

Appendix F

Noise and Vibration



**100 West Walnut Project
Draft EIR**

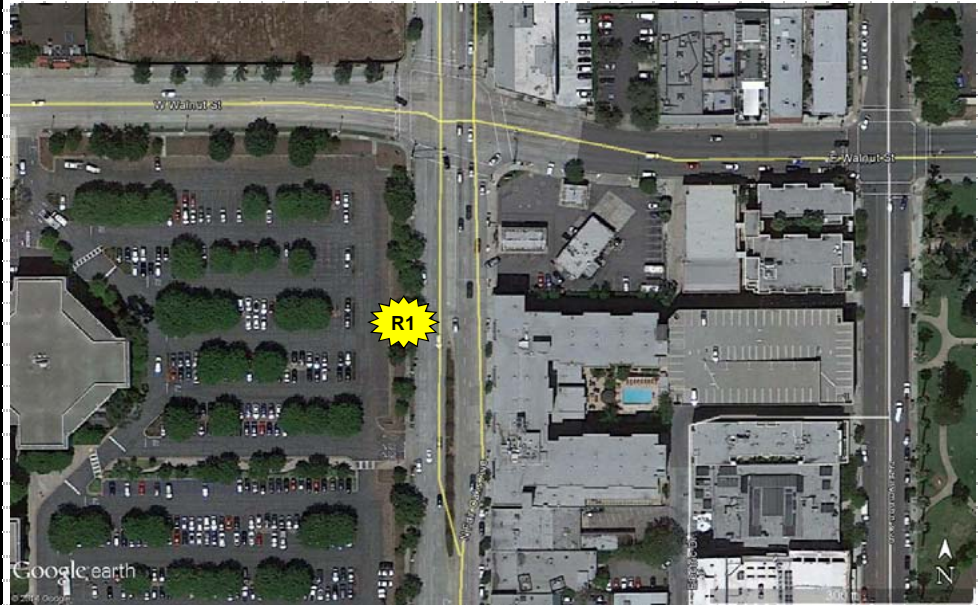
Noise Calculations Worksheets

Provided by Acoustical Engineering Services

Ambient Noise Measurements

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 1
Location: R1 - Project East Property Line (along Fair Oaks)	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090010
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes: Long-Term 24-hour measurements	



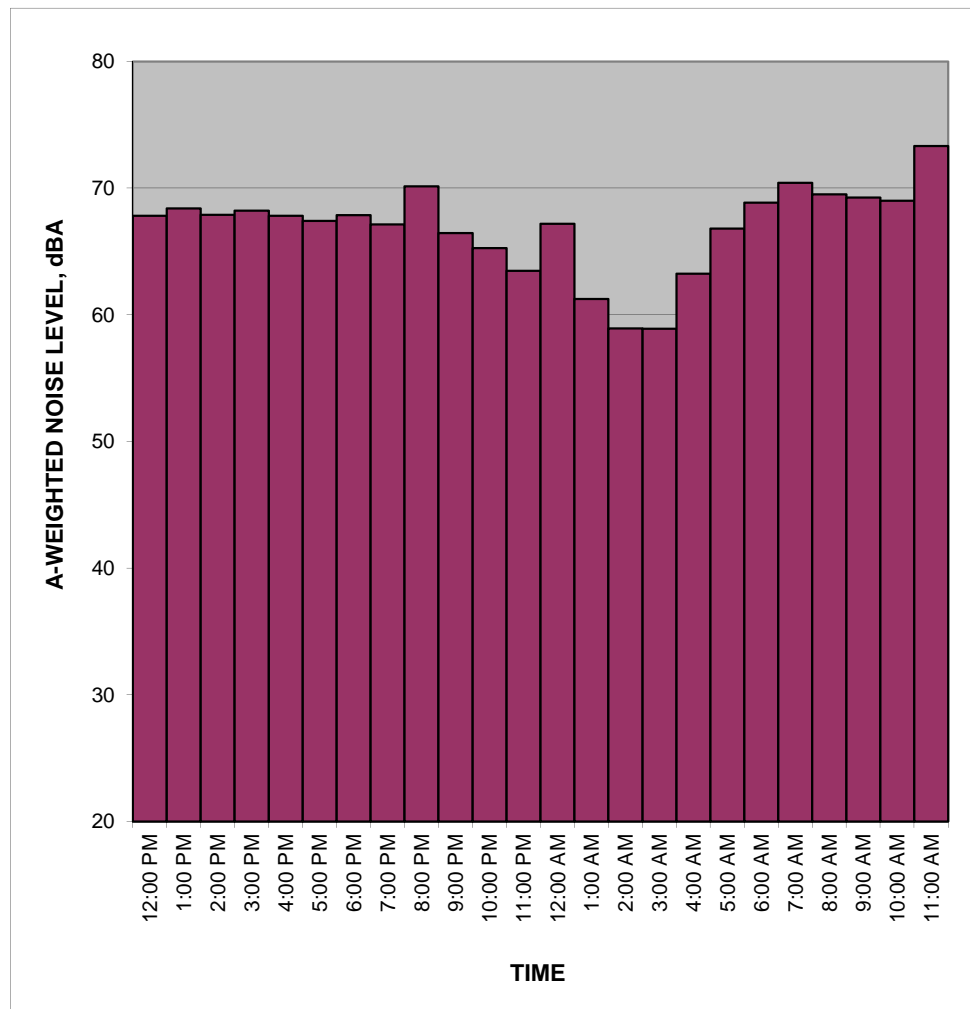
Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n	L99	L90	L50	L25	L10	L1	Lmin	Lmax	Leq	

Measured Ambient Noise Levels

Project: 100 West Walnut Project
 Location: R1 (Project Eastern Boundary)
 Sources: Ambient

Date: 6/26 to 6/27/2013

<i>TIME</i>	<i>HNL, dB(A)</i>
12:00 PM	67.8
1:00 PM	68.4
2:00 PM	67.9
3:00 PM	68.2
4:00 PM	67.8
5:00 PM	67.4
6:00 PM	67.9
7:00 PM	67.1
8:00 PM	70.1
9:00 PM	66.5
10:00 PM	65.3
11:00 PM	63.5
12:00 AM	67.2
1:00 AM	61.3
2:00 AM	58.9
3:00 AM	58.9
4:00 AM	63.3
5:00 AM	66.8
6:00 AM	68.9
7:00 AM	70.4
8:00 AM	69.5
9:00 AM	69.3
10:00 AM	69.0
11:00 AM	73.3
CNEL, dB(A):	72.7



NOTES:

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 2
Location: R2 - Project On-Side along Leonard Pieroni St.	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090020
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes: Long-Term 24-hour measurements	



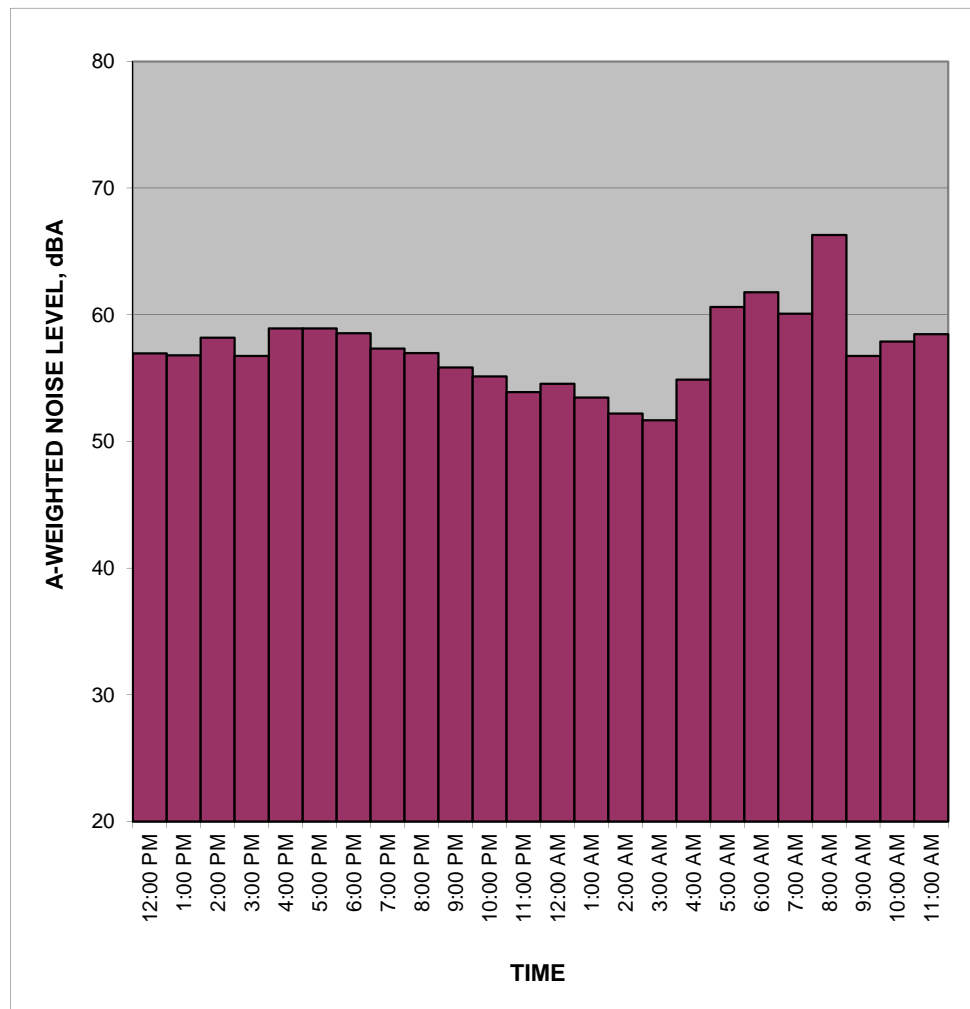
Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n	L99	L90	L50	L25	L10	L1	Lmin	Lmax	Leq	

Measured Ambient Noise Levels

Project: 100 West Walnut Project
 Location: R2 (On-Site)
 Sources: Ambient

Date: 6/26 to 6/27/2013

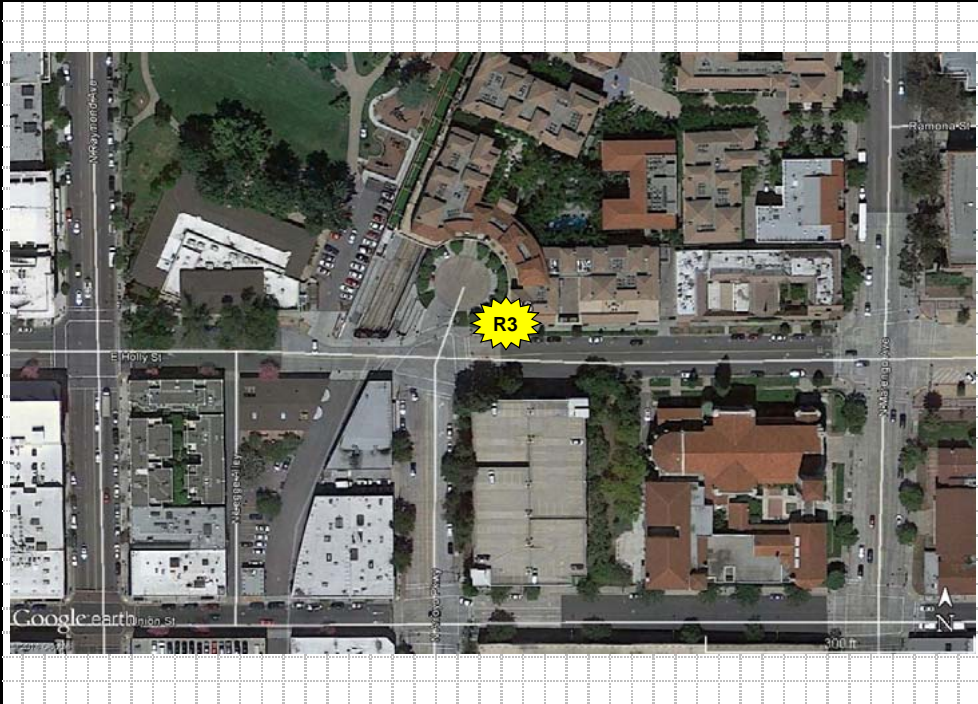
<i>TIME</i>	<i>HNL, dB(A)</i>
12:00 PM	57.0
1:00 PM	56.8
2:00 PM	58.2
3:00 PM	56.8
4:00 PM	58.9
5:00 PM	58.9
6:00 PM	58.5
7:00 PM	57.3
8:00 PM	57.0
9:00 PM	55.8
10:00 PM	55.1
11:00 PM	53.9
12:00 AM	54.5
1:00 AM	53.5
2:00 AM	52.2
3:00 AM	51.7
4:00 AM	54.9
5:00 AM	60.6
6:00 AM	61.8
7:00 AM	60.1
8:00 AM	66.3
9:00 AM	56.8
10:00 AM	57.9
11:00 AM	58.5
CNEL, dB(A):	64.0



NOTES:

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 3
Location: R3 - Multi-family on Holly St, east of the Project Site	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090030
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes:	



Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n			L90	L50	L10	L1	Lmin	Lmax	Leq	
11:35 AM	11:47 AM	Calm	--			62.1	66.2	71.4	77.0	49.6	70.1	58.4	Mostly traffic noise on Holly St. and occasional noise from the Metrolink train
12:29 AM	12:44 AM	Calm	--			50.0	50.5	54.7	60.9	49.2	66.0	52.6	Mostly traffic noise on Holly St. and occasional noise from the Metrolink train

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 4
Location: R4 - Pasadena Memorial Park, east of the Project Site	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090030
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes:	



Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n			L90	L50	L10	L1	Lmin	Lmax	Leq	
11:55 AM	12:10 PM	Calm	--			51.0	52.9	57.5	66.1	49.0	68.9	55.8	Mostly traffic noise on Walnut St.
10:23 PM	10:38 PM	Calm	--			49.1	50.8	55.7	59.5	48.1	65.6	52.7	Mostly traffic noise on Walnut St.

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 5
Location: R5 - Chestnut St., east of Fair Oaks, St. Andrews Church and School	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090030
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes:	



Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n			L90	L50	L10	L1	Lmin	Lmax	Leq	
12:49 PM	1:04 PM	Calm	--			53.9	55.6	61.5	67.7	52.5	69.9	58.4	Mainly traffic noise on Fair Oaks and Chestnut
11:06 PM	11:21 PM	Calm	--			52.0	53.3	55.2	63.4	50.2	65.5	54.3	Mainly traffic noise on Fair Oaks and Chestnut

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 6
Location: R6 - Residence on Maple St. and Lincoln Ave.	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090030
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes:	



Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n			L90	L50	L10	L1	Lmin	Lmax	Leq	
1:10 PM	1:25 PM	Calm	--			61.7	63.1	64.5	67.7	59.7	72.3	63.4	Mainly traffic noise on Maple St. and Freeway 210
11:30 PM	11:45 PM	Calm	--			57.1	59.5	61.5	64.0	54.1	68.2	59.8	Mainly traffic noise on Maple St. and Freeway 210

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 7
Location: R7 - Multi-family residence on Walnut St., west of Project Site	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090030
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes:	



Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n			L90	L50	L10	L1	Lmin	Lmax	Leq	
1:33 PM	1:48 PM	Calm	--			62.0	64.1	67.0	71.7	59.4	75.6	65.0	Mainly traffic noise on Walnut St. and Freeway 210
11:49 PM	12:04 AM	Calm	--			53.0	55.1	58.3	64.3	49.6	70.3	56.5	

22801 Crespi Street, Woodland Hills, California 91364 - 818.239.4600

Client: Matrix Environmental	Job No: 2013110
Job Title: 100 West Walnut Project	Sheet No: 8
Location: R8 - Multi-family residence on De Lacy Ave., south of Green Street	
Made By: SB	Date: 6/26/2013
Sound Meter: Quest 2900	S/N: CD0090030
Calibrator: Quest QC 10	S/N: Q10090010
Calibration Before: 114	Calibration After: 114
Notes:	



Time		Wind		Noise Level, dB(A)									Comments
Start	Finish	Speed	Dir'n			L90	L50	L10	L1	Lmin	Lmax	Leq	
2:03 PM	2:18 PM	Calm	--			57.5	59.8	65.0	70.8	56.1	73.1	61.4	Mostly traffic noise on De Lacy and Green St.
12:09 AM	12:24 AM	Calm	--			50.5	52.0	55.4	63.0	49.7	66.8	53.9	

Construction Noise Calculations

Project: 100 West Walnut Project

Construction Phase: Phase 1 - East Portion of Site
Holly / Peroni Dr. / Infrastructure Re-work

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Loader	1	79	40%
Excavator	1	81	40%
Backhoe	1	78	40%
Roller	1	80	20%
Skid Steer Loader	1	79	40%
Concrete Saw	2	90	20%
Light Plants	3	73	50%
Water Truck	1	76	40%
Paving Machine	1	77	50%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	415	0	69.9
R2	50	0	88.3
R3	1025	0	62.1
R4	1095	15	46.5
R5	1100	15	46.5
R6	1760	15	42.4
R7	1580	5	53.3
R8	1250	15	45.4
R9	610	0	66.6
R10	900	0	63.2
100ft	100	0	82.3

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 1 - East Portion of Site
Demolition**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Loader	1	79	40%
Excavator	1	81	40%
Welder Generator	1	81	50%
Water Truck	1	76	40%
Backhoe	1	78	40%
Wet Saw	2	90	20%
Street Sweeper	1	82	10%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	90	0	83.0
R2	50	0	88.1
R3	1015	10	52.0
R4	1070	15	46.5
R5	495	15	53.2
R6	1060	0	61.6
R7	1950	5	51.3
R8	1290	15	44.9
R9	605	0	66.5
R10	250	0	74.2
100ft	100	0	82.1

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 1 - East Portion of Site
Shoring and Excavation**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Drill Rig	2	84	20%
Hydro Crane	1	81	16%
Forklift	1	75	20%
Loader	1	79	40%
Water Truck	1	76	40%
Excavator	2	81	40%
Backhoe	1	78	40%
Horizontal Drill	2	79	20%
Street Sweeper	1	82	10%
Light Plants	4	73	50%
Welder Generator	3	81	50%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	90	0	82.9
R2	50	0	88.0
R3	1015	10	51.8
R4	1070	15	46.4
R5	495	15	53.1
R6	1060	0	61.4
R7	1950	5	51.2
R8	1290	15	44.7
R9	605	0	66.3
R10	250	0	74.0
100ft	100	0	82.0

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 1 - East Portion of Site
Garage Concrete & Foundation**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Excavator	1	81	40%
Small Steel Roller	1	80	20%
Loader	2	79	40%
Street Sweeper	1	82	10%
Skid Steer Loader	2	79	40%
Backhoe	2	78	40%
Hydro Crane	2	81	16%
Forklift	8	75	20%
Air Compressor	1	78	40%
Finishing Machine	1	80	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	90	0	81.1
R2	50	0	86.2
R3	1015	10	50.1
R4	1070	15	44.6
R5	495	15	51.3
R6	1060	0	59.7
R7	1950	5	49.4
R8	1290	15	43.0
R9	605	0	64.6
R10	250	0	72.3
100ft	100	0	80.2

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 1 - East Portion of Site
Office Steel and Precast**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Industrial Forklift	2	75	20%
Sissor Lifts	6	75	20%
Zoom Booms	4	75	20%
Welder Generator	2	81	50%
Hydro Crane	1	81	16%
Street Sweeper	1	82	10%
Light Plants	4	73	50%
Forklift	1	75	20%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	90	0	80.1
R2	50	0	85.2
R3	1140	15	43.1
R4	1035	15	43.9
R5	495	15	50.3
R6	1060	0	58.7
R7	1950	5	48.4
R8	1840	15	38.9
R9	840	0	60.7
R10	250	0	71.3
100ft	100	0	79.2

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 1 - East Portion of Site
Residential Frame and Skin**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Industrial Forklift	2	75	20%
Sissor Lifts	2	75	20%
Zoom Booms	2	75	20%
Welder Generator	1	81	50%
Hydro Crane	1	81	16%
Street Sweeper	0	82	10%
Light Plants	4	73	50%
Forklift	1	75	20%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	90	0	78.3
R2	50	0	83.4
R3	1015	10	47.2
R4	1070	15	41.8
R5	955	15	42.8
R6	1285	0	55.2
R7	2030	10	41.2
R8	1290	15	40.1
R9	605	0	61.7
R10	435	0	64.6
100ft	100	0	77.4

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 1 - East Portion of Site
Site & Landscaping**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Bobcat	2	78	40%
Backhoe	1	78	40%
Loader	2	79	40%
Roller	1	80	20%
Street Sweeper	1	82	10%
Forklift	1	75	20%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	90	0	78.5
R2	50	0	83.7
R3	1015	10	47.5
R4	1070	15	42.0
R5	495	15	48.7
R6	1060	0	57.1
R7	1950	5	46.8
R8	1290	15	40.4
R9	605	0	62.0
R10	250	0	69.7
100ft	100	0	77.6

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 2 - West Portion of Site
Demolition**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Loader	1	79	40%
Excavator	1	81	40%
Welder Generator	1	81	50%
Water Truck	1	76	40%
Backhoe	1	78	40%
Wet Saw	2	90	20%
Street Sweeper	1	82	10%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	775	10	54.3
R2	325	0	71.9
R3	1675	10	47.6
R4	1680	15	42.6
R5	1025	5	56.9
R6	1080	0	61.5
R7	1415	5	54.1
R8	1300	15	44.8
R9	1260	0	60.1
R10	780	0	64.3
100ft	100	0	82.1

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 2 - West Portion of Site
Shoring and Excavation**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Drill Rig	2	84	20%
Hydro Crane	1	81	16%
Forklift	1	75	20%
Loader	1	79	40%
Water Truck	1	76	40%
Excavator	2	81	40%
Backhoe	1	78	40%
Horizontal Drill	2	79	20%
Street Sweeper	1	82	10%
Light Plants	4	73	50%
Welder Generator	3	81	50%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	775	10	54.2
R2	325	0	71.7
R3	1675	10	47.5
R4	1680	15	42.4
R5	1025	5	56.7
R6	1080	0	61.3
R7	1415	5	53.9
R8	1300	15	44.7
R9	1260	0	59.9
R10	780	0	64.1
100ft	100	0	82.0

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 2 - West Portion of Site
Garage Concrete & Foundation**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Excavator	1	81	40%
Small Steel Roller	1	80	20%
Loader	2	79	40%
Street Sweeper	1	82	10%
Skid Steer Loader	2	79	40%
Backhoe	2	78	40%
Hydro Crane	2	81	16%
Forklift	8	75	20%
Air Compressor	1	78	40%
Finishing Machine	1	80	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	775	10	52.4
R2	325	0	70.0
R3	1675	10	45.7
R4	1680	15	40.7
R5	1025	5	55.0
R6	1080	0	59.5
R7	1415	5	52.2
R8	1300	15	42.9
R9	1260	0	58.2
R10	780	0	62.4
100ft	100	0	80.2

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 2 - West Portion of Site
Office Steel and Precast**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Industrial Forklift	2	75	20%
Sissor Lifts	6	75	20%
Zoom Booms	4	75	20%
Welder Generator	2	81	50%
Hydro Crane	1	81	16%
Street Sweeper	1	82	10%
Light Plants	4	73	50%
Forklift	1	75	20%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	775	10	51.4
R2	325	0	69.0
R3	1675	10	44.7
R4	1680	15	39.7
R5	1025	5	54.0
R6	1080	0	58.6
R7	1415	5	51.2
R8	1300	15	41.9
R9	1260	0	57.2
R10	780	0	61.4
100ft	100	0	79.2

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 2 - West Portion of Site
Residential Frame and Skin**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Industrial Forklift		75	20%
Sissor Lifts		75	20%
Zoom Booms		75	20%
Welder Generator		81	50%
Hydro Crane		81	16%
Street Sweeper		82	10%
Light Plants		73	50%
Forklift		75	20%
Air Compressor		78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1			#NUM!
R2			#NUM!
R3			#NUM!
R4			#NUM!
R5			#NUM!
R6			#NUM!
R7			#NUM!
R8			#NUM!
R9			#NUM!
R10			#NUM!
100ft	100	0	4.8

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

**Construction Phase: Phase 2 - West Portion of Site
Site & Landscaping**

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor
Bobcat	2	78	40%
Backhoe	1	78	40%
Loader	2	79	40%
Roller	1	80	20%
Street Sweeper	1	82	10%
Forklift	1	75	20%
Air Compressor	2	78	40%

Receptor	Distance to Equipment, ft	Estimated Noise Shielding, dBA	Calculated Noise Levels, dBA Leq
R1	775	10	49.8
R2	325	0	67.4
R3	1675	10	43.2
R4	1680	15	38.1
R5	1025	5	52.4
R6	1080	0	57.0
R7	1415	5	49.6
R8	1300	15	40.4
R9	1260	0	55.6
R10	780	0	59.8
100ft	100	0	77.6

Source for Ref. Noise Levels: FHWA, RCNM 2005

Project: 100 West Walnut Project

Overlapping Construction of Phase 1 Infrastructure and Demo

Receptor	P1 Infrastructure	P1 Demo	Combined Levels	Significance Threshold	Impacts?	Increased due to overlapping
R1	69.9	83.0	83.2	85	No	0.2
R3	62.1	52.0	62.5	85	No	0.4
R4	46.5	46.5	49.5	85	No	3.0
R5	46.5	53.2	54.1	85	No	0.9
R6	42.4	61.6	61.7	85	No	0.1
R7	53.3	51.3	55.5	85	No	2.2
R8	45.4	44.9	48.2	85	No	2.8
R9	66.6	66.5	69.6	85	No	3.0
R10	63.2	74.2	74.5	85	No	0.3
100ft	82.3	82.1	83.8	85	No	1.5

Notes: Overlapping construction at 100 ft is calculated the higher sound at 100ft and lower sound at 150ft

Overlapping Construction of Phase 1 Infrastructure and Shoring/Excavation

Receptor	P1 Infrastructure	P1 Shoring/ Excavation	Combined Levels	Significance Threshold	Impacts?	Increased due to overlapping
R1	69.9	82.9	83.1	85	No	0.2
R3	62.1	51.8	62.5	85	No	0.4
R4	46.5	46.4	49.5	85	No	3.0
R5	46.5	53.1	53.9	85	No	0.8
R6	42.4	61.4	61.5	85	No	0.1
R7	53.3	51.2	55.4	85	No	2.1
R8	45.4	44.7	48.1	85	No	2.7
R9	66.6	66.3	69.5	85	No	2.9
R10	63.2	74.0	74.3	85	No	0.3
100 ft	82.3	82.0	83.8	85	No	1.5

Notes: Overlapping construction at 100 ft is calculated the higher sound at 100ft and lower sound at 150ft

Overlapping Construction of Phase 1 Building Construction and Landscaping

Receptor	P1 Building Construction	P1 Landscaping	Combined Levels	Significance Threshold	Impacts?	Increased due to overlapping
R1	82.3	78.5	83.8	85	No	1.5
R3	48.6	47.5	51.1	85	No	2.5
R4	46.0	42.0	47.5	85	No	1.5
R5	51.0	48.7	53.0	85	No	2.0
R6	60.3	57.1	62.0	85	No	1.7
R7	49.2	46.8	51.2	85	No	2.0
R8	42.6	40.4	44.6	85	No	2.0
R9	64.3	62.0	66.3	85	No	2.0
R10	72.1	69.7	74.1	85	No	2.0
100 ft	81.4	77.6	82.1	85	No	0.7

Notes: Overlapping construction at 100 ft is calculated the higher sound at 100ft and lower sound at 150ft

Overlapping Construction of Phase 2 Building Construction and Landscaping

Receptor	P2 Building Construction	P2 Landscaping	Combined Levels	Significance Threshold	Impacts?	Increased due to overlapping
R1	51.4	49.8	53.7	85	No	2.3
R3	44.7	43.2	47.0	85	No	2.3
R4	39.7	38.1	42.0	85	No	2.3
R5	54.0	52.4	56.3	85	No	2.3
R6	58.6	57.0	60.8	85	No	2.2
R7	51.2	49.6	53.5	85	No	2.3
R8	41.9	40.4	44.2	85	No	2.3
R9	57.2	55.6	59.5	85	No	2.3
R10	61.4	59.8	63.7	85	No	2.3
100 ft	79.2	77.6	80.4	85	No	1.2

Notes: Overlapping construction at 100 ft is calculated the higher sound at 100ft and lower sound at 150ft

RESULTS: SOUND LEVELS

100 West Walnut Project

Matrix Environmental													6 June 2014	
SKB													TNM 2.5	
													Calculated with TNM 2.5	
RESULTS: SOUND LEVELS														
PROJECT/CONTRACT:			100 West Walnut Project											
RUN:			Haul Trucks - Peak Excavation											
BARRIER DESIGN:			INPUT HEIGHTS											
ATMOSPHERICS:			68 deg F, 50% RH											
Receiver														
Name		No.	#DUs	Existing	No Barrier				With Barrier					
				LAeq1h	LAeq1h		Increase over existing	Type	Calculated	Noise Reduction				
					Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated	
							Sub'l Inc						minus	
				dB	dB	dB	dB	dB		dB	dB	dB	Goal	
MF on Corson		1	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0	
R7 - MF on Walnut		3	1	0.0	50.7	66	50.7	10	----	50.7	0.0	8	-8.0	
Roosevelt Elem.		6	1	0.0	59.5	66	59.5	10	----	59.5	0.0	8	-8.0	
R1 - Marriott		8	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0	
St. Andrew School		9	1	0.0	59.1	66	59.1	10	----	59.1	0.0	8	-8.0	
St. Andrew Rectory		10	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0	
St. Andrew Church		11	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0	
Dwelling Units			# DUs	Noise Reduction										
				Min	Avg	Max								
				dB	dB	dB								
All Selected			7	0.0	0.0	0.0								
All Impacted			2	0.0	0.0	0.0								
All that meet NR Goal			0	0.0	0.0	0.0								

Operation Noise Calculations

Off-Site Traffic Noise Calculations
Project: 100 West Walnut Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
8%

EXISTING CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
Walnut Street										
- Between Orange Grove Blvd. and St. Johns Ave.	60	10	40	35	480	6,000	0	0	Yes	66.2
- Between Corson St. and Fair Oaks Ave.	60	10	40	35	1,794	22,425	0	0	Yes	71.9
- Between Fair Oaks Ave. and Marengo Ave.	50	10	35	35	1,966	24,575	0	0	Yes	72.9
- East of Marengo Ave.	50	10	35	35	2,100	26,250	0	0	Yes	73.2
Maple Street										
- West of Fair Oaks Ave.	40	10	30	25	1,375	17,188	0	0	Yes	72.2
- East of Fair Oaks Ave.	40	10	30	25	1,924	24,050	0	0	Yes	73.6
Holly Street										
- West of Fair Oaks Ave.	40	10	30	25	394	4,925	0	0	Yes	66.7
- Between Fair Oaks Ave. and Marengo Ave.	40	10	30	25	394	4,925	0	0	Yes	66.7
- East of Marengo Ave.	40	10	30	25	105	1,313	0	0	Yes	61.0
Green Street										
- Between Pasadena Ave. and Fair Oaks Ave.	50	10	35	25	642	8,025	0	0	Yes	68.17
- Between Fair Oaks Ave. and Arroyo Pkwy.	50	10	35	25	590	7,375	0	0	Yes	67.8
- East of Arroyo Pkwy.	50	10	35	25	669	8,363	0	0	Yes	68.3
Fair Oaks Avenue										
- North of Walnut St.	80	10	50	35	2,449	30,613	0	0	Yes	72.3
- Between Walnut St. and Holly St.	80	10	50	35	2,437	30,463	0	0	Yes	72.3
- South of Colorado Blvd.	60	10	40	35	2,145	26,813	0	0	Yes	72.7
Delacy Avenue										
- South of Green St.	40	10	30	25	288	3,600	0	0	Yes	65.4
Pasadena Avenue										
- North of Colorado Blvd.	30	10	25	35	461	5,763	0	0	Yes	68.2
- South of Colorado Blvd.	30	10	25	35	353	4,413	0	0	Yes	67.1
Marengo Avenue										
- North of Walnut St.	60	10	40	35	1,494	18,675	0	0	Yes	71.1

EXISTING CONDITIONS

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site	Traffic Control	24-Hour CNEL
					PHV	ADT		Adjust., dBA		
- Walnut St. and Colorado Blvd.	60	10	40	35	1,510	18,875	0	0	Yes	71.2
- South of Colorado Blvd.	60	10	40	35	1,422	17,775	0	0	Yes	70.9
Raymond Avenue										
- North of Walnut St.	50	10	35	25	305	3,813	0	0	Yes	64.9
- Between Walnut St. and Holly St.	50	10	35	25	577	7,213	0	0	Yes	67.7
- Between Holly St. and Colorado Blvd.	50	10	35	25	560	7,000	0	0	Yes	67.6
- South of Colorado Blvd.	50	10	35	25	657	8,213	0	0	Yes	68.3

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations
Project: 100 West Walnut Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
8%

EXISTING + PROJECT PHASE 1

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
Walnut Street										
- Between Orange Grove Blvd. and St. Johns Ave.	60	10	40	35	490	6,125	0	0	Yes	66.3
- Between Corson St. and Fair Oaks Ave.	60	10	40	35	1,900	23,750	0	0	Yes	72.2
- Between Fair Oaks Ave. and Marengo Ave.	50	10	35	35	2,007	25,088	0	0	Yes	73.0
- East of Marengo Ave.	50	10	35	35	2,138	26,725	0	0	Yes	73.3
Maple Street										
- West of Fair Oaks Ave.	40	10	30	25	1,418	17,725	0	0	Yes	72.3
- East of Fair Oaks Ave.	40	10	30	25	1,958	24,475	0	0	Yes	73.7
Holly Street										
- West of Fair Oaks Ave.	40	10	30	25	550	6,875	0	0	Yes	68.2
- Between Fair Oaks Ave. and Marengo Ave.	40	10	30	25	435	5,438	0	0	Yes	67.2
- East of Marengo Ave.	40	10	30	25	105	1,313	0	0	Yes	61.0
Green Street										
- Between Pasadena Ave. and Fair Oaks Ave.	50	10	35	25	642	8,025	0	0	Yes	68.17
- Between Fair Oaks Ave. and Arroyo Pkwy.	50	10	35	25	590	7,375	0	0	Yes	67.8
- East of Arroyo Pkwy.	50	10	35	25	693	8,663	0	0	Yes	68.5
Fair Oaks Avenue										
- North of Walnut St.	80	10	50	35	2,633	32,913	0	0	Yes	72.6
- Between Walnut St. and Holly St.	80	10	50	35	2,525	31,563	0	0	Yes	72.4
- South of Colorado Blvd.	60	10	40	35	2,251	28,138	0	0	Yes	72.9
Delacy Avenue										
- South of Green St.	40	10	30	25	288	3,600	0	0	Yes	65.4
Pasadena Avenue										
- North of Colorado Blvd.	30	10	25	35	479	5,988	0	0	Yes	68.4
- South of Colorado Blvd.	30	10	25	35	357	4,463	0	0	Yes	67.1
Marengo Avenue										
- North of Walnut St.	60	10	40	35	1,494	18,675	0	0	Yes	71.1

EXISTING + PROJECT PHASE 1

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site	Traffic Control	24-Hour CNEL
					PHV	ADT		Adjust., dBA		
- Walnut St. and Colorado Blvd.	60	10	40	35	1,520	19,000	0	0	Yes	71.2
- South of Colorado Blvd.	60	10	40	35	1,429	17,863	0	0	Yes	70.9
Raymond Avenue										
- North of Walnut St.	50	10	35	25	305	3,813	0	0	Yes	64.9
- Between Walnut St. and Holly St.	50	10	35	25	579	7,238	0	0	Yes	67.7
- Between Holly St. and Colorado Blvd.	50	10	35	25	584	7,300	0	0	Yes	67.8
- South of Colorado Blvd.	50	10	35	25	664	8,300	0	0	Yes	68.3

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations
Project: 100 West Walnut Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
8%

EXISTING + PROJECT PHASE 2

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
Walnut Street										
- Between Orange Grove Blvd. and St. Johns Ave.	60	10	40	35	519	6,488	0	0	Yes	66.5
- Between Corson St. and Fair Oaks Ave.	60	10	40	35	2,019	25,238	0	0	Yes	72.4
- Between Fair Oaks Ave. and Marengo Ave.	50	10	35	35	2,031	25,388	0	0	Yes	73.1
- East of Marengo Ave.	50	10	35	35	2,152	26,900	0	0	Yes	73.3
Maple Street										
- West of Fair Oaks Ave.	40	10	30	25	1,483	18,538	0	0	Yes	72.5
- East of Fair Oaks Ave.	40	10	30	25	1,969	24,613	0	0	Yes	73.7
Holly Street										
- West of Fair Oaks Ave.	40	10	30	25	686	8,575	0	0	Yes	69.2
- Between Fair Oaks Ave. and Marengo Ave.	40	10	30	25	445	5,563	0	0	Yes	67.3
- East of Marengo Ave.	40	10	30	25	105	1,313	0	0	Yes	61.0
Green Street										
- Between Pasadena Ave. and Fair Oaks Ave.	50	10	35	25	642	8,025	0	0	Yes	68.17
- Between Fair Oaks Ave. and Arroyo Pkwy.	50	10	35	25	590	7,375	0	0	Yes	67.8
- East of Arroyo Pkwy.	50	10	35	25	698	8,725	0	0	Yes	68.5
Fair Oaks Avenue										
- North of Walnut St.	80	10	50	35	2,724	34,050	0	0	Yes	72.7
- Between Walnut St. and Holly St.	80	10	50	35	2,528	31,600	0	0	Yes	72.4
- South of Colorado Blvd.	60	10	40	35	2,313	28,913	0	0	Yes	73.0
Delacy Avenue										
- South of Green St.	40	10	30	25	288	3,600	0	0	Yes	65.4
Pasadena Avenue										
- North of Colorado Blvd.	30	10	25	35	497	6,213	0	0	Yes	68.6
- South of Colorado Blvd.	30	10	25	35	358	4,475	0	0	Yes	67.1
Marengo Avenue										
- North of Walnut St.	60	10	40	35	1,494	18,675	0	0	Yes	71.1

EXISTING + PROJECT PHASE 2

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site	Traffic Control	24-Hour CNEL
					PHV	ADT		Adjust., dBA		
- Walnut St. and Colorado Blvd.	60	10	40	35	1,523	19,038	0	0	Yes	71.2
- South of Colorado Blvd.	60	10	40	35	1,433	17,913	0	0	Yes	71.0
Raymond Avenue										
- North of Walnut St.	50	10	35	25	308	3,850	0	0	Yes	65.0
- Between Walnut St. and Holly St.	50	10	35	25	579	7,238	0	0	Yes	67.7
- Between Holly St. and Colorado Blvd.	50	10	35	25	610	7,625	0	0	Yes	67.9
- South of Colorado Blvd.	50	10	35	25	676	8,450	0	0	Yes	68.4

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations
Project: 100 West Walnut Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
8%

FUTURE 2016 NO PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
Walnut Street										
- Between Orange Grove Blvd. and St. Johns Ave.	60	10	40	35	496	6,200	0	0	Yes	66.3
- Between Corson St. and Fair Oaks Ave.	60	10	40	35	1,837	22,963	0	0	Yes	72.0
- Between Fair Oaks Ave. and Marengo Ave.	50	10	35	35	2,013	25,163	0	0	Yes	73.0
- East of Marengo Ave.	50	10	35	35	2,150	26,875	0	0	Yes	73.3
Maple Street										
- West of Fair Oaks Ave.	40	10	30	25	1,407	17,588	0	0	Yes	72.3
- East of Fair Oaks Ave.	40	10	30	25	1,969	24,613	0	0	Yes	73.7
Holly Street										
- West of Fair Oaks Ave.	40	10	30	25	404	5,050	0	0	Yes	66.9
- Between Fair Oaks Ave. and Marengo Ave.	40	10	30	25	403	5,038	0	0	Yes	66.8
- East of Marengo Ave.	40	10	30	25	109	1,363	0	0	Yes	61.2
Green Street										
- Between Pasadena Ave. and Fair Oaks Ave.	50	10	35	25	656	8,200	0	0	Yes	68.3
- Between Fair Oaks Ave. and Arroyo Pkwy.	50	10	35	25	602	7,525	0	0	Yes	67.9
- East of Arroyo Pkwy.	50	10	35	25	681	8,513	0	0	Yes	68.4
Fair Oaks Avenue										
- North of Walnut St.	80	10	50	35	2,507	31,338	0	0	Yes	72.4
- Between Walnut St. and Holly St.	80	10	50	35	2,495	31,188	0	0	Yes	72.4
- South of Colorado Blvd.	60	10	40	35	2,196	27,450	0	0	Yes	72.8
Delacy Avenue										
- South of Green St.	40	10	30	25	294	3,675	0	0	Yes	65.5
Pasadena Avenue										
- North of Colorado Blvd.	30	10	25	35	472	5,900	0	0	Yes	68.3
- South of Colorado Blvd.	30	10	25	35	360	4,500	0	0	Yes	67.2
Marengo Avenue										
- North of Walnut St.	60	10	40	35	1,522	19,025	0	0	Yes	71.2

FUTURE 2016 NO PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site	Traffic Control	24-Hour CNEL
					PHV	ADT		Adjust., dBA		
- Walnut St. and Colorado Blvd.	60	10	40	35	1,541	19,263	0	0	Yes	71.3
- South of Colorado Blvd.	60	10	40	35	1,454	18,175	0	0	Yes	71.0
Raymond Avenue										
- North of Walnut St.	50	10	35	25	312	3,900	0	0	Yes	65.0
- Between Walnut St. and Holly St.	50	10	35	25	591	7,388	0	0	Yes	67.8
- Between Holly St. and Colorado Blvd.	50	10	35	25	573	7,163	0	0	Yes	67.7
- South of Colorado Blvd.	50	10	35	25	673	8,413	0	0	Yes	68.4

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations
Project: 100 West Walnut Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
8%

FUTURE 2016 WITH PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
Walnut Street										
- Between Orange Grove Blvd. and St. Johns Ave.	60	10	40	35	506	6,325	0	0	Yes	66.4
- Between Corson St. and Fair Oaks Ave.	60	10	40	35	1,942	24,275	0	0	Yes	72.3
- Between Fair Oaks Ave. and Marengo Ave.	50	10	35	35	2,054	25,675	0	0	Yes	73.1
- East of Marengo Ave.	50	10	35	35	2,188	27,350	0	0	Yes	73.4
Maple Street										
- West of Fair Oaks Ave.	40	10	30	25	1,450	18,125	0	0	Yes	72.4
- East of Fair Oaks Ave.	40	10	30	25	2,003	25,038	0	0	Yes	73.8
Holly Street										
- West of Fair Oaks Ave.	40	10	30	25	560	7,000	0	0	Yes	68.3
- Between Fair Oaks Ave. and Marengo Ave.	40	10	30	25	443	5,538	0	0	Yes	67.3
- East of Marengo Ave.	40	10	30	25	109	1,363	0	0	Yes	61.2
Green Street										
- Between Pasadena Ave. and Fair Oaks Ave.	50	10	35	25	656	8,200	0	0	Yes	68.3
- Between Fair Oaks Ave. and Arroyo Pkwy.	50	10	35	25	602	7,525	0	0	Yes	67.9
- East of Arroyo Pkwy.	50	10	35	25	705	8,813	0	0	Yes	68.6
Fair Oaks Avenue										
- North of Walnut St.	80	10	50	35	2,691	33,638	0	0	Yes	72.7
- Between Walnut St. and Holly St.	80	10	50	35	2,584	32,300	0	0	Yes	72.5
- South of Colorado Blvd.	60	10	40	35	2,302	28,775	0	0	Yes	73.0
Delacy Avenue										
- South of Green St.	40	10	30	25	294	3,675	0	0	Yes	65.5
Pasadena Avenue										
- North of Colorado Blvd.	30	10	25	35	490	6,125	0	0	Yes	68.5
- South of Colorado Blvd.	30	10	25	35	364	4,550	0	0	Yes	67.2
Marengo Avenue										
- North of Walnut St.	60	10	40	35	1,522	19,025	0	0	Yes	71.2

FUTURE 2016 WITH PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
- Walnut St. and Colorado Blvd.	60	10	40	35	1,551	19,388	0	0	Yes	71.3
- South of Colorado Blvd.	60	10	40	35	1,461	18,263	0	0	Yes	71.0
Raymond Avenue										
- North of Walnut St.	50	10	35	25	312	3,900	0	0	Yes	65.0
- Between Walnut St. and Holly St.	50	10	35	25	592	7,400	0	0	Yes	67.8
- Between Holly St. and Colorado Blvd.	50	10	35	25	597	7,463	0	0	Yes	67.9
- South of Colorado Blvd.	50	10	35	25	680	8,500	0	0	Yes	68.4

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations
Project: 100 West Walnut Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
8%

FUTURE 2020 NO PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
Walnut Street										
- Between Orange Grove Blvd. and St. Johns Ave.	60	10	40	35	519	6,488	0	0	Yes	66.5
- Between Corson St. and Fair Oaks Ave.	60	10	40	35	1,894	23,675	0	0	Yes	72.2
- Between Fair Oaks Ave. and Marengo Ave.	50	10	35	35	2,075	25,938	0	0	Yes	73.2
- East of Marengo Ave.	50	10	35	35	2,217	27,713	0	0	Yes	73.5
Maple Street										
- West of Fair Oaks Ave.	40	10	30	25	1,452	18,150	0	0	Yes	72.4
- East of Fair Oaks Ave.	40	10	30	25	2,031	25,388	0	0	Yes	73.9
Holly Street										
- West of Fair Oaks Ave.	40	10	30	25	417	5,213	0	0	Yes	67.0
- Between Fair Oaks Ave. and Marengo Ave.	40	10	30	25	416	5,200	0	0	Yes	67.0
- East of Marengo Ave.	40	10	30	25	111	1,388	0	0	Yes	61.2
Green Street										
- Between Pasadena Ave. and Fair Oaks Ave.	50	10	35	25	675	8,438	0	0	Yes	68.4
- Between Fair Oaks Ave. and Arroyo Pkwy.	50	10	35	25	618	7,725	0	0	Yes	68.0
- East of Arroyo Pkwy.	50	10	35	25	697	8,713	0	0	Yes	68.5
Fair Oaks Avenue										
- North of Walnut St.	80	10	50	35	2,586	32,325	0	0	Yes	72.5
- Between Walnut St. and Holly St.	80	10	50	35	2,572	32,150	0	0	Yes	72.5
- South of Colorado Blvd.	60	10	40	35	2,263	28,288	0	0	Yes	72.9
Delacy Avenue										
- South of Green St.	40	10	30	25	303	3,788	0	0	Yes	65.6
Pasadena Avenue										
- North of Colorado Blvd.	30	10	25	35	487	6,088	0	0	Yes	68.5
- South of Colorado Blvd.	30	10	25	35	371	4,638	0	0	Yes	67.3
Marengo Avenue										
- North of Walnut St.	60	10	40	35	1,556	19,450	0	0	Yes	71.3

FUTURE 2020 NO PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site	Traffic Control	24-Hour CNEL
					PHV	ADT		Adjust., dBA		
- Walnut St. and Colorado Blvd.	60	10	40	35	1,582	19,775	0	0	Yes	71.4
- South of Colorado Blvd.	60	10	40	35	1,500	18,750	0	0	Yes	71.2
Raymond Avenue										
- North of Walnut St.	50	10	35	25	322	4,025	0	0	Yes	65.2
- Between Walnut St. and Holly St.	50	10	35	25	609	7,613	0	0	Yes	67.9
- Between Holly St. and Colorado Blvd.	50	10	35	25	592	7,400	0	0	Yes	67.8
- South of Colorado Blvd.	50	10	35	25	694	8,675	0	0	Yes	68.5

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Off-Site Traffic Noise Calculations
Project: 100 West Walnut Project

Traffic Distribution as % of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

PHV to
ADT factor
8%

FUTURE 2020 WITH PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site Adjust., dBA	Traffic Control	24-Hour CNEL
					PHV	ADT				
Walnut Street										
- Between Orange Grove Blvd. and St. Johns Ave.	60	10	40	35	558	6,975	0	0	Yes	66.9
- Between Corson St. and Fair Oaks Ave.	60	10	40	35	2,119	26,488	0	0	Yes	72.7
- Between Fair Oaks Ave. and Marengo Ave.	50	10	35	35	2,140	26,750	0	0	Yes	73.3
- East of Marengo Ave.	50	10	35	35	2,269	28,363	0	0	Yes	73.6
Maple Street										
- West of Fair Oaks Ave.	40	10	30	25	1,560	19,500	0	0	Yes	72.7
- East of Fair Oaks Ave.	40	10	30	25	2,076	25,950	0	0	Yes	74.0
Holly Street										
- West of Fair Oaks Ave.	40	10	30	25	709	8,863	0	0	Yes	69.3
- Between Fair Oaks Ave. and Marengo Ave.	40	10	30	25	466	5,825	0	0	Yes	67.5
- East of Marengo Ave.	40	10	30	25	111	1,388	0	0	Yes	61.2
Green Street										
- Between Pasadena Ave. and Fair Oaks Ave.	50	10	35	25	675	8,438	0	0	Yes	68.4
- Between Fair Oaks Ave. and Arroyo Pkwy.	50	10	35	25	618	7,725	0	0	Yes	68.0
- East of Arroyo Pkwy.	50	10	35	25	726	9,075	0	0	Yes	68.7
Fair Oaks Avenue										
- North of Walnut St.	80	10	50	35	2,861	35,763	0	0	Yes	73.0
- Between Walnut St. and Holly St.	80	10	50	35	2,663	33,288	0	0	Yes	72.6
- South of Colorado Blvd.	60	10	40	35	2,431	30,388	0	0	Yes	73.3
Delacy Avenue										
- South of Green St.	30	10	25	25	303	3,788	0	0	Yes	66.4
Pasadena Avenue										
- North of Colorado Blvd.	30	10	25	35	523	6,538	0	0	Yes	68.8
- South of Colorado Blvd.	30	10	25	35	376	4,700	0	0	Yes	67.3
Merango Avenue										
- North of Walnut St.	60	10	40	35	1,556	19,450	0	0	Yes	71.3

FUTURE 2020 WITH PROJECT

Roadway Segment	Roadway Width*, ft	Distance to Edge of Roadway, ft	Distance to Centerline, feet	Speed mph	Traffic Volume		Barrier Atten.	Site	Traffic Control	24-Hour CNEL
					PHV	ADT		Adjust., dBA		
- Walnut St. and Colorado Blvd.	60	10	40	35	1,596	19,950	0	0	Yes	71.4
- South of Colorado Blvd.	60	10	40	35	1,511	18,888	0	0	Yes	71.2
Raymond Avenue										
- North of Walnut St.	50	10	35	25	325	4,063	0	0	Yes	65.2
- Between Walnut St. and Holly St.	50	10	35	25	610	7,625	0	0	Yes	67.9
- Between Holly St. and Colorado Blvd.	50	10	35	25	642	8,025	0	0	Yes	68.2
- South of Colorado Blvd.	50	10	35	25	713	8,913	0	0	Yes	68.6

* Estimated based on Google Earth map.

** Calculated using FHWA's TNM Version 2.5 Computer Noise Model.

Project Composite Noise Calculations (CNEL) - Phase 1

Project: 100 West Walnut Project

Receptor	Ambient	Traffic ^a	Mechanical	Parking	Loading/ Trash	Project Composite	Ambient + Project	Increase
R1	72.7	56.0	56.6	40.5	50.3	59.9	72.9	0.2
R3	59.1	57.6	15.4	19.4	29.2	57.6	61.4	2.3
R4	58.2	45.6	15.6	19.6	29.4	45.7	58.4	0.2
R5	60.1	47.8	22.0	26.0	35.8	48.1	60.4	0.3
R6	65.4	51.1	15.2	19.2	29.0	51.1	65.6	0.2
R7	64.5	49.9	13.4	17.4	27.1	49.9	64.6	0.1
R8	61.3	46.6	13.7	17.7	27.5	46.6	61.4	0.1

^a - traffic noise levels at each receptor is based on the traffic noise analysis for the roadway segment in front of the receptor.

Receptor	Roadway Segment	Traffic Noise Levels, CNEL			distance to roadway, ft	Traffic Noise Levels, CNEL at 10 feet from roadway			distance to CL	adj. for distance
		Existing	Existing + Phase 1	Project Only		Existing	Existing + Project	barrier		
R1	Fair Oaks, Walnut to Holly	72.3	72.4	56.0	10	72.3	72.4	0	25	0.00
R3	Holly, east of Fair Oaks	66.7	67.2	57.6	10	66.7	67.2	0	25	0.00
R4	Walnut, east of Fair Oaks	61.9	62.0	45.6	300	72.9	73	0	25	-11.00
R5	Fair Oaks, north of Walnut	58.0	58.4	47.8	200	72.3	72.7	5	25	-9.34
R6	Maple St, west of Fair Oaks	67.4	67.5	51.1	60	72.2	72.3	0	25	-4.77
R7	Walnut, west of Pasadena	66.2	66.3	49.9	10	66.2	66.3	0	25	0.00
R8	Green Street	68.2	68.2	46.6	10	68.2	68.2	0	25	0.00

Mechanical Noise Calculations - Phase 1

Project: 100 West Walnut Project

Receptor	Distance from Project Site	Barrier, IL	Source Noise Levels, at 50ft	Estimated Noise Levels	Hours of Operations		
					Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
					12	3	9
R1	90	0	55.0	49.9	49.9	49.9	49.9
R3	1025	20	55.0	8.8	8.8	8.8	8.8
R4	1000	20	55.0	9.0	9.0	9.0	9.0
R5	480	20	55.0	15.4	15.4	15.4	15.4
R6	1050	20	55.0	8.6	8.6	8.6	8.6
R7	1300	20	55.0	6.7	6.7	6.7	6.7
R8	1250	20	55.0	7.0	7.0	7.0	7.0

Receptor	Project CNEL	Ambient CNEL	Ambient + Project	Increase	Project Noise, Leq	nighttime ambient (Leq)	Ambient + Project	Increase
R1	56.6	72.7	72.8	0.1	49.9	58.9	59.4	0.5
R3	15.4	59.1	59.1	0.0	8.8	52.6	52.6	0.0
R4	15.6	58.2	58.2	0.0	9.0	52.7	52.7	0.0
R5	22.0	60.1	60.1	0.0	15.4	54.3	54.3	0.0
R6	15.2	65.4	65.4	0.0	8.6	59.8	59.8	0.0
R7	13.4	64.5	64.5	0.0	6.7	56.5	56.5	0.0
R8	13.7	61.3	61.3	0.0	7.0	53.9	53.9	0.0

55 dBA at the Project Property Line

Measured nighttime ambient noise levels, at nearest receptor is 51.7 dBA (Leq)

Therefore, to meet the maximum 5dBA above ambient, the project's noise shall be limit to:

Ambient	51.7
Project	55
<u>Total</u>	<u>56.7</u>
	5.0

Parking Structure Noise Calculations - Phase 1

Project: 100 West Walnut Project

Receptor	Distance from Project Site	Noise Levels Inside Parking Structure	Parking Structure Insertion Loss	Noise at 25 feet	Estimated Noise Leves, hourly Leq	Hours of Operations		
						Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
						12	3	9
R1	90	65	20	45	34	33.9	33.9	33.9
R3	1025	65	20	45	13	12.7	12.7	12.7
R4	1000	65	20	45	13	13.0	13.0	13.0
R5	480	65	20	45	19	19.3	19.3	19.3
R6	1050	65	20	45	13	12.5	12.5	12.5
R7	1300	65	20	45	11	10.7	10.7	10.7
R8	1250	65	20	45	11	11.0	11.0	11.0

Receptor	CNEL	Ambient	Ambient + Project	Increase	Project Noise, Leq	nighttime ambient (Leq)	Ambient + Project	Increase
R1	40.5	72.7	72.7	0.0	33.9	58.9	58.9	0.0
R3	19.4	59.1	59.1	0.0	12.7	52.6	52.6	0.0
R4	19.6	58.2	58.2	0.0	13.0	52.7	52.7	0.0
R5	26.0	60.1	60.1	0.0	19.3	54.3	54.3	0.0
R6	19.2	65.4	65.4	0.0	12.5	59.8	59.8	0.0
R7	17.4	64.5	64.5	0.0	10.7	56.5	56.5	0.0
R8	17.7	61.3	61.3	0.0	11.0	53.9	53.9	0.0

Parking Related Noise

65 dBA at 25 feet (Lmax)

55 Assumed -10 dBA adjustment from Lmax to Leq

65 Assumed +10 dBA adjustment due to reverberant inside the parking structure

Loading Dock & Trash Collection Noise Calculations - Phase 1

Project: 100 West Walnut Project

Receptor	Distance to Loading Dock Area	Loading Dock, Leq	Source Levels, at 50ft			Estimated noise levels, leq			Hours of Operation 7 am to 10 pm		
			Barrier, IL	Trash Collector	Barrier, IL	Loading Dock, Leq	Trash Collector	Total	Ld	Le	Ln
R1	90	71	20	71	20	45.9	45.9	48.9	48.9	53.9	0.0
R3	1025	71	20	71	20	24.8	24.8	27.8	27.8	32.8	0.0
R4	1000	71	20	71	20	25.0	25.0	28.0	28.0	33.0	0.0
R5	480	71	20	71	20	31.4	31.4	34.4	34.4	39.4	0.0
R6	1050	71	20	71	20	24.6	24.6	27.6	27.6	32.6	0.0
R7	1300	71	20	71	20	22.7	22.7	25.7	25.7	30.7	0.0
R8	1250	71	20	71	20	23.0	23.0	26.1	26.1	31.1	0.0

Receptor	Project CNEL	Ambient CNEL	Ambient + Project	Increase	Project Noise, Leq	nighttime ambient (Leq)	Ambient + Project	Increase
R1	50.3	72.7	72.7	0.0	48.9	58.9	59.3	0.4
R3	29.2	59.1	59.1	0.0	27.8	52.6	52.6	0.0
R4	29.4	58.2	58.2	0.0	28.0	52.7	52.7	0.0
R5	35.8	60.1	60.1	0.0	34.4	54.3	54.3	0.0
R6	29.0	65.4	65.4	0.0	27.6	59.8	59.8	0.0
R7	27.1	64.5	64.5	0.0	25.7	56.5	56.5	0.0
R8	27.5	61.3	61.3	0.0	26.1	53.9	53.9	0.0

Project Composite Noise Calculations (CNEL) - Project Build-Out (Phase 1 and Phase 2)

Project: 100 West Walnut Project

Receptor	Ambient	Traffic ^a	Mechanical	Parking	Loading/ Trash	Project Composite	Ambient + Project	Increase
R1	72.7	62.1	56.6	40.5	50.3	63.4	73.2	0.5
R3	59.1	58.4	15.4	19.4	29.2	58.4	61.8	2.7
R4	58.2	48.6	15.6	19.6	29.4	48.7	58.7	0.5
R5	60.1	47.8	22.0	26.0	35.8	48.1	60.4	0.3
R6	65.4	56.0	15.2	19.2	29.0	56.0	65.9	0.5
R7	64.5	54.7	13.4	17.4	27.1	54.8	64.9	0.4
R8	61.3	46.6	13.7	17.7	27.5	46.6	61.4	0.1

^a - traffic noise levels at each receptor is based on the traffic noise analysis for the roadway segment in front of the receptor.

Receptor	Roadway Segment	Traffic Noise Levels, CNEL			distance to roadway, ft	Traffic Noise Levels, CNEL at 10 feet from roadway			distance to CL	adj. for distance
		Existing	Existing + Project	Project Only		Existing	Existing + Project	barrier		
R1	Fair Oaks, Walnut to Holly	72.3	72.7	62.1	10	72.3	72.7	0	25	0.00
R3	Holly, east of Fair Oaks	66.7	67.3	58.4	10	66.7	67.3	0	25	0.00
R4	Walnut, east of Fair Oaks	61.9	62.1	48.6	300	72.9	73.1	0	25	-11.00
R5	Fair Oaks, north of Walnut	58.0	58.4	47.8	200	72.3	72.7	5	25	-9.34
R6	Maple St, west of Fair Oaks	67.4	67.7	56.0	60	72.2	72.5	0	25	-4.77
R7	Walnut, west of Pasadena	66.2	66.5	54.7	10	66.2	66.5	0	25	0.00
R8	Green Street	68.2	68.2	46.6	10	68.2	68.2	0	25	0.00

Mechanical Noise Calculations - Proect Build-Out (Phase 1 and Phase 2)

Project: 100 West Walnut Project

Receptor	Distance from Project Site	Barrier, IL	Source Noise Levels, at 50ft	Estimated Noise Levels	Hours of Operations		
					Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
					12	3	9
R1	90	0	55.0	49.9	49.9	49.9	49.9
R3	1025	20	55.0	8.8	8.8	8.8	8.8
R4	1000	20	55.0	9.0	9.0	9.0	9.0
R5	480	20	55.0	15.4	15.4	15.4	15.4
R6	1050	20	55.0	8.6	8.6	8.6	8.6
R7	1300	20	55.0	6.7	6.7	6.7	6.7
R8	1250	20	55.0	7.0	7.0	7.0	7.0

Receptor	Project CNEL	Ambient CNEL	Ambient + Project	Increase	Project Noise, Leq	nighttime ambient (Leq)	Ambient + Project	Increase
R1	56.6	72.7	72.8	0.1	49.9	58.9	59.4	0.5
R3	15.4	59.1	59.1	0.0	8.8	52.6	52.6	0.0
R4	15.6	58.2	58.2	0.0	9.0	52.7	52.7	0.0
R5	22.0	60.1	60.1	0.0	15.4	54.3	54.3	0.0
R6	15.2	65.4	65.4	0.0	8.6	59.8	59.8	0.0
R7	13.4	64.5	64.5	0.0	6.7	56.5	56.5	0.0
R8	13.7	61.3	61.3	0.0	7.0	53.9	53.9	0.0

55 dBA at the Project Property Line

Measured nighttime ambient noise levels, at nearest receptor is 51.7 dBA (Leq)

Therefore, to meet the maximum 5dBA above ambient, the project's noise shall be limit to:

Ambient	51.7
Project	55
<u>Total</u>	<u>56.7</u>
	5.0

Parking Structure Noise Calculations - Project Build-Out (Phase 1 and Phase 2)

Project: 100 West Walnut Project

Receptor	Distance from Project Site	Noise Levels Inside Parking Structure	Parking Structure Insertion Loss	Noise at 25 feet	Estimated Noise Leves, hourly Leq	Hours of Operations		
						Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
						12	3	9
R1	90	65	20	45	34	33.9	33.9	33.9
R3	1025	65	20	45	13	12.7	12.7	12.7
R4	1000	65	20	45	13	13.0	13.0	13.0
R5	480	65	20	45	19	19.3	19.3	19.3
R6	1050	65	20	45	13	12.5	12.5	12.5
R7	1300	65	20	45	11	10.7	10.7	10.7
R8	1250	65	20	45	11	11.0	11.0	11.0

Receptor	CNEL	Ambient	Ambient + Project	Increase	Project Noise, Leq	nighttime ambient (Leq)	Ambient + Project	Increase
R1	40.5	72.7	72.7	0.0	33.9	58.9	58.9	0.0
R3	19.4	59.1	59.1	0.0	12.7	52.6	52.6	0.0
R4	19.6	58.2	58.2	0.0	13.0	52.7	52.7	0.0
R5	26.0	60.1	60.1	0.0	19.3	54.3	54.3	0.0
R6	19.2	65.4	65.4	0.0	12.5	59.8	59.8	0.0
R7	17.4	64.5	64.5	0.0	10.7	56.5	56.5	0.0
R8	17.7	61.3	61.3	0.0	11.0	53.9	53.9	0.0

Parking Related Noise

65 dBA at 25 feet (Lmax)

55 Assumed -10 dBA adjustment from Lmax to Leq

65 Assumed +10 dBA adjustment due to reverberant inside the parking structure

Loading Dock & Trash Collection Noise Calculations - Project Build-Out (Phase 1 and Phase 2)

Project: 100 West Walnut Project

Receptor	Distance to Loading Dock Area	Loading Dock, Leq	Source Levels, at 50ft			Estimated noise levels, leq			Hours of Operation 7 am to 10 pm		
			Barrier, IL	Trash Collector	Barrier, IL	Loading Dock, Leq	Trash Collector	Total	Ld	Le	Ln
R1	90	71	20	71	20	45.9	45.9	48.9	48.9	53.9	0.0
R3	1025	71	20	71	20	24.8	24.8	27.8	27.8	32.8	0.0
R4	1000	71	20	71	20	25.0	25.0	28.0	28.0	33.0	0.0
R5	480	71	20	71	20	31.4	31.4	34.4	34.4	39.4	0.0
R6	1050	71	20	71	20	24.6	24.6	27.6	27.6	32.6	0.0
R7	1300	71	20	71	20	22.7	22.7	25.7	25.7	30.7	0.0
R8	1250	71	20	71	20	23.0	23.0	26.1	26.1	31.1	0.0

Receptor	Project CNEL	Ambient CNEL	Ambient + Project	Increase	Project Noise, Leq	nighttime ambient (Leq)	Ambient + Project	Increase
R1	50.3	72.7	72.7	0.0	48.9	58.9	59.3	0.4
R3	29.2	59.1	59.1	0.0	27.8	52.6	52.6	0.0
R4	29.4	58.2	58.2	0.0	28.0	52.7	52.7	0.0
R5	35.8	60.1	60.1	0.0	34.4	54.3	54.3	0.0
R6	29.0	65.4	65.4	0.0	27.6	59.8	59.8	0.0
R7	27.1	64.5	64.5	0.0	25.7	56.5	56.5	0.0
R8	27.5	61.3	61.3	0.0	26.1	53.9	53.9	0.0