# APPENDIX I

# NOISE ANALYSIS DATA

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# Noise Measurement Survey – 48 HR

Project Number: OCY2001.51
Project Name: OC Workforce Reentry

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (SN: 17814)

Site Number: LT-1 Start Date: 1/21/2025

Time: From 10:00 a.m. To 10:00 a.m.

Site Location: 591 The City Drive South, on the north end, on the corner of the fence. Approximately 120 feet from The City Drive centerline.

Primary Noise Sources: Traffic on Highway 22 (CA-22), The City Drive, and Metropolitan Drive.

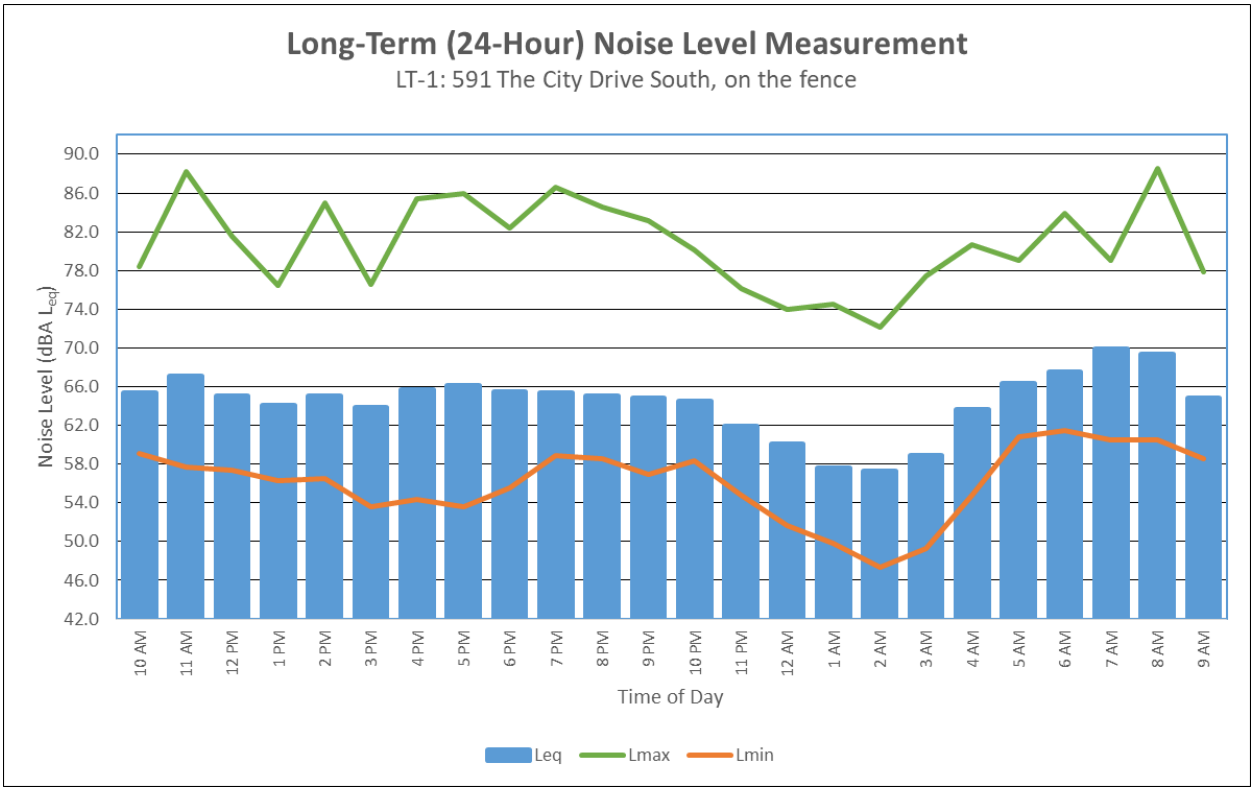
Comments:

Photo:

## Long-Term (24-Hour) Noise Level Measurement Results at LT-1

| Start Time | Start Date | Hourly Noise Levels (dBA) | | |
|---|---|---|---|---|
| | | $L_{eq}$ | $L_{max}$ | $L_{min}$ |
| 10:00 AM | 1/21/25 | 65.3 | 78.4 | 59.1 |
| 11:00 AM | 1/21/25 | 67.1 | 88.2 | 57.7 |
| 12:00 PM | 1/21/25 | 65.1 | 81.5 | 57.4 |
| 1:00 PM | 1/21/25 | 64.1 | 76.5 | 56.3 |
| 2:00 PM | 1/21/25 | 65.0 | 85.0 | 56.5 |
| 3:00 PM | 1/21/25 | 63.9 | 76.6 | 53.6 |
| 4:00 PM | 1/21/25 | 65.7 | 85.4 | 54.3 |
| 5:00 PM | 1/21/25 | 66.1 | 86.0 | 53.6 |
| 6:00 PM | 1/21/25 | 65.5 | 82.4 | 55.5 |
| 7:00 PM | 1/21/25 | 65.3 | 86.6 | 58.9 |
| 8:00 PM | 1/21/25 | 65.1 | 84.5 | 58.6 |
| 9:00 PM | 1/21/25 | 64.8 | 83.1 | 56.9 |
| 10:00 PM | 1/21/25 | 64.5 | 80.1 | 58.3 |
| 11:00 PM | 1/21/25 | 61.9 | 76.1 | 54.8 |
| 12:00 AM | 1/22/25 | 60.0 | 74.0 | 51.7 |
| 1:00 AM | 1/22/25 | 57.6 | 74.5 | 49.8 |
| 2:00 AM | 1/22/25 | 57.3 | 72.1 | 47.3 |
| 3:00 AM | 1/22/25 | 58.9 | 77.4 | 49.3 |
| 4:00 AM | 1/22/25 | 63.6 | 80.7 | 54.8 |
| 5:00 AM | 1/22/25 | 66.3 | 79.0 | 60.8 |
| 6:00 AM | 1/22/25 | 67.5 | 83.9 | 61.5 |
| 7:00 AM | 1/22/25 | 69.8 | 79.1 | 60.5 |
| 8:00 AM | 1/22/25 | 69.3 | 88.5 | 60.5 |
| 9:00 AM | 1/22/25 | 64.8 | 77.9 | 58.6 |

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
$L_{eq}$ = equivalent continuous sound level
$L_{max}$ = maximum instantaneous noise level
$L_{min}$ = minimum measured sound level



# Noise Measurement Survey – 48 HR

Project Number: OCY2001.51
Project Name: OC Workforce Reentry

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (SN: 17206)

Site Number: LT-2 Start Date: 1/21/2025

Time: From 10:00 a.m. To 10:00 a.m.

Site Location: In the parking lot to the east of the Theo Lacy rec yard. Approximately 540 feet south of the CA-22 centerline and 700 ft east of The City Drive centerline.

Primary Noise Sources: Traffic on CA-22 and faint traffic on I-5.

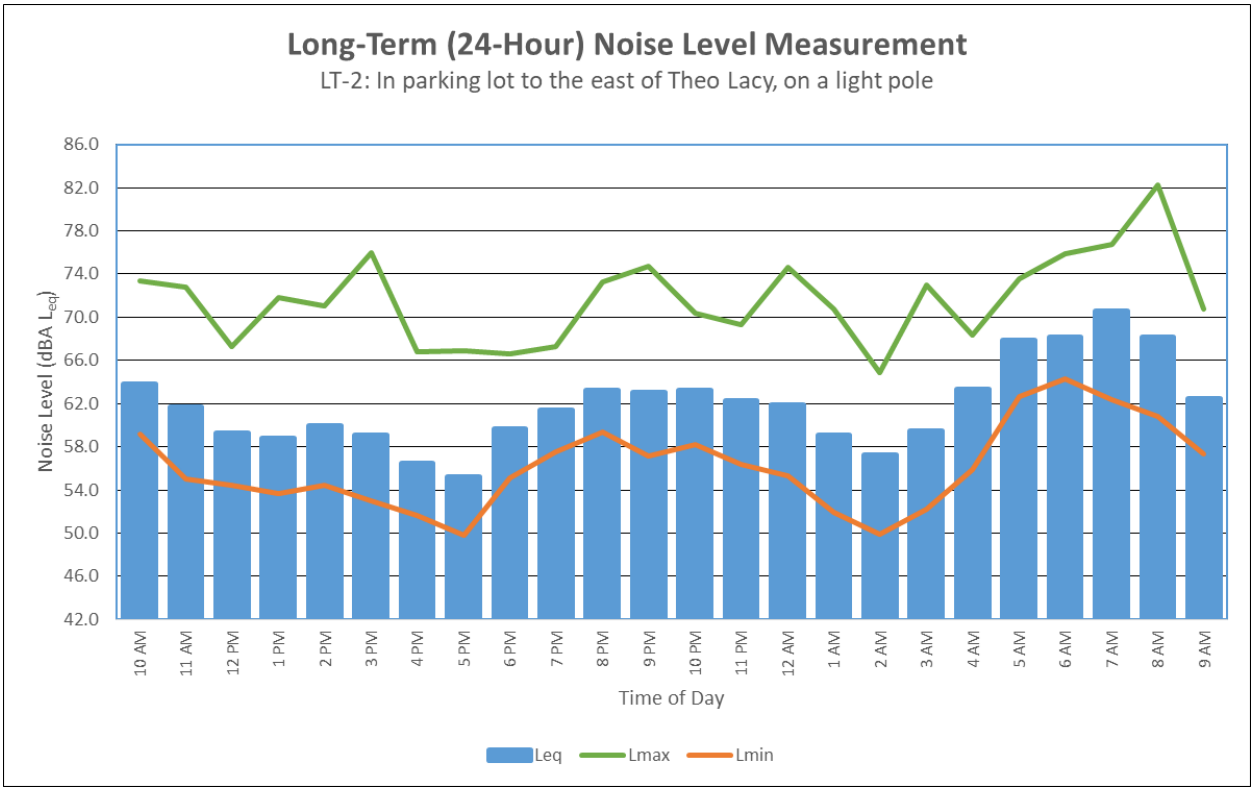
Comments:

Photo:

## Long-Term (24-Hour) Noise Level Measurement Results at LT-2

| Start Time | Start Date | Hourly Noise Levels (dBA) | | |
|---|---|---|---|---|
| | | $L_{eq}$ | $L_{max}$ | $L_{min}$ |
| 10:00 AM | 1/21/25 | 63.8 | 73.4 | 59.2 |
| 11:00 AM | 1/21/25 | 61.7 | 72.8 | 55.0 |
| 12:00 PM | 1/21/25 | 59.3 | 67.3 | 54.4 |
| 1:00 PM | 1/21/25 | 58.8 | 71.8 | 53.7 |
| 2:00 PM | 1/21/25 | 59.9 | 71.0 | 54.4 |
| 3:00 PM | 1/21/25 | 59.0 | 76.0 | 53.0 |
| 4:00 PM | 1/21/25 | 56.5 | 66.8 | 51.6 |
| 5:00 PM | 1/21/25 | 55.2 | 66.9 | 49.8 |
| 6:00 PM | 1/21/25 | 59.7 | 66.6 | 55.1 |
| 7:00 PM | 1/21/25 | 61.3 | 67.3 | 57.5 |
| 8:00 PM | 1/21/25 | 63.2 | 73.3 | 59.4 |
| 9:00 PM | 1/21/25 | 63.1 | 74.7 | 57.1 |
| 10:00 PM | 1/21/25 | 63.3 | 70.4 | 58.2 |
| 11:00 PM | 1/21/25 | 62.2 | 69.3 | 56.4 |
| 12:00 AM | 1/22/25 | 61.9 | 74.6 | 55.3 |
| 1:00 AM | 1/22/25 | 59.0 | 70.8 | 51.9 |
| 2:00 AM | 1/22/25 | 57.3 | 64.9 | 49.9 |
| 3:00 AM | 1/22/25 | 59.5 | 73.0 | 52.2 |
| 4:00 AM | 1/22/25 | 63.3 | 68.3 | 55.9 |
| 5:00 AM | 1/22/25 | 67.9 | 73.6 | 62.6 |
| 6:00 AM | 1/22/25 | 68.2 | 75.9 | 64.3 |
| 7:00 AM | 1/22/25 | 70.6 | 76.7 | 62.4 |
| 8:00 AM | 1/22/25 | 68.2 | 82.2 | 60.8 |
| 9:00 AM | 1/22/25 | 62.5 | 70.8 | 57.3 |

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
$L_{eq}$ = equivalent continuous sound level
$L_{max}$ = maximum instantaneous noise level
$L_{min}$ = minimum measured sound level



# Noise Measurement Survey –48 HR

Project Number: OCY2001.51
Project Name: OC Workforce Reentry

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (SN: 18571)

Site Number: LT-3 Start Date: 1/21/2025

Time: From 10:00 a.m. To 10:00 a.m.

Site Location: 591 The City Drive South, near the center of the parking lot, on a light pole. Approximately 315 feet from the CA-22 centerline and 130 feet from The City Drive centerline.

Primary Noise Sources: Traffic on CA-22, The City Drive, and Metropolitan Drive.

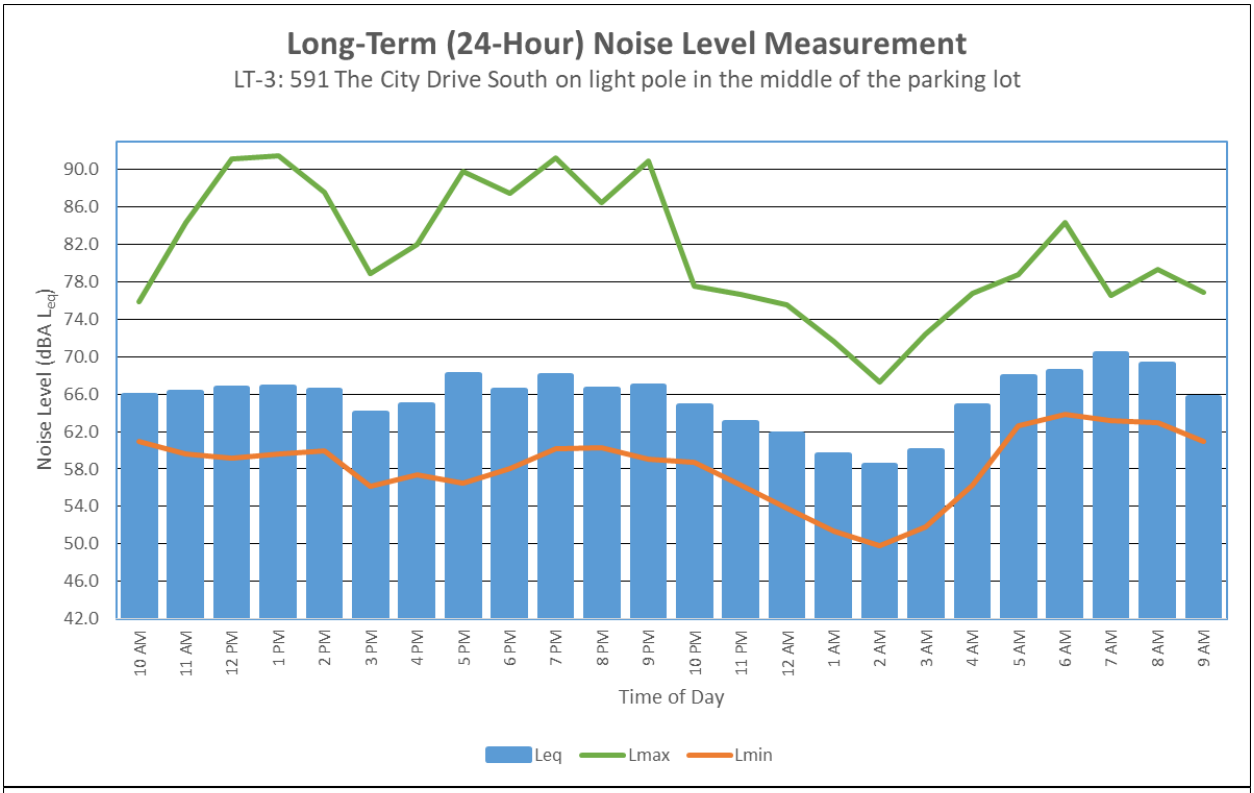
Comments:

Photo:

## Long-Term (24-Hour) Noise Level Measurement Results at LT-3

| Start Time | Start Date | Hourly Noise Levels (dBA) | | |
|---|---|---|---|---|
| | | $L_{eq}$ | $L_{max}$ | $L_{min}$ |
| 10:00 AM | 1/21/25 | 65.9 | 75.9 | 61.0 |
| 11:00 AM | 1/21/25 | 66.2 | 84.4 | 59.6 |
| 12:00 PM | 1/21/25 | 66.6 | 91.2 | 59.2 |
| 1:00 PM | 1/21/25 | 66.7 | 91.5 | 59.6 |
| 2:00 PM | 1/21/25 | 66.4 | 87.6 | 59.9 |
| 3:00 PM | 1/21/25 | 64.0 | 78.9 | 56.2 |
| 4:00 PM | 1/21/25 | 64.8 | 82.0 | 57.4 |
| 5:00 PM | 1/21/25 | 68.0 | 89.8 | 56.5 |
| 6:00 PM | 1/21/25 | 66.4 | 87.5 | 58.1 |
| 7:00 PM | 1/21/25 | 68.0 | 91.3 | 60.2 |
| 8:00 PM | 1/21/25 | 66.5 | 86.5 | 60.3 |
| 9:00 PM | 1/21/25 | 66.9 | 90.9 | 59.1 |
| 10:00 PM | 1/21/25 | 64.8 | 77.6 | 58.7 |
| 11:00 PM | 1/21/25 | 63.0 | 76.7 | 56.3 |
| 12:00 AM | 1/22/25 | 61.8 | 75.6 | 53.8 |
| 1:00 AM | 1/22/25 | 59.5 | 71.6 | 51.4 |
| 2:00 AM | 1/22/25 | 58.4 | 67.3 | 49.8 |
| 3:00 AM | 1/22/25 | 60.0 | 72.4 | 51.8 |
| 4:00 AM | 1/22/25 | 64.7 | 76.8 | 56.3 |
| 5:00 AM | 1/22/25 | 67.8 | 78.8 | 62.6 |
| 6:00 AM | 1/22/25 | 68.4 | 84.3 | 63.9 |
| 7:00 AM | 1/22/25 | 70.3 | 76.6 | 63.2 |
| 8:00 AM | 1/22/25 | 69.2 | 79.3 | 63.0 |
| 9:00 AM | 1/22/25 | 65.7 | 76.9 | 61.0 |

Source: Compiled by LSA Associates, Inc. (2025).
dBA = A-weighted decibel
$L_{eq}$ = equivalent continuous sound level
$L_{max}$ = maximum instantaneous noise level
$L_{min}$ = minimum measured sound level


Long-Term (24-Hour) Noise Level Measurement
LT-3: 591 The City Drive South on light pole in the middle of the parking lot
Noise Level (dBA Leq)
90.0
86.0
82.0
78.0
74.0
70.0
66.0
62.0
58.0
54.0
50.0
46.0
42.0
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
Time of Day
Leq
Lmax
Lmin

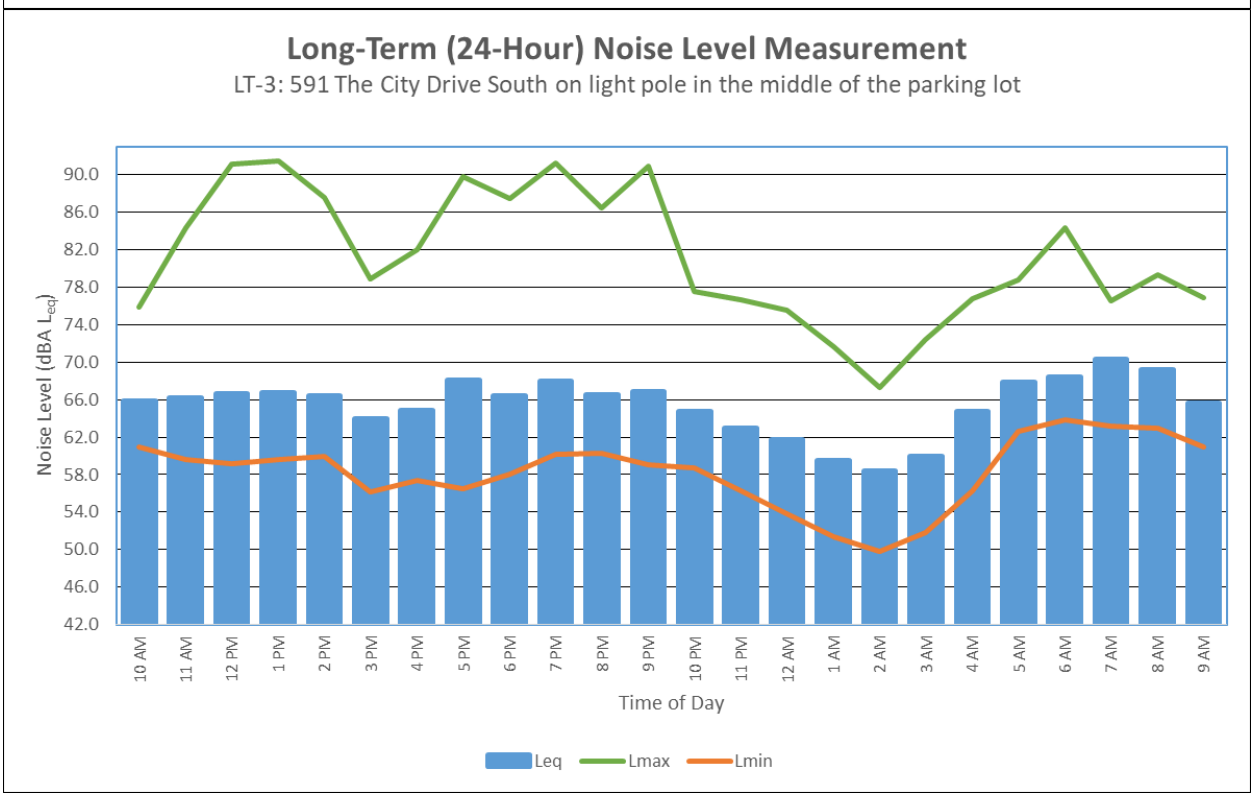

Long-Term (24-Hour) Noise Level Measurement
LT-3: 591 The City Drive South on light pole in the middle of the parking lot
Noise Level (dBA Leq)
90.0
86.0
82.0
78.0
74.0
70.0
66.0
62.0
58.0
54.0
50.0
46.0
42.0
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
Time of Day
Leq
Lmax
Lmin

TABLE Existing NP-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive North of Outlet Drive
NOTES: OC Workforce Reentry - Existing NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20590  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 49  SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.47

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 93.2 | 177.7 | 371.1 |

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TABLE Existing NP-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Outlet Drive and Metropolitan Drive
NOTES: OC Workforce Reentry - Existing NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23190  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 54  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.77

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|---|
| | 0.0 | 101.4 | 192.5 | 401.7 |

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TABLE Existing NP-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Metropolitan Drive and SR-22 EB Ramps
NOTES: OC Workforce Reentry - Existing NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22815  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 37  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.50

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 92.7 | 186.7 | 396.0 |

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TABLE Existing NP-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive South of SR-22 EB Ramps
NOTES: OC Workforce Reentry - Existing NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16160  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 34  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.16

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 75.6 | 149.4 | 315.2 |

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TABLE Existing NP-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: Metropolitan Drive West of The City Drive
NOTES: OC Workforce Reentry - Existing NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10760  SPEED (MPH): 30  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 20  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.68

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 89.0 | 188.0 |

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TABLE Existing P-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive North of Outlet Drive
NOTES: OC Workforce Reentry - Existing P

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20730  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 49  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.50

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 93.5 | 178.4 | 372.7 |

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TABLE Existing P-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Outlet Drive and Metropolitan Drive
NOTES: OC Workforce Reentry - Existing P

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23320  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 54  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 101.6 | 193.2 | 403.1 |

---

TABLE Existing P-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Metropolitan Drive and SR-22 EB Ramps
NOTES: OC Workforce Reentry - Existing P

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23305  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 37  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 93.8 | 189.3 | 401.6 |

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TABLE Existing P-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive South of SR-22 EB Ramps
NOTES: OC Workforce Reentry - Existing P

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16300  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 34  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.20

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 76.0 | 150.2 | 317.0 |

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TABLE Existing P-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: Metropolitan Drive West of The City Drive
NOTES: OC Workforce Reentry - Existing P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11060  SPEED (MPH): 30  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 20  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 90.6 | 191.4 |

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TABLE 2028 NP-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive North of Outlet Drive
NOTES: OC Workforce Reentry - 2028 NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26830  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 49  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.62

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 106.5 | 209.5 | 441.5 |

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TABLE 2028 NP-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Outlet Drive and Metropolitan Drive
NOTES: OC Workforce Reentry - 2028 NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 29510  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 54  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 114.3 | 223.6 | 470.5 |

---

TABLE 2028 NP-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Metropolitan Drive and SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2028 NP

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28515  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 37  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.47

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 105.3 | 215.6 | 458.9 |

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TABLE 2028 NP-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive South of SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2028 NP

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19560  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 34  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 83.9 | 168.7 | 357.5 |

---

TABLE 2028 NP-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: Metropolitan Drive West of The City Drive
NOTES: OC Workforce Reentry - 2028 NP

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13160  SPEED (MPH): 30  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 20  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.55

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 101.2 | 214.7 |

---

TABLE 2028 P-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive North of Outlet Drive
NOTES: OC Workforce Reentry - 2028 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26970  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 49  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.64

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|---|
| | 0.0 | 106.8 | 210.2 | 443.1 |

---

TABLE 2028 P-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Outlet Drive and Metropolitan Drive
NOTES: OC Workforce Reentry - 2028 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 29640  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 54  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 114.6 | 224.2 | 471.9 |

---

TABLE 2028 P-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Metropolitan Drive and SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2028 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 29005  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 37  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 106.4 | 218.0 | 464.1 |

---

TABLE 2028 P-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive South of SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2028 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19700  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 34  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 84.2 | 169.5 | 359.2 |

---

TABLE 2028 P-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: Metropolitan Drive West of The City Drive
NOTES: OC Workforce Reentry - 2028 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13460  SPEED (MPH): 30  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 20  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 102.7 | 217.9 |

---

TABLE 2050 NP-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive North of Outlet Drive
NOTES: OC Workforce Reentry - 2050 NP

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28170  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 49  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 109.3 | 216.1 | 455.9 |

---

TABLE 2050 NP-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Outlet Drive and Metropolitan Drive
NOTES: OC Workforce Reentry - 2050 NP

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31860  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 54  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 119.0 | 234.7 | 494.8 |

---

TABLE 2050 NP-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Metropolitan Drive and SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2050 NP

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32805  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 37  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 62.4 | 114.4 | 236.0 | 503.5 |

---

TABLE 2050 NP-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive South of SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2050 NP

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21550  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 34  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 88.6 | 179.5 | 381.1 |

---

TABLE 2050 NP-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: Metropolitan Drive West of The City Drive
NOTES: OC Workforce Reentry - 2050 NP

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21710  SPEED (MPH): 30  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 20  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 67.3 | 140.0 | 299.0 |

---

TABLE 2050 P-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive North of Outlet Drive
NOTES: OC Workforce Reentry - 2050 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28310  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 49  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.85

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 109.6 | 216.8 | 457.4 |

---

TABLE 2050 P-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Outlet Drive and Metropolitan Drive
NOTES: OC Workforce Reentry - 2050 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31990  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 54  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.17

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 119.2 | 235.3 | 496.2 |

---

TABLE 2050 P-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive Between Metropolitan Drive and SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2050 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33295  SPEED (MPH): 35  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 37  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 62.8 | 115.4 | 238.3 | 508.5 |

---

TABLE 2050 P-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: The City Drive South of SR-22 EB Ramps
NOTES: OC Workforce Reentry - 2050 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21690  SPEED (MPH): 35  GRADE: .5

| TRAFFIC DISTRIBUTION PERCENTAGES | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 34  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.44

| DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL | | | |
|---|---|---|---|
| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 0.0 | 88.9 | 180.2 | 382.8 |

---

TABLE 2050 P-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/02/2025
ROADWAY SEGMENT: Metropolitan Drive West of The City Drive
NOTES: OC Workforce Reentry - 2050 P

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22010  SPEED (MPH): 30  GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

| | DAY | EVENING | NIGHT |
|---|---|---|---|
| AUTOS | 75.51 | 12.57 | 9.34 |
| M-TRUCKS | 1.56 | 0.09 | 0.19 |
| H-TRUCKS | 0.64 | 0.02 | 0.08 |

ACTIVE HALF-WIDTH (FT): 20  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 67.9 | 141.2 | 301.8 |

---

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# 1.0 BASIS OF RECOMMENDATIONS

We understand the project will be designed to the following codes and guidelines:

**2022 California Building Code ("Code").**

Section 1206 Sound Transmission of the Code applies to bedrooms in the Housing Building and requires that walls and floor/ceiling assemblies separating dwelling units from each other and from public or service areas meet an airborne sound isolation rating of STC 50 minimum (horizontal and vertical adjacencies) and a structure-borne sound insulation rating of IIC 50 minimum (vertical adjacency only). These STC and IIC laboratory ratings are based on construction assemblies tested in a laboratory setting. The Code further requires that the completed wall and floor/ceiling assemblies meet NNIC 45 and NISR 45 for airborne and structure-borne sound isolation performances, respectively, if field tested.

The Code also requires that dwelling unit entrance doors shall be tight fitting to the frame and sill. Numerical acoustical rating is no longer required for unit entrance doors.

Please note that the Code standards provide minimum legal standards of sound isolation for residential units. Wherever possible for residential projects, we typically recommend exceeding Code requirements for the following reasons:

- A partition assembly that just achieves a laboratory rating of STC 50 and no more, will struggle to achieve a field performance of NNIC-45 (which is required by Code) unless great care is taken in construction.
- While a single stud partition could potentially meet the required Code minimums, use of a double stud partition construction is always preferred acoustically since it affords greater confidence in terms of maintaining a Code-compliant assembly, even if stud gauge and spacing change as the project progresses. The double stud construction has the additional benefit of improving structure-borne sound isolation, for instance impacts on the partition, or plumbing noise transfer where plumbing pipework runs within partitions.

**CALGreen 2022**

The CALGreen Building Code (Title 24, Part 11) applies to occupied non-bedroom rooms and outlines projects which must comply with Section 5.507.4 – Acoustical Control. These are defined as projects located within the 65 CNEL noise contour of airports or freeways or, in the absence of readily available noise contours, projects exposed to a noise level of 65 dBA $L_{eq}$ 1-hr during any hour of operation. Based on our measurements, this project is exposed to levels of at least 65 dB(A) $L_{eq}$ 1-hr, and therefore would trigger the requirement to achieve an interior noise level of 50 dB(A) or below in occupied rooms.

The CALGreen Building code describes two methods of assessing exterior noise exposure compliance: one prescriptive and one performance-based. The prescriptive method requires:

> *"Buildings exposed to a noise level of 65 dB Leq-1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30)."*
> (CALGreen Building Code, Title 24, Part 11, Section 5.507.4.1)

The performance method states:

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> *"...wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (Leq-1-hr) of 50 dBA in occupied areas during any hour of operation."*
> (CALGreen Building Code, Title 24, Part 11, Section 5.507.4.2)

In summary, the proposed design of walls and roof-ceiling assemblies exposed to an exterior noise level of 65 dB(A) (Leq 1-hr) or more during any hour of operation must either comply with the acoustical criteria stated in the Prescriptive Method or undergo an acoustical analysis to show that interior levels do not meet or exceed 50 dB(A) (Leq 1-hr) during any hour of operation.

We recommend following the performance method.

**Orange County A+E Guide and Workplace Design Guidelines.** These do not include any quantified acoustical criteria.

**County of Orange Noise Ordnance.** Noise emissions to the property lines should be limited in accordance with this code.

**The County of Orange General Plan**

The County of Orange General Plan includes Land Use compatibility criteria which are reproduced below. For this project, these requirements are effectively the same as described the '2022 California Building Code ("Code")' section above.

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## TABLE VIII-2.

**COMPATIBILITY MATRIX FOR**
**LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS**
**(CNEL)**

| TYPE OF USE | 65+ decibels CNEL | 60 to 65 decibels CNEL |
|---|---|---|
| Residential | 3a, b, e | 2a, e |
| Commercial | 2c | 2c |
| Employment | 2c | 2c |
| Open Space | | |
| *Local* | 2c | 2c |
| *Community* | 2c | 2c |
| *Regional* | 2c | 2c |
| Educational Facilities | | |
| *Schools (K through 12)* | 2c, d, e | 2c, d, e |
| *Preschool, college, other* | 2c, d, e | 2c, d, e |
| Places of Worship | 2c, d, e | 2c, d, e |
| Hospitals | | |
| *General* | 2a, c, d, e | 2a, c, d, e |
| *Convalescent* | 2a, c, d, e | 2a, c, d, e |
| Group Quarters | 1a, b, c, e | 2a, c, e |
| Hotel / Motels | 2a, c | 2a, c |
| Accessory Uses | | |
| *Executive Apartments* | 1a, b, e | 2a, e |
| *Caretakers* | 1a, b, c, e | 2a, c, e |

Note: See Table VIII-3 for definitions of the entries in this table.

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NEWSON BROWN ACOUSTICS LLC

**TABLE VIII-3.**

## EXPLANATION AND DEFINITIONS ON TABLE VIII-2

ACTION REQUIRED TO ENSURE COMPATIBILITY
BETWEEN LAND USE AND NOISE FROM EXTERNAL SOURCES

1 = Allowed if interior and exterior community noise levels can be mitigated.
2 = Allowed if interior levels can be mitigated.
3 = New residential uses are prohibited in areas within the 65-decibel CNEL contour from any airport of air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "infill" development within an established neighborhood.

STANDARDS REQUIRED FOR COMPATIBILITY OF LAND USE AND NOISE

a = Interior Standard: CNEL of less than 45 decibels (habitable rooms only).
b = Exterior Standard: CNEL of less than 65 decibels in outdoor living areas.
c = Interior Standard: Leq (h)=45 to 65 decibels interior noise level, depending on interior use.
d = Exterior Standard: Leq (h) of less than 65 decibels in outdoor living areas.
e = Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

KEY DEFINITIONS

Habitable Room – Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

Interior – Spaces that are covered and largely enclosed by walls.

Leq (h) – The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be Leq (12) where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 a.m. to 7:00 p.m.). Typically, time period "h" is defined to match the hours of operation of a given type of use.

Outdoor Living Area – Outdoor living area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

**The project is not being designed to LEED or any other voluntary standards.**

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# 2.0 EXTERIOR NOISE INTRUSION

## 2.1 Overview

Exterior noise levels were measured on the site between July 22nd, 2024 and July 23rd, 2024. During our survey, we performed continuous noise measurements at Location 1 and Location 2, as shown in Figure 1 below.

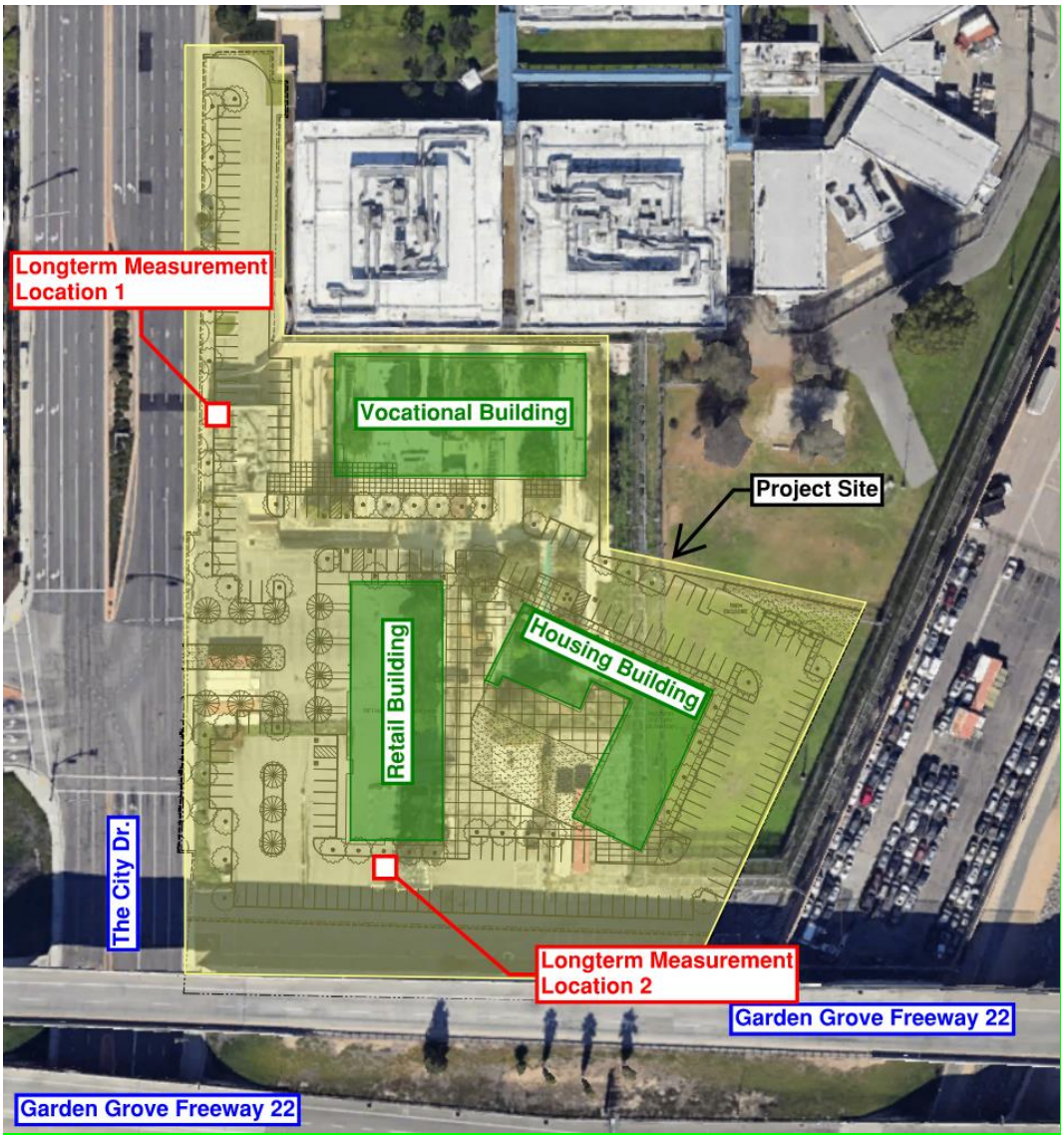


**Figure 1 – Measurement Locations**

Continuous five-minute $L_{eq}$ measurement samples were taken at Location 1 between 1:10 PM on July 22nd, 2024 and 3:15 PM on July 23rd, 2024. This microphone was set up to maintain direct line of sight between the microphone and The City Dr. and was used to estimate the noise level at the western façades of the Vocational and Retail/Culinary buildings proposed for the project by applying a distance correction; given that the measurement location was much closer to The City Drive than the proposed buildings. Continuous five-minute $L_{eq}$ measurement samples were taken at Location 2 between 12:45 PM on July 22nd, 2024 and 3:05 PM on July 23rd, 2024. This microphone was set up to maintain direct line of sight between the microphone and U.S. Freeway 22 and was used to approximate the noise level at the southern façades for the Retail/Culinary Building and the Housing building proposed for the project. The microphone at Location 2 was positioned roughly 20 feet above the ground to capture the noise level that would be present at the second floor of the Housing building. Continuous measurement data and the running hourly $L_{eq}$ to be compared against the relevant exterior noise criteria are shown in Figures 3 and 4 below.

Continuous CNEL measurement data is shown in Figure 5 below. Please note that the black dots indicate the CNEL, which is a time-weighted average of the dB(A) $L_{eq}$ from the previous twenty-four hours, with weighting "penalties" for noise levels in evening and nighttime hours. As a result, the time history of the CNEL does not start until the first twenty-four hours of the dB(A) $L_{eq}$ measurements have passed.

**Figure 2 – Location 2 Long-Term Measurement Setup**

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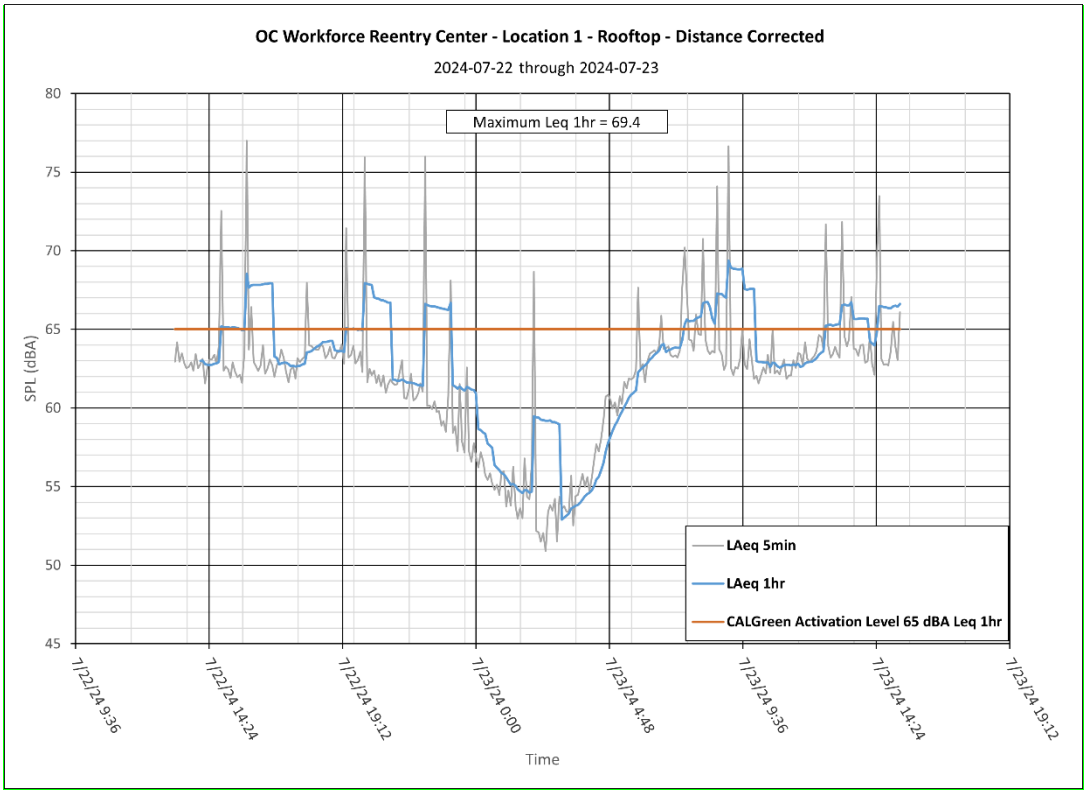


**Figure 3 – Location 1 Long-Term Continuous Measurement Data – CALGreen**

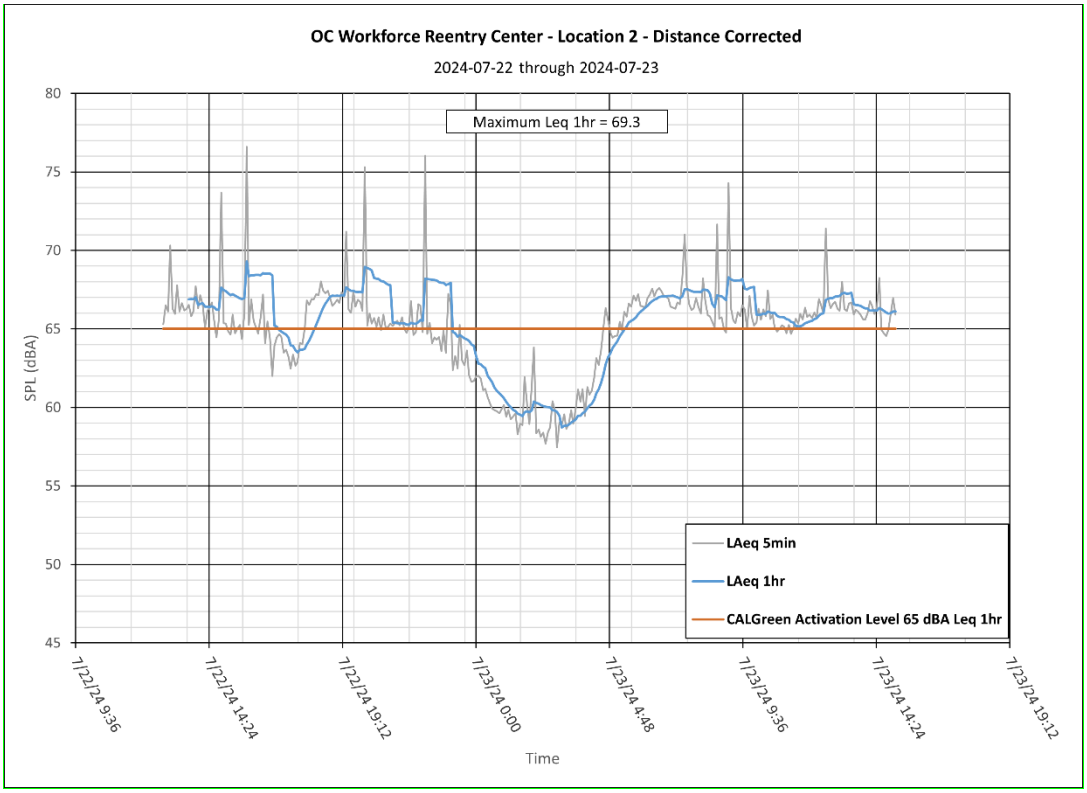


**Figure 4 – Location 2 Long-Term Continuous Measurement Data – CALGreen**

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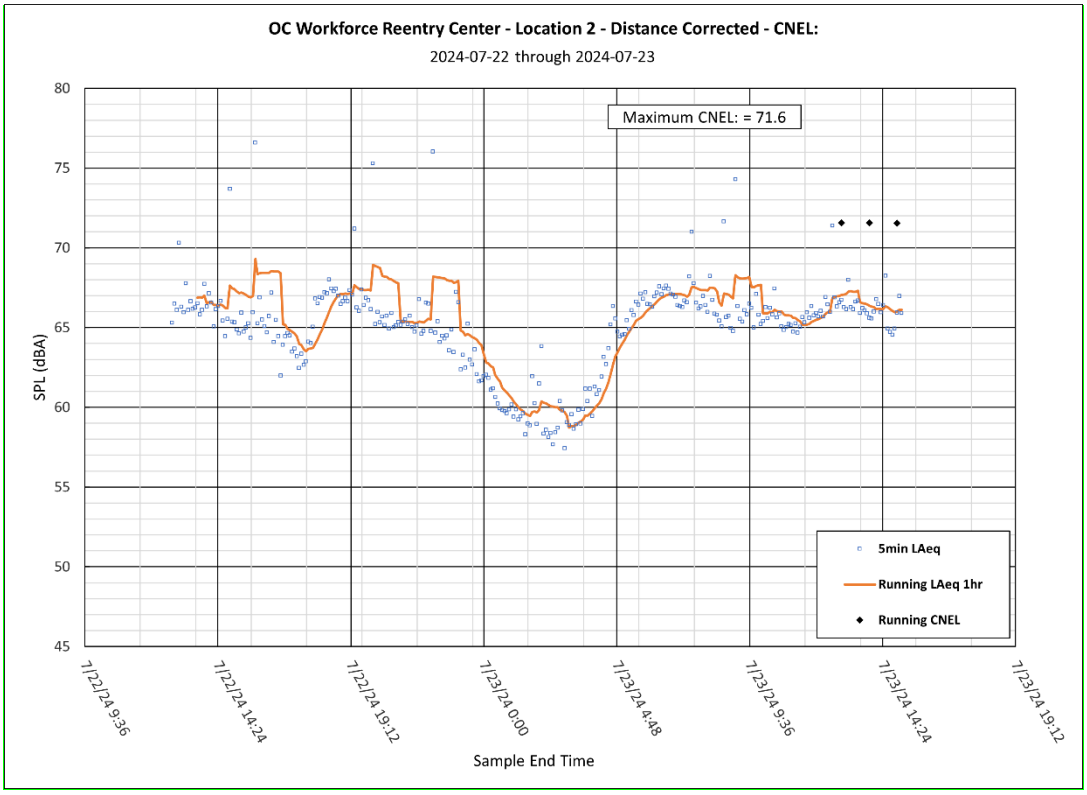



**Figure 6 – Location 2 Long-Term Continuous Measurement CNEL Data**

## Long-Term Measurement Data (Loudest $L_{eq}$ 1-hr and CNEL)

The calculated loudest one-hour noise level for long-term measurement Location 1 occurred during the hour between 8:10 AM and 9:10 AM on July 23rd, 2024. After applying a distance correction to the spectrum, the loudest one-hour noise level was determined to be 69.4 dB(A) $L_{eq}$ 1-hr, which included noise due to road traffic, sirens and miscellaneous off-site environmental sources.

The calculated loudest one-hour noise level for long-term measurement Location 2 occurred during the hour between 2:50 PM and 3:50 PM on July 22nd, 2024. After applying a distance correction to the spectrum, the loudest one-hour noise level was determined to be 69.3 dB(A) $L_{eq}$ 1-hr, which included noise due to road traffic, sirens and miscellaneous off-site environmental sources.

The highest CNEL at Location 2 after applying a distance correction to the spectrum was determined to be 71.6 dB(A), including noise due to road traffic, sirens and miscellaneous off-site environmental sources. The main noise source was road traffic on U.S. Freeway 22.

The octave band noise spectra for the loudest $L_{eq}$ 1-hr measurement and CNEL measurements for the most impacted façades for each building are given in Table 1 below. The numbers have been rounded up to the nearest decibel.

**Table 1 – Long-Term Exterior Noise Spectra Corrected to Worst-Case Façades**

| Octave Band Center Frequency [Hz] | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_{eq}$ 1-hr (dB re 20 µPa) | Voc. & Retail Bldg. (West Façade) | 64 | 65 | 61 | 60 | 68 | 61 | 51 | 45 | 69 |
| | Housing & Retail Bldgs. (South Façade) | 69 | 68 | 64 | 63 | 67 | 61 | 50 | 41 | 69 |
| CNEL Levels | Housing Bldg. (South Façade) | 71 | 71 | 66 | 65 | 70 | 63 | 52 | 43 | 72 |

## Short-term Exterior Measurements

Short-term (15 minute) measurements were taken outside at ground level at various locations around the project site to be compared to noise levels being measured simultaneously during the long-term measurement at Locations 1 and 2.

These spot measurements taken around the perimeter of the proposed building location experienced noise levels equal to or lower than the meter collecting long-term data during the same period, so we have based our analysis on the long-term data, which yielded the highest measured noise levels incident upon the proposed building envelope.

## Building Envelope Sound Isolation Requirements.

Based upon the results of our noise survey, in order to meet code minimum noise standards for exterior noise intrusion, the envelopes of the respective buildings should be designed for the following levels of out-to-in sound isolation:

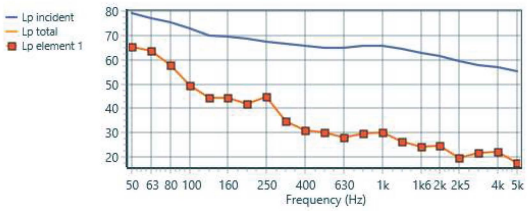
| | |
|---|---|
| Housing Building: | 27dBA |
| Vocational Building: | 19dBA |
| Retail/Culinary Building | 19 dBA |

Further detailed noise intrusion analysis will be required during the DD phase of the project, however, we would anticipate that typical envelope construction including 1" insulating glass, should be sufficient to meet code for the non-residential buildings/areas, however, we would anticipate the need for an acoustically enhanced envelope construction, probably including dual laminated insulated acoustical glazing at Bedroom areas to meet the more stringent noise intrusion code for habitable spaces in the Housing Building.

# Outdoor To Indoor Sound Transmission (v10.0.5)


Margin of error is generally within ±3 dB
- Key No. 4862
Job Name: OC Workforce Re-entry
Job No.: OCY2001.51 Initials:JStephens
Date:5/7/2025
File Name:S12 Room Calc.inz

Comment:




| Source | Octave Band Centre Frequency (Hz) | | | | | | | | | | | | | | | | | | | | Overall dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 63 | | 125 | | 250 | | 500 | | 1k | | 2k | | 4k | | | | | | | | |
| Incident sound level (freefield) | 79.0 | 77.0 | 75.3 | 72.9 | 69.9 | 69.2 | 68.7 | 67.4 | 66.4 | 65.6 | 65.0 | 64.7 | 65.6 | 65.8 | 64.2 | 62.8 | 61.6 | 59.5 | 57.6 | 56.8 | 55.3 | 74 |
| **Path** | | | | | | | | | | | | | | | | | | | | | |
| Element 1 , STL | -15 | -15 | -19 | -25 | -27 | -26 | -28 | -24 | -33 | -36 | -36 | -38 | -37 | -37 | -39 | -40 | -38 | -41 | -37 | -36 | -39 | |
| Facade Shape factor Level diff. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Insertion Loss | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Area(+10LogA) [158 ft²] | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | |
| Element sound level contribution | 65 | 63 | 58 | 49 | 44 | 45 | 42 | 45 | 35 | 31 | 30 | 28 | 30 | 30 | 27 | 24 | 25 | 20 | 22 | 22 | 18 | 44 |
| **Receiver** | | | | | | | | | | | | | | | | | | | | | |
| Room volume(-10LogV) [1400 ft³] | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | -31 | |
| Reverberation time (s) | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | |
| RT (+10LogT) | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | -5.2 | |
| Equation Constant | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | |
| Room sound level | 65 | 63 | 58 | 49 | 44 | 45 | 42 | 45 | 35 | 31 | 30 | 28 | 30 | 30 | 27 | 24 | 25 | 20 | 22 | 22 | 18 | 44 |
| **Level difference** | | | | | | | | | | | | | | | | | | | | | | D2m,nT,w |
| D2m,nT | 15 | 15 | 19 | 25 | 27 | 26 | 28 | 24 | 33 | 36 | 36 | 38 | 37 | 37 | 39 | 40 | 38 | 41 | 37 | 36 | 39 | 37 |

** Element descriptions: #1: