# Appendix F:
# Noise Supporting Information

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Project Number: 4673.0012 Sheet ___ of ___
Project Name: Hercules Willow Ave.
Test Personnel: Spencer

# Noise Measurement Survey

Site Number: ST-1 Date: 1/26/18 Time: From 1:17 pm To 1:32 p.m

Site Location: On side of site 20 feet from the center of Willow Ave. at the northern most corner of the proposed site.

Primary Noise Sources: Traffic from Willow Ave.

**Measurement Results**

| | dBA |
|---|---|
| Leq | 67.2 |
| Lmax | 83.5 |
| Lmin | 46.8 |
| Lpeak | — |
| L5 | 72.3 |
| L10 | 70.9 |
| L50 | 62.5 |
| L90 | 52.0 |
| SEL | |

**Observed Noise Sources/Events**

| Time | Noise Source/Event | dBA |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Comments:

Equipment: LXT-1 Measured Difference: -0.18 dBA
Settings: A-Weighted☑ Other☐ _____ Slow☐ Fast☐ Windscreen☑

**Atmospheric Conditions:**

| Maximum Wind Velocity (mph) | Average Wind Velocity (mph) | Temperature (F) | Relative Humidity (%) | |
|---|---|---|---|---|
| 7.1 | 3.4 | 57.6 | | |
| | | | | |
| Comments: | Sunny day with some gusts of wind | | | |

Traffic Count

| Small | Medium | Large |
| --- | --- | --- |
| 127 | 3 | 4 |

Project Number: 4673.0012 Sheet ___of ___
Project Name: Hercules Willow Ave.
Test Personnel: Spencer

# Noise Measurement Survey

Site Number: ST-2 Date: 1/26/18 Time: From 12:55pm To 1:10 PM

Site Location: In preschool playground/open space area 30 feet from center of Willow Ave.

Primary Noise Sources: Traffic from Willow Ave.

**Measurement Results**

| | dBA |
|---|---|
| Leq | 62.4 |
| Lmax | 74.9 |
| Lmin | 43.8 |
| Lpeak | — |
| L5 | 67.4 |
| L10 | 66.0 |
| L50 | 59.2 |
| L90 | 48.1 |
| SEL | — |

**Observed Noise Sources/Events**

| Time | Noise Source/Event | dBA |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Comments:

Equipment: LXT-1 Measured Difference: 0.18 dBA
Settings: A-Weighted☑ Other☐ Slow☐ Fast☐ Windscreen☑

**Atmospheric Conditions:**

| Maximum Wind Velocity (mph) | Average Wind Velocity (mph) | Temperature (F) | Relative Humidity (%) | |
|---|---|---|---|---|
| 3.3 | 1.2 | 58.6 | | |
| | | | | |
| Comments: | Sunny day, minimal wind | | | |

Photos Taken:

| Photo Number | Location/Description |
|---|---|
| | |
| | |
| | |
| | |
| | |

Traffic Description:

| Roadway | # Lanes | Posted Speed | Average Speed | NB/EB Counts | SB/WB Counts |
|---|---|---|---|---|---|
| Willow Ave | 2 | 35 mph | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Diagram/Further Comments:

Traffic Count

| Small | Medium | Large |
|---|---|---|
| 110 | 1 | 3 |

Project Number: 4673.0012 Sheet ___ of ___
Project Name: Hercules, Willow Ave.
Test Personnel: Spencer

# Noise Measurement Survey

Site Number: ST-3 Date: 11/26/18 Time: From 1:38 pm To 1:53 pm

Site Location: 60 feet center of Willow Ave, in Southwest Corner of site

Primary Noise Sources: Traffic from Willow Ave. No industrial noise from Caltrans Maintenance yards

**Measurement Results**

| | dBA |
|---|---|
| Leq | 60.5 |
| Lmax | 76.7 |
| Lmin | 46.6 |
| Lpeak | — |
| L5 | 64.7 |
| L10 | 61.6 |
| L50 | 56.5 |
| L90 | 50.6 |
| SEL | — |

**Observed Noise Sources/Events**

| Time | Noise Source/Event | dBA |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Comments:

Equipment: LXT-1 Measured Difference: -0.18 dBA
Settings: A-Weighted☑ Other☐ _____ Slow☐ Fast☐ Windscreen☑

**Atmospheric Conditions:**

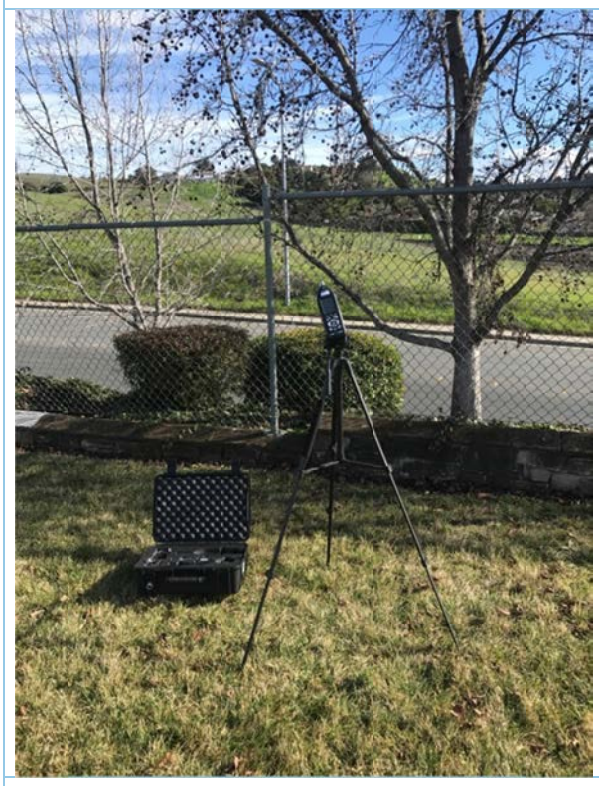
| Maximum Wind Velocity (mph) | Average Wind Velocity (mph) | Temperature (F) | Relative Humidity (%) | |
|---|---|---|---|---|
| 3.3 | 1.2 | 58 | | |
| | | | | |
| Comments: | Sunny day with slight wind | | | |

## Traffic Count

| Small | Medium | Large |
| --- | --- | --- |
| 112 | 2 | 1 |

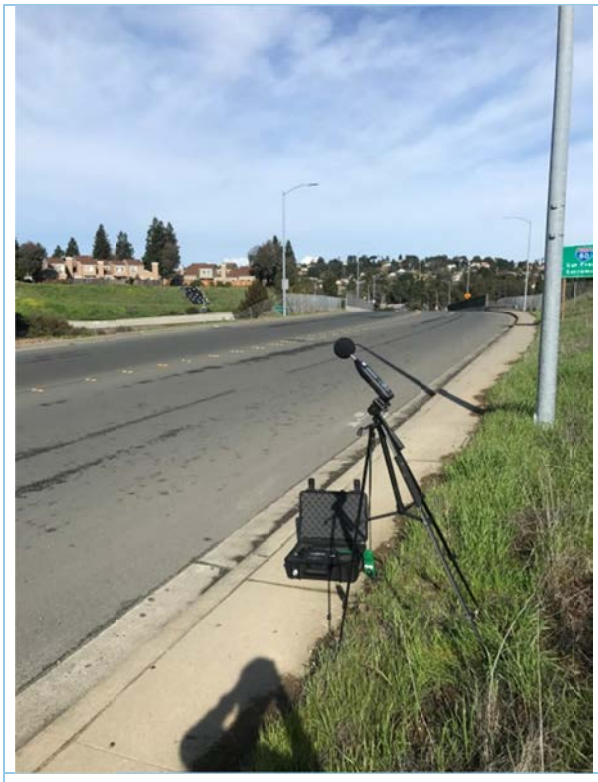
Photograph 1: View from ST-1 facing north

Photograph 2: View from ST-1 facing east



Photograph 3: View from ST-1 facing south

Photograph 4: View from ST-1 facing west



Photograph 5: View from ST-2 facing north

Photograph 6: View from ST-2 facing east

Photograph 7: View from ST-2 facing south

Photograph 8: View from ST-2 facing west

Photograph 9: View from ST-3 facing north

Photograph 10: View from ST-3 facing east

Photograph 11: View from ST-3 facing south

Photograph 12: View from ST-3 facing west

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - north of SR-4
NOTES: Willow Avenue Commercial Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5600  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): 24  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 75.8 | 156.6 |

---

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - SR-4 to East Church Driveway
NOTES: Willow Avenue Commercial Project - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8100  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 92.3 | 198.4 |

---

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - east Church Driveway to middle Church Driveway
NOTES: Willow Avenue Commercial Project - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8100  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 92.3 | 198.4 |

---

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - middle Church Driveway to west Church Driveway
NOTES: Willow Avenue Commercial Project - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8000  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 91.5 | 196.8 |

---

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - west Church Driveway to Palm Avenue
NOTES: Willow Avenue Commercial Project - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8100  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 92.3 | 198.4 |

---

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - Palm Avenue to I-80
NOTES: Willow Avenue Commercial Project - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4100  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 58.8 | 126.1 |

---

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Palm Avenue - Willow Avenue to Sycamore Avenue
NOTES: Willow Avenue Commercial Project - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7900  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 90.7 | 195.1 |

---

TABLE Existing-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: State Route 4 - east of I-80
NOTES: Willow Avenue Commercial Project - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43000  SPEED (MPH): 65  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): 24  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 171.6 | 366.8 | 788.8 | 1698.4 |

---

TABLE Existing + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - north of SR-4
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6100  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): 24  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 79.8 | 165.6 |

---

TABLE Existing + Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - SR-4 to East Church Driveway
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8700  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 96.7 | 208.1 |

---

TABLE Existing + Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - east Church Driveway to middle Church Driveway
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9300  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 101.1 | 217.5 |

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TABLE Existing + Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - middle Church Driveway to west Church Driveway
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9300  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 101.1 | 217.5 |

---

TABLE Existing + Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - west Church Driveway to Palm Avenue
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9300  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 101.1 | 217.5 |

---

TABLE Existing + Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - Palm Avenue to I-80
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5000  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 67.0 | 143.9 |

---

TABLE Existing + Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Palm Avenue - Willow Avenue to Sycamore Avenue
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8200  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 0.0 | 93.0 | 200.0 |

---

TABLE Existing + Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: State Route 4 - east of I-80
NOTES: Willow Avenue Commercial Project - Existing + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43000  SPEED (MPH): 65  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): 24  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 171.6 | 366.8 | 788.8 | 1698.4 |

---

TABLE Cumulative-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - north of SR-4
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9900  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): 24  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 | 107.8 | 227.5 |

---

TABLE Cumulative-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - SR-4 to East Church Driveway
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23100  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 86.1 | 185.2 | 398.8 |

---

TABLE Cumulative-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - east Church Driveway to middle Church Driveway
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23000  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 85.9 | 184.7 | 397.6 |

---

TABLE Cumulative-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - middle Church Driveway to west Church Driveway
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23000  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 85.9 | 184.7 | 397.6 |

---

TABLE Cumulative-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - west Church Driveway to Palm Avenue
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23000  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 85.9 | 184.7 | 397.6 |

---

TABLE Cumulative-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - Palm Avenue to I-80
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14100  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 62.1 | 133.3 | 287.0 |

---

TABLE Cumulative-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Palm Avenue - Willow Avenue to Sycamore Avenue
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11500  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): 6  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 | 54.3 | 116.4 | 250.5 |

---

TABLE Cumulative-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: State Route 4 - east of I-80
NOTES: Willow Avenue Commercial Project - Cumulative

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43000  SPEED (MPH): 65  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): 24  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 171.6 | 366.8 | 788.8 | 1698.4 |

---

TABLE Cumulative + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - north of SR-4
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10400  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): 24  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 55.8 | 111.2 | 235.0 |

---

TABLE Cumulative + Project-02

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - SR-4 to East Church Driveway
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24100  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 88.6 | 190.5 | 410.2 |

---

TABLE Cumulative + Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - east Church Driveway to middle Church Driveway
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27800  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 97.4 | 209.5 | 451.2 |

---

TABLE Cumulative + Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - middle Church Driveway to west Church Driveway
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27800  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 97.4 | 209.5 | 451.2 |

---

TABLE Cumulative + Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - west Church Driveway to Palm Avenue
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27800  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 97.4 | 209.5 | 451.2 |

---

TABLE Cumulative + Project-06

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Willow Avenue - Palm Avenue to I-80
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14800  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 64.1 | 137.7 | 296.4 |

---

TABLE Cumulative + Project-07

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: Palm Avenue - Willow Avenue to Sycamore Avenue
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11600  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): 6  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 0.0 | 54.6 | 117.1 | 252.0 |

---

TABLE Cumulative + Project-08

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 01/24/2018
ROADWAY SEGMENT: State Route 4 - east of I-80
NOTES: Willow Avenue Commercial Project - Cumulative + Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43000  SPEED (MPH): 65  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): 24  SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

| 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
|---|---|---|---|
| 171.6 | 366.8 | 788.8 | 1698.4 |

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