	212
70 dBA	67
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	South Driveway to Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	29900
Peak Hour Traffic:	**2990**
Vehicle Speed:	40
Centerline Separation:	40

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

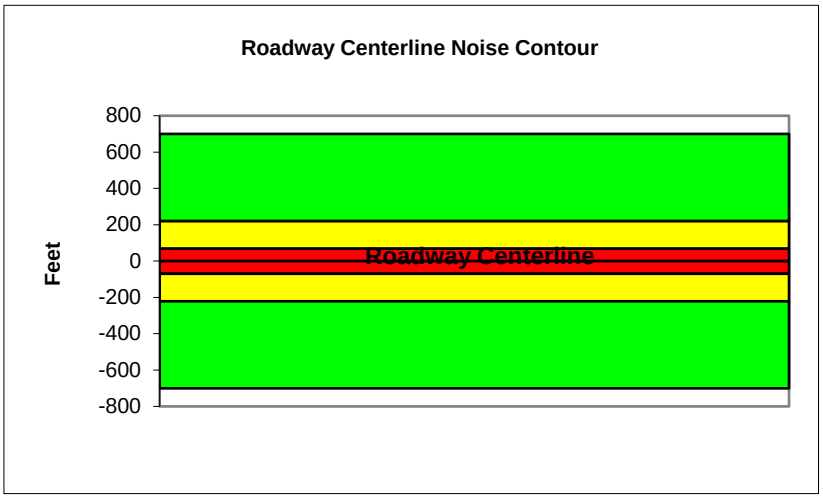
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	65.0	63.2	57.1	65.7	66.3
Medium Trucks:	65.1	57.1	50.7	49.1	57.6	57.8
Heavy Trucks:	70.0	58.0	49.0	50.2	59.9	60.0
Vehicle Noise:	**72.4**	**66.5**	**63.6**	**58.7**	**67.2**	**67.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	700
65 dBA	221
70 dBA	70
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	Tustin Avenue to Tustin Centre		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	28700
Peak Hour Traffic:	**2870**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

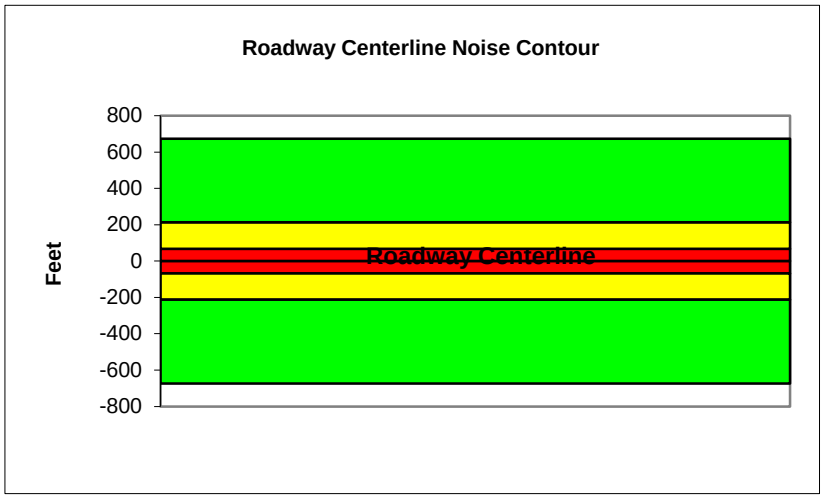
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.9	64.7	62.9	56.8	65.4	66.0
Medium Trucks:	64.8	56.8	50.4	48.8	57.3	57.5
Heavy Trucks:	69.7	57.7	48.7	49.9	59.6	59.7
Vehicle Noise:	**72.1**	**66.2**	**63.3**	**58.4**	**66.9**	**67.4**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	673
65 dBA	213
70 dBA	67
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	South of Tustin Centre		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	23200
Peak Hour Traffic:	**2320**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

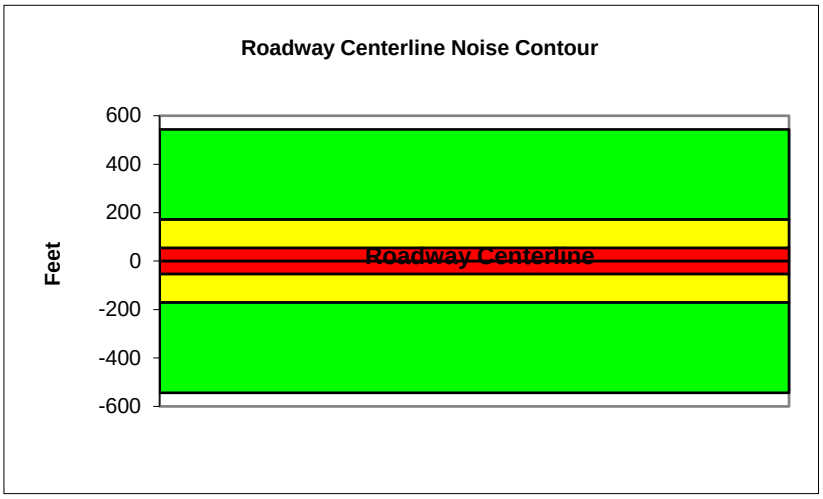
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.0	63.7	62.0	55.9	64.5	65.1
Medium Trucks:	63.9	55.8	49.5	47.9	56.4	56.6
Heavy Trucks:	68.8	56.8	47.8	49.0	58.7	58.8
Vehicle Noise:	**71.1**	**65.3**	**62.4**	**57.4**	**66.0**	**66.5**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	543
65 dBA	172
70 dBA	54
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	West of Cabrillo Park Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	31500
Peak Hour Traffic:	**3150**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

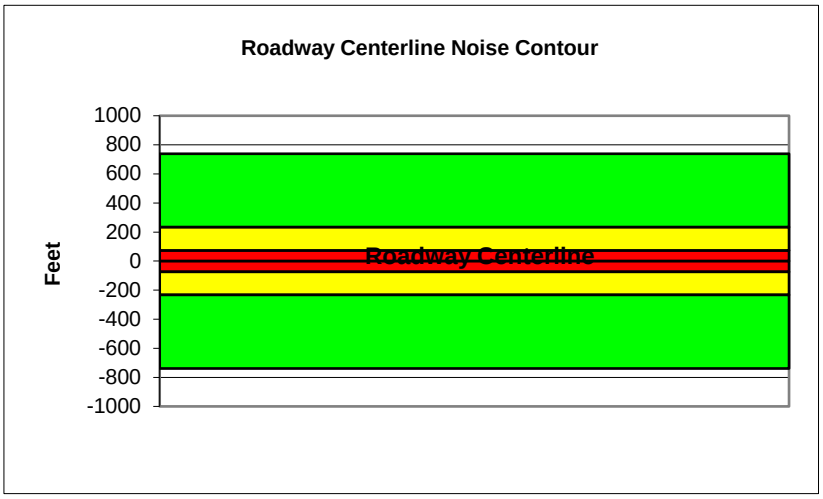
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	65.3	63.5	57.4	66.0	66.7
Medium Trucks:	65.4	57.4	51.0	49.4	57.9	58.1
Heavy Trucks:	70.3	58.3	49.3	50.5	60.2	60.4
Vehicle Noise:	**72.7**	**66.8**	**63.9**	**59.0**	**67.6**	**68.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	738
65 dBA	233
70 dBA	74
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Cabrillo Park Drive to Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	33900
Peak Hour Traffic:	**3390**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

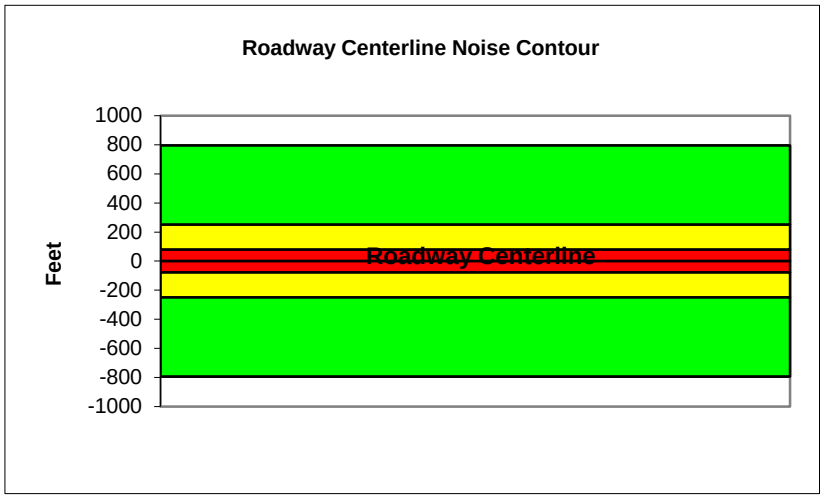
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	65.6	63.8	57.7	66.4	67.0
Medium Trucks:	65.8	57.7	51.3	49.7	58.2	58.5
Heavy Trucks:	70.6	58.7	49.6	50.8	60.5	60.7
Vehicle Noise:	**73.0**	**67.2**	**64.2**	**59.3**	**67.9**	**68.4**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	795
65 dBA	251
70 dBA	79
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Tustin Avenue to Ponderosa Street		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	42200
Peak Hour Traffic:	**4220**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

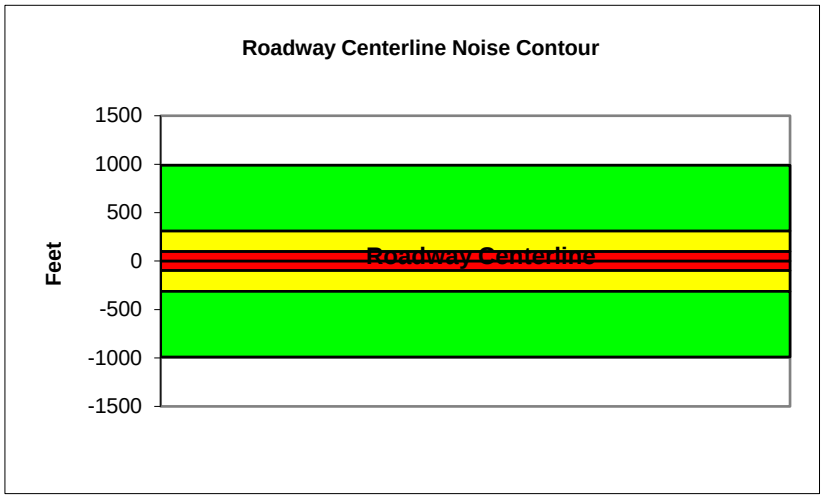
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	66.3	64.5	58.4	67.1	67.7
Medium Trucks:	66.5	58.4	52.0	50.5	58.9	59.2
Heavy Trucks:	71.3	59.4	50.3	51.6	61.3	61.4
Vehicle Noise:	**73.7**	**67.9**	**65.0**	**60.0**	**68.6**	**69.1**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	989
65 dBA	313
70 dBA	99
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Ponderosa Street to SR-55 Southbound Ramps		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	40700
Peak Hour Traffic:	**4070**
Vehicle Speed:	40
Centerline Separation:	57

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

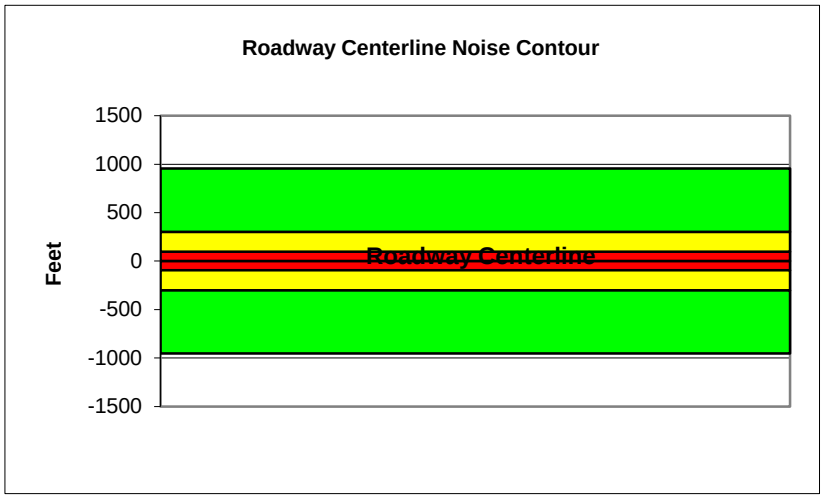
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.3	66.1	64.3	58.2	66.8	67.4
Medium Trucks:	66.2	58.2	51.8	50.2	58.7	58.9
Heavy Trucks:	71.1	59.1	50.1	51.3	61.0	61.1
Vehicle Noise:	**73.4**	**67.6**	**64.7**	**59.8**	**68.3**	**68.8**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	955
65 dBA	302
70 dBA	96
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	SR-55 Southbound Ramps to SR-55 Northbound Ramps		

PROJECT DATA			
Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)	
Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA	
Road Grade:	0
Average Daily Traffic:	41900
Peak Hour Traffic:	**4190**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

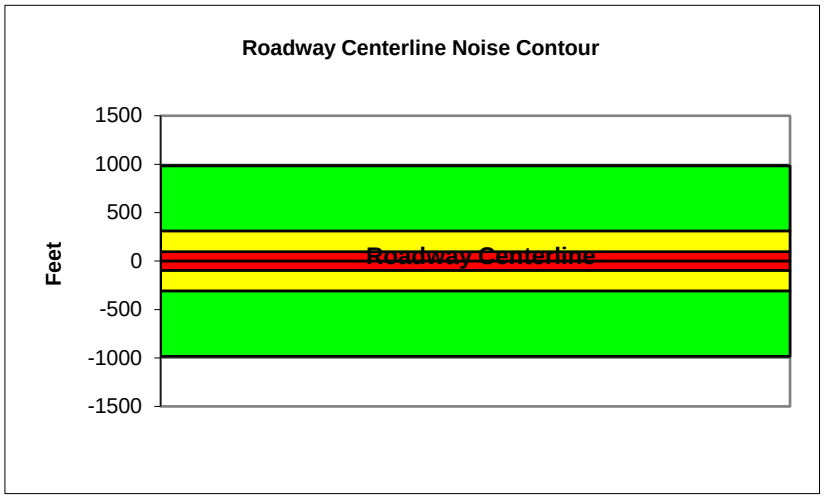
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	66.3	64.5	58.4	67.1	67.7
Medium Trucks:	66.4	58.4	52.0	50.4	58.9	59.1
Heavy Trucks:	71.3	59.4	50.3	51.5	61.2	61.4
Vehicle Noise:	**73.7**	**67.9**	**64.9**	**60.0**	**68.6**	**69.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	982
65 dBA	311
70 dBA	98
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	SR-55 Northbound Ramps to Carroll Way		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	42500
Peak Hour Traffic:	**4250**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

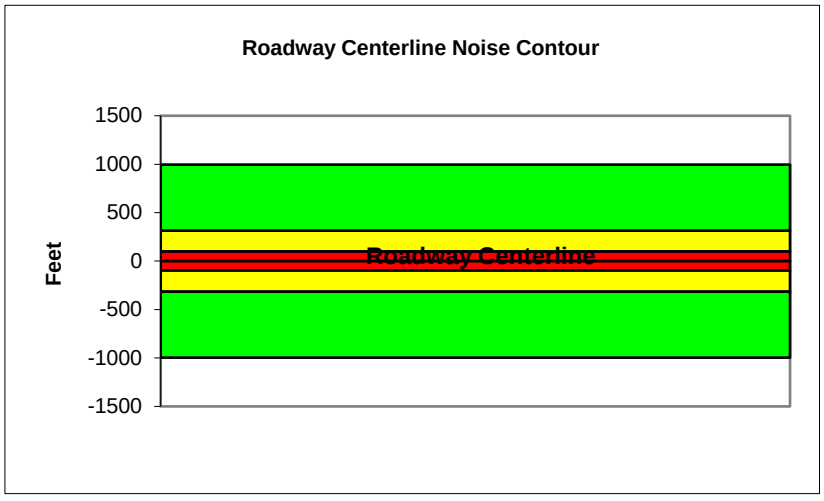
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.6	66.4	64.6	58.5	67.1	67.8
Medium Trucks:	66.5	58.5	52.1	50.5	59.0	59.2
Heavy Trucks:	71.4	59.4	50.4	51.6	61.3	61.5
Vehicle Noise:	**73.8**	**67.9**	**65.0**	**60.1**	**68.7**	**69.1**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	996
65 dBA	315
70 dBA	100
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Carroll Way to Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	37800
Peak Hour Traffic:	**3780**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

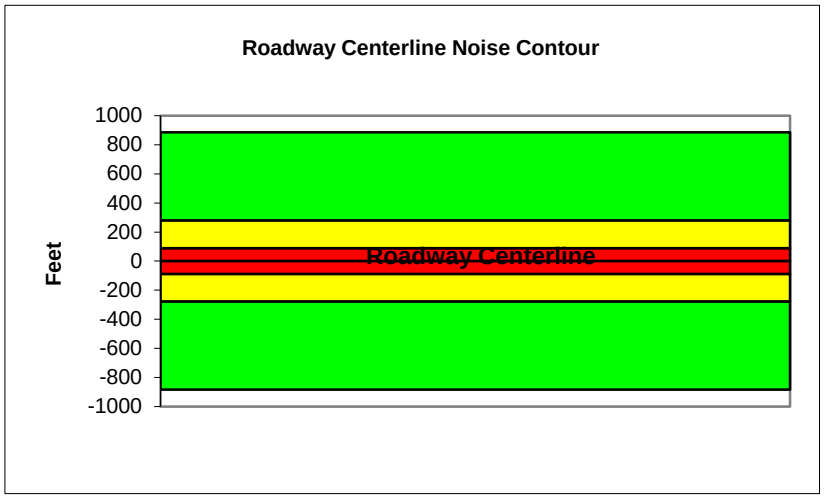
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.0	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	66.0	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	70.8	58.9	49.9	51.1	60.8	60.9
Vehicle Noise:	**73.2**	**67.4**	**64.5**	**59.5**	**68.1**	**68.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	885
65 dBA	280
70 dBA	89
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	East of Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	35300
Peak Hour Traffic:	**3530**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

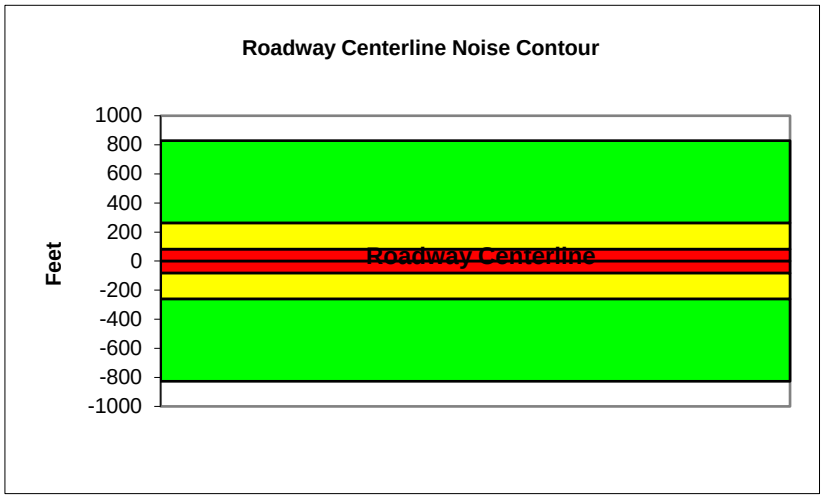
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	65.5	63.7	57.7	66.3	66.9
Medium Trucks:	65.7	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	70.6	58.6	49.6	50.8	60.5	60.6
Vehicle Noise:	**72.9**	**67.1**	**64.2**	**59.2**	**67.8**	**68.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	828
65 dBA	262
70 dBA	83
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Santa Clara Avenue		
Road Segment:	West of Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	11400
Peak Hour Traffic:	**1140**
Vehicle Speed:	40
Centerline Separation:	24

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

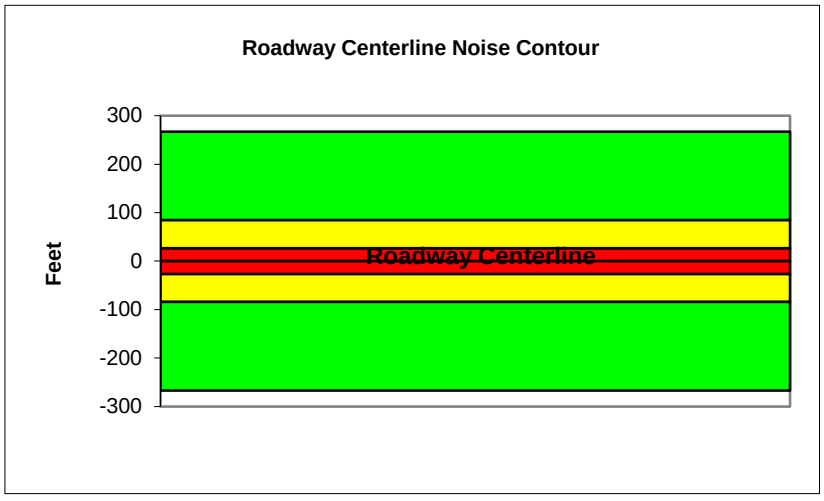
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.3	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	61.2	53.1	46.8	45.2	53.7	53.9
Heavy Trucks:	66.1	54.1	45.1	46.3	56.0	56.1
Vehicle Noise:	**68.4**	**62.6**	**59.7**	**54.7**	**63.3**	**63.8**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	267
65 dBA	84
70 dBA	27
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Santa Clara Avenue		
Road Segment:	East of Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	11000
Peak Hour Traffic:	**1100**
Vehicle Speed:	40
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

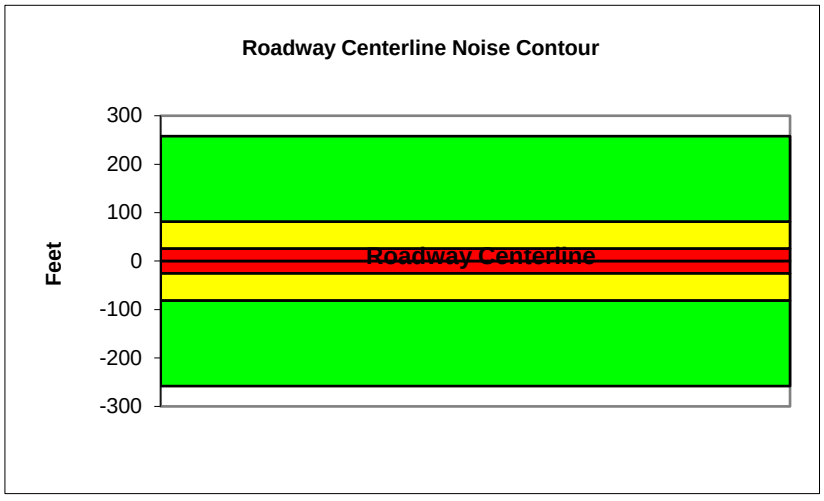
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.0	60.7	59.0	52.9	61.5	62.1
Medium Trucks:	60.9	52.9	46.5	44.9	53.4	53.6
Heavy Trucks:	65.8	53.8	44.8	46.0	55.7	55.8
Vehicle Noise:	**68.1**	**62.3**	**59.4**	**54.5**	**63.0**	**63.5**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	258
65 dBA	82
70 dBA	26
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Santa Clara Avenue		
Road Segment:	East of Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	11000
Peak Hour Traffic:	**1100**
Vehicle Speed:	40
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

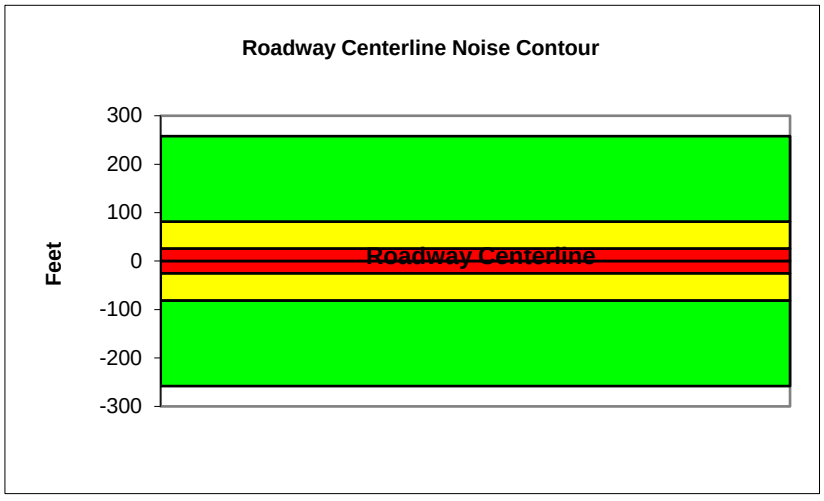
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.0	60.7	59.0	52.9	61.5	62.1
Medium Trucks:	60.9	52.9	46.5	44.9	53.4	53.6
Heavy Trucks:	65.8	53.8	44.8	46.0	55.7	55.8
Vehicle Noise:	**68.1**	**62.3**	**59.4**	**54.5**	**63.0**	**63.5**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	258
65 dBA	82
70 dBA	26
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Cabrillo Park Drive		
Road Segment:	South of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	10100
Peak Hour Traffic:	**1010**
Vehicle Speed:	35
Centerline Separation:	38

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

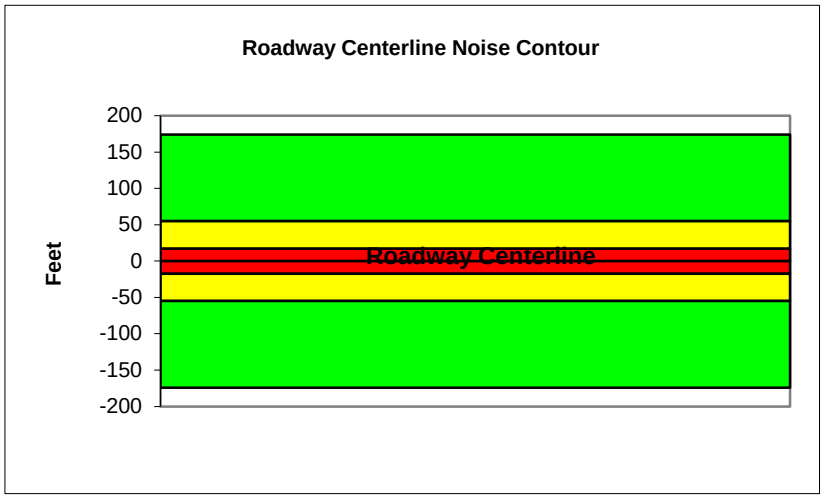
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.8	58.6	56.8	50.7	59.4	60.0
Medium Trucks:	59.5	51.5	45.1	43.5	52.0	52.2
Heavy Trucks:	64.8	52.8	43.8	45.0	54.9	55.0
Vehicle Noise:	**67.2**	**60.6**	**57.4**	**52.7**	**61.3**	**61.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	174
65 dBA	55
70 dBA	17
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Ponderosa Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	1300
Peak Hour Traffic:	**130**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

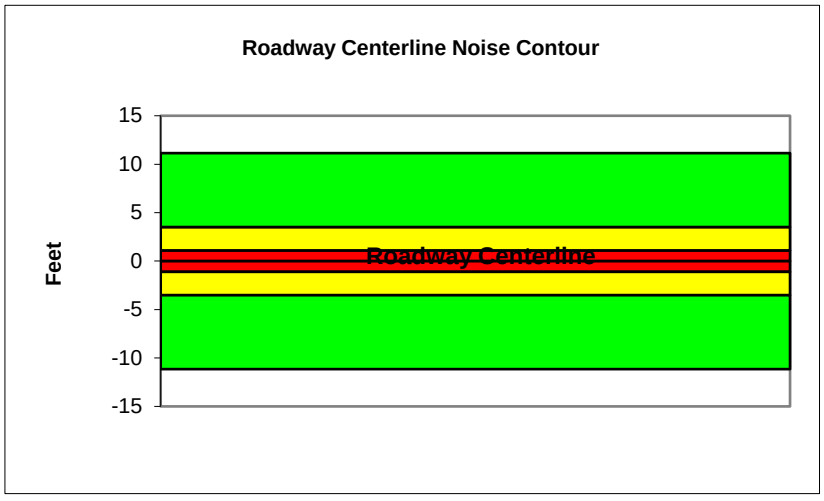
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	37.1	45.9	44.1	38.0	46.6	47.2
Medium Trucks:	48.7	40.7	34.3	32.7	41.2	41.4
Heavy Trucks:	54.9	42.9	33.9	35.1	45.5	45.6
Vehicle Noise:	**57.5**	**49.1**	**45.1**	**41.2**	**49.8**	**50.1**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	11
65 dBA	4
70 dBA	1
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Deodar Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	2000
Peak Hour Traffic:	**200**
Vehicle Speed:	25
Centerline Separation:	19

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

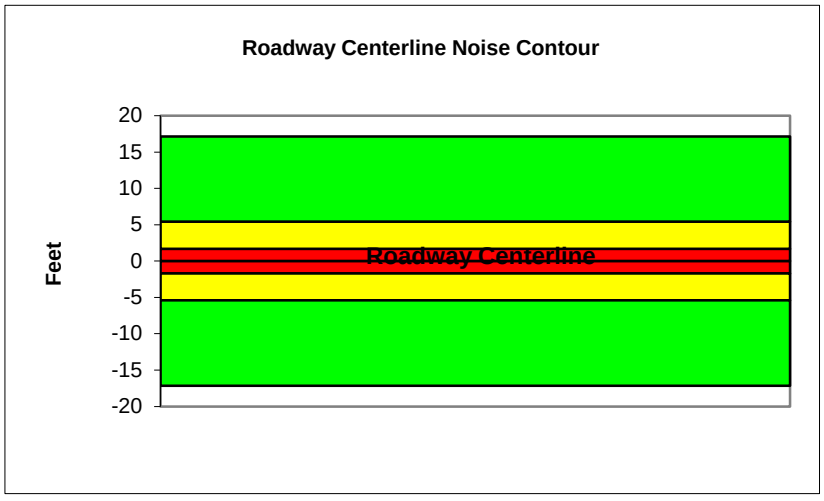
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	38.9	47.7	45.9	39.8	48.5	49.1
Medium Trucks:	50.6	42.5	36.1	34.5	43.0	43.3
Heavy Trucks:	56.7	44.8	35.7	36.9	47.3	47.4
Vehicle Noise:	**59.4**	**50.9**	**46.9**	**43.1**	**51.6**	**52.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	17
65 dBA	5
70 dBA	2
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Carroll Way		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	6000
Peak Hour Traffic:	**600**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

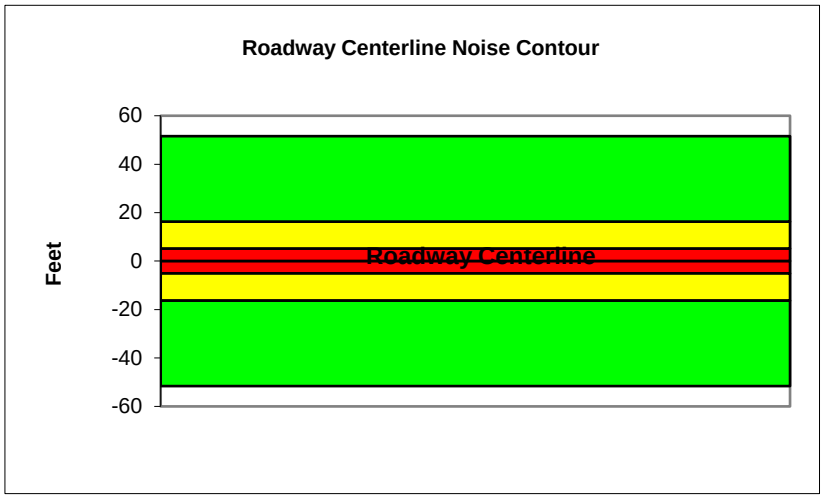
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.7	52.5	50.7	44.6	53.3	53.9
Medium Trucks:	55.4	47.3	40.9	39.3	47.8	48.1
Heavy Trucks:	61.5	49.6	40.5	41.7	52.1	52.3
Vehicle Noise:	**64.2**	**55.7**	**51.7**	**47.9**	**56.4**	**56.8**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	52
65 dBA	16
70 dBA	5
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	17th Street to Vanderberg Lane		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	9000
Peak Hour Traffic:	**900**
Vehicle Speed:	40
Centerline Separation:	30

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

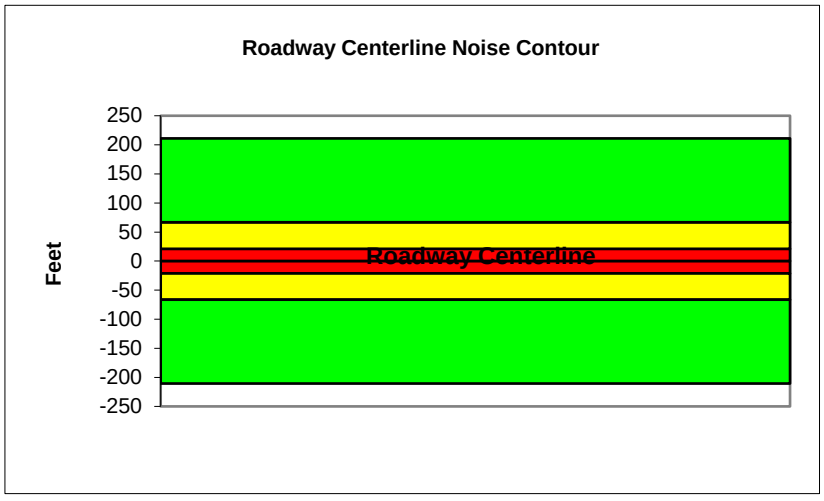
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.1	59.9	58.1	52.0	60.7	61.3
Medium Trucks:	60.1	52.0	45.6	44.1	52.5	52.8
Heavy Trucks:	64.9	53.0	43.9	45.2	54.9	55.0
Vehicle Noise:	**67.3**	**61.5**	**58.6**	**53.6**	**62.2**	**62.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	211
65 dBA	67
70 dBA	21
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	South of Vanderberg Lane		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	8200
Peak Hour Traffic:	**820**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

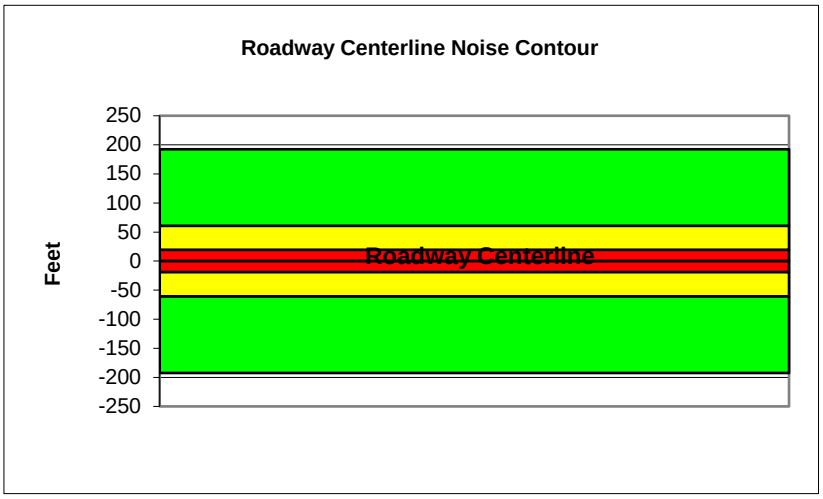
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.6	59.4	57.6	51.6	60.2	60.8
Medium Trucks:	59.6	51.5	45.1	43.6	52.1	52.3
Heavy Trucks:	64.4	52.5	43.4	44.7	54.4	54.5
Vehicle Noise:	**66.8**	**61.0**	**58.1**	**53.1**	**61.7**	**62.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	192
65 dBA	61
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Vanderberg Lane		
Road Segment:	Yorba Street to Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	3900
Peak Hour Traffic:	**390**
Vehicle Speed:	35
Centerline Separation:	26

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

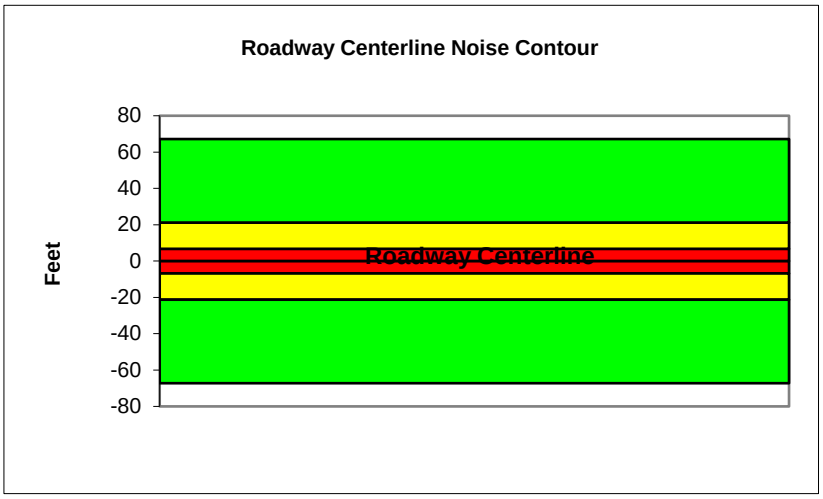
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.9	54.7	52.9	46.8	55.5	56.1
Medium Trucks:	55.6	47.5	41.2	39.6	48.1	48.3
Heavy Trucks:	60.8	48.9	39.8	41.1	51.0	51.1
Vehicle Noise:	**63.3**	**56.6**	**53.4**	**48.8**	**57.3**	**57.8**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	67
65 dBA	21
70 dBA	7
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	10200
Peak Hour Traffic:	**1020**
Vehicle Speed:	40
Centerline Separation:	24

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

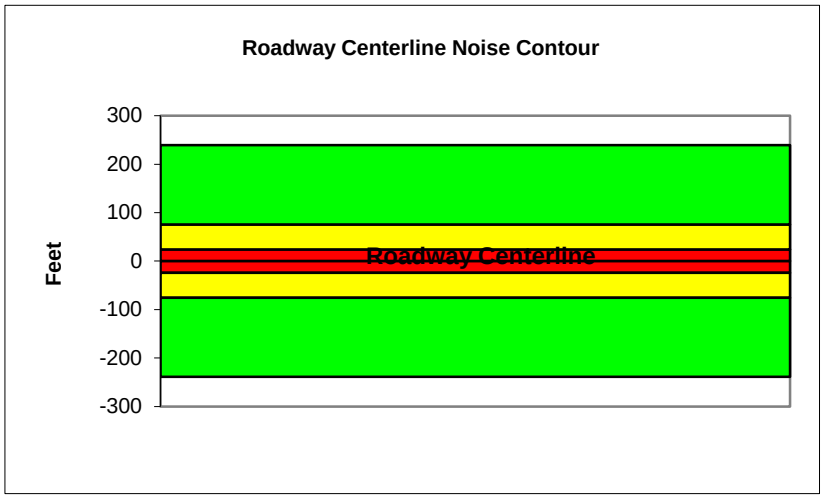
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.8	60.6	58.8	52.7	61.3	61.9
Medium Trucks:	60.7	52.7	46.3	44.7	53.2	53.4
Heavy Trucks:	65.6	53.6	44.6	45.8	55.5	55.6
Vehicle Noise:	**67.9**	**62.1**	**59.2**	**54.3**	**62.8**	**63.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	239
65 dBA	76
70 dBA	24
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Enderle Center Drive		
Road Segment:	South of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	5400
Peak Hour Traffic:	**540**
Vehicle Speed:	35
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

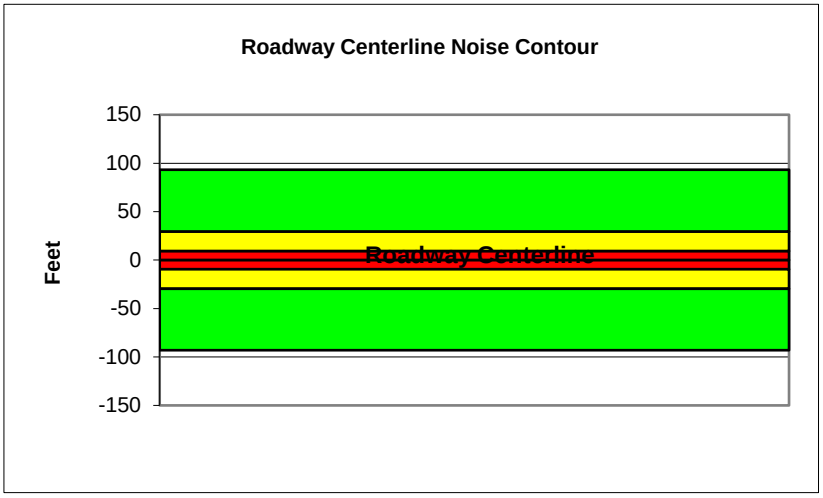
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.2	56.0	54.2	48.1	56.8	57.4
Medium Trucks:	56.9	48.9	42.5	40.9	49.4	49.6
Heavy Trucks:	62.1	50.2	41.1	42.4	52.3	52.4
Vehicle Noise:	**64.6**	**57.9**	**54.8**	**50.1**	**58.6**	**59.1**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	93
65 dBA	29
70 dBA	9
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	North of Santa Clara Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	33300
Peak Hour Traffic:	**3330**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

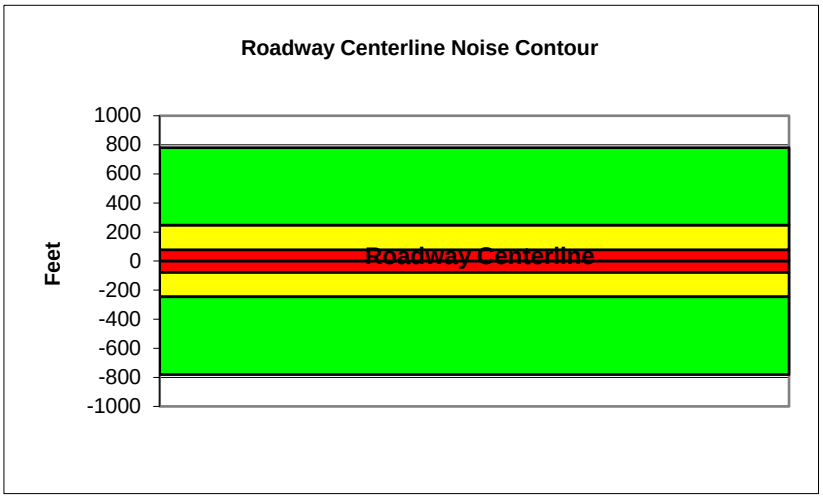
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	65.3	63.5	57.4	66.1	66.7
Medium Trucks:	65.5	57.4	51.0	49.5	57.9	58.2
Heavy Trucks:	70.3	58.4	49.3	50.6	60.3	60.4
Vehicle Noise:	**72.7**	**66.9**	**64.0**	**59.0**	**67.6**	**68.1**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	780
65 dBA	247
70 dBA	78
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	Santa Clara Avenue to North Driveway		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	32900
Peak Hour Traffic:	**3290**
Vehicle Speed:	40
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

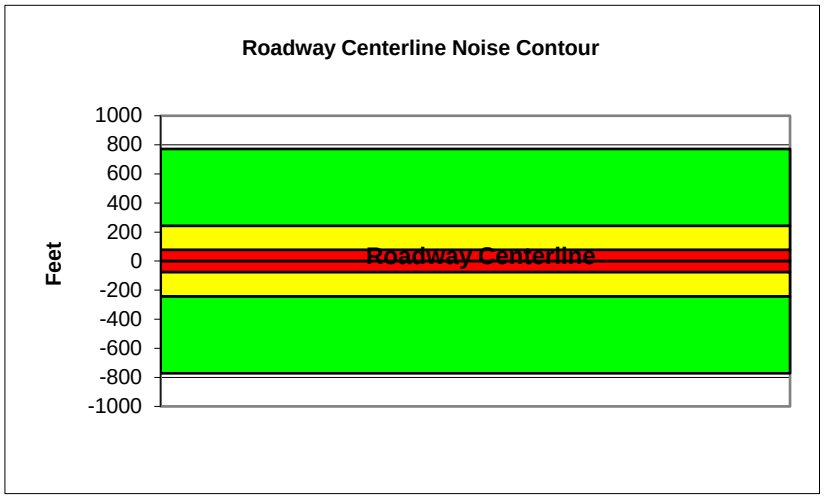
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.7	65.5	63.7	57.6	66.3	66.9
Medium Trucks:	65.7	57.6	51.2	49.7	58.1	58.4
Heavy Trucks:	70.5	58.6	49.5	50.7	60.5	60.6
Vehicle Noise:	**72.9**	**67.1**	**64.2**	**59.2**	**67.8**	**68.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	771
65 dBA	244
70 dBA	77
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	North Driveway to South Driveway		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	31600
Peak Hour Traffic:	**3160**
Vehicle Speed:	40
Centerline Separation:	40

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

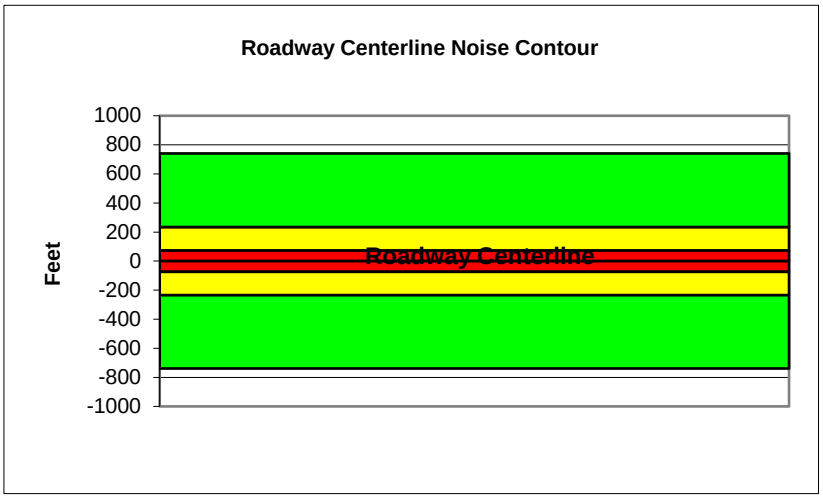
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	65.2	63.4	57.3	66.0	66.6
Medium Trucks:	65.4	57.3	50.9	49.4	57.8	58.1
Heavy Trucks:	70.2	58.3	49.2	50.4	60.2	60.3
Vehicle Noise:	**72.6**	**66.8**	**63.9**	**58.9**	**67.5**	**68.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	740
65 dBA	234
70 dBA	74
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	South Driveway to Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	33000
Peak Hour Traffic:	**3300**
Vehicle Speed:	40
Centerline Separation:	40

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

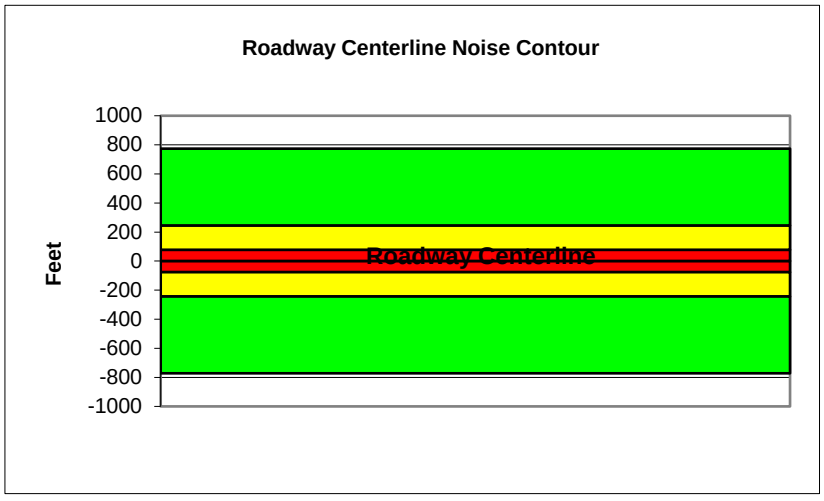
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.6	65.4	63.6	57.5	66.2	66.8
Medium Trucks:	65.6	57.5	51.1	49.5	58.0	58.3
Heavy Trucks:	70.4	58.5	49.4	50.6	60.3	60.5
Vehicle Noise:	**72.8**	**67.0**	**64.0**	**59.1**	**67.7**	**68.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	773
65 dBA	244
70 dBA	77
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	Tustin Avenue to Tustin Centre		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	32700
Peak Hour Traffic:	**3270**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

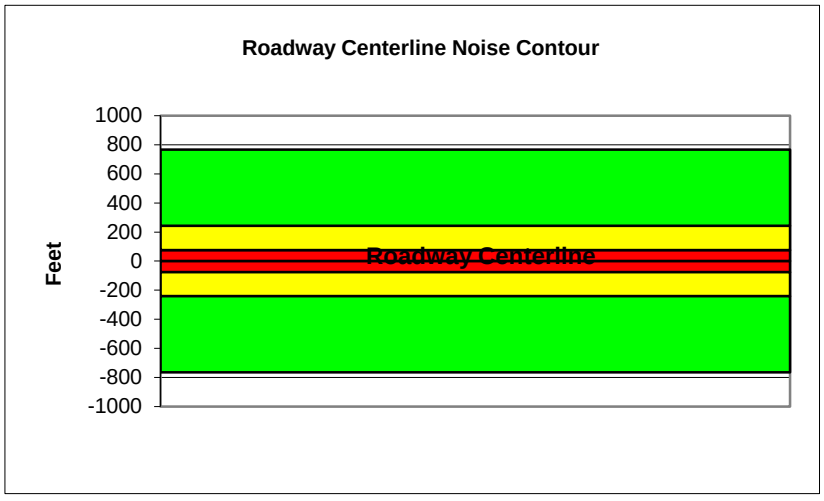
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	65.2	63.4	57.4	66.0	66.6
Medium Trucks:	65.4	57.3	51.0	49.4	57.9	58.1
Heavy Trucks:	70.2	58.3	49.3	50.5	60.2	60.3
Vehicle Noise:	**72.6**	**66.8**	**63.9**	**58.9**	**67.5**	**68.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	766
65 dBA	242
70 dBA	77
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	South of Tustin Centre		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	27200
Peak Hour Traffic:	**2720**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

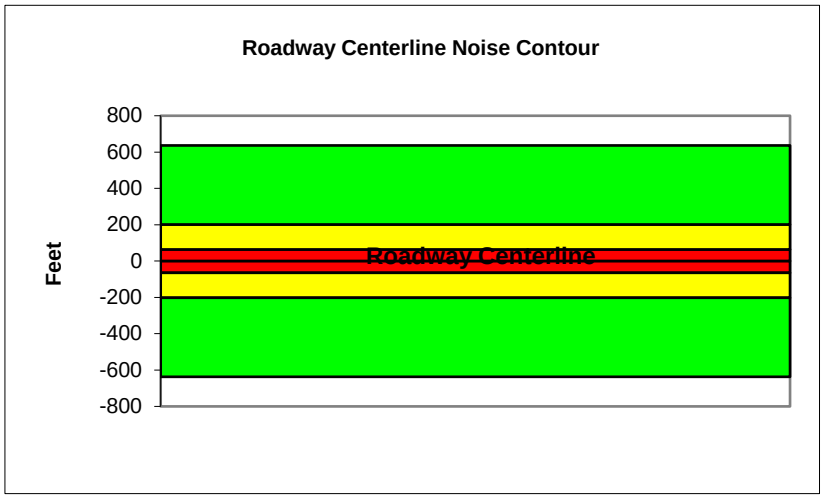
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.6	64.4	62.6	56.6	65.2	65.8
Medium Trucks:	64.6	56.5	50.2	48.6	57.1	57.3
Heavy Trucks:	69.4	57.5	48.5	49.7	59.4	59.5
Vehicle Noise:	**71.8**	**66.0**	**63.1**	**58.1**	**66.7**	**67.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	637
65 dBA	201
70 dBA	64
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	West of Cabrillo Park Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	35800
Peak Hour Traffic:	**3580**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

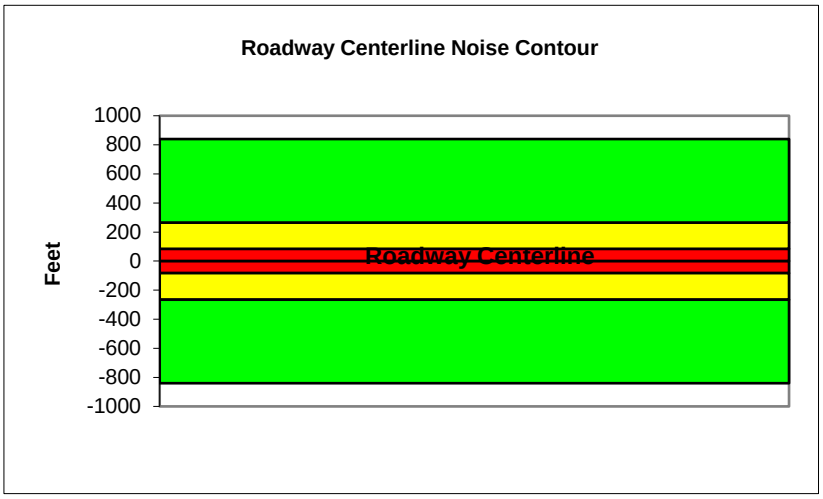
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.0	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	66.0	57.9	51.5	50.0	58.5	58.7
Heavy Trucks:	70.8	58.9	49.8	51.1	60.8	60.9
Vehicle Noise:	**73.2**	**67.4**	**64.5**	**59.5**	**68.1**	**68.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	840
65 dBA	266
70 dBA	84
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Cabrillo Park Drive to Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	38400
Peak Hour Traffic:	**3840**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

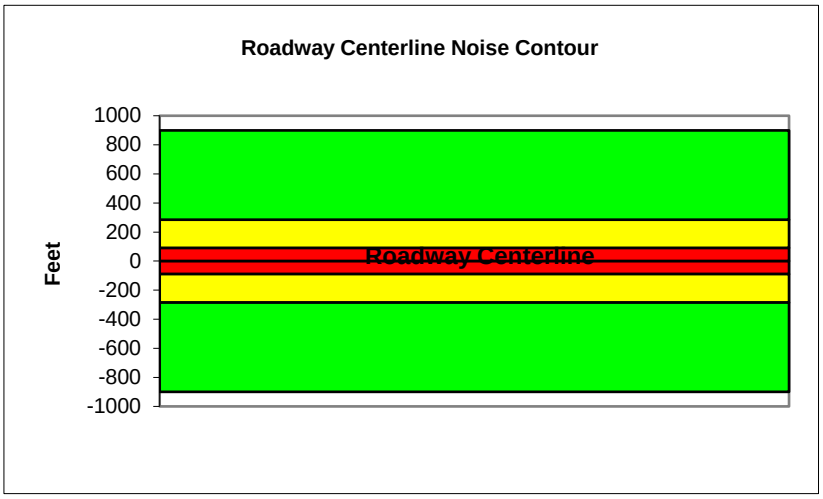
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.3	66.1	64.3	58.3	66.9	67.5
Medium Trucks:	66.3	58.2	51.8	50.3	58.8	59.0
Heavy Trucks:	71.1	59.2	50.2	51.4	61.1	61.2
Vehicle Noise:	**73.5**	**67.7**	**64.8**	**59.8**	**68.4**	**68.9**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	900
65 dBA	285
70 dBA	90
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Tustin Avenue to Ponderosa Street		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	47800
Peak Hour Traffic:	**4780**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

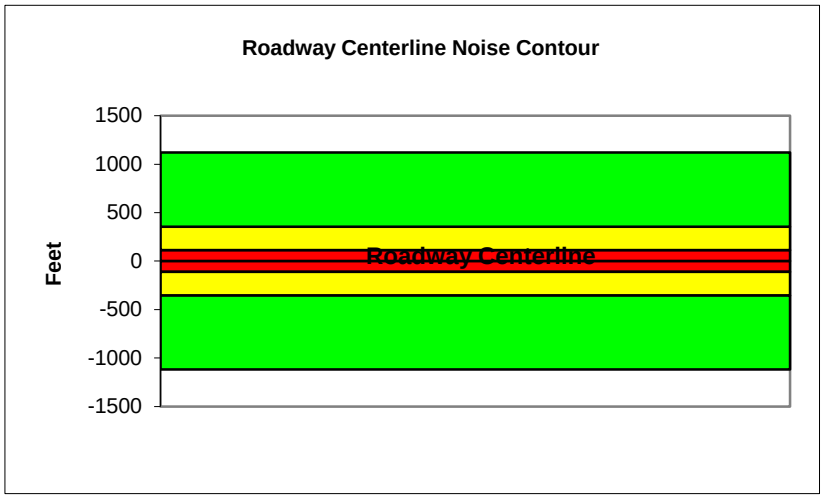
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.1	66.8	65.1	59.0	67.6	68.2
Medium Trucks:	67.0	59.0	52.6	51.0	59.5	59.7
Heavy Trucks:	71.9	59.9	50.9	52.1	61.8	61.9
Vehicle Noise:	**74.2**	**68.4**	**65.5**	**60.6**	**69.1**	**69.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	1120
65 dBA	354
70 dBA	112
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Ponderosa Street to SR-55 Southbound Ramps		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	46100
Peak Hour Traffic:	**4610**
Vehicle Speed:	40
Centerline Separation:	57

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

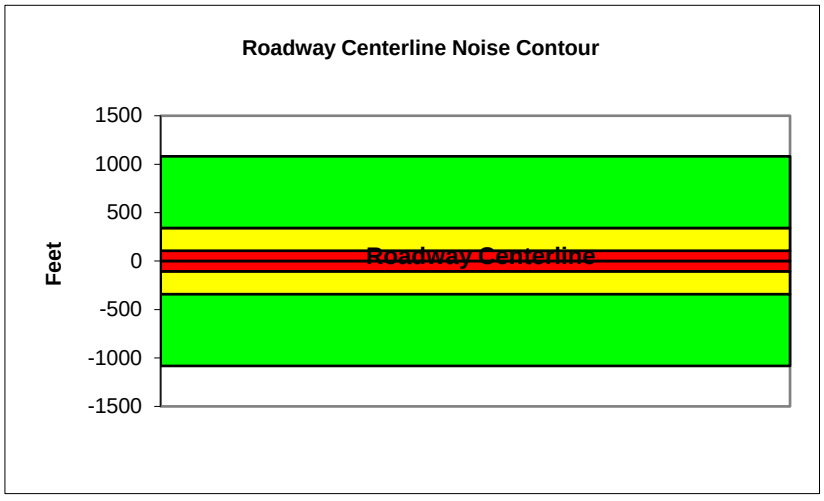
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	66.6	64.8	58.7	67.4	68.0
Medium Trucks:	66.8	58.7	52.3	50.7	59.2	59.5
Heavy Trucks:	71.6	59.7	50.6	51.8	61.6	61.7
Vehicle Noise:	**74.0**	**68.2**	**65.3**	**60.3**	**68.9**	**69.4**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	1081
65 dBA	342
70 dBA	108
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	SR-55 Southbound Ramps to SR-55 Northbound Ramps		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	46100
Peak Hour Traffic:	**4610**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

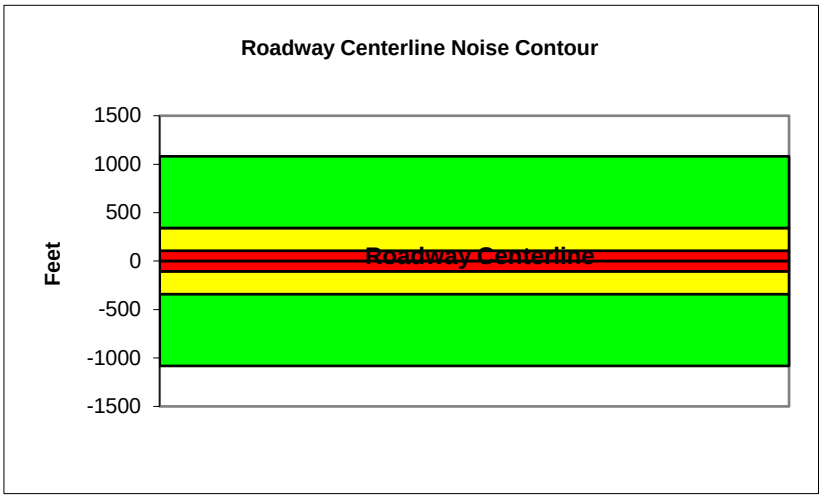
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	66.7	64.9	58.8	67.5	68.1
Medium Trucks:	66.9	58.8	52.4	50.8	59.3	59.6
Heavy Trucks:	71.7	59.8	50.7	51.9	61.7	61.8
Vehicle Noise:	**74.1**	**68.3**	**65.3**	**60.4**	**69.0**	**69.5**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	1082
65 dBA	342
70 dBA	108
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	SR-55 Northbound Ramps to Carroll Way		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	46900
Peak Hour Traffic:	**4690**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

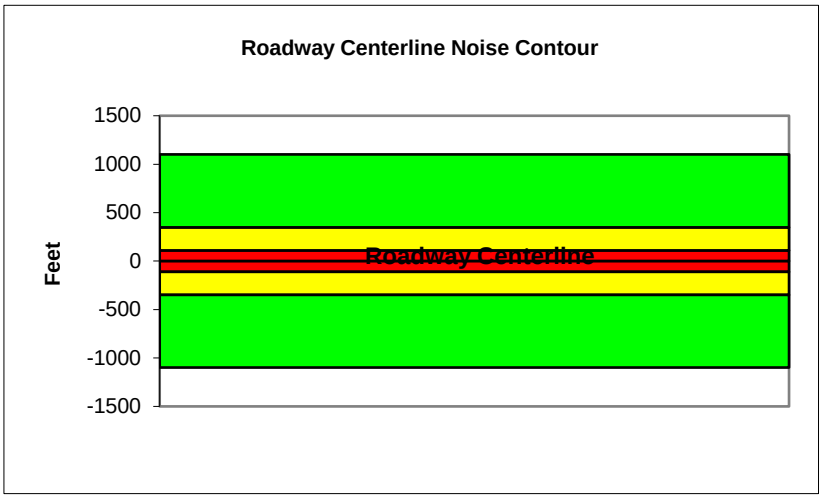
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	66.8	65.0	58.9	67.6	68.2
Medium Trucks:	67.0	58.9	52.5	50.9	59.4	59.7
Heavy Trucks:	71.8	59.9	50.8	52.0	61.8	61.9
Vehicle Noise:	**74.2**	**68.4**	**65.5**	**60.5**	**69.1**	**69.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	1099
65 dBA	348
70 dBA	110
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Carroll Way to Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	41500
Peak Hour Traffic:	**4150**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

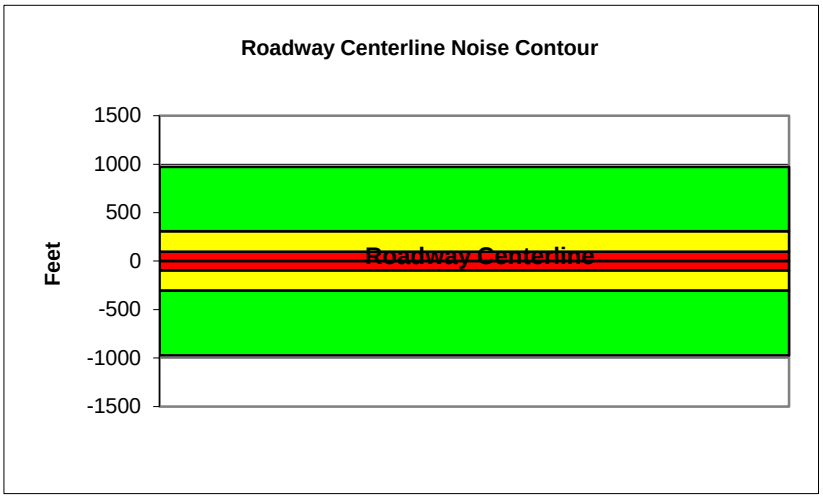
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	66.2	64.4	58.4	67.0	67.6
Medium Trucks:	66.4	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	71.3	59.3	50.3	51.5	61.2	61.3
Vehicle Noise:	**73.6**	**67.8**	**64.9**	**59.9**	**68.5**	**69.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	973
65 dBA	308
70 dBA	97
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	East of Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	38900
Peak Hour Traffic:	**3890**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

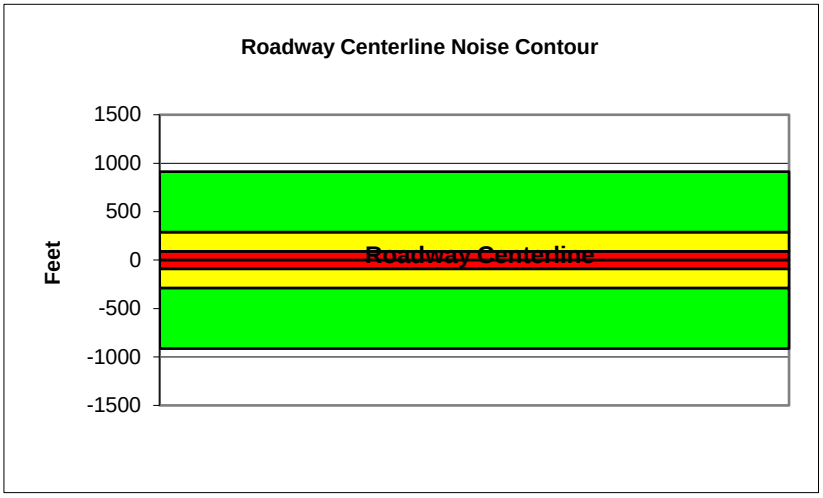
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.2	66.0	64.2	58.1	66.7	67.3
Medium Trucks:	66.1	58.1	51.7	50.1	58.6	58.8
Heavy Trucks:	71.0	59.0	50.0	51.2	60.9	61.0
Vehicle Noise:	**73.3**	**67.5**	**64.6**	**59.7**	**68.2**	**68.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	912
65 dBA	288
70 dBA	91
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Santa Clara Avenue		
Road Segment:	West of Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	12700
Peak Hour Traffic:	**1270**
Vehicle Speed:	40
Centerline Separation:	24

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

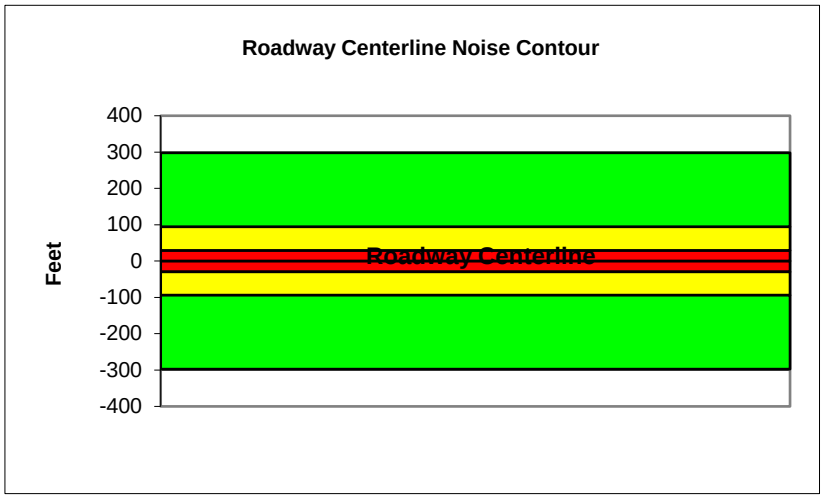
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.7	61.5	59.7	53.6	62.3	62.9
Medium Trucks:	61.7	53.6	47.2	45.7	54.1	54.4
Heavy Trucks:	66.5	54.6	45.5	46.8	56.5	56.6
Vehicle Noise:	**68.9**	**63.1**	**60.2**	**55.2**	**63.8**	**64.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	298
65 dBA	94
70 dBA	30
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Santa Clara Avenue		
Road Segment:	East of Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	12200
Peak Hour Traffic:	**1220**
Vehicle Speed:	40
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

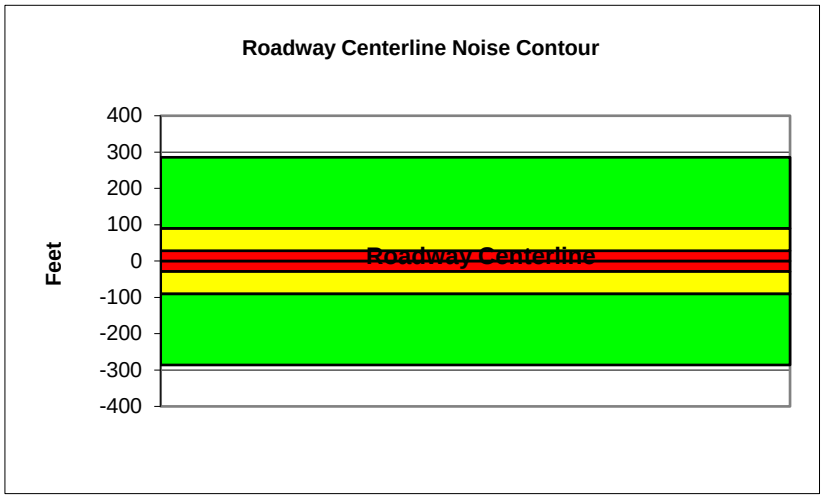
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.4	61.2	59.4	53.3	62.0	62.6
Medium Trucks:	61.4	53.3	46.9	45.3	53.8	54.1
Heavy Trucks:	66.2	54.3	45.2	46.4	56.2	56.3
Vehicle Noise:	**68.6**	**62.8**	**59.9**	**54.9**	**63.5**	**64.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	286
65 dBA	90
70 dBA	29
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Sherry Lane		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	6200
Peak Hour Traffic:	**620**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

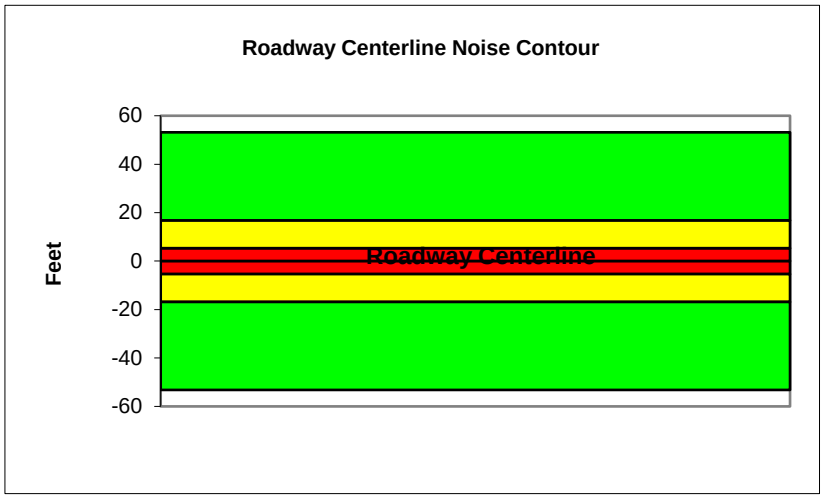
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.9	52.6	50.9	44.8	53.4	54.0
Medium Trucks:	55.5	47.4	41.1	39.5	48.0	48.2
Heavy Trucks:	61.7	49.7	40.7	41.9	52.3	52.4
Vehicle Noise:	**64.3**	**55.9**	**51.8**	**48.0**	**56.5**	**56.9**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	53
65 dBA	17
70 dBA	5
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Cabrillo Park Drive		
Road Segment:	South of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	11300
Peak Hour Traffic:	**1130**
Vehicle Speed:	35
Centerline Separation:	38

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

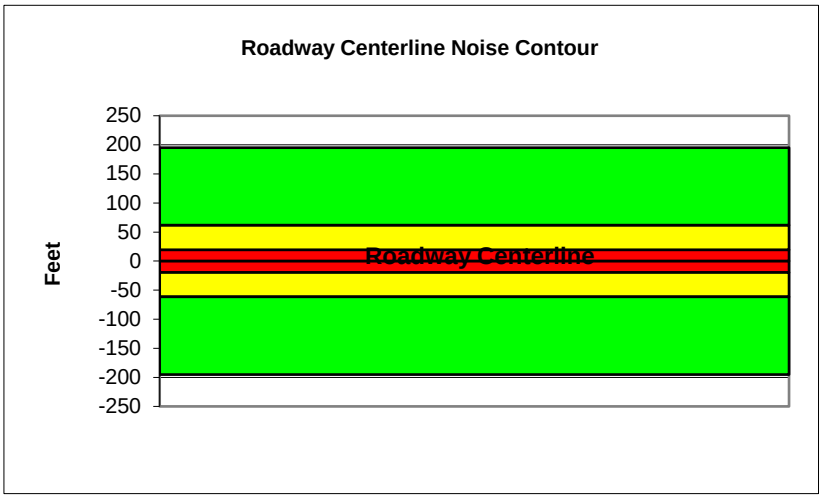
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.3	59.1	57.3	51.2	59.9	60.5
Medium Trucks:	60.0	52.0	45.6	44.0	52.5	52.7
Heavy Trucks:	65.3	53.3	44.3	45.5	55.4	55.5
Vehicle Noise:	**67.7**	**61.1**	**57.9**	**53.2**	**61.7**	**62.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	195
65 dBA	62
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Ponderosa Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	1400
Peak Hour Traffic:	**140**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

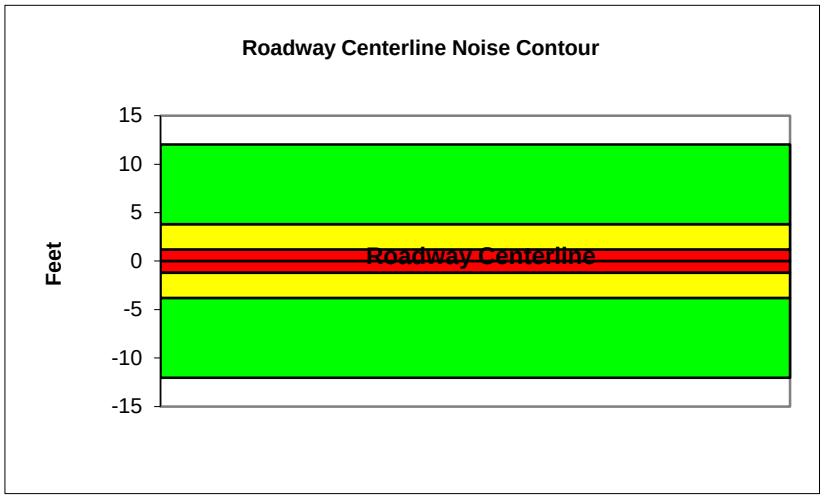
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	37.4	46.2	44.4	38.3	47.0	47.6
Medium Trucks:	49.0	41.0	34.6	33.0	41.5	41.7
Heavy Trucks:	55.2	43.3	34.2	35.4	45.8	45.9
Vehicle Noise:	**57.9**	**49.4**	**45.4**	**41.6**	**50.1**	**50.5**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	12
65 dBA	4
70 dBA	1
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Deodar Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	2300
Peak Hour Traffic:	**230**
Vehicle Speed:	25
Centerline Separation:	19

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

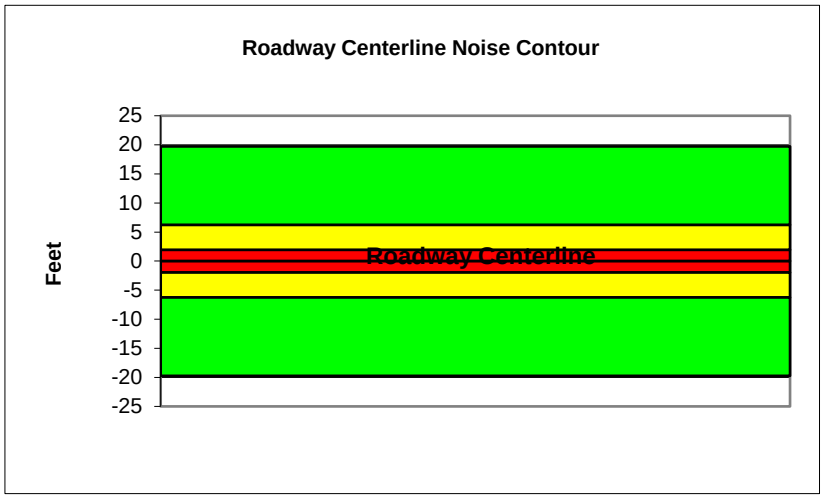
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	39.5	48.3	46.5	40.4	49.1	49.7
Medium Trucks:	51.2	43.1	36.7	35.1	43.6	43.9
Heavy Trucks:	57.3	45.4	36.3	37.5	47.9	48.1
Vehicle Noise:	**60.0**	**51.5**	**47.5**	**43.7**	**52.2**	**52.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	20
65 dBA	6
70 dBA	2
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Carroll Way		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	6700
Peak Hour Traffic:	**670**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

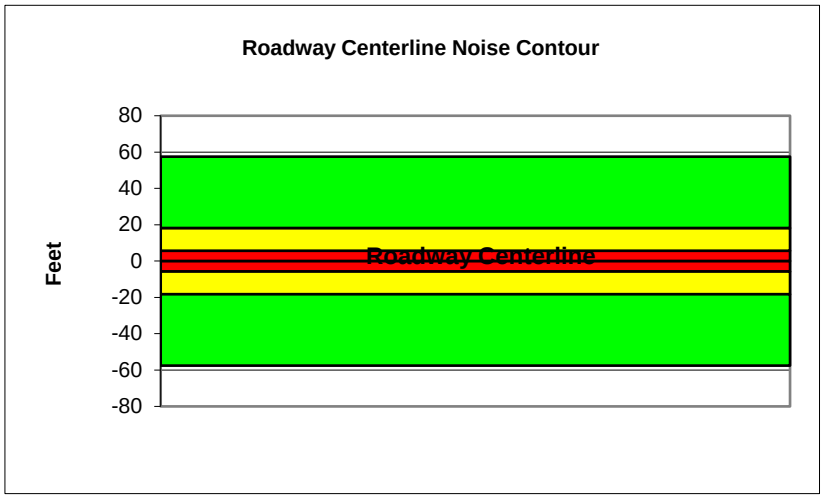
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.2	53.0	51.2	45.1	53.8	54.4
Medium Trucks:	55.8	47.8	41.4	39.8	48.3	48.5
Heavy Trucks:	62.0	50.1	41.0	42.2	52.6	52.7
Vehicle Noise:	**64.7**	**56.2**	**52.2**	**48.4**	**56.9**	**57.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	58
65 dBA	18
70 dBA	6
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	17th Street to Vanderberg Lane		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	10100
Peak Hour Traffic:	**1010**
Vehicle Speed:	40
Centerline Separation:	30

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

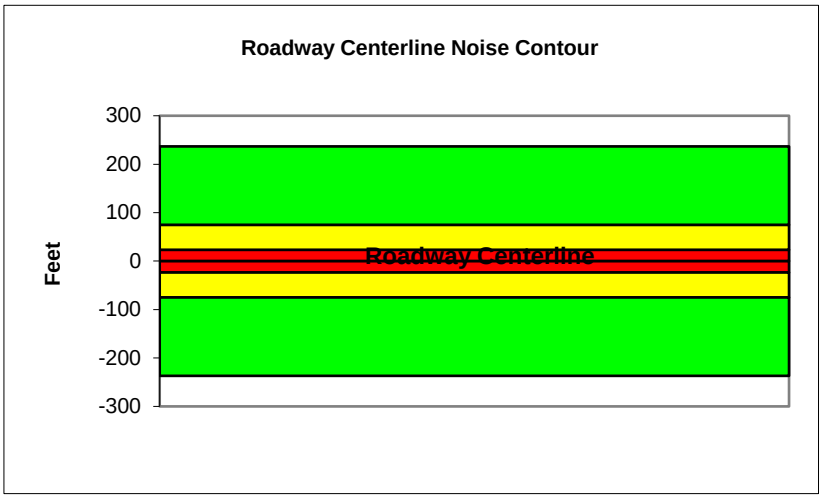
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.6	60.4	58.6	52.5	61.2	61.8
Medium Trucks:	60.6	52.5	46.1	44.6	53.0	53.3
Heavy Trucks:	65.4	53.5	44.4	45.7	55.4	55.5
Vehicle Noise:	**67.8**	**62.0**	**59.1**	**54.1**	**62.7**	**63.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	237
65 dBA	75
70 dBA	24
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	South of Vanderberg Lane		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	9200
Peak Hour Traffic:	**920**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

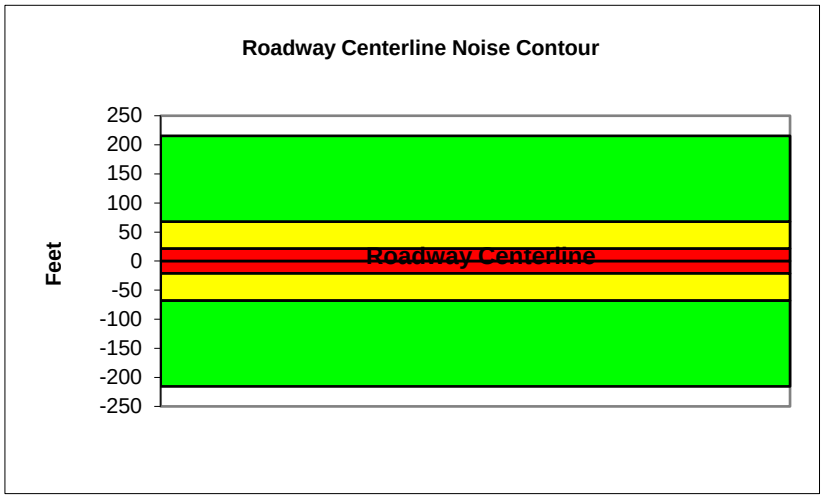
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.1	59.9	58.1	52.0	60.7	61.3
Medium Trucks:	60.1	52.0	45.6	44.1	52.6	52.8
Heavy Trucks:	64.9	53.0	43.9	45.2	54.9	55.0
Vehicle Noise:	**67.3**	**61.5**	**58.6**	**53.6**	**62.2**	**62.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	215
65 dBA	68
70 dBA	22
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Vanderberg Lane		
Road Segment:	Yorba Street to Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	4400
Peak Hour Traffic:	**440**
Vehicle Speed:	35
Centerline Separation:	26

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

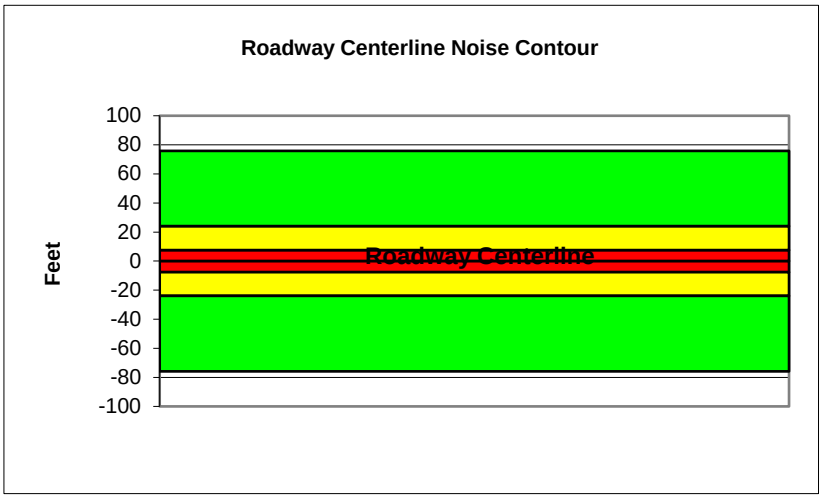
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.4	55.2	53.4	47.3	56.0	56.6
Medium Trucks:	56.1	48.1	41.7	40.1	48.6	48.8
Heavy Trucks:	61.4	49.4	40.4	41.6	51.5	51.6
Vehicle Noise:	**63.8**	**57.2**	**54.0**	**49.3**	**57.8**	**58.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	76
65 dBA	24
70 dBA	8
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	12700
Peak Hour Traffic:	**1270**
Vehicle Speed:	40
Centerline Separation:	24

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

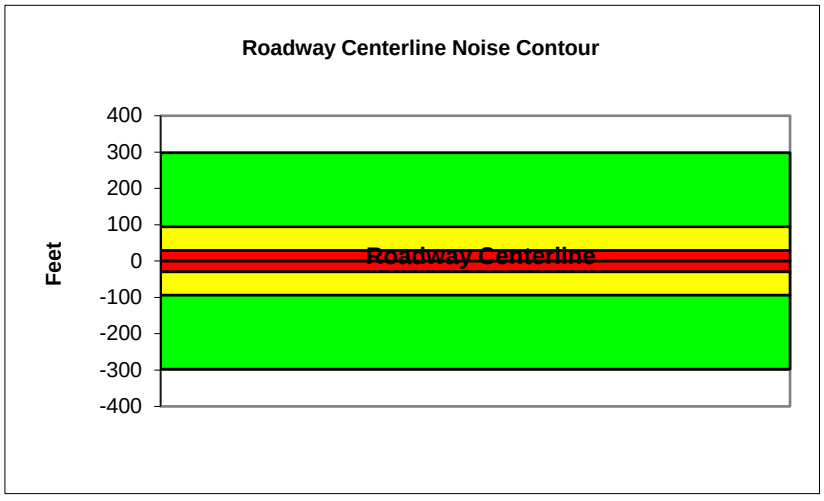
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.7	61.5	59.7	53.6	62.3	62.9
Medium Trucks:	61.7	53.6	47.2	45.7	54.1	54.4
Heavy Trucks:	66.5	54.6	45.5	46.8	56.5	56.6
Vehicle Noise:	**68.9**	**63.1**	**60.2**	**55.2**	**63.8**	**64.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	298
65 dBA	94
70 dBA	30
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Enderle Center Drive		
Road Segment:	South of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	6100
Peak Hour Traffic:	**610**
Vehicle Speed:	35
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

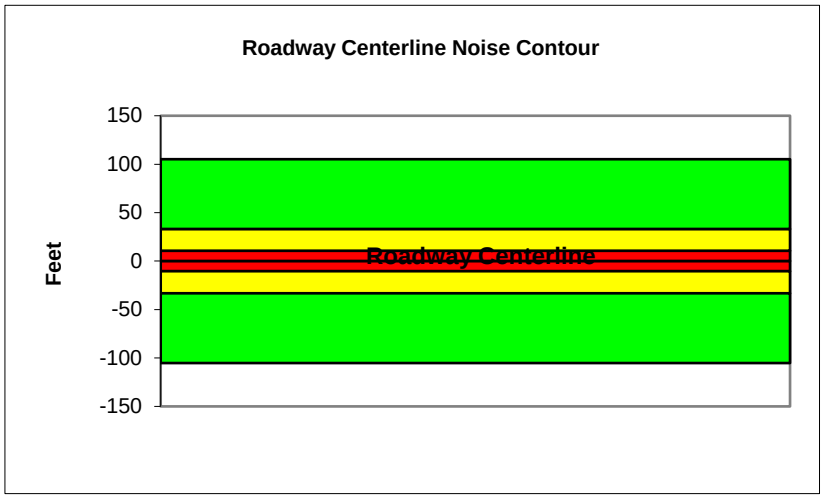
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.7	56.5	54.7	48.6	57.3	57.9
Medium Trucks:	57.5	49.4	43.0	41.4	49.9	50.2
Heavy Trucks:	62.7	50.7	41.7	42.9	52.8	52.9
Vehicle Noise:	**65.1**	**58.5**	**55.3**	**50.6**	**59.2**	**59.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	105
65 dBA	33
70 dBA	11
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	North of Santa Clara Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	33600
Peak Hour Traffic:	**3360**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

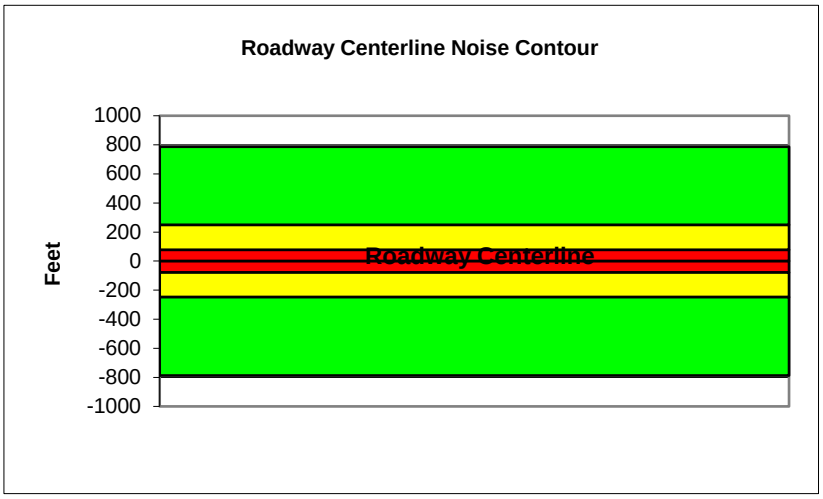
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.6	65.3	63.6	57.5	66.1	66.7
Medium Trucks:	65.5	57.5	51.1	49.5	58.0	58.2
Heavy Trucks:	70.4	58.4	49.4	50.6	60.3	60.4
Vehicle Noise:	**72.7**	**66.9**	**64.0**	**59.1**	**67.6**	**68.1**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	787
65 dBA	249
70 dBA	79
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	Santa Clara Avenue to North Driveway		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	35100
Peak Hour Traffic:	**3510**
Vehicle Speed:	40
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

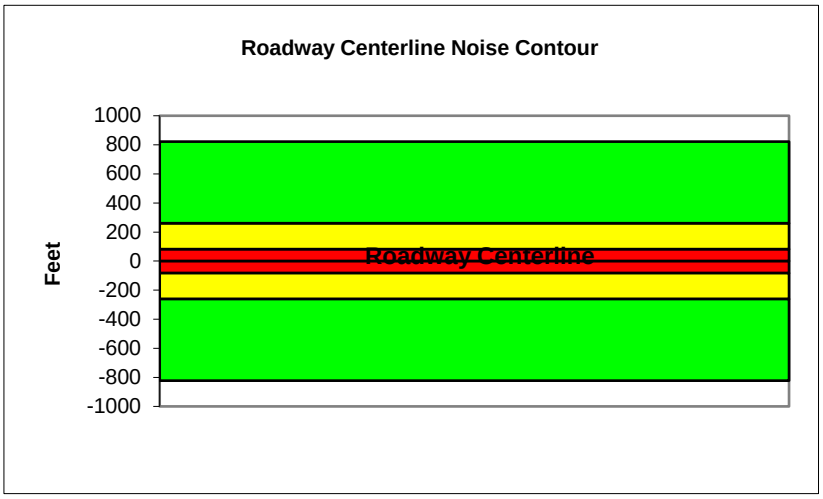
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.0	65.8	64.0	57.9	66.6	67.2
Medium Trucks:	66.0	57.9	51.5	49.9	58.4	58.7
Heavy Trucks:	70.8	58.9	49.8	51.0	60.7	60.9
Vehicle Noise:	**73.2**	**67.4**	**64.4**	**59.5**	**68.1**	**68.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	823
65 dBA	260
70 dBA	82
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	North Driveway to South Driveway		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	33500
Peak Hour Traffic:	**3350**
Vehicle Speed:	40
Centerline Separation:	40

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

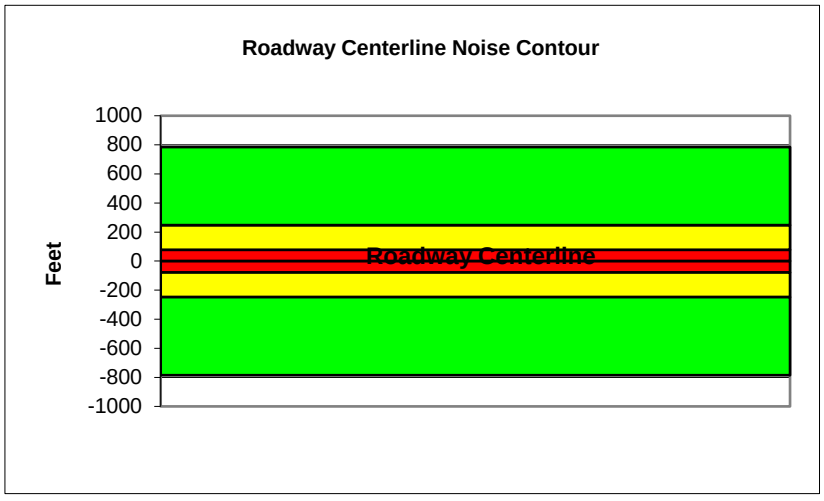
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.7	65.5	63.7	57.6	66.2	66.8
Medium Trucks:	65.6	57.6	51.2	49.6	58.1	58.3
Heavy Trucks:	70.5	58.5	49.5	50.7	60.4	60.5
Vehicle Noise:	**72.8**	**67.0**	**64.1**	**59.2**	**67.7**	**68.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	785
65 dBA	248
70 dBA	79
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	South Driveway to Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	34700
Peak Hour Traffic:	**3470**
Vehicle Speed:	40
Centerline Separation:	40

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

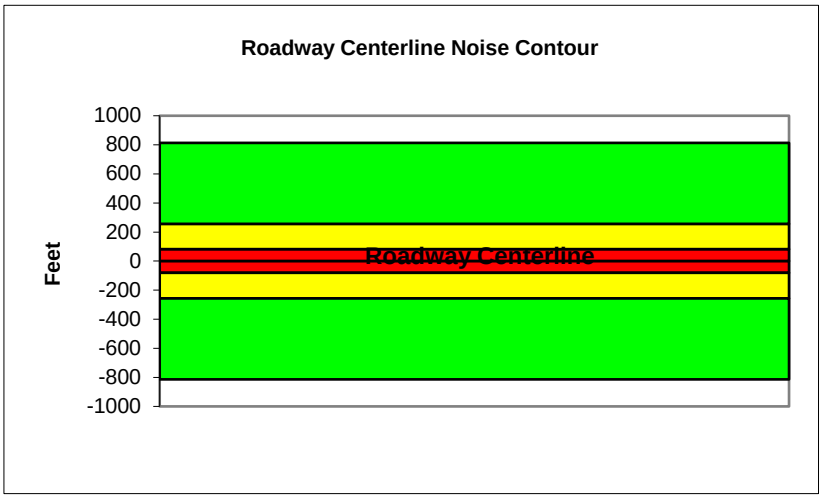
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	65.6	63.8	57.7	66.4	67.0
Medium Trucks:	65.8	57.7	51.3	49.8	58.2	58.5
Heavy Trucks:	70.6	58.7	49.6	50.9	60.6	60.7
Vehicle Noise:	**73.0**	**67.2**	**64.3**	**59.3**	**67.9**	**68.4**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	813
65 dBA	257
70 dBA	81
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	Tustin Avenue to Tustin Centre		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	33000
Peak Hour Traffic:	**3300**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

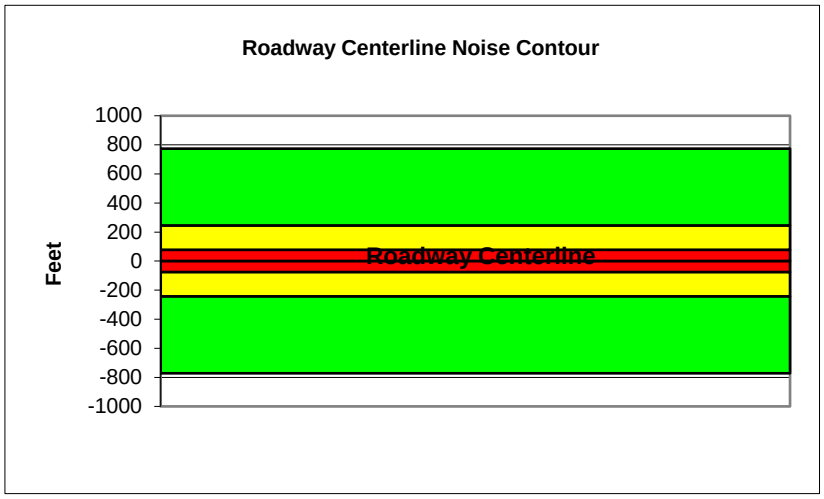
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	65.3	63.5	57.4	66.0	66.7
Medium Trucks:	65.4	57.4	51.0	49.4	57.9	58.1
Heavy Trucks:	70.3	58.4	49.3	50.5	60.2	60.4
Vehicle Noise:	**72.7**	**66.8**	**63.9**	**59.0**	**67.6**	**68.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	773
65 dBA	244
70 dBA	77
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Tustin Avenue		
Road Segment:	South of Tustin Centre		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	27500
Peak Hour Traffic:	**2750**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

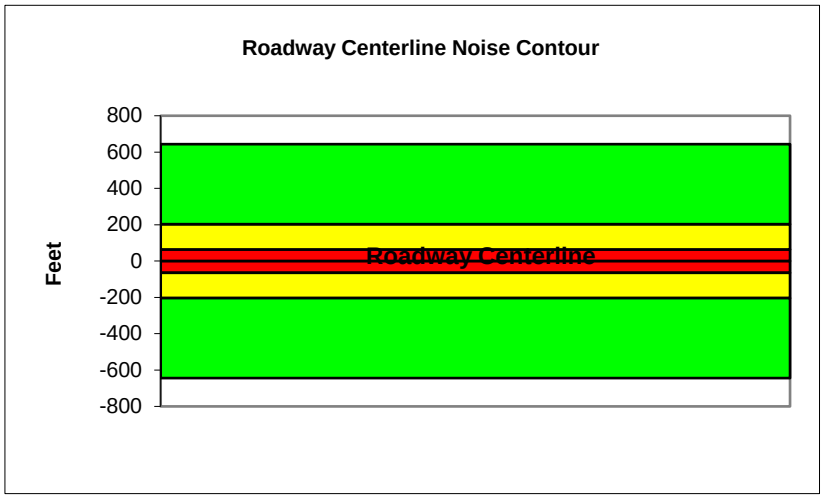
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.7	64.5	62.7	56.6	65.3	65.9
Medium Trucks:	64.6	56.6	50.2	48.6	57.1	57.3
Heavy Trucks:	69.5	57.6	48.5	49.7	59.4	59.6
Vehicle Noise:	**71.9**	**66.1**	**63.1**	**58.2**	**66.8**	**67.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	644
65 dBA	204
70 dBA	64
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	West of Cabrillo Park Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	36100
Peak Hour Traffic:	**3610**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

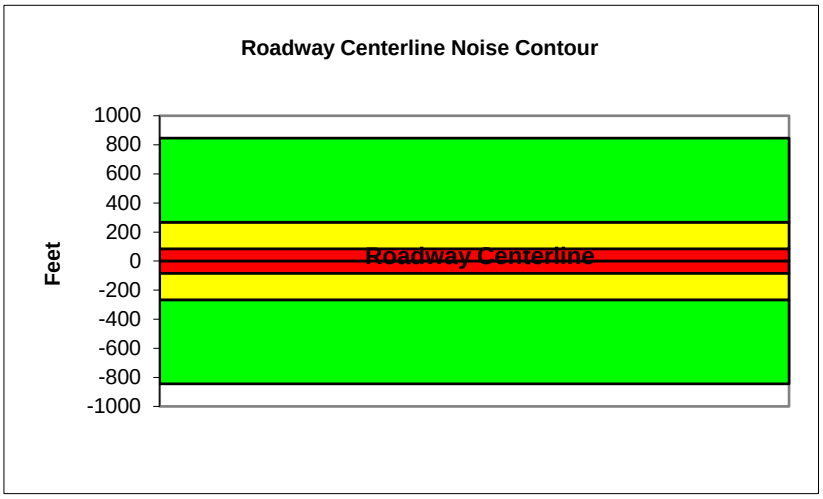
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	65.9	64.1	58.0	66.6	67.2
Medium Trucks:	66.0	58.0	51.6	50.0	58.5	58.7
Heavy Trucks:	70.9	58.9	49.9	51.1	60.8	60.9
Vehicle Noise:	**73.3**	**67.4**	**64.5**	**59.6**	**68.1**	**68.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	846
65 dBA	267
70 dBA	85
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Cabrillo Park Drive to Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	38900
Peak Hour Traffic:	**3890**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

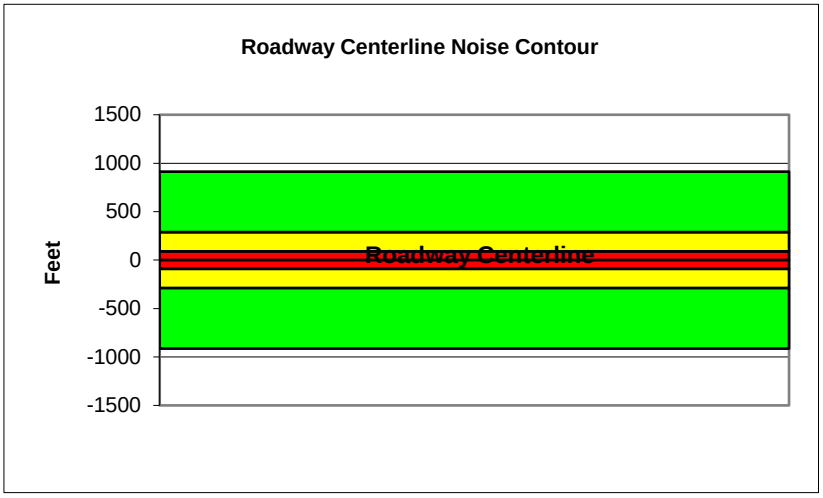
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.4	66.2	64.4	58.3	67.0	67.6
Medium Trucks:	66.4	58.3	51.9	50.3	58.8	59.1
Heavy Trucks:	71.2	59.3	50.2	51.4	61.1	61.3
Vehicle Noise:	**73.6**	**67.8**	**64.8**	**59.9**	**68.5**	**69.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	912
65 dBA	289
70 dBA	91
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Tustin Avenue to Ponderosa Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	49200
Peak Hour Traffic:	**4920**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

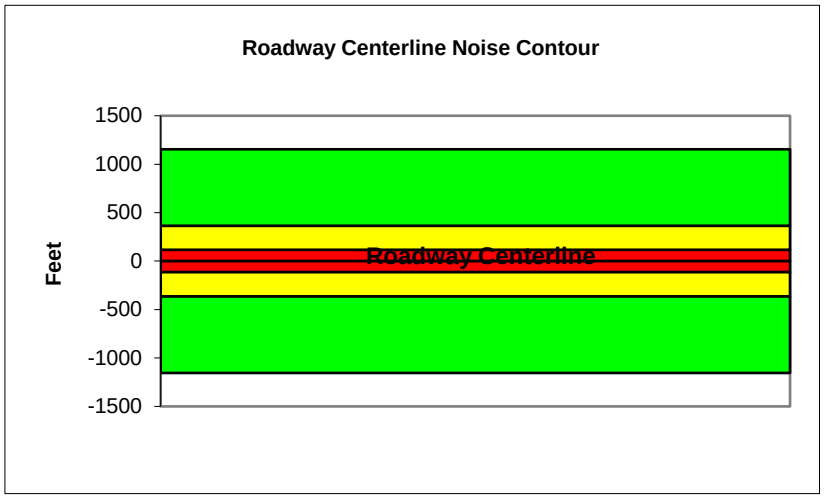
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.2	67.0	65.2	59.1	67.8	68.4
Medium Trucks:	67.1	59.1	52.7	51.1	59.6	59.8
Heavy Trucks:	72.0	60.1	51.0	52.2	61.9	62.1
Vehicle Noise:	**74.4**	**68.6**	**65.6**	**60.7**	**69.3**	**69.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	1154
65 dBA	365
70 dBA	115
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Ponderosa Street to SR-55 Southbound Ramps		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	47600
Peak Hour Traffic:	**4760**
Vehicle Speed:	40
Centerline Separation:	57

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

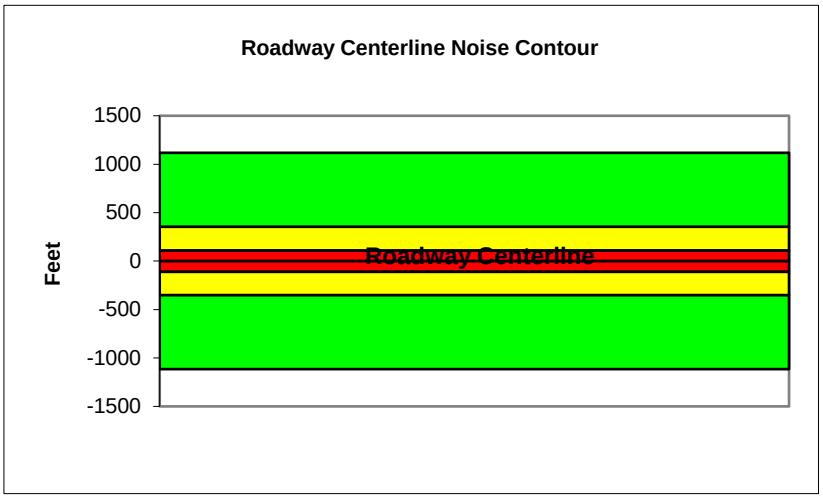
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	66.7	64.9	58.9	67.5	68.1
Medium Trucks:	66.9	58.8	52.5	50.9	59.4	59.6
Heavy Trucks:	71.8	59.8	50.8	52.0	61.7	61.8
Vehicle Noise:	**74.1**	**68.3**	**65.4**	**60.4**	**69.0**	**69.5**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	1117
65 dBA	353
70 dBA	112
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	SR-55 Southbound Ramps to SR-55 Northbound Ramps		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	47100
Peak Hour Traffic:	**4710**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

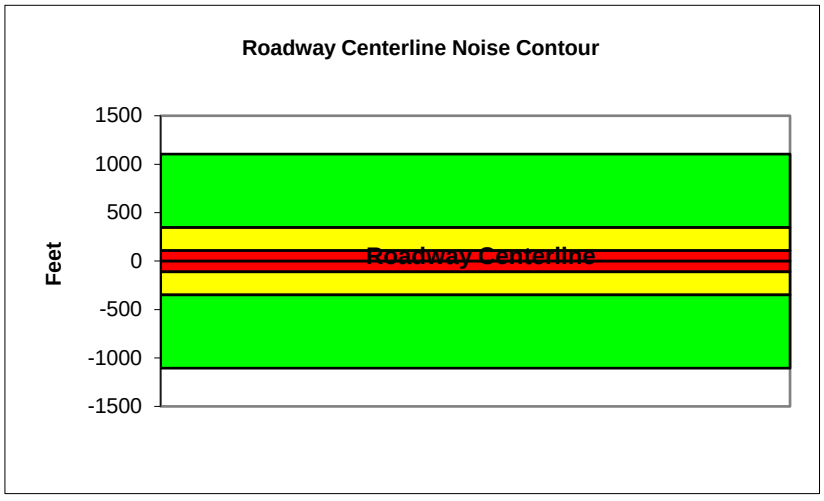
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.0	66.8	65.0	58.9	67.6	68.2
Medium Trucks:	67.0	58.9	52.5	50.9	59.4	59.7
Heavy Trucks:	71.8	59.9	50.8	52.0	61.7	61.9
Vehicle Noise:	**74.2**	**68.4**	**65.4**	**60.5**	**69.1**	**69.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	1104
65 dBA	349
70 dBA	110
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	SR-55 Northbound Ramps to Carroll Way		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	47400
Peak Hour Traffic:	**4740**
Vehicle Speed:	40
Centerline Separation:	48

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

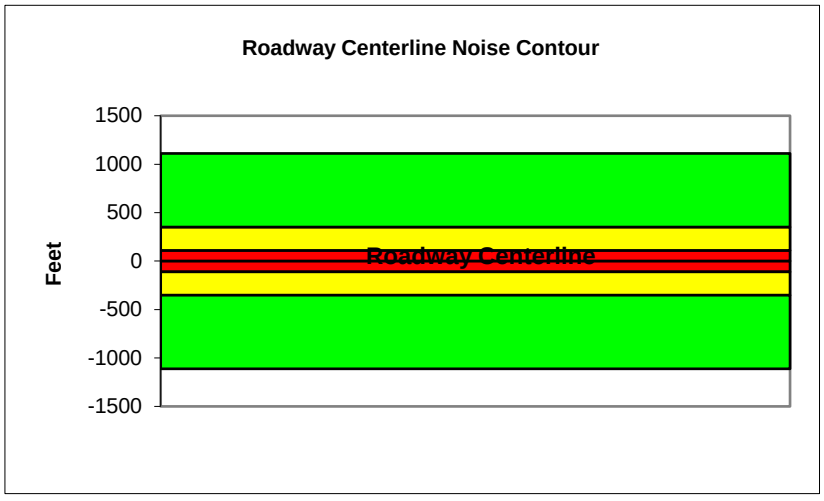
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.1	66.8	65.1	59.0	67.6	68.2
Medium Trucks:	67.0	58.9	52.6	51.0	59.5	59.7
Heavy Trucks:	71.9	59.9	50.9	52.1	61.8	61.9
Vehicle Noise:	**74.2**	**68.4**	**65.5**	**60.5**	**69.1**	**69.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	1112
65 dBA	352
70 dBA	111
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	Carroll Way to Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	41800
Peak Hour Traffic:	**4180**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

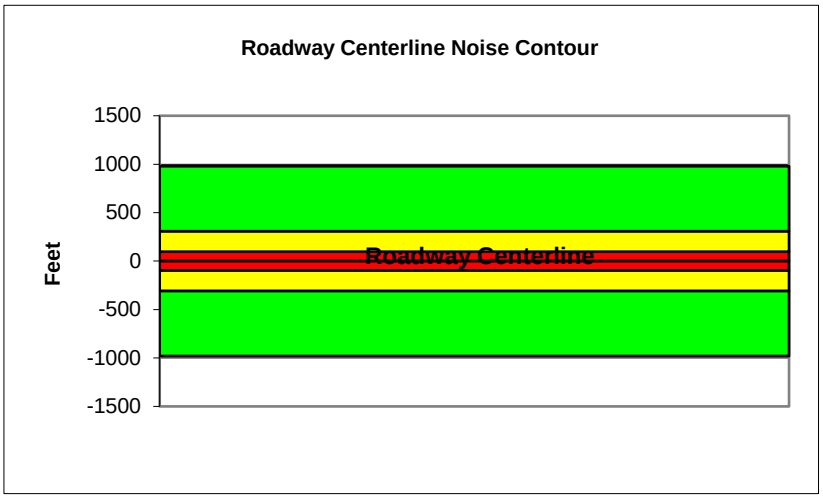
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	66.3	64.5	58.4	67.0	67.7
Medium Trucks:	66.4	58.4	52.0	50.4	58.9	59.1
Heavy Trucks:	71.3	59.3	50.3	51.5	61.2	61.4
Vehicle Noise:	**73.7**	**67.8**	**64.9**	**60.0**	**68.6**	**69.0**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	980
65 dBA	310
70 dBA	98
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	17th Street		
Road Segment:	East of Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	39200
Peak Hour Traffic:	**3920**
Vehicle Speed:	40
Centerline Separation:	50

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

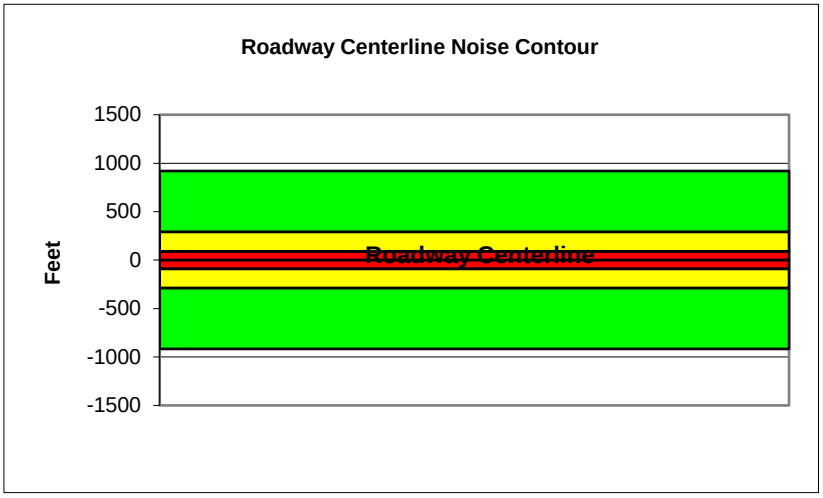
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.2	66.0	64.2	58.1	66.8	67.4
Medium Trucks:	66.2	58.1	51.7	50.1	58.6	58.9
Heavy Trucks:	71.0	59.1	50.0	51.2	60.9	61.1
Vehicle Noise:	**73.4**	**67.6**	**64.6**	**59.7**	**68.3**	**68.8**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	918
65 dBA	290
70 dBA	92
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Santa Clara Avenue		
Road Segment:	West of Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	13000
Peak Hour Traffic:	**1300**
Vehicle Speed:	40
Centerline Separation:	24

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

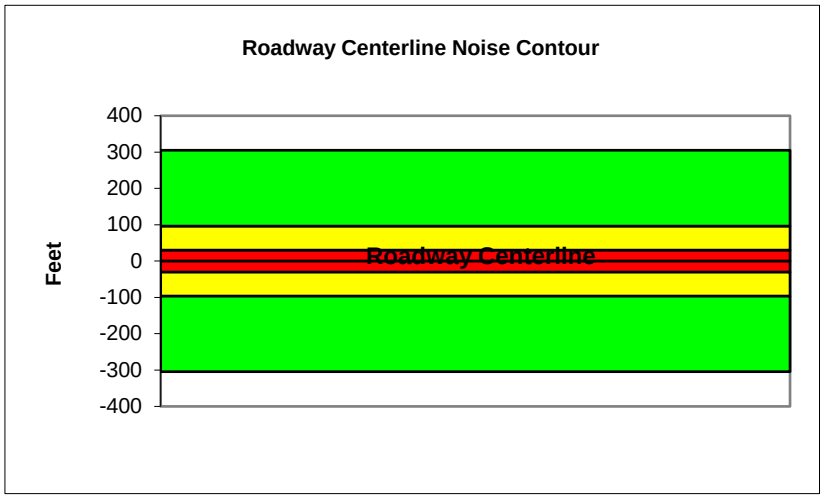
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.8	61.6	59.8	53.7	62.4	63.0
Medium Trucks:	61.8	53.7	47.3	45.8	54.2	54.5
Heavy Trucks:	66.6	54.7	45.6	46.9	56.6	56.7
Vehicle Noise:	**69.0**	**63.2**	**60.3**	**55.3**	**63.9**	**64.4**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	305
65 dBA	96
70 dBA	30
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Santa Clara Avenue		
Road Segment:	East of Tustin Avenue		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	12500
Peak Hour Traffic:	**1250**
Vehicle Speed:	40
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

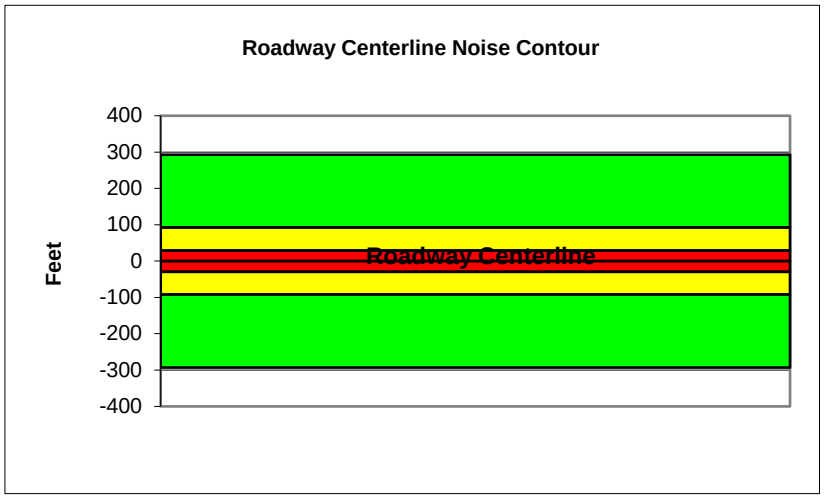
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.5	61.3	59.5	53.4	62.1	62.7
Medium Trucks:	61.5	53.4	47.0	45.5	53.9	54.2
Heavy Trucks:	66.3	54.4	45.3	46.5	56.3	56.4
Vehicle Noise:	**68.7**	**62.9**	**60.0**	**55.0**	**63.6**	**64.1**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	293
65 dBA	93
70 dBA	29
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Sherry Lane		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	6200
Peak Hour Traffic:	**620**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

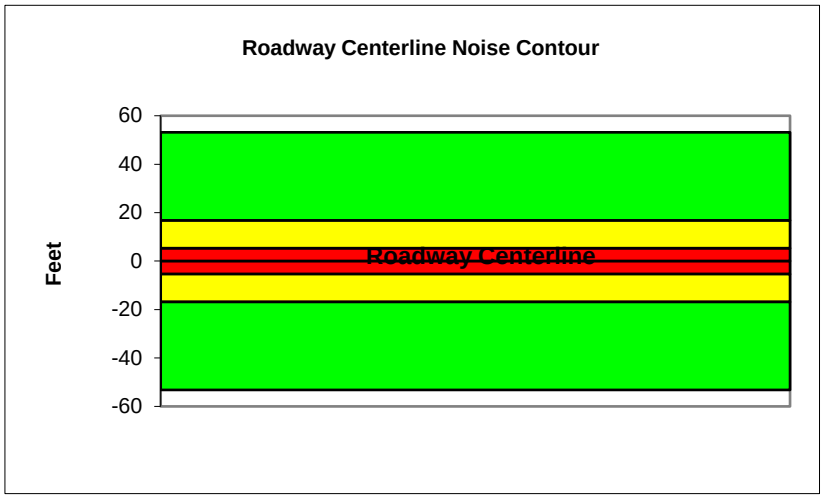
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.9	52.6	50.9	44.8	53.4	54.0
Medium Trucks:	55.5	47.4	41.1	39.5	48.0	48.2
Heavy Trucks:	61.7	49.7	40.7	41.9	52.3	52.4
Vehicle Noise:	**64.3**	**55.9**	**51.8**	**48.0**	**56.5**	**56.9**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	53
65 dBA	17
70 dBA	5
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Cabrillo Park Drive		
Road Segment:	South of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	11500
Peak Hour Traffic:	**1150**
Vehicle Speed:	35
Centerline Separation:	38

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

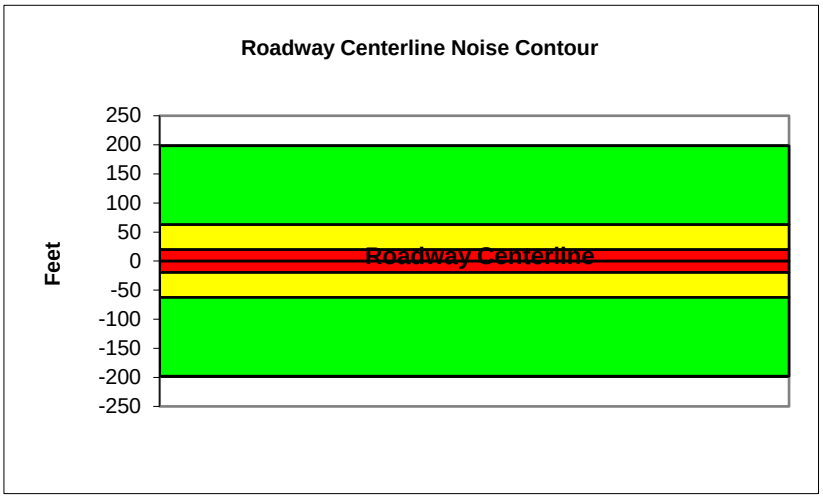
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.4	59.2	57.4	51.3	60.0	60.6
Medium Trucks:	60.1	52.0	45.7	44.1	52.6	52.8
Heavy Trucks:	65.3	53.4	44.3	45.6	55.5	55.6
Vehicle Noise:	**67.8**	**61.1**	**57.9**	**53.3**	**61.8**	**62.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	198
65 dBA	63
70 dBA	20
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Ponderosa Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	2100
Peak Hour Traffic:	**210**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

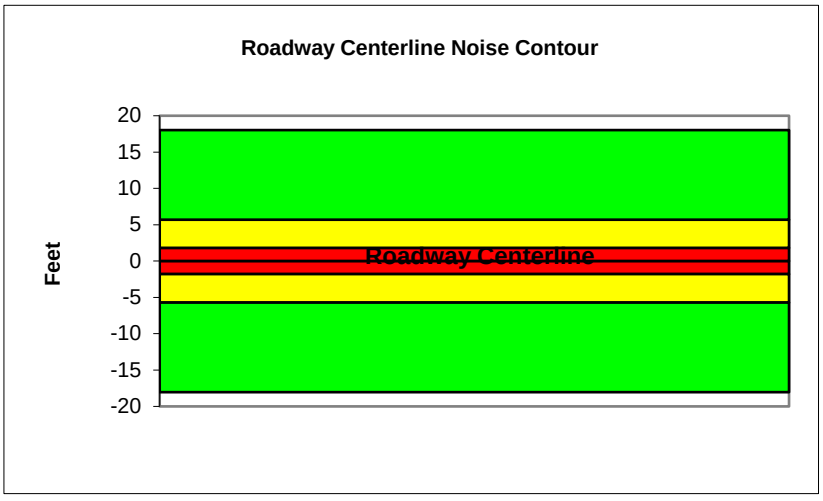
UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	39.2	47.9	46.1	40.1	48.7	49.3
Medium Trucks:	50.8	42.7	36.4	34.8	43.3	43.5
Heavy Trucks:	57.0	45.0	36.0	37.2	47.6	47.7
Vehicle Noise:	**59.6**	**51.2**	**47.1**	**43.3**	**51.8**	**52.2**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	18
65 dBA	6
70 dBA	2
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Deodar Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	2300
Peak Hour Traffic:	**230**
Vehicle Speed:	25
Centerline Separation:	19

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

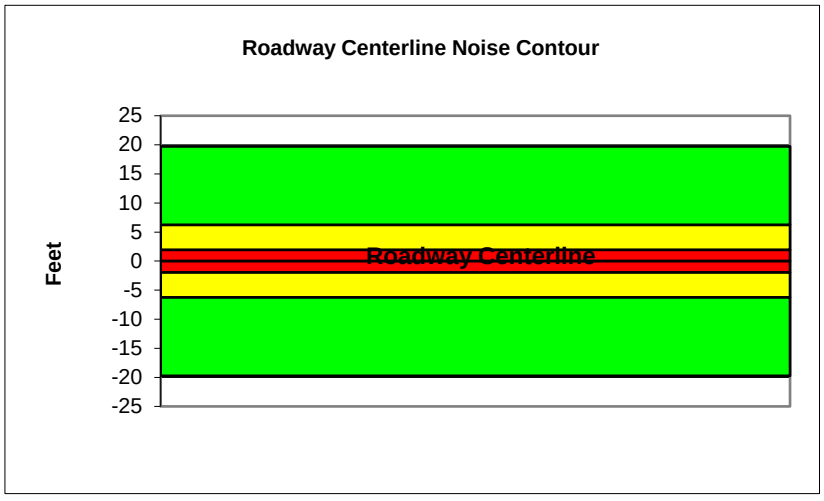
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	39.5	48.3	46.5	40.4	49.1	49.7
Medium Trucks:	51.2	43.1	36.7	35.1	43.6	43.9
Heavy Trucks:	57.3	45.4	36.3	37.5	47.9	48.1
Vehicle Noise:	**60.0**	**51.5**	**47.5**	**43.7**	**52.2**	**52.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	20
65 dBA	6
70 dBA	2
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Carroll Way		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	6700
Peak Hour Traffic:	**670**
Vehicle Speed:	25
Centerline Separation:	17

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

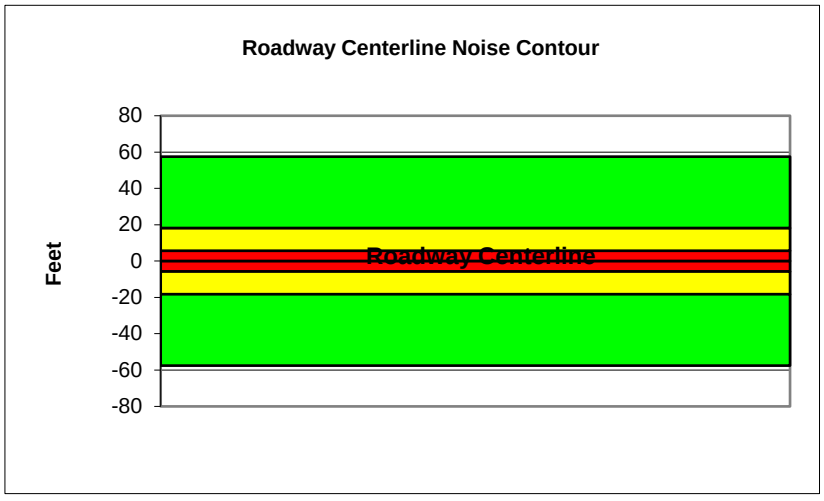
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.2	53.0	51.2	45.1	53.8	54.4
Medium Trucks:	55.8	47.8	41.4	39.8	48.3	48.5
Heavy Trucks:	62.0	50.1	41.0	42.2	52.6	52.7
Vehicle Noise:	**64.7**	**56.2**	**52.2**	**48.4**	**56.9**	**57.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	58
65 dBA	18
70 dBA	6
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	17th Street to Vanderberg Lane		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	10300
Peak Hour Traffic:	**1030**
Vehicle Speed:	40
Centerline Separation:	30

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

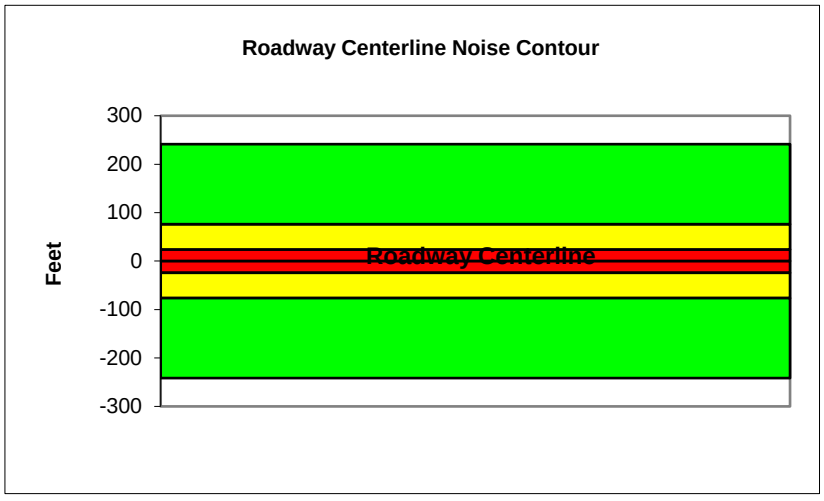
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.7	60.5	58.7	52.6	61.3	61.9
Medium Trucks:	60.7	52.6	46.2	44.6	53.1	53.4
Heavy Trucks:	65.5	53.6	44.5	45.7	55.5	55.6
Vehicle Noise:	**67.9**	**62.1**	**59.2**	**54.2**	**62.8**	**63.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	242
65 dBA	76
70 dBA	24
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	South of Vanderberg Lane		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	9200
Peak Hour Traffic:	**920**
Vehicle Speed:	40
Centerline Separation:	35

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

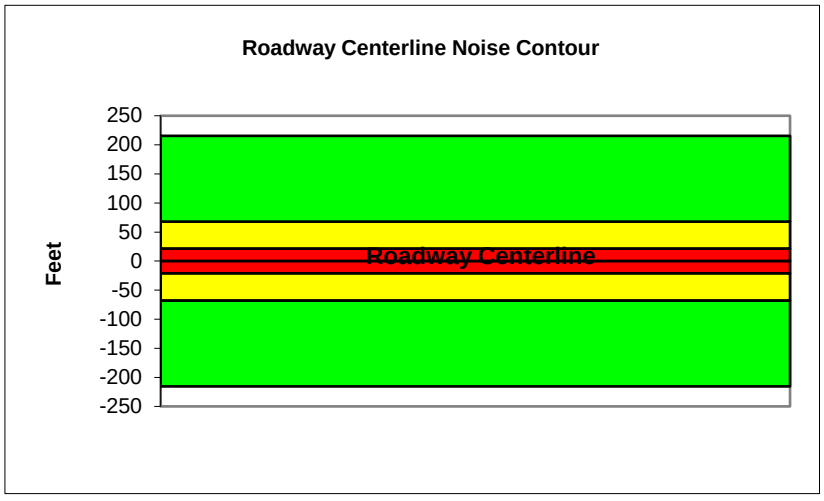
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.1	59.9	58.1	52.0	60.7	61.3
Medium Trucks:	60.1	52.0	45.6	44.1	52.6	52.8
Heavy Trucks:	64.9	53.0	43.9	45.2	54.9	55.0
Vehicle Noise:	**67.3**	**61.5**	**58.6**	**53.6**	**62.2**	**62.7**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	215
65 dBA	68
70 dBA	22
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Vanderberg Lane		
Road Segment:	Yorba Street to Enderle Center Drive		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**
Rt View: **90**	Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	4400
Peak Hour Traffic:	**440**
Vehicle Speed:	35
Centerline Separation:	26

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

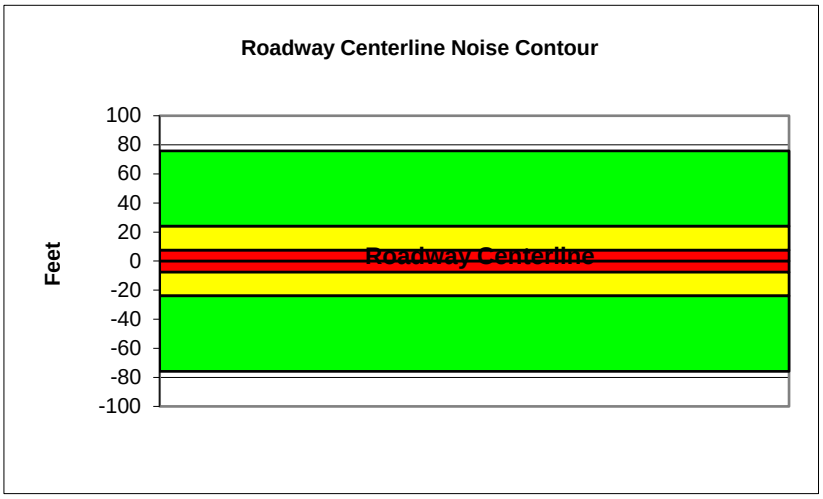
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.4	55.2	53.4	47.3	56.0	56.6
Medium Trucks:	56.1	48.1	41.7	40.1	48.6	48.8
Heavy Trucks:	61.4	49.4	40.4	41.6	51.5	51.6
Vehicle Noise:	**63.8**	**57.2**	**54.0**	**49.3**	**57.8**	**58.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	76
65 dBA	24
70 dBA	8
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Yorba Street		
Road Segment:	North of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**		
Barrier (0=wall, 1= berm):	**0**		
Receiver Barrier Dist:	**0**		
Centerline Dist. To Observer:	**100**		
Barrier Near Lane CL Dist:	**0**		
Barrier Far lane CL Dist:	**0**		
Pad Elevation:	**0.5**		
Road Elevation:	**0**		
Observer Height (above grade):	**0**		
Barrier Height:	**0**		
Rt View:	**90**	Lft View:	**-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	12700
Peak Hour Traffic:	**1270**
Vehicle Speed:	40
Centerline Separation:	24

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

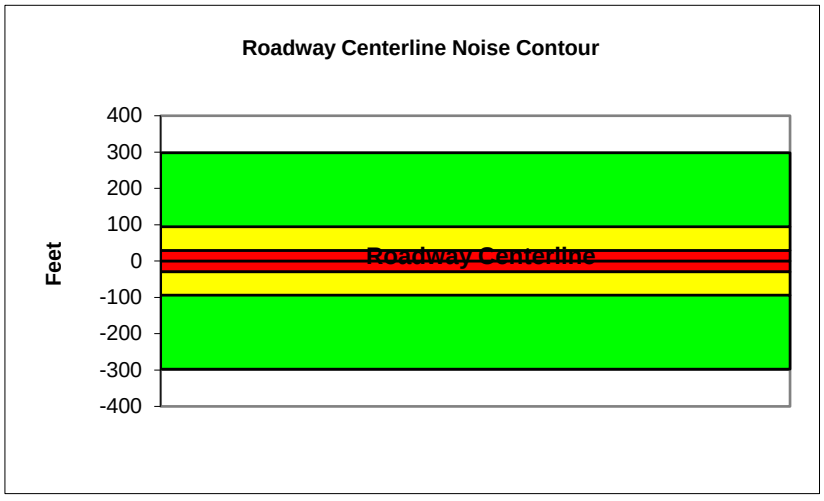
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.7	61.5	59.7	53.6	62.3	62.9
Medium Trucks:	61.7	53.6	47.2	45.7	54.1	54.4
Heavy Trucks:	66.5	54.6	45.5	46.8	56.5	56.6
Vehicle Noise:	**68.9**	**63.1**	**60.2**	**55.2**	**63.8**	**64.3**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	298
65 dBA	94
70 dBA	30
Mitigated	
60 dBA	
65 dBA	
70 dBA	



Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)

Project Name:	Chick-fil-A/In-N-Out 17th and Tustin	Scenario:	Future Plus Project
Analyst:	Achilles Malisos	Job #:	151800
Roadway:	Enderle Center Drive		
Road Segment:	South of 17th Street		

PROJECT DATA

Centerline Dist to Barrier	**0**
Barrier (0=wall, 1= berm):	**0**
Receiver Barrier Dist:	**0**
Centerline Dist. To Observer:	**100**
Barrier Near Lane CL Dist:	**0**
Barrier Far lane CL Dist:	**0**
Pad Elevation:	**0.5**
Road Elevation:	**0**
Observer Height (above grade):	**0**
Barrier Height:	**0**

Rt View: **90** Lft View: **-90**

NOISE SOURCE ELEVATIONS (Feet)

Autos:	**0**
Medium Trucks:	**2.3**
Heavy Trucks:	**8**

SITE DATA

Road Grade:	0
Average Daily Traffic:	6100
Peak Hour Traffic:	**610**
Vehicle Speed:	35
Centerline Separation:	32

NOISE INPUTS

Site conditions **HARD SITE**

FLEET MIX

Type	Day	Evening	Night	Daily
Auto	0.775	0.129	0.096	0.9742
Med. Truck	0.848	0.049	0.103	0.0184
Heavy Truck	0.865	0.027	0.108	0.0074

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.7	56.5	54.7	48.6	57.3	57.9
Medium Trucks:	57.5	49.4	43.0	41.4	49.9	50.2
Heavy Trucks:	62.7	50.7	41.7	42.9	52.8	52.9
Vehicle Noise:	**65.1**	**58.5**	**55.3**	**50.6**	**59.2**	**59.6**

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)

Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR

Unmitigated	
60 dBA	105
65 dBA	33
70 dBA	11
Mitigated	
60 dBA	
65 dBA	
70 dBA