
Appendix E

Noise Measurements and Calculations

NOISE APPENDIX

Noise Field Data

Field Noise Measurement Data

Record: 2019

Project Name	CPP
Observer(s)	
Date	2024-12-04

Meteorological Conditions

Temp (F)	66
Humidity % (R.H.)	54
Wind	Light
Wind Speed (MPH)	5
Wind Direction	North East
Sky	Clear

Instrument and Calibrator Information

Instrument Name List	(ENC) Rion NL-52
Instrument Name	(ENC) Rion NL-52
Instrument Name Lookup Key	(ENC) Rion NL-52
Manufacturer	Rion
Model	NL-52
Serial Number	553896
Calibrator Name	(ENC) LD CAL150

FORMS FIELD DATA REPORT

Calibrator Name	(ENC) LD CAL150
Calibrator Name Lookup Key	(ENC) LD CAL150
Calibrator Manufacturer	Larson Davis
Calibrator Model	LD CAL150
Calibrator Serial #	5152
Pre-Test (dBA SPL)	94
Post-Test (dBA SPL)	94
Weighting?	A-WTD

Monitoring	
Record #	1
Site ID	St3
Site Location Lat/Long	34.045537, -117.814863
Begin (Time)	09:52:00
End (Time)	10:08:00
Leq	68.6
Lmax	86.6
Lmin	46.1
Other Lx?	L90, L50, L10
L90	50.9
L50	59.9
L10	71.9
Other Lx (Specify Metric)	L

FIELD DATA REPORT

Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Conversations / Yelling, Distant Traffic
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos	
Photo	
Comments / Description	Facing north

Site Photos

Photo



Comments / Description

Facing east

Site Photos

Photo



Comments / Description

Facing west

Monitoring	
Record #	2
Site ID	St4
Site Location Lat/Long	34.056444, -117.805700
Begin (Time)	10:16:00
End (Time)	10:32:00
Leq	65.6
Lmax	75.6
Lmin	56.2
Other Lx?	L90, L50, L10
L90	58.6
L50	62.6
L10	69.2
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Aircraft
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Site Photos	
Photo	
Comments / Description	Facing southwest

Site Photos	
Photo	

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing northeast

Site Photos	
Photo	
Comments / Description	Facing northwest

Monitoring	
Record #	3
Site ID	ST1
Site Location Lat/Long	34.062865, -117.817249
Begin (Time)	10:57:00
End (Time)	11:13:00
Leq	65
Lmax	81.5

FORMS FIELD DATA REPORT

Lmin	54.7
Other Lx?	L90, L50, L10
L90	57.1
L50	61.7
L10	66.6
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Aircraft, Distant Traffic
Other Noise Sources Additional Description	
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts	
Number of Lanes	2
Lane Width (feet)	10
Roadway Width (feet)	20
Roadway Width (m)	6.1
Distance to Roadway (feet)	10
Distance to Roadway (m)	3
Distance Measured to Centerline or Edge of Pavement?	Centerline
Estimated Vehicle Speed (MPH)	0

Traffic Counts

Vehicle Count Summary	A 147, MT 1, HT 0, B 0, MC 0
Counting Both Directions?	Yes
Count Duration (minutes)	0
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	147
Number of Vehicles - Medium Trucks	1
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcycles	0

Description / Photos

Site Photos

Photo



FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing southwest

Site Photos	
Photo	
Comments / Description	Facing northeast

Site Photos	
Photo	

Comments / Description	Facing west
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Monitoring	
Record #	4
Site ID	St12
Site Location Lat/Long	34.059786, -117.823288
Begin (Time)	11:37:00
End (Time)	11:52:00
Leq	59.6
Lmax	72.3
Lmin	51.2
Other Lx?	L90, L50, L10
L90	54.1
L50	57.7
L10	62
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Conversations / Yelling
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts

Number of Lanes	2
Lane Width (feet)	10
Roadway Width (feet)	20
Roadway Width (m)	6.1
Distance to Roadway (feet)	10
Distance to Roadway (m)	3
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	0

Traffic Counts

Vehicle Count Summary	A 109, MT 0, HT 0, B 0, MC 0
Counting Both Directions?	Yes
Count Duration (minutes)	0
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	109
Number of Vehicles - Medium Trucks	0
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcycles	0

Description / Photos

Site Photos

Photo



Comments / Description

Facing northeast

Site Photos

Photo



FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing west

Site Photos	
Photo	
Comments / Description	Facing southeast

Monitoring	
Record #	5
Site ID	ST13
Site Location Lat/Long	34.058835, -117.822516
Begin (Time)	11:59:00
End (Time)	12:29:00
Leq	52.4
Lmax	63.8

FORMS

DUDEK

FIELD DATA REPORT

Lmin	46.3
Other Lx?	L90, L50, L10
L90	47.8
L50	50.1
L10	55
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos

Photo

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing southeast

Site Photos	
Photo	
Comments / Description	Facing northwest

Site Photos	
Photo	

Comments / Description	Facing northeast
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Monitoring	
Record #	6
Site ID	ST8
Site Location Lat/Long	34.057444, -117.820912
Begin (Time)	12:46:00
End (Time)	13:16:00
Leq	53.6
Lmax	70.4
Lmin	44
Other Lx?	L90, L50, L10
L90	46
L50	49.3
L10	56.4
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Conversations / Yelling, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Site Photos	
Photo	
Comments / Description	Facing west

Site Photos	
Photo	

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing southeast

Site Photos	
Photo	
Comments / Description	Facing south

Monitoring	
Record #	7
Site ID	ST16
Site Location Lat/Long	34.061261, -117.813050
Begin (Time)	13:28:00
End (Time)	13:44:00
Leq	68
Lmax	81.7

FORMS DUDEK FIELD DATA REPORT

Lmin	54.9
Other Lx?	L90, L50, L10
L90	59
L50	65.9
L10	71.4
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts	
Number of Lanes	4
Lane Width (feet)	10
Roadway Width (feet)	40
Roadway Width (m)	12.2
Distance to Roadway (feet)	6
Distance to Roadway (m)	1.8
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	0

Traffic Counts

Vehicle Count Summary	A 239, MT 2, HT 0, B 0, MC 0
Counting Both Directions?	Yes
Count Duration (minutes)	0
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	239
Number of Vehicles - Medium Trucks	2
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcycles	0

Description / Photos

Site Photos

Photo



FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing northeast

Site Photos	
Photo	
Comments / Description	Facing southwest

Site Photos	
Photo	

Comments / Description	Facing northwest
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Monitoring	
Record #	8
Site ID	ST15
Site Location Lat/Long	34.051816, -117.816399
Begin (Time)	15:14:00
End (Time)	15:44:00
Leq	57.6
Lmax	94
Lmin	48.7
Other Lx?	L90, L50, L10
L90	51
L50	53.7
L10	58.7
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Site Photos	
Photo	
Comments / Description	Facing southwest

Site Photos	
Photo	

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing northeast

Site Photos	
Photo	
Comments / Description	Facing northwest

Monitoring	
Record #	9
Site ID	ST5
Site Location Lat/Long	34.049847, -117.816126
Begin (Time)	15:51:00
End (Time)	16:06:00
Leq	72.9
Lmax	88.5

FORMS DUDEK FIELD DATA REPORT

Lmin	50.5
Other Lx?	L90, L50, L10
L90	57.6
L50	68.2
L10	76.8
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Conversations / Yelling, Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts	
Number of Lanes	6
Lane Width (feet)	10
Roadway Width (feet)	60
Roadway Width (m)	18.3
Distance to Roadway (feet)	8
Distance to Roadway (m)	2.4
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	0

Traffic Counts

Vehicle Count Summary	A 436, MT 3, HT 2, B 0, MC 0
Counting Both Directions?	Yes
Count Duration (minutes)	0
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	436
Number of Vehicles - Medium Trucks	3
Number of Vehicles - Heavy Trucks	2
Number of Vehicles - Buses	0
Number of Vehicles - Motorcycles	0

Description / Photos

Site Photos

Photo



FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing east

Site Photos	
Photo	
Comments / Description	Facing west

Site Photos	
Photo	

Comments / Description

Facing north

Monitoring

Record #

10

Site ID

ST11

Site Location Lat/Long

34.057701, -117.827701

Begin (Time)

16:24:00

End (Time)

16:44:00

Leq

58.3

Lmax

72.4

Lmin

46.2

Other Lx?

L90, L50, L10

L90

48.6

L50

53.9

L10

62

Other Lx (Specify Metric)

L

Primary Noise Source

Traffic

Other Noise Sources (Background)

Birds, Distant Conversations / Yelling, Rustling Leaves

Is the same instrument and calibrator being used as previously noted?

Yes

Are the meteorological conditions the same as previously noted?

Yes

Source Info and Traffic Counts

Number of Lanes	2
Lane Width (feet)	10
Roadway Width (feet)	20
Roadway Width (m)	6.1
Distance to Roadway (feet)	12
Distance to Roadway (m)	3.7
Distance Measured to Centerline or Edge of Pavement?	Centerline
Estimated Vehicle Speed (MPH)	0

Traffic Counts

Vehicle Count Summary	A 103, MT 0, HT 0, B 0, MC 0
Counting Both Directions?	Yes
Count Duration (minutes)	0
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	103
Number of Vehicles - Medium Trucks	0
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcycles	0

Site Photos	
Photo	
Comments / Description	Facing northeast

Site Photos	
Photo	

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing southwest

Site Photos	
Photo	
Comments / Description	Facing northwest

Monitoring	
Record #	11
Site ID	ST10
Site Location Lat/Long	34.057142, -117.825530
Begin (Time)	16:56:00
End (Time)	17:26:00
Leq	57.5
Lmax	75.4

FORMS FIELD DATA REPORT

Lmin	45.6
Other Lx?	L90, L50, L10
L90	46.5
L50	49.4
L10	61
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Conversations / Yelling, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos

Photo

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing northeast

Site Photos	
Photo	
Comments / Description	Facing northwest

Site Photos	
Photo	

Comments / Description

Facing southwest

Monitoring

Record #	12
Site ID	ST9
Site Location Lat/Long	34.056590, -117.825855
Begin (Time)	17:30:00
End (Time)	18:00:00
Leq	53.3
Lmax	72
Lmin	44.2
Other Lx?	L90, L50, L10
L90	45.3
L50	46.8
L10	51.2
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Aircraft, Distant Traffic
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Site Photos	
Photo	 A nighttime photograph showing a black tripod with a blue and silver instrument mounted on it, positioned on a concrete sidewalk. The sidewalk runs parallel to a road with a red curb. To the left of the sidewalk is a grassy area with some trees and a black metal fence. In the background, there are streetlights and parked cars. The scene is illuminated by the streetlights.
Comments / Description	Facing east

Site Photos	
Photo	 A nighttime photograph showing a black tripod with a blue and silver instrument mounted on it, positioned on a concrete sidewalk. The sidewalk runs parallel to a road with a red curb. To the right of the sidewalk is a grassy area with some trees and a black metal fence. In the background, there are streetlights and parked cars. The scene is illuminated by the streetlights.

Comments / Description

Facing west

Site Photos

Photo



Comments / Description

Facing north

Monitoring

Record #

13

Site ID

ST6

Site Location Lat/Long

34.054823, -117.817176

Begin (Time)

18:18:00

End (Time)

18:48:00

Leq

54

Lmax

65.5

FORMS FIELD DATA REPORT

Lmin	47.9
Other Lx?	L90, L50, L10
L90	50
L50	52.1
L10	57.2
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Aircraft, Distant Conversations / Yelling, Distant Traffic
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos	
Photo	

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing east

Site Photos	
Photo	
Comments / Description	Facing west

Site Photos	
Photo	

Comments / Description	Facing north
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Monitoring	
Record #	14
Site ID	ST14
Site Location Lat/Long	34.055137, -117.819514
Begin (Time)	18:56:00
End (Time)	19:26:00
Leq	53.1
Lmax	70.6
Lmin	48.1
Other Lx?	L90, L50, L10
L90	49.3
L50	50.8
L10	53.8
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Distant Aircraft, Distant Conversations / Yelling
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Site Photos	
Photo	
Comments / Description	Facing northwest

Site Photos	
Photo	

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing southeast

Site Photos	
Photo	
Comments / Description	Facing northeast

Monitoring	
Record #	15
Site ID	ST7
Site Location Lat/Long	34.056031, -117.818356
Begin (Time)	19:27:00
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Is the same instrument and calibrator being used as previously noted?	Yes

FORMS DUDEK FIELD DATA REPORT	
Are the meteorological conditions the same as previously noted?	Yes

Description / Photos

Site Photos	
Photo	
Comments / Description	Facing south

Site Photos	
Photo	

FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing west

Site Photos	
Photo	
Comments / Description	Facing east

Monitoring	
Record #	16
Site ID	ST2
Site Location Lat/Long	34.059005, -117.808078
Begin (Time)	11:22:00
End (Time)	11:37:00
Leq	65.6
Lmax	75.4

FORMS DUDEK FIELD DATA REPORT

Lmin	54.2
Other Lx?	L90, L50, L10
L90	56.5
L50	61.3
L10	70
Other Lx (Specify Metric)	L
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Traffic, Rustling Leaves
Is the same instrument and calibrator being used as previously noted?	Yes
Are the meteorological conditions the same as previously noted?	Yes

Source Info and Traffic Counts	
Number of Lanes	4
Lane Width (feet)	10
Roadway Width (feet)	40
Roadway Width (m)	12.2
Distance to Roadway (feet)	12
Distance to Roadway (m)	3.7
Distance Measured to Centerline or Edge of Pavement?	Edge of Pavement
Estimated Vehicle Speed (MPH)	0

Traffic Counts

Vehicle Count Summary	A 131, MT 3, HT 0, B 0, MC 0
Counting Both Directions?	Yes
Count Duration (minutes)	0
Vehicle Count Tally	
Select Method for Vehicle Counts	Enter Manually
Number of Vehicles - Autos	131
Number of Vehicles - Medium Trucks	3
Number of Vehicles - Heavy Trucks	0
Number of Vehicles - Buses	0
Number of Vehicles - Motorcycles	0

Description / Photos

Site Photos

Photo



FORMS DUDEK FIELD DATA REPORT	
Comments / Description	Facing southwest

Site Photos	
Photo	
Comments / Description	Facing east

Site Photos	
Photo	
Comments / Description	Facing northwest

NOISE APPENDIX

Construction Noise Modeling Data

dered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs? 1
grnd abs? 1

magnitude of threshold (dBA) = 80
allowable hours over which Leq is to be averaged = 8

Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)	Temporary Barrier Insertion Loss (dB)	Additional Noise Reduction	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	dozer	1	40	82	75	0		78.3	8	480	74
	excavator	1	40	81	75	0		77.3	8	480	73
	concrete saw	1	20	90	75	0		86.3	8	480	79
	Total Aggregate Noise Exposure from Demolition Phase										81.3
Site Preparation	dozer	1	40	82	75	0		78.3	8	480	74
	tractor	1	40	84	75	0		80.3	8	480	76
Total Aggregate Noise Exposure from Site Preparation Phase											78.5
Grading	grader	1	40	85	75	0		81.3	8	480	77
	excavator	1	40	81	75	0		77.3	8	480	73
	tractor	1	40	84	75	0		80.3	8	480	76
	scraper	1	40	84	75			80.4	8	480	76
	dozer	1	40	82	75			78.4	8	480	74
Total Aggregate Noise Exposure from Grading Phase											82.8
Building Construction	man lift	1	20	75	75	0		71.3	8	480	64
	generator	1	50	72	75	0		68.3	8	480	65
	crane	1	16	81	75	0		77.3	8	480	69
	welder / torch	1	40	73	75			69.4	8	480	65
	backhoe	1	40	78	75			74.4	8	480	70
Total Aggregate Noise Exposure from Building Construction Phase											74.7
Paving	paver	1	50	77	75	0		73.3	8	480	70
	pavement scarifier	1	20	85	75	0		81.3	8	480	74
	roller	1	20	80	75	0		76.3	8	480	69
Total Aggregate Noise Exposure from Paving Phase											76.7
Architectural coating	compressor (air)	1	40	78	75	0		74.3	8	480	70
Total Aggregate Noise Exposure from Architectural coating Phase											70.4

To User: bordered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs?
grnd abs?

magnitude of threshold (dBA) =
allowable hours over which Leq is to be averaged =

Project Phase				Reference Lmax			Distance-Adjusted Lmax		Allowable Operation Time		Allowable Operation Time		Predicted 8-hour Leq
No.	Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	AUF % (from FHWA RCNM)	@ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)	Temporary Barrier Insertion Loss (dB)	Additional Noise Reduction	Operation Time (hours)	Operation Time (minutes)			
1	Demolition	dozer	1	40	82	165	0		68.4	8	480	64	
		excavator	1	40	81	165		0	67.4	8	480	63	
		concrete saw	1	20	90	165		0	76.4	8	480	69	
		Total Aggregate Noise Exposure from Demolition Phase										71.4	
3	Site Preparation	dozer	1	40	82	165	0		68.4	8	480	64	
		tractor	1	40	84	165		0	70.4	8	480	66	
Total Aggregate Noise Exposure from Site Preparation Phase												68.6	
4	Grading	grader	1	40	85	165	0		71.4	8	480	67	
		excavator	1	40	81	165		0	67.4	8	480	63	
		tractor	1	40	84	165		0	70.4	8	480	66	
		scraper	1	40	84	165			70.5	8	480	66	
		dozer	1	40	82	165			68.5	8	480	64	
Total Aggregate Noise Exposure from Grading Phase												72.9	
5	Building Construction	man lift	1	20	75	165	0		61.4	8	480	54	
		generator	1	50	72	165		0	58.4	8	480	55	
		crane	1	16	81	165		0	67.4	8	480	59	
		welder / torch	1	40	73	165			59.5	8	480	55	
		backhoe	1	40	78	165			64.5	8	480	60	
Total Aggregate Noise Exposure from Building Construction Phase												64.7	
5	Paving	paver	1	50	77	165	0		63.4	8	480	60	
		pavement scarifier	1	20	85	165		0	71.4	8	480	64	
		roller	1	20	80	165		0	66.4	8	480	59	
Total Aggregate Noise Exposure from Paving Phase												66.8	
6	Architectural coating	compressor (air)	1	40	78	165	0		64.4	8	480	60	
Total Aggregate Noise Exposure from Architectural coating Phase												60.4	

To User: bordered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs?
grnd abs?

magnitude of threshold (dBA) =
allowable hours over which Leq is to be averaged =

Project Phase No.	Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	Reference Lmax			Temporary Barrier Insertion Loss (dB)	Additional Noise Reduction	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
				AUF % (from FHWA RCNM)	@ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)						
1	Demolition	dozer	1	40	82	1200	0		48.5	8	480	45
		excavator	1	40	81	1200		0	47.5	8	480	44
		concrete saw	1	20	90	1200		0	56.5	8	480	50
		Total Aggregate Noise Exposure from Demolition Phase								51.5		
3	Site Preparation	dozer	1	40	82	1200	0		48.5	8	480	45
		tractor	1	40	84	1200		0	50.5	8	480	47
Total Aggregate Noise Exposure from Site Preparation Phase												48.7
4	Grading	grader	1	40	85	1200	0		51.5	8	480	48
		excavator	1	40	81	1200		0	47.5	8	480	44
		tractor	1	40	84	1200		0	50.5	8	480	47
		scraper	1	40	84	1200			50.6	8	480	47
		dozer	1	40	82	1200			48.6	8	480	45
Total Aggregate Noise Exposure from Grading Phase												53.0
5	Building Construction	man lift	1	20	75	1200	0		41.5	8	480	35
		generator	1	50	72	1200		0	38.5	8	480	36
		crane	1	16	81	1200		0	47.5	8	480	40
		welder / torch	1	40	73	1200			39.6	8	480	36
		backhoe	1	40	78	1200			44.6	8	480	41
Total Aggregate Noise Exposure from Building Construction Phase												44.9
5	Paving	paver	1	50	77	1200	0		43.5	8	480	41
		pavement scarafier	1	20	85	1200		0	51.5	8	480	45
		roller	1	20	80	1200		0	46.5	8	480	40
Total Aggregate Noise Exposure from Paving Phase												46.9
6	Architectural coating	compressor (air)	1	40	78	1200	0		44.5	8	480	41
Total Aggregate Noise Exposure from Architectural coating Phase												40.5

To User: bordered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs?
grnd abs?

magnitude of threshold (dBA) =
allowable hours over which Leq is to be averaged =

Project Phase				Reference Lmax			Temporary Barrier		Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
No.	Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	AUF % (from FHWA RCNM)	@ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)	Insertion Loss (dB)	Additional Noise Reduction				
1	Demolition	dozer	1	40	82	3620	0		36.4	8	480	32
		excavator	1	40	81	3620		0	35.4	8	480	31
		concrete saw	1	20	90	3620		0	44.4	8	480	37
		Total Aggregate Noise Exposure from Demolition Phase										39.3
3	Site Preparation	dozer	1	40	82	3620	0		36.4	8	480	32
		tractor	1	40	84	3620		0	38.4	8	480	34
		Total Aggregate Noise Exposure from Site Preparation Phase										36.5
4	Grading	grader	1	40	85	3620	0		39.4	8	480	35
		excavator	1	40	81	3620		0	35.4	8	480	31
		tractor	1	40	84	3620		0	38.4	8	480	34
		scraper	1	40	84	3620			38.4	8	480	34
		dozer	1	40	82	3620			36.4	8	480	32
		Total Aggregate Noise Exposure from Grading Phase										40.9
5	Building Construction	man lift	1	20	75	3620	0		29.4	8	480	22
		generator	1	50	72	3620		0	26.4	8	480	23
		crane	1	16	81	3620		0	35.4	8	480	27
		welder / torch	1	40	73	3620			27.4	8	480	23
		backhoe	1	40	78	3620			32.4	8	480	28
Total Aggregate Noise Exposure from Building Construction Phase										32.7		
5	Paving	paver	1	50	77	3620	0		31.4	8	480	28
		pavement scarafier	1	20	85	3620		0	39.4	8	480	32
		roller	1	20	80	3620		0	34.4	8	480	27
Total Aggregate Noise Exposure from Paving Phase										34.7		
6	Architectural coating	compressor (air)	1	40	78	3620	0		32.4	8	480	28
Total Aggregate Noise Exposure from Architectural coating Phase										28.4		

NOISE APPENDIX

Operational Noise Modeling Worksheets

Technical Basis of Dudek's "NoisePro" Excel-based Outdoor Sound Propagation Prediction Model

In summary, the Microsoft Excel-based **NoisePro** outdoor sound propagation model developed by Dudek calculates the aggregate sound pressure level (SPL) received by each and every cell within a two-dimensional (2D) array (a product of X columns of cells by Y rows of cells). The quantity of this received SPL, in A-weighted decibels (dBA), is the logarithmic sum of acoustical contribution from each of "n" user-input sound emitting point sources located on the same 2D array, which may be written as follows:

$$SPL_{X,Y} = 10 * \log \sum_{i=1}^n 10^{0.1[L_i - A_i]}$$

where each individual source sound level (L_i) is attenuated by an algebraic sum of three attenuation factors ($A_i = A_{div} + A_{atm} + A_{gr}$) that are each dependent on the distance between the sound source position on the X by Y array and the receiving $SPL_{X,Y}$ position on a different position in the same 2D array of worksheet cells, where each cell is defined by the user as representing the center of a square area having equal sides of user-defined length in feet. The above expression is based on Equation 5 from the International Organization for Standardization (ISO) 9613-2 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation", and the individual attenuation factors used by **NoisePro** emulate those in Equation 4 and may be summarized as follows:

- A_{div} = attenuation due to *geometrical divergence* (i.e., pure distance), equating to $20 * \log(d/d_{ref})$; and where d is the horizontal distance between a source and a receiver position, while d_{ref} is the reference distance at which the sound source L_i is defined.
- A_{atm} = attenuation due to *atmospheric absorption*, which for 1,000 Hz (1 kHz) = $4.16 * d / 3280$ and is derived from Equation 5.7 in Noise & Vibration Control Engineering (Beranek and Ver, 1992).
- A_{gr} = attenuation due to *ground effects*, appearing as Equation 10 in ISO 9613-2 and can be expressed with the following Excel formula:

$$A_{gr} = \text{MAX}(0, 4.8 - [h_s + h_r] / d * [17 + 984 / d])$$

where h_s and h_r are the heights (in feet) of the sound source and receiver positions above grade, respectively. This means that for small distances, attenuation from ground effects will be small or essentially zero; and, even at great distances, the attenuation from ground effects is effectively capped at 4.8 dB.

The Excel workbook comprising **NoisePro** calculates $SPL_{X,Y}$ by using a coding loop to evaluate the acoustic contribution from each attenuated sound source ($L_i - A_i$) in sequence, and logarithmically adding the new evaluation to the previous total in a cumulative manner. When all sources have been evaluated, the loop terminates and yields an aggregate or log-summed total $SPL_{X,Y}$ value that is thus unique to a position in the 2D array of cells represented by X and Y, and can thus be "mapped". If the user has defined a particular cell in the X by Y array as a uniquely tagged Receiver, then the corresponding $SPL_{X,Y}$ value can be indexed and displayed accordingly.

The resulting output array of cells, each having an individually calculated $SPL_{X,Y}$ numerical value, is then filled with a color (from a user-defined palette) by application of a Conditional Formatting rules set (an Excel formatting feature) that compares the dB quantity with user-defined "high" and "low" dB ranges for each available color. Each colored cell can thus be likened to a "pixel" within a 2D array that forms a composite image representing—visually—the sound propagation from all modeled sound sources.

GRID CALCULATION WORKSHEET

Example Portion of Concluded Calculations Loop

		Source	216
		Source Tag	HV7
x	grid size (ft) 14.6	Source X-coordinate	1022
y	14.6	Source Y-coordinate	744.6
		Source Z-coordinate	39.5
z	rcvr plane height (ft) 5	Source Reference SPL	78
		Source Ref. Distance (ft.)	3.28

Grid Upper Left (C,R)

1 1

Grid Lower Right (C,R)

120 90

		Receiver Location			Cumulative SPL
Column	Row	X-coord	Y-coord	Z-coord	
1	1	14.6	14.6	5	27.6
1	2	14.6	29.2	5	27.6
1	3	14.6	43.8	5	27.7
1	4	14.6	58.4	5	27.7
1	5	14.6	73	5	27.8
1	6	14.6	87.6	5	27.8
1	7	14.6	102.2	5	27.9
1	8	14.6	116.8	5	27.9
1	9	14.6	131.4	5	28.0
1	10	14.6	146	5	28.0
1	11	14.6	160.6	5	28.1
1	12	14.6	175.2	5	28.1
1	13	14.6	189.8	5	28.1
1	14	14.6	204.4	5	28.2
1	15	14.6	219	5	28.2
1	16	14.6	233.6	5	28.2
1	17	14.6	248.2	5	28.2
1	18	14.6	262.8	5	28.3
1	19	14.6	277.4	5	28.3
1	20	14.6	292	5	28.4
1	21	14.6	306.6	5	28.4
1	22	14.6	321.2	5	28.4
1	23	14.6	335.8	5	28.4
1	24	14.6	350.4	5	28.4
1	25	14.6	365	5	28.4
1	26	14.6	379.6	5	28.5
1	27	14.6	394.2	5	28.5
1	28	14.6	408.8	5	28.5
1	29	14.6	423.4	5	28.5

Source Inventory with Model Grid Coordinate Locations and Sound Pressure Reference Levels

grid scale	ft	Noise Source Description	Type	SPL (dBA)	Ref. Distance (ft)
x	14.6	Weathermaker HVAC	HV	78	3.28
y	14.6				

Source	1	2	3	4	5	6	7
Source Tag	HV1	HV2	HV3	HV4	HV5	HV6	HV7
Source X-coordinate (feet)	846.8	876	905.2	934.4	963.6	992.8	1022
Source Y-coordinate (feet)	744.6	744.6	744.6	744.6	744.6	744.6	744.6
Source Type	HV	HV	HV	HV	HV	HV	HV
Source Reference SPL	78	78	78	78	78	78	78
Source Reference Dist. (ft.)	3.28	3.28	3.28	3.28	3.28	3.28	3.28
Source Height Above Grade (ft.)	39.5	39.5	39.5	39.5	39.5	39.5	39.5

Receiver Inventory with Model Grid Coordinate Locations and Predicted Operational Sound Level Exposure

Receiver				
Receiver Tag	R1	R2	R3	R4
Receiver X-coordinate (feet)	934.4	773.8	545	-1400
Receiver Y-coordinate (feet)	598.6	1051.2	2600	-2345
Receiver Ht Above Ground (ft)	5	5	5	5
SPL Predicted at Receiver	37.7	32.8	10.9	1.4

NOISE APPENDIX

Traffic Noise Modeling Worksheets

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT: CalPoly Pomona Campus Master Plan Update

JN: 13872

ROADWAY: University Drive West of Kellogg Drive

DATE: 1/31/2025

Scenario: Existing (2024)

BY: J. Leech

ADT	5,799	PK HR VOL	580
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM 10.0

MED TR 10.0

HVY TR 10.0

BARRIER 0 (0=WALL,1=BERM)

ELEVATIONS:

PAD 0.0 AUTOMOBILES = 0.00

ROAD 0.0 MEDIUM TRUCKS= 2.30

HEAVY TRUCKS = 8.01

GRADE: 0.0 % GRADE ADJUSTM= 0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.134	0.096	0.9900
MEDIUM TRUCKS	0.872	0.053	0.075	0.0040
HEAVY TRUCKS	0.889	0.030	0.081	0.0060

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	58.7	56.8	55.2	49.0	58.3
MEDIUM TRUCKS	46.3	44.9	38.7	35.5	45.0
HEAVY TRUCKS	53.8	52.5	43.8	43.4	52.6
VEHICULAR NOISE	60.1	58.4	55.6	50.2	59.4

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	University Drive West of Kellogg Drive			DATE:	1/31/2025
Scenario:	Project Build-Out (2040)			BY:	J. Leech
ADT	6,800			PK HR VOL	680
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52	(M=76,P=52,S=36,C=12)		AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****			
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	
<u>VEHICLE DISTRIBUTION:</u>					
	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>	
AUTOMOBILES	0.770	0.134	0.096	0.9900	
MEDIUM TRUCKS	0.872	0.053	0.075	0.0040	
HEAVY TRUCKS	0.889	0.030	0.081	0.0060	
<u>NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:</u>					
	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	59.4	57.5	55.9	49.7	58.9
MEDIUM TRUCKS	46.9	45.6	39.4	36.2	45.7
HEAVY TRUCKS	54.5	53.2	44.5	44.0	53.2
VEHICULAR NOISE	60.8	59.1	56.3	50.9	60.1

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	East Campus Drive east of Kellogg Drive			DATE:	1/31/2025
Scenario:	Existing (2024)			BY:	J. Leech
ADT	2,271			PK HR VOL	227
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52 (M=76,P=52,S=36,C=12)			AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0 *****				
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0 (0=WALL,1=BERM)				
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =		0.00	
ROAD	0.0	MEDIUM TRUCKS=		2.30	
		HEAVY TRUCKS =		8.01	
GRADE:	0.0 %	GRADE ADJUSTM=		0.0 (TO HEAVY TRUCKS)	
VEHICLE DISTRIBUTION:					
		DAY	EVE	NIGHT	DAILY
AUTOMOBILES		0.770	0.134	0.096	0.9940
MEDIUM TRUCKS		0.872	0.053	0.075	0.0020
HEAVY TRUCKS		0.889	0.030	0.081	0.0040
NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:					
	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	54.7	52.7	51.2	44.9	54.2
MEDIUM TRUCKS	39.2	37.8	31.6	28.4	37.9
HEAVY TRUCKS	48.0	46.7	38.0	37.5	46.7
VEHICULAR NOISE	55.6	53.8	51.4	45.8	55.0

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	East Campus Drive east of Kellogg Drive			DATE:	1/31/2025
Scenario:	Project Build-Out (2040)			BY:	J. Leech
ADT	2,700			PK HR VOL	270
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52 (M=76,P=52,S=36,C=12)			AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0 *****				
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0 (0=WALL,1=BERM)				
ELEVATIONS:					
PAD	0.0			AUTOMOBILES =	0.00
ROAD	0.0			MEDIUM TRUCKS=	2.30
				HEAVY TRUCKS =	8.01
GRADE:	0.0 %			GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)
VEHICLE DISTRIBUTION:					
	DAY		EVE	NIGHT	DAILY
AUTOMOBILES	0.770		0.134	0.096	0.9940
MEDIUM TRUCKS	0.872		0.053	0.075	0.0020
HEAVY TRUCKS	0.889		0.030	0.081	0.0040
NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:					
	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	55.4	53.5	51.9	45.7	54.9
MEDIUM TRUCKS	39.9	38.5	32.4	29.1	38.7
HEAVY TRUCKS	48.8	47.4	38.8	38.3	47.5
VEHICULAR NOISE	56.4	54.6	52.2	46.5	55.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	South Campus Drive north of Kellogg Drive			DATE:	1/31/2025
Scenario:	Existing (2024)			BY:	J. Leech
ADT	7,968			PK HR VOL	797
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52 (M=76,P=52,S=36,C=12)			AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0 *****				
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)					
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0 (0=WALL,1=BERM)				
ELEVATIONS:					
PAD	0.0			AUTOMOBILES =	0.00
ROAD	0.0			MEDIUM TRUCKS=	2.30
				HEAVY TRUCKS =	8.01
GRADE:	0.0 %			GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)
VEHICLE DISTRIBUTION:					
	DAY		EVE	NIGHT	DAILY
AUTOMOBILES	0.770		0.134	0.096	0.9880
MEDIUM TRUCKS	0.872		0.053	0.075	0.0050
HEAVY TRUCKS	0.889		0.030	0.081	0.0070
NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:					
	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	60.1	58.2	56.6	50.4	59.6
MEDIUM TRUCKS	48.6	47.2	41.1	37.8	47.3
HEAVY TRUCKS	55.9	54.6	45.9	45.4	54.6
VEHICULAR NOISE	61.7	60.0	57.1	51.8	61.0

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update	JN:	13872
ROADWAY:	South Campus Drive north of Kellogg Drive	DATE:	1/31/2025
Scenario:	Project Build-Out (2040)	BY:	J. Leech

ADT	<u>9,400</u>	PK HR VOL	940
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM	10.0	
MED TR	10.0	
HVY TR	10.0	
BARRIER	0	(0=WALL,1=BERM)

ELEVATIONS:

PAD	0.0	AUTOMOBILES =	0.00
ROAD	0.0	MEDIUM TRUCKS=	2.30
		HEAVY TRUCKS =	8.01
GRADE:	0.0 %	GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>
AUTOMOBILES	0.770	0.134	0.096	0.9880
MEDIUM TRUCKS	0.872	0.053	0.075	0.0050
HEAVY TRUCKS	0.889	0.030	0.081	0.0070

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	60.8	58.9	57.3	51.1	60.3
MEDIUM TRUCKS	49.3	47.9	41.8	38.5	48.1
HEAVY TRUCKS	56.6	55.3	46.6	46.1	55.3
VEHICULAR NOISE	62.4	60.7	57.8	52.5	61.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	Kellogg Drive between Red Gum Lane and University Drive			DATE:	1/31/2025
Scenario:	Existing (2024)			BY:	J. Leech
ADT	<u>10,960</u>			PK HR VOL	1,096
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52 (M=76,P=52,S=36,C=12)			AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0 *****				
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)					
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0 (0=WALL,1=BERM)				
ELEVATIONS:					
PAD	0.0			AUTOMOBILES =	0.00
ROAD	0.0			MEDIUM TRUCKS=	2.30
				HEAVY TRUCKS =	8.01
GRADE:	0.0 %			GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)
VEHICLE DISTRIBUTION:					
	DAY		EVE	NIGHT	DAILY
AUTOMOBILES	0.770		0.134	0.096	0.9810
MEDIUM TRUCKS	0.872		0.053	0.075	0.0050
HEAVY TRUCKS	0.889		0.030	0.081	0.0140
NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:					
	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	61.4	59.5	57.9	51.7	61.0
MEDIUM TRUCKS	50.0	48.6	42.5	39.2	48.7
HEAVY TRUCKS	60.3	59.0	50.3	49.8	59.0
VEHICULAR NOISE	64.1	62.4	58.7	54.0	63.3

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	Kellogg Drive between Red Gum Lane and University Drive			DATE:	1/31/2025
Scenario:	Project Build-Out (2040)			BY:	J. Leech
ADT	12,900			PK HR VOL	1,290
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52	(M=76,P=52,S=36,C=12)		AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****			
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	
<u>VEHICLE DISTRIBUTION:</u>					
	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>	
AUTOMOBILES	0.770	0.134	0.096	0.9810	
MEDIUM TRUCKS	0.872	0.053	0.075	0.0050	
HEAVY TRUCKS	0.889	0.030	0.081	0.0140	
<u>NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:</u>					
	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	62.2	60.2	58.7	52.4	61.7
MEDIUM TRUCKS	50.7	49.3	43.2	39.9	49.4
HEAVY TRUCKS	61.0	59.7	51.0	50.5	59.7
VEHICULAR NOISE	64.8	63.2	59.4	54.7	64.0

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update	JN:	13872
ROADWAY:	Kellogg Drive between Eucalyptus Lane and South Campus Drive	DATE:	1/31/2025
Scenario:	Existing (2024)	BY:	J. Leech

ADT	16,224	PK HR VOL	1,622
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM	10.0	
MED TR	10.0	
HVY TR	10.0	
BARRIER	0	(0=WALL,1=BERM)

ELEVATIONS:

PAD	0.0	AUTOMOBILES =	0.00
ROAD	0.0	MEDIUM TRUCKS=	2.30
		HEAVY TRUCKS =	8.01
GRADE:	0.0 %	GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.134	0.096	0.9900
MEDIUM TRUCKS	0.872	0.053	0.075	0.0040
HEAVY TRUCKS	0.889	0.030	0.081	0.0060

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	63.2	61.3	59.7	53.5	62.7
MEDIUM TRUCKS	50.7	49.3	43.2	39.9	49.5
HEAVY TRUCKS	58.3	57.0	48.3	47.8	57.0
VEHICULAR NOISE	64.6	62.8	60.1	54.7	63.9

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update	JN:	13872
ROADWAY:	Kellogg Drive between Eucalyptus Lane and South Campus Drive	DATE:	1/31/2025
Scenario:	Project Build-Out (2040)	BY:	J. Leech

ADT	<u>19,100</u>	PK HR VOL	1,910
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM	10.0	
MED TR	10.0	
HVY TR	10.0	
BARRIER	0	(0=WALL,1=BERM)

ELEVATIONS:

PAD	0.0	AUTOMOBILES =	0.00
ROAD	0.0	MEDIUM TRUCKS=	2.30
		HEAVY TRUCKS =	8.01
GRADE:	0.0 %	GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>
AUTOMOBILES	0.770	0.134	0.096	0.9900
MEDIUM TRUCKS	0.872	0.053	0.075	0.0040
HEAVY TRUCKS	0.889	0.030	0.081	0.0060

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	63.9	62.0	60.4	54.2	63.4
MEDIUM TRUCKS	51.4	50.0	43.9	40.7	50.2
HEAVY TRUCKS	59.0	57.7	49.0	48.5	57.7
VEHICULAR NOISE	65.3	63.6	60.8	55.4	64.6

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT: CalPoly Pomona Campus Master Plan Update

JN: 13872

ROADWAY: South Campus Drive south of Kellogg Drive

DATE: 1/31/2025

Scenario: Existing (2024)

BY: J. Leech

ADT	11,425	PK HR VOL	1,143
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM 10.0

MED TR 10.0

HVY TR 10.0

BARRIER 0 (0=WALL,1=BERM)

ELEVATIONS:

PAD 0.0 AUTOMOBILES = 0.00

ROAD 0.0 MEDIUM TRUCKS= 2.30

HEAVY TRUCKS = 8.01

GRADE: 0.0 % GRADE ADJUSTM= 0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.770	0.134	0.096	0.9910
MEDIUM TRUCKS	0.872	0.053	0.075	0.0040
HEAVY TRUCKS	0.889	0.030	0.081	0.0050

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	61.7	59.7	58.2	52.0	61.2
MEDIUM TRUCKS	49.2	47.8	41.7	38.4	47.9
HEAVY TRUCKS	56.0	54.7	46.0	45.5	54.7
VEHICULAR NOISE	62.9	61.1	58.5	53.0	62.2

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	South Campus Drive south of Kellogg Drive			DATE:	1/31/2025
Scenario:	Project Build-Out (2040)			BY:	J. Leech
ADT	13,400			PK HR VOL	1,340
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52	(M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0	
DIST WALL	0		MED TRUCK SLE DIST	42.8	
DIST W/OB	50		HVY TRUCK SLE DIST	42.8	
HTH WALL	0.0	*****			
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:	(15=HARD SITE, 10=SOFT SITE)				
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	
<u>VEHICLE DISTRIBUTION:</u>					
	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>	
AUTOMOBILES	0.770	0.134	0.096	0.9910	
MEDIUM TRUCKS	0.872	0.053	0.075	0.0040	
HEAVY TRUCKS	0.889	0.030	0.081	0.0050	
<u>NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:</u>					
	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	62.4	60.4	58.9	52.6	61.9
MEDIUM TRUCKS	49.9	48.5	42.4	39.1	48.6
HEAVY TRUCKS	56.7	55.4	46.7	46.2	55.4
VEHICULAR NOISE	63.6	61.8	59.2	53.7	62.9

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	South University Drive north of West Temple Avenue			DATE:	1/31/2025
Scenario:	Existing (2024)			BY:	J. Leech
ADT	2,780			PK HR VOL	278
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52 (M=76,P=52,S=36,C=12)			AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0 *****				
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)					
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0 (0=WALL,1=BERM)				
ELEVATIONS:					
PAD	0.0			AUTOMOBILES =	0.00
ROAD	0.0			MEDIUM TRUCKS=	2.30
				HEAVY TRUCKS =	8.01
GRADE:	0.0 %			GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)
VEHICLE DISTRIBUTION:					
	DAY		EVE	NIGHT	DAILY
AUTOMOBILES	0.770		0.134	0.096	0.9900
MEDIUM TRUCKS	0.872		0.053	0.075	0.0040
HEAVY TRUCKS	0.889		0.030	0.081	0.0060
NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:					
	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	55.5	53.6	52.0	45.8	55.1
MEDIUM TRUCKS	43.1	41.7	35.5	32.3	41.8
HEAVY TRUCKS	50.6	49.3	40.6	40.2	49.4
VEHICULAR NOISE	56.9	55.2	52.4	47.0	56.3

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	South University Drive north of West Temple Avenue			DATE:	1/31/2025
Scenario:	Project Build-Out (2040)			BY:	J. Leech
ADT	3,300			PK HR VOL	330
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52 (M=76,P=52,S=36,C=12)			AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0 *****				
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)					
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0 (0=WALL,1=BERM)				
ELEVATIONS:					
PAD	0.0			AUTOMOBILES =	0.00
ROAD	0.0			MEDIUM TRUCKS=	2.30
				HEAVY TRUCKS =	8.01
GRADE:	0.0 %			GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)
VEHICLE DISTRIBUTION:					
	DAY		EVE	NIGHT	DAILY
AUTOMOBILES	0.770		0.134	0.096	0.9900
MEDIUM TRUCKS	0.872		0.053	0.075	0.0040
HEAVY TRUCKS	0.889		0.030	0.081	0.0060
NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:					
	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	56.3	54.3	52.8	46.6	55.8
MEDIUM TRUCKS	43.8	42.4	36.3	33.0	42.5
HEAVY TRUCKS	51.4	50.1	41.4	40.9	50.1
VEHICULAR NOISE	57.7	55.9	53.2	47.7	57.0

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	West Temple Avenue west of South Campus Drive			DATE:	1/31/2025
Scenario:	Existing (2024)			BY:	J. Leech
ADT	17,172			PK HR VOL	1,717
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52	(M=76,P=52,S=36,C=12)		AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****			
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	
<u>VEHICLE DISTRIBUTION:</u>					
	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>	
AUTOMOBILES	0.770	0.134	0.096	0.9940	
MEDIUM TRUCKS	0.872	0.053	0.075	0.0030	
HEAVY TRUCKS	0.889	0.030	0.081	0.0030	
<u>NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:</u>					
	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	63.5	61.5	60.0	53.7	63.0
MEDIUM TRUCKS	49.7	48.3	42.2	38.9	48.4
HEAVY TRUCKS	55.5	54.2	45.5	45.1	54.3
VEHICULAR NOISE	64.3	62.4	60.2	54.4	63.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update	JN:	13872
ROADWAY:	West Temple Avenue west of South Campus Drive	DATE:	1/31/2025
Scenario:	Project Build-Out (2040)	BY:	J. Leech

ADT	<u>20,200</u>	PK HR VOL	2,020
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM	10.0	
MED TR	10.0	
HVY TR	10.0	
BARRIER	0	(0=WALL,1=BERM)

ELEVATIONS:

PAD	0.0	AUTOMOBILES =	0.00
ROAD	0.0	MEDIUM TRUCKS=	2.30
		HEAVY TRUCKS =	8.01
GRADE:	0.0 %	GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>
AUTOMOBILES	0.770	0.134	0.096	0.9940
MEDIUM TRUCKS	0.872	0.053	0.075	0.0030
HEAVY TRUCKS	0.889	0.030	0.081	0.0030

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	64.2	62.2	60.7	54.4	63.7
MEDIUM TRUCKS	50.4	49.0	42.9	39.6	49.2
HEAVY TRUCKS	56.2	54.9	46.2	45.8	55.0
VEHICULAR NOISE	65.0	63.1	60.9	55.1	64.4

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update	JN:	13872
ROADWAY:	West Temple Avenue east of South Campus Drive	DATE:	1/31/2025
Scenario:	Existing (2024)	BY:	J. Leech

ADT	<u>20,563</u>	PK HR VOL	2,056
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM	10.0	
MED TR	10.0	
HVY TR	10.0	
BARRIER	0	(0=WALL,1=BERM)

ELEVATIONS:

PAD	0.0	AUTOMOBILES =	0.00
ROAD	0.0	MEDIUM TRUCKS=	2.30
		HEAVY TRUCKS =	8.01
GRADE:	0.0 %	GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>
AUTOMOBILES	0.770	0.134	0.096	0.9910
MEDIUM TRUCKS	0.872	0.053	0.075	0.0040
HEAVY TRUCKS	0.889	0.030	0.081	0.0050

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	64.2	62.3	60.7	54.5	63.8
MEDIUM TRUCKS	51.8	50.4	44.2	41.0	50.5
HEAVY TRUCKS	58.5	57.2	48.5	48.1	57.3
VEHICULAR NOISE	65.5	63.7	61.1	55.5	64.8

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	West Temple Avenue east of South Campus Drive			DATE:	1/31/2025
Scenario:	Project Build-Out (2040)			BY:	J. Leech
ADT	24,200			PK HR VOL	2,420
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52 (M=76,P=52,S=36,C=12)			AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0 *****				
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)					
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0 (0=WALL,1=BERM)				
ELEVATIONS:					
PAD	0.0			AUTOMOBILES =	0.00
ROAD	0.0			MEDIUM TRUCKS=	2.30
				HEAVY TRUCKS =	8.01
GRADE:	0.0 %			GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)
VEHICLE DISTRIBUTION:					
	DAY		EVE	NIGHT	DAILY
AUTOMOBILES	0.770		0.134	0.096	0.9910
MEDIUM TRUCKS	0.872		0.053	0.075	0.0040
HEAVY TRUCKS	0.889		0.030	0.081	0.0050
NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:					
	LEQ PK HR	LEQ DAY	LEQ EVE	LEQ NIGHT	CNEL
AUTOMOBILES	64.9	63.0	61.4	55.2	64.5
MEDIUM TRUCKS	52.5	51.1	44.9	41.7	51.2
HEAVY TRUCKS	59.2	57.9	49.2	48.8	58.0
VEHICULAR NOISE	66.2	64.4	61.8	56.3	65.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

(modified for CNEL)

DUDEK

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	Valley Boulevard east of West Temple Avenue			DATE:	1/31/2025
Scenario:	Existing (2024)			BY:	J. Leech
ADT	11,012			PK HR VOL	1,101
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52	(M=76,P=52,S=36,C=12)		AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****			
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	
<u>VEHICLE DISTRIBUTION:</u>					
	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>	
AUTOMOBILES	0.770	0.134	0.096	0.9940	
MEDIUM TRUCKS	0.872	0.053	0.075	0.0030	
HEAVY TRUCKS	0.889	0.030	0.081	0.0030	
<u>NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:</u>					
	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	61.5	59.6	58.0	51.8	61.1
MEDIUM TRUCKS	47.8	46.4	40.3	37.0	46.5
HEAVY TRUCKS	53.6	52.3	43.6	43.1	52.3
VEHICULAR NOISE	62.3	60.5	58.2	52.5	61.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	Valley Boulevard east of West Temple Avenue			DATE:	1/31/2025
Scenario:	Project Build-Out (2040)			BY:	J. Leech
ADT	13,000			PK HR VOL	1,300
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52	(M=76,P=52,S=36,C=12)		AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****			
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	
<u>VEHICLE DISTRIBUTION:</u>					
	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>	
AUTOMOBILES	0.770	0.134	0.096	0.9940	
MEDIUM TRUCKS	0.872	0.053	0.075	0.0030	
HEAVY TRUCKS	0.889	0.030	0.081	0.0030	
<u>NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:</u>					
	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	62.2	60.3	58.7	52.5	61.8
MEDIUM TRUCKS	48.5	47.1	41.0	37.7	47.2
HEAVY TRUCKS	54.3	53.0	44.3	43.8	53.1
VEHICULAR NOISE	63.1	61.2	59.0	53.2	62.5

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update			JN:	13872
ROADWAY:	Valley Boulevard west of West Temple Avenue			DATE:	1/31/2025
Scenario:	Existing (2024)			BY:	J. Leech
ADT	14,490			PK HR VOL	1,449
SPEED	35				
PK HR %	10				
DIST CTL	50				
DIST N/F	52	(M=76,P=52,S=36,C=12)		AUTO SLE DISTANCE	43.0
DIST WALL	0			MED TRUCK SLE DIST	42.8
DIST W/OB	50			HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****			
HTH OBS	5.0				
AMBIENT	40.0				
ROADWAY VIEW:					
LF ANGLE	-45				
RT ANGLE	45				
DF ANGLE	90				
SITE CONDITIONS:		(15=HARD SITE, 10=SOFT SITE)			
AUTOM	10.0				
MED TR	10.0				
HVY TR	10.0				
BARRIER	0	(0=WALL,1=BERM)			
ELEVATIONS:					
PAD	0.0	AUTOMOBILES =	0.00		
ROAD	0.0	MEDIUM TRUCKS=	2.30		
		HEAVY TRUCKS =	8.01		
GRADE:	0.0 %	GRADE ADJUSTM=	0.0	(TO HEAVY TRUCKS)	
<u>VEHICLE DISTRIBUTION:</u>					
	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>	
AUTOMOBILES	0.770	0.134	0.096	0.9870	
MEDIUM TRUCKS	0.872	0.053	0.075	0.0050	
HEAVY TRUCKS	0.889	0.030	0.081	0.0080	
<u>NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:</u>					
	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	62.7	60.8	59.2	53.0	62.2
MEDIUM TRUCKS	51.2	49.8	43.7	40.4	49.9
HEAVY TRUCKS	59.1	57.8	49.1	48.6	57.8
VEHICULAR NOISE	64.5	62.7	59.7	54.5	63.7

FHWA - HIGHWAY TRAFFIC NOISE PREDICTION MODEL

DUDEK

(modified for CNEL)

PROJECT:	CalPoly Pomona Campus Master Plan Update	JN:	13872
ROADWAY:	Valley Boulevard west of West Temple Avenue	DATE:	1/31/2025
Scenario:	Existing (2024)	BY:	J. Leech

ADT	<u>17,000</u>	PK HR VOL	1,700
SPEED	35		
PK HR %	10		
DIST CTL	50		
DIST N/F	52 (M=76,P=52,S=36,C=12)	AUTO SLE DISTANCE	43.0
DIST WALL	0	MED TRUCK SLE DIST	42.8
DIST W/OB	50	HVY TRUCK SLE DIST	42.8
HTH WALL	0.0	*****	
HTH OBS	5.0		
AMBIENT	40.0		
ROADWAY VIEW:			
LF ANGLE	-45		
RT ANGLE	45		
DF ANGLE	90		

SITE CONDITIONS: (15=HARD SITE, 10=SOFT SITE)

AUTOM	10.0	
MED TR	10.0	
HVY TR	10.0	
BARRIER	0	(0=WALL,1=BERM)

ELEVATIONS:

PAD	0.0	AUTOMOBILES =	0.00
ROAD	0.0	MEDIUM TRUCKS=	2.30
		HEAVY TRUCKS =	8.01
GRADE:	0.0 %	GRADE ADJUSTM=	0.0 (TO HEAVY TRUCKS)

VEHICLE DISTRIBUTION:

	<u>DAY</u>	<u>EVE</u>	<u>NIGHT</u>	<u>DAILY</u>
AUTOMOBILES	0.770	0.134	0.096	0.9870
MEDIUM TRUCKS	0.872	0.053	0.075	0.0050
HEAVY TRUCKS	0.889	0.030	0.081	0.0080

NOISE IMPACTS WITHOUT TOPO OR BARRIER SHIELDING:

	<u>LEQ PK HR</u>	<u>LEQ DAY</u>	<u>LEQ EVE</u>	<u>LEQ NIGHT</u>	<u>CNEL</u>
AUTOMOBILES	63.4	61.5	59.9	53.7	62.9
MEDIUM TRUCKS	51.9	50.5	44.4	41.1	50.6
HEAVY TRUCKS	59.8	58.4	49.8	49.3	58.5
VEHICULAR NOISE	65.2	63.4	60.4	55.2	64.4