# Appendix H – Noise Supporting Documents

- Excerpts from Noise Impacts Technical Report (SBP Associates, Inc., 2014)
    - Build Alternative Noise Modeling Results (Attachment A)
    - No Build Alternative Noise Modeling Results (Attachment B)
    - Noise Wall Analysis (Attachment D)
- High Noise Hour Evaluation Memorandum

**Table A-1: Area A - Project Corridor - Noise Modeling Results**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R15A (C) | 63.5 | 58.6 | 64.3 | 59.7 | 0.8 | 1.1 | 64.3 | 59.6 | 0.8 | 1.0 | 64.2 | 59.6 | 0.7 | 1.0 | 64.3 | 59.7 | 0.8 | 1.1 |
| R15B (C) | 61.6 | 57.2 | 62.4 | 58.3 | 0.8 | 1.1 | 60.7 | 56.9 | -0.9 | -0.3 | 58.2 | 55.0 | -3.4 | -2.2 | 62.1 | 58.0 | 0.5 | 0.8 |
| R15F (C) | 64.4 | 59.2 | 65.2 | 60.3 | 0.8 | 1.1 | 65.2 | 60.3 | 0.8 | 1.1 | 65.1 | 60.3 | 0.7 | 1.1 | 65.2 | 60.3 | 0.8 | 1.1 |
| R16 (C) | 58.2 | 54.5 | 58.9 | 55.5 | 0.7 | 1.0 | 58.0 | 54.7 | -0.2 | 0.2 | 57.5 | 54.4 | -0.7 | -0.1 | 58.8 | 55.4 | 0.6 | 0.9 |
| R17 (C) | 62.1 | 57.5 | 62.9 | 58.6 | 0.8 | 1.1 | 61.5 | 57.3 | -0.6 | -0.2 | 57.5 | 54.1 | -4.6 | -3.4 | 62.6 | 58.3 | 0.5 | 0.8 |
| **MIN** | 58.2 | 54.5 | 58.9 | 55.5 | 0.7 | 1.0 | 58.0 | 54.7 | -0.9 | -0.3 | 57.5 | 54.1 | -4.6 | -3.4 | 58.8 | 55.4 | 0.5 | 0.8 |
| **MAX** | 64.4 | 59.2 | 65.2 | 60.3 | 0.8 | 1.1 | 65.2 | 60.3 | 0.8 | 1.1 | 65.1 | 60.3 | 0.7 | 1.1 | 65.2 | 60.3 | 0.8 | 1.1 |
| **Exceedances:** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R15A (C) | 61.9 | 56.4 | 62.7 | 57.5 | 0.8 | 1.1 | 62.6 | 57.4 | 0.7 | 1.0 | 62.6 | 57.4 | 0.7 | 1.0 | 62.7 | 57.5 | 0.8 | 1.1 |
| R15B (C) | 60.0 | 55.1 | 60.8 | 56.2 | 0.8 | 1.1 | 59.1 | 54.8 | -0.9 | -0.3 | 56.4 | 52.7 | -3.6 | -2.4 | 60.5 | 55.9 | 0.5 | 0.8 |
| R15F (C) | 62.7 | 57.0 | 63.5 | 58.1 | 0.8 | 1.1 | 63.5 | 58.0 | 0.8 | 1.0 | 63.5 | 58.0 | 0.8 | 1.0 | 63.5 | 58.1 | 0.8 | 1.1 |
| R16 (C)[2] | 56.6 | 52.4 | 57.4 | 53.5 | 0.8 | 1.1 | 56.4 | 52.6 | -0.2 | 0.2 | 55.9 | 52.2 | -0.7 | -0.2 | 57.3 | 53.3 | 0.7 | 0.9 |
| R17 (C)[2] | 60.5 | 55.3 | 61.3 | 56.4 | 0.8 | 1.1 | 59.9 | 55.1 | -0.6 | -0.2 | 55.4 | 51.4 | -5.1 | -3.9 | 61.0 | 56.1 | 0.5 | 0.8 |
| **MIN** | 56.6 | 52.4 | 57.4 | 53.5 | 0.8 | 1.1 | 56.4 | 52.6 | -0.9 | -0.3 | 55.4 | 51.4 | -5.1 | -3.9 | 57.3 | 53.3 | 0.5 | 0.8 |
| **MAX** | 62.7 | 57.0 | 63.5 | 58.1 | 0.8 | 1.1 | 63.5 | 58.0 | 0.8 | 1.0 | 63.5 | 58.0 | 0.8 | 1.0 | 63.5 | 58.1 | 0.8 | 1.1 |
| **Exceedances:** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.
[2] Receptors R16 and R17 represent religious facilities.

**Table A-2: Area B – Project Corridor – Noise Modeling Results**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R19A (C) | 64.5 | 58.7 | 65.3 | 59.9 | 0.8 | 1.2 | 64.2 | 58.7 | -0.3 | 0.0 | 61.3 | 56.1 | -3.2 | -2.6 | 65.1 | 59.6 | 0.6 | 0.9 |
| R19B (C) | 63.0 | 57.6 | 63.8 | 58.8 | 0.8 | 1.2 | 62.8 | 57.7 | -0.2 | 0.1 | 61.1 | 55.8 | -1.9 | -1.8 | 63.8 | 58.6 | 0.8 | 1.0 |
| R19C (C) | 62.2 | 57.2 | 63.1 | 58.3 | 0.9 | 1.1 | 62.3 | 57.3 | 0.1 | 0.1 | 60.5 | 55.2 | -1.7 | -2.0 | 63.3 | 58.1 | 1.1 | 0.9 |
| R19 (C) | 62.0 | 56.7 | 62.8 | 57.9 | 0.8 | 1.2 | 62.2 | 56.9 | 0.2 | 0.2 | 59.8 | 54.6 | -2.2 | -2.1 | 63.2 | 57.6 | 1.2 | 0.9 |
| R19D (C) | 62.2 | 56.5 | 63.0 | 57.7 | 0.8 | 1.2 | 62.5 | 56.8 | 0.3 | 0.3 | 59.3 | 54.0 | -2.9 | -2.5 | 63.3 | 57.5 | 1.1 | 1.0 |
| R19E (C) | 62.5 | 56.6 | 63.4 | 57.8 | 0.9 | 1.2 | 62.7 | 57.0 | 0.2 | 0.4 | 59.0 | 53.6 | -3.5 | -3.0 | 63.5 | 57.7 | 1.0 | 1.1 |
| R20 (C) | 62.9 | 56.9 | 63.8 | 58.1 | 0.9 | 1.2 | 63.0 | 57.3 | 0.1 | 0.4 | 58.8 | 53.3 | -4.1 | -3.6 | 63.7 | 58.0 | 0.8 | 1.1 |
| R20A (C) | 63.4 | 57.3 | 64.3 | 58.6 | 0.9 | 1.3 | 63.4 | 57.7 | 0.0 | 0.4 | 58.7 | 53.0 | -4.7 | -4.3 | 64.1 | 58.3 | 0.7 | 1.0 |
| R20B (C) | 64.0 | 57.8 | 64.8 | 59.1 | 0.8 | 1.3 | 63.8 | 58.2 | -0.2 | 0.4 | 58.6 | 52.8 | -5.4 | -5.0 | 64.5 | 58.8 | 0.5 | 1.0 |
| **MIN** | 62.0 | 56.5 | 62.8 | 57.7 | 0.8 | 1.1 | 62.2 | 56.8 | -0.3 | 0.0 | 58.6 | 52.8 | -5.4 | -5.0 | 63.2 | 57.5 | 0.5 | 0.9 |
| **MAX** | 64.5 | 58.7 | 65.3 | 59.9 | 0.9 | 1.3 | 64.2 | 58.7 | 0.3 | 0.4 | 61.3 | 56.1 | -1.7 | -1.8 | 65.1 | 59.6 | 1.2 | 1.1 |
| **Exceedances:** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R19A (C) | 62.8 | 56.4 | 63.6 | 57.6 | 0.8 | 1.2 | 62.5 | 56.4 | -0.3 | 0.0 | 58.7 | 52.6 | -4.1 | -3.8 | 63.4 | 57.3 | 0.6 | 0.9 |
| R19B (C) | 61.3 | 55.4 | 62.2 | 56.5 | 0.9 | 1.1 | 61.1 | 55.4 | -0.2 | 0.0 | 58.4 | 52.3 | -2.9 | -3.1 | 62.1 | 56.3 | 0.8 | 0.9 |
| R19C (C) | 60.5 | 54.9 | 61.4 | 56.0 | 0.9 | 1.1 | 60.6 | 54.9 | 0.1 | 0.0 | 57.8 | 51.7 | -2.7 | -3.2 | 61.6 | 55.6 | 1.1 | 0.7 |
| R19 (C) | 60.2 | 54.3 | 61.1 | 55.5 | 0.9 | 1.2 | 60.4 | 54.4 | 0.2 | 0.1 | 57.1 | 51.1 | -3.1 | -3.2 | 61.4 | 55.1 | 1.2 | 0.8 |
| R19D (C) | 60.3 | 54.0 | 61.3 | 55.3 | 1.0 | 1.3 | 60.6 | 54.3 | 0.3 | 0.3 | 56.6 | 50.6 | -3.7 | -3.4 | 61.5 | 55.0 | 1.2 | 1.0 |
| R19E (C) | 60.7 | 54.1 | 61.6 | 55.3 | 0.9 | 1.2 | 60.9 | 54.5 | 0.2 | 0.4 | 56.3 | 50.1 | -4.4 | -4.0 | 61.7 | 55.1 | 1.0 | 1.0 |
| R20 (C) | 61.1 | 54.4 | 62.0 | 55.6 | 0.9 | 1.2 | 61.2 | 54.8 | 0.1 | 0.4 | 56.1 | 49.7 | -5.0 | -4.7 | 61.9 | 55.4 | 0.8 | 1.0 |
| R20A (C) | 61.5 | 54.8 | 62.5 | 56.1 | 1.0 | 1.3 | 61.6 | 55.2 | 0.1 | 0.4 | 55.9 | 49.4 | -5.6 | -5.4 | 62.3 | 55.8 | 0.8 | 1.0 |
| R20B (C) | 62.1 | 55.3 | 63.1 | 56.6 | 1.0 | 1.3 | 62.1 | 55.7 | 0.0 | 0.4 | 55.8 | 49.2 | -6.3 | -6.1 | 62.7 | 56.3 | 0.6 | 1.0 |
| **MIN** | 60.2 | 54.0 | 61.1 | 55.3 | 0.8 | 1.1 | 60.4 | 54.3 | -0.3 | 0.0 | 55.8 | 49.2 | -6.3 | -6.1 | 61.4 | 55.0 | 0.6 | 0.7 |
| **MAX** | 62.8 | 56.4 | 63.6 | 57.6 | 1.0 | 1.3 | 62.5 | 56.4 | 0.3 | 0.4 | 58.7 | 52.6 | -2.7 | -3.1 | 63.4 | 57.3 | 1.2 | 1.0 |
| **Exceedances:** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

[1] These receptors represent a city park.

**Table A-3: Area C – Project Corridor – Noise Modeling Results**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R21 (I) | 62.7 | 57.0 | 63.5 | 58.2 | 0.8 | 1.2 | 66.4 | 61.9 | 3.7 | 4.9 | 61.5 | 54.4 | -1.2 | -2.6 | 65.7 | 61.5 | 3.0 | 4.5 |
| R22 (I) | 59.9 | 55.0 | 60.7 | 56.2 | 0.8 | 1.2 | 68.4 | 63.2 | 8.5 | 8.2 | 58.0 | 51.4 | -1.9 | -3.6 | 68.4 | 63.5 | 8.5 | 8.5 |
| R23 (I)[2] | 56.6 | 52.9 | 57.3 | 53.9 | 0.7 | 1.0 | N/A | N/A | N/A | N/A | 54.3 | 48.8 | -2.3 | -4.1 | 68.5 | 63.0 | 11.9 | 10.1 |
| R24 (R) | 56.5 | 52.6 | 57.3 | 53.7 | 0.8 | 1.1 | **65.6** | **60.7** | 9.1 | 8.1 | 54.6 | 48.9 | -1.9 | -3.7 | **66.8** | **61.9** | 10.3 | 9.3 |
| R26 (R) | 57.9 | 53.2 | 58.7 | 54.4 | 0.8 | 1.2 | 64.6 | **60.1** | 6.7 | 6.9 | 56.4 | 50.2 | -1.5 | -3.0 | **65.6** | **61.3** | 7.7 | 8.1 |
| R26A (R) | 59.2 | 53.7 | 60.0 | 54.9 | 0.8 | 1.2 | 63.9 | 59.6 | 4.7 | 5.9 | 58.1 | 51.4 | -1.1 | -2.3 | 64.7 | **60.7** | 5.5 | 7.0 |
| R26B (R) | 61.7 | 54.7 | 62.6 | 55.9 | 0.9 | 1.2 | 64.6 | 59.7 | 2.9 | 5.0 | 61.2 | 53.7 | -0.5 | -1.0 | **65.2** | **60.4** | 3.5 | 5.7 |
| R29 (I) | 53.3 | 50.1 | 54.1 | 51.1 | 0.8 | 1.0 | 64.4 | 59.4 | 11.1 | 9.3 | 50.8 | 45.9 | -2.5 | -4.2 | 68.3 | 62.7 | 15.0 | 12.6 |
| R30 (R) | 54.9 | 51.2 | 55.7 | 52.3 | 0.8 | 1.1 | 63.8 | 58.8 | 8.9 | 7.6 | 53.0 | 47.6 | -1.9 | -3.6 | **66.1** | **61.2** | 11.2 | 10.0 |
| R31 (R) | 55.6 | 51.5 | 56.3 | 52.6 | 0.7 | 1.1 | 62.9 | 58.3 | 7.3 | 6.8 | 53.9 | 48.2 | -1.7 | -3.3 | 64.9 | **60.6** | 9.3 | 9.1 |
| R34 (R) | 54.3 | 50.5 | 55.1 | 51.6 | 0.8 | 1.1 | 61.8 | 57.5 | 7.5 | 7.0 | 52.3 | 46.7 | -2.0 | -3.8 | 64.6 | **60.3** | 10.3 | 9.8 |
| R35 (R) | 55.2 | 51.0 | 56.0 | 52.1 | 0.8 | 1.1 | 61.6 | 57.4 | 6.4 | 6.4 | 53.6 | 47.7 | -1.6 | -3.3 | 63.9 | 59.8 | 8.7 | 8.8 |
| R36 (R) | 54.0 | 50.0 | 54.8 | 51.1 | 0.8 | 1.1 | 60.5 | 56.7 | 6.5 | 6.7 | 51.8 | 46.0 | -2.2 | -4.0 | 63.6 | 59.6 | 9.6 | 9.6 |
| R37 (R) | 54.7 | 50.3 | 55.5 | 51.4 | 0.8 | 1.1 | 60.0 | 56.3 | 5.3 | 6.0 | 52.6 | 46.4 | -2.1 | -3.9 | 62.7 | 59.0 | 8.0 | 8.7 |
| R40 (R) | 53.7 | 49.6 | 54.5 | 50.7 | 0.8 | 1.1 | 59.5 | 55.9 | 5.8 | 6.3 | 51.0 | 45.2 | -2.7 | -4.4 | 62.7 | 58.9 | 9.0 | 9.3 |
| R41 (R) | 54.4 | 49.9 | 55.1 | 51.0 | 0.7 | 1.1 | 59.3 | 55.8 | 4.9 | 5.9 | 51.6 | 45.5 | -2.8 | -4.4 | 62.1 | 58.5 | 7.7 | 8.6 |
| R43 (R) | 54.0 | 49.2 | 54.8 | 50.4 | 0.8 | 1.2 | 58.1 | 54.8 | 4.1 | 5.6 | 50.0 | 44.3 | -4.0 | -4.9 | 60.9 | 57.6 | 6.9 | 8.4 |
| R44 (R) | 53.5 | 49.1 | 54.3 | 50.2 | 0.8 | 1.1 | 58.3 | 55.0 | 4.8 | 5.9 | 49.8 | 44.3 | -3.7 | -4.8 | 61.4 | 58.0 | 7.9 | 8.9 |
| R46 (I) | 51.8 | 48.3 | 52.6 | 49.3 | 0.8 | 1.0 | 59.3 | 55.7 | 7.5 | 7.4 | 48.4 | 43.7 | -3.4 | -4.6 | 64.0 | 59.9 | 12.2 | 11.6 |
| **MIN** | 51.8 | 48.3 | 52.6 | 49.3 | 0.7 | 1 | 58.1 | 54.8 | 2.9 | 4.9 | 48.4 | 43.7 | -4 | -4.9 | 60.9 | 57.6 | 3.0 | 4.5 |
| **MAX** | 62.7 | 57 | 63.5 | 58.2 | 0.9 | 1.2 | 68.4 | 63.2 | 11.1 | 8.2 | 61.5 | 54.4 | -0.5 | -1 | 68.5 | 63.5 | 15.0 | 12.6 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 1 | 2 | NA | NA | 0 | 0 | NA | NA | 4 | 7 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 12 | NA | 0 | NA | 0 | NA | 0 | NA | 17 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, and underlined numbers approach or exceed the Federal Noise Abatement Criteria.

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

[2] This receptor would be removed under Alternative E-1A.

**Table A-3: Area C – Project Corridor – Noise Modeling Results (Continued)**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R21 (I) | 60.6 | 54.4 | 61.3 | 55.5 | 0.7 | 1.1 | 64.7 | 59.6 | 4.1 | 5.2 | 58.3 | 50.1 | -2.3 | -4.3 | 63.9 | 59.1 | 3.3 | 4.7 |
| R22 (I) | 57.9 | 52.5 | 58.5 | 53.6 | 0.6 | 1.1 | 66.5 | 60.6 | 8.6 | 8.1 | 54.9 | 47.3 | -3.0 | -5.2 | 66.7 | 61.1 | 8.8 | 8.6 |
| R23 (I)[2] | 54.7 | 50.5 | 55.3 | 51.5 | 0.6 | 1.0 | N/A | N/A | N/A | N/A | 51.4 | 45.0 | -3.3 | -5.5 | 66.8 | 60.6 | 12.1 | 10.1 |
| R24 (R) | 54.5 | **50.1** | **55.2** | **51.1** | 0.7 | 1.0 | **63.9** | **58.2** | 9.4 | 8.1 | 51.7 | 45.1 | -2.8 | -5.0 | **65.1** | **59.6** | 10.6 | 9.5 |
| R26 (R) | **55.8** | **50.6** | **56.4** | **51.6** | 0.6 | 1.0 | **62.8** | **57.6** | 7.0 | 7.0 | 53.3 | 46.2 | -2.5 | -4.4 | **63.9** | **58.9** | 8.1 | 8.3 |
| R26A (R) | **57.0** | **50.8** | **57.6** | **51.9** | 0.6 | 1.1 | **62.1** | **57.1** | 5.1 | 6.3 | 54.9 | 47.3 | -2.1 | -3.5 | **62.9** | **58.4** | 5.9 | 7.6 |
| R26B (R) | **59.1** | **51.3** | **59.8** | **52.4** | 0.7 | 1.1 | **62.6** | **57.0** | 3.5 | 5.7 | **57.9** | 49.3 | -1.2 | -2.0 | **63.2** | **57.8** | 4.1 | 6.5 |
| R29 (I) | 51.4 | 47.7 | 52.1 | 48.7 | 0.7 | 1.0 | 62.7 | 56.9 | 11.3 | 9.2 | 48.2 | 42.5 | -3.2 | -5.2 | 66.6 | 60.4 | 15.2 | 12.7 |
| R30 (R) | 53.0 | 48.8 | 53.6 | 49.8 | 0.6 | 1.0 | **62.0** | **56.3** | 9.0 | 7.5 | 50.2 | 43.9 | -2.8 | -4.9 | **64.4** | **58.9** | 11.4 | 10.1 |
| R31 (R) | 53.5 | 49.0 | 54.2 | 50.0 | 0.7 | 1.0 | **61.2** | **55.9** | 7.7 | 6.9 | 51.0 | 44.4 | -2.5 | -4.6 | **63.3** | **58.2** | 9.8 | 9.2 |
| R34 (R) | 52.3 | 47.9 | 52.9 | 48.9 | 0.6 | 1.0 | **60.1** | **55.1** | 7.8 | 7.2 | 49.5 | 43.1 | -2.8 | -4.8 | **63.0** | **58.0** | 10.7 | 10.1 |
| R35 (R) | 53.1 | 48.4 | 53.7 | 49.4 | 0.6 | 1.0 | **59.8** | **54.9** | 6.7 | 6.5 | 50.7 | 43.8 | -2.4 | -4.6 | **62.2** | **57.5** | 9.1 | 9.1 |
| R36 (R) | 52.0 | 47.4 | 52.6 | 48.4 | 0.6 | 1.0 | **58.8** | **54.3** | 6.8 | 6.9 | 49.0 | 42.4 | -3.0 | -5.0 | **61.9** | **57.3** | 9.9 | 9.9 |
| R37 (R) | 52.6 | 47.5 | 53.2 | 48.5 | 0.6 | 1.0 | **58.3** | **54.0** | 5.7 | 6.5 | 49.7 | 42.6 | -2.9 | -4.9 | **61.0** | **56.7** | 8.4 | 9.2 |
| R40 (R) | 51.7 | 46.9 | 52.3 | 47.9 | 0.6 | 1.0 | **57.8** | **53.6** | 6.1 | 6.7 | 48.2 | 41.6 | -3.5 | -5.3 | **61.0** | **56.7** | 9.3 | 9.8 |
| R41 (R) | 52.2 | 47.1 | 52.8 | 48.1 | 0.6 | 1.0 | **57.5** | **53.4** | 5.3 | 6.3 | 48.8 | 41.9 | -3.4 | -5.2 | **60.5** | **56.3** | 8.3 | 9.2 |
| R43 (R) | 51.8 | 46.4 | 52.4 | 47.4 | 0.6 | 1.0 | **56.3** | **52.5** | 4.5 | 6.1 | 47.3 | 40.8 | -4.5 | -5.6 | **59.3** | **55.4** | 7.5 | 9.0 |
| R44 (R) | 51.4 | 46.3 | 52.0 | 47.3 | 0.6 | 1.0 | **56.6** | **52.7** | 5.2 | 6.4 | 47.1 | 40.9 | -4.3 | -5.4 | **59.8** | **55.8** | 8.4 | 9.5 |
| R46 (I) | 49.8 | 45.8 | 50.4 | 46.7 | 0.6 | 0.9 | 57.7 | 53.5 | 7.9 | 7.7 | 46.0 | 40.6 | -3.8 | -5.2 | 62.4 | 57.7 | 12.6 | 11.9 |
| **MIN** | 49.8 | 45.8 | 50.4 | 46.7 | 0.6 | 0.9 | 56.3 | 52.5 | 3.5 | 5.2 | 46 | 40.6 | -4.5 | -5.6 | 59.3 | 55.4 | 3.3 | 4.7 |
| **MAX** | 60.6 | 54.4 | 61.3 | 55.5 | 0.7 | 1.1 | 66.5 | 60.6 | 11.3 | 9.2 | 58.3 | 50.1 | -1.2 | -2 | 66.8 | 61.1 | 15.2 | 12.7 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 3 | 4 | 4 | 4 | NA | NA | 14 | 14 | NA | NA | 1 | 0 | NA | NA | 14 | 14 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 15 | NA | 0 | NA | 0 | NA | 0 | NA | 17 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, and underlined numbers approach or exceed the Federal Noise Abatement Criteria.

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

[2] This receptor would be removed under Alternative E-1A.

**Table A-4: Area D - Project Corridor - Noise Modeling Results**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R14 (C) | 68.0 | 61.7 | 68.9 | 63.0 | 0.9 | 1.3 | 68.8 | 62.8 | 0.8 | 1.1 | 69.4 | 63.5 | 1.4 | 1.8 | 68.8 | 63.0 | 0.8 | 1.3 |
| R15 (C) | 66.7 | 60.8 | 67.6 | 62.1 | 0.9 | 1.3 | 67.6 | 62.0 | 0.9 | 1.2 | 67.7 | 62.1 | 1.0 | 1.3 | 67.6 | 62.1 | 0.9 | 1.3 |
| R12A (R) | 59.4 | 55.5 | 60.2 | 56.6 | 0.8 | 1.1 | 60.0 | 56.3 | 0.6 | 0.8 | 60.4 | 57.0 | 1.0 | 1.5 | 60.1 | 56.5 | 0.7 | 1.0 |
| R12A2 (R) | 58.9 | 55.1 | 59.7 | 56.2 | 0.8 | 1.1 | 59.5 | 55.9 | 0.6 | 0.8 | 60.2 | 57.0 | 1.3 | 1.9 | 59.6 | 56.2 | 0.7 | 1.1 |
| R12B (R) | 59.9 | 55.9 | 60.7 | 57.0 | 0.8 | 1.1 | 60.7 | 56.8 | 0.8 | 0.9 | 60.8 | 57.1 | 0.9 | 1.2 | 60.7 | 56.9 | 0.8 | 1.0 |
| R12C (R) | 60.1 | 56.0 | 60.9 | 57.1 | 0.8 | 1.1 | 60.9 | 57.0 | 0.8 | 1.0 | 61.0 | 57.2 | 0.9 | 1.2 | 60.9 | 57.1 | 0.8 | 1.1 |
| **MIN** | 58.9 | 55.1 | 59.7 | 56.2 | 0.8 | 1.1 | 59.5 | 55.9 | 0.6 | 0.8 | 60.2 | 57.0 | 0.9 | 1.2 | 59.6 | 56.2 | 0.7 | 1.0 |
| **MAX** | 68.0 | 61.7 | 68.9 | 63.0 | 0.9 | 1.3 | 68.8 | 62.8 | 0.9 | 1.2 | 69.4 | 63.5 | 1.4 | 1.9 | 68.8 | 63.0 | 0.9 | 1.3 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R14 (C) | 66.2 | 59.4 | 67.1 | 60.6 | 0.9 | 1.2 | 67.0 | 60.5 | 0.8 | 1.1 | 67.6 | 61.1 | 1.4 | 1.7 | 67.1 | 60.6 | 0.9 | 1.2 |
| R15 (C) | 65.0 | 58.6 | 65.9 | 59.7 | 0.9 | 1.1 | 65.9 | 59.7 | 0.9 | 1.1 | 66.0 | 59.8 | 1.0 | 1.2 | 65.9 | 59.7 | 0.9 | 1.1 |
| R12A (R) | **57.8** | **53.4** | **58.6** | **54.4** | 0.8 | 1.0 | **58.5** | **54.2** | 0.7 | 0.8 | **58.8** | **54.9** | 1.0 | 1.5 | **58.6** | **54.4** | 0.8 | 1.0 |
| R12A2 (R) | **57.3** | **53.1** | **58.1** | **54.1** | 0.8 | 1.0 | **57.9** | **53.8** | 0.6 | 0.7 | **58.7** | **54.9** | 1.4 | 1.8 | **58.1** | **54.1** | 0.8 | 1.0 |
| R12B (R) | **58.4** | **53.8** | **59.2** | **54.8** | 0.8 | 1.0 | **59.1** | **54.7** | 0.7 | 0.9 | **59.3** | **55.0** | 0.9 | 1.2 | **59.2** | **54.8** | 0.8 | 1.0 |
| R12C (R) | **58.5** | **53.9** | **59.3** | **54.9** | 0.8 | 1.0 | **59.3** | **54.9** | 0.8 | 1.0 | **59.4** | **55.0** | 0.9 | 1.1 | **59.3** | **54.9** | 0.8 | 1.0 |
| **MIN** | 57.3 | 53.1 | 58.1 | 54.1 | 0.8 | 1.0 | 57.9 | 53.8 | 0.6 | 0.7 | 58.7 | 54.9 | 0.9 | 1.1 | 58.1 | 54.1 | 0.8 | 1.0 |
| **MAX** | 66.2 | 59.4 | 67.1 | 60.6 | 0.9 | 1.2 | 67.0 | 60.5 | 0.9 | 1.1 | 67.6 | 61.1 | 1.4 | 1.8 | 67.1 | 60.6 | 0.9 | 1.2 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 4 | 4 | 4 | 4 | NA | NA | 4 | 4 | NA | NA | 4 | 4 | NA | NA | 4 | 4 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards.

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

**Table A-5: Area E - Project Corridor - Noise Modeling Results**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R8 (R) | 58.6 | 54.9 | 59.3 | 56.0 | 0.7 | 1.1 | 58.6 | 55.2 | 0.0 | 0.3 | 62.0 | 58.3 | 3.4 | 3.4 | 59.2 | 55.8 | 0.6 | 0.9 |
| R9 (R) | 56.4 | 53.1 | 57.2 | 54.1 | 0.8 | 1.0 | 56.4 | 53.4 | 0.0 | 0.3 | 60.1 | 56.9 | 3.7 | 3.8 | 57.0 | 53.9 | 0.6 | 0.8 |
| R10 (R) | 54.7 | 51.6 | 55.4 | 52.7 | 0.7 | 1.1 | 54.6 | 51.9 | -0.1 | 0.3 | 58.7 | 55.7 | 4.0 | 4.1 | 55.2 | 52.5 | 0.5 | 0.9 |
| R10A (R) | 50.6 | 48.1 | 51.4 | 49.1 | 0.8 | 1.0 | 50.8 | 48.5 | 0.2 | 0.4 | 54.5 | 51.9 | 3.9 | 3.8 | 51.3 | 49.0 | 0.7 | 0.9 |
| R12 (R) | 58.4 | 54.8 | 59.2 | 55.9 | 0.8 | 1.1 | 58.8 | 55.4 | 0.4 | 0.6 | 61.8 | 55.7 | 3.4 | 0.9 | 59.1 | 55.8 | 0.7 | 1.0 |
| R13 (R) | 57.8 | 54.3 | 58.5 | 55.3 | 0.7 | 1.0 | 58.2 | 54.8 | 0.4 | 0.5 | 60.2 | 56.4 | 2.4 | 2.1 | 58.5 | 55.2 | 0.7 | 0.9 |
| **MIN** | 50.6 | 48.1 | 51.4 | 49.1 | 0.7 | 1.0 | 50.8 | 48.5 | -0.1 | 0.3 | 54.5 | 51.9 | 2.4 | 0.9 | 51.3 | 49.0 | 0.5 | 0.8 |
| **MAX** | 58.6 | 54.9 | 59.3 | 56.0 | 0.8 | 1.1 | 58.8 | 55.4 | 0.4 | 0.6 | 62.0 | 58.3 | 4.0 | 4.1 | 59.2 | 55.8 | 0.7 | 1.0 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R8 (R) | **57.0** | **52.9** | **57.8** | **53.9** | 0.8 | 1.0 | **57.0** | **53.1** | 0.0 | 0.2 | **60.5** | **56.2** | 3.5 | 3.3 | **57.6** | **53.7** | 0.6 | 0.8 |
| R9 (R) | 54.8 | **51.1** | **55.6** | **52.1** | 0.8 | 1.0 | 54.8 | **51.3** | 0.0 | 0.2 | **58.6** | **54.8** | 3.8 | 3.7 | **55.4** | **51.9** | 0.6 | 0.8 |
| R10 (R) | 53.1 | 49.6 | 53.9 | **50.6** | 0.8 | 1.0 | 53.1 | 49.9 | 0.0 | 0.3 | **57.1** | **53.7** | 4.0 | 4.1 | 53.7 | **50.5** | 0.6 | 0.9 |
| R10A (R) | 49.1 | 46.2 | 49.9 | 47.1 | 0.8 | 0.9 | 49.2 | 46.5 | 0.1 | 0.3 | 53.1 | 49.9 | 4.0 | 3.7 | 49.7 | 47.0 | 0.6 | 0.8 |
| R12 (R) | **56.9** | **52.8** | **57.7** | **53.8** | 0.8 | 1.0 | **57.2** | **53.3** | 0.3 | 0.5 | **60.2** | **52.8** | 3.3 | 0.0 | **57.6** | **53.7** | 0.7 | 0.9 |
| R13 (R) | **56.2** | **52.2** | **57.0** | **53.3** | 0.8 | 1.1 | **56.6** | **52.8** | 0.4 | 0.6 | **58.8** | **54.1** | 2.6 | 1.9 | **56.9** | **53.2** | 0.7 | 1.0 |
| **MIN** | 49.1 | 46.2 | 49.9 | 47.1 | 0.8 | 0.9 | 49.2 | 46.5 | 0.0 | 0.2 | 53.1 | 49.9 | 2.6 | 0.0 | 49.7 | 47.0 | 0.6 | 0.8 |
| **MAX** | 57.0 | 52.9 | 57.8 | 53.9 | 0.8 | 1.1 | 57.2 | 53.3 | 0.4 | 0.6 | 60.5 | 56.2 | 4.0 | 4.1 | 57.6 | 53.7 | 0.7 | 1.0 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 3 | 4 | 4 | 5 | NA | NA | 3 | 4 | NA | NA | 5 | 5 | NA | NA | 4 | 5 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards.

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

**Table A-6: Area F - Project Corridor - Noise Modeling Results**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R2 (C) | 66.9 | 61.0 | 67.7 | 62.2 | 0.8 | 1.2 | 67.7 | 62.1 | 0.8 | 1.1 | 65.9 | 60.5 | -1.0 | -0.5 | 67.7 | 62.2 | 0.8 | 1.2 |
| R2B (C) | 67.2 | 61.6 | 68.0 | 62.7 | 0.8 | 1.1 | 68.0 | 62.7 | 0.8 | 1.1 | 66.9 | 61.0 | -0.3 | -0.6 | 68.0 | 62.7 | 0.8 | 1.2 |
| R2C (C) | 66.3 | 60.9 | 67.1 | 62.0 | 0.8 | 1.1 | 67.3 | 62.1 | 1.0 | 1.2 | 66.6 | 61.0 | 0.3 | 0.1 | 67.1 | 62.0 | 0.8 | 1.1 |
| R1 (C) | 67.3 | 61.5 | 68.1 | 62.7 | 0.8 | 1.2 | 68.3 | 62.8 | 1.0 | 1.3 | 67.9 | 62.1 | 0.6 | 0.6 | 68.1 | 62.7 | 0.8 | 1.2 |
| R3 (C) | 68.8 | 62.7 | 69.6 | 63.9 | 0.8 | 1.2 | 69.3 | 63.7 | 0.5 | 1.0 | 64.1 | 59.9 | -4.7 | -2.8 | 69.6 | 63.9 | 0.8 | 1.2 |
| R4 (R) | 63.6 | 58.5 | 64.4 | 59.6 | 0.8 | 1.1 | 64.4 | 59.7 | 0.8 | 1.2 | 64.3 | 59.5 | 0.7 | 1.0 | 64.4 | 59.6 | 0.7 | 1.1 |
| R5 (R) | 61.7 | 57.2 | 62.4 | 58.3 | 0.7 | 1.1 | 62.5 | 58.4 | 0.8 | 1.2 | 62.1 | 57.8 | 0.4 | 0.6 | 62.4 | 58.3 | 0.7 | 1.0 |
| R5A (R) | 61.4 | 57.0 | 62.1 | 58.1 | 0.7 | 1.1 | 62.1 | 58.1 | 0.7 | 1.1 | 61.7 | 57.5 | 0.3 | 0.5 | 62.1 | 58.1 | 0.8 | 1.1 |
| R5B (R) | 62.0 | 57.4 | 62.7 | 58.4 | 0.7 | 1.0 | 62.9 | 58.6 | 0.9 | 1.2 | 62.6 | 58.1 | 0.6 | 0.7 | 62.7 | 58.4 | 0.7 | 1.0 |
| R5C (R) | 61.6 | 57.3 | 62.4 | 58.3 | 0.8 | 1.0 | 62.4 | 58.4 | 0.8 | 1.1 | 61.9 | 57.7 | 0.3 | 0.4 | 62.4 | 58.3 | 0.8 | 1.0 |
| R5D (R) | 62.4 | 57.6 | 63.2 | 58.7 | 0.8 | 1.1 | 63.3 | 58.8 | 0.9 | 1.2 | 63.2 | 58.6 | 0.8 | 1.0 | 63.2 | 58.7 | 0.8 | 1.1 |
| R6 (R) | 61.7 | 57.1 | 62.4 | 58.2 | 0.7 | 1.1 | 62.5 | 58.3 | 0.8 | 1.2 | 62.2 | 57.7 | 0.5 | 0.6 | 62.4 | 58.2 | 0.7 | 1.1 |
| R7 (R) | 63.2 | 58.5 | 63.9 | 59.6 | 0.7 | 1.1 | 63.9 | 59.6 | 0.7 | 1.1 | 62.4 | 58.3 | -0.8 | -0.2 | 63.9 | 59.6 | 0.8 | 1.1 |
| R51 (R) | 63.0 | 58.4 | 63.7 | 59.5 | 0.7 | 1.1 | 63.7 | 59.5 | 0.7 | 1.1 | 61.6 | 57.8 | -1.4 | -0.6 | 63.7 | 59.5 | 0.7 | 1.0 |
| **MIN** | 61.4 | 57.0 | 62.1 | 58.1 | 0.7 | 1.0 | 62.1 | 58.1 | 0.5 | 1.0 | 61.6 | 57.5 | -4.7 | -2.8 | 62.1 | 58.1 | 0.7 | 1.0 |
| **MAX** | 68.8 | 62.7 | 69.6 | 63.9 | 0.8 | 1.2 | 69.3 | 63.7 | 1.0 | 1.3 | 67.9 | 62.1 | 0.8 | 1.0 | 69.6 | 63.9 | 0.8 | 1.2 |
| **Exceedances** | 0 | 0 | 0 | 0 | 0 | N/A | 0 | 0 | 0 | N/A | 0 | 0 | 0 | N/A | 0 | 0 | 0 | N/A |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

**Table A-6: Area F - Project Corridor - Noise Modeling Results (Continued)**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R2 (C) | 63.5 | 56.0 | 64.4 | 57.3 | 0.9 | 1.3 | 64.4 | 57.3 | 0.9 | 1.3 | 62.9 | 56.1 | -0.6 | 0.1 | 64.0 | 56.8 | 0.5 | 0.8 |
| R2B (C) | 63.9 | 56.5 | 64.7 | 57.9 | 0.8 | 1.4 | 64.8 | 57.9 | 0.9 | 1.4 | 63.7 | 56.3 | -0.2 | -0.2 | 64.4 | 57.4 | 0.5 | 0.8 |
| R2C (C) | 63.0 | 55.9 | 63.9 | 57.2 | 0.9 | 1.3 | 64.1 | 57.4 | 1.1 | 1.5 | 63.4 | 56.3 | 0.4 | 0.4 | 63.5 | 56.7 | 0.5 | 0.9 |
| R1 (C) | 64.0 | 56.5 | 64.8 | 57.8 | 0.8 | 1.3 | 65.1 | 58.0 | 1.1 | 1.5 | 64.6 | 57.3 | 0.6 | 0.8 | 64.5 | 57.3 | 0.5 | 0.8 |
| R3 (C) | 65.3 | 57.6 | 66.2 | 59.0 | 0.9 | 1.4 | 66.0 | 58.9 | 0.7 | 1.3 | 61.5 | 56.1 | -3.8 | -1.5 | 65.9 | 58.5 | 0.5 | 0.9 |
| R4 (R) | **60.4** | **53.7** | **61.3** | **54.9** | 0.9 | 1.2 | **61.3** | **55.1** | 0.9 | 1.4 | **61.2** | **55.0** | 0.8 | 1.3 | **60.9** | **54.5** | 0.4 | 0.8 |
| R5 (R) | **58.6** | **52.6** | **59.4** | **53.8** | 0.8 | 1.2 | **59.6** | **53.9** | 1.0 | 1.3 | **59.3** | **53.5** | 0.7 | 0.9 | **59.0** | **53.3** | 0.4 | 0.8 |
| R5A (R) | **58.3** | **52.4** | **59.1** | **53.6** | 0.8 | 1.2 | **59.2** | **53.8** | 0.9 | 1.4 | **58.9** | **53.3** | 0.6 | 0.9 | **58.7** | **53.2** | 0.4 | 0.8 |
| R5B (R) | **58.9** | **52.7** | **59.7** | **53.9** | 0.8 | 1.2 | **59.9** | **54.1** | 1.0 | 1.4 | **59.7** | **53.8** | 0.8 | 1.1 | **59.3** | **53.4** | 0.4 | 0.8 |
| R5C (R) | **58.6** | **52.7** | **59.4** | **53.9** | 0.8 | 1.2 | **59.5** | **54.0** | 0.9 | 1.3 | **59.2** | **53.7** | 0.6 | 1.0 | **59.0** | **53.4** | 0.4 | 0.8 |
| R5D (R) | **59.3** | **52.8** | **60.1** | **54.1** | 0.8 | 1.3 | **60.3** | **54.3** | 1.0 | 1.5 | **60.2** | **54.2** | 0.9 | 1.4 | **59.7** | **53.6** | 0.4 | 0.8 |
| R6 (R) | **58.7** | **52.5** | **59.4** | **53.7** | 0.7 | 1.2 | **59.5** | **53.8** | 0.8 | 1.3 | **59.4** | **53.6** | 0.7 | 1.1 | **59.0** | **53.2** | 0.4 | 0.8 |
| R7 (R) | **60.1** | **53.8** | **60.9** | **55.1** | 0.8 | 1.3 | **60.9** | **55.1** | 0.8 | 1.3 | **59.8** | **54.4** | -0.3 | 0.6 | **60.5** | **54.6** | 0.3 | 0.8 |
| R51 (R) | **59.9** | **53.8** | **60.7** | **55.0** | 0.8 | 1.2 | **60.7** | **55.1** | 0.8 | 1.3 | **59.1** | **54.1** | -0.8 | 0.3 | **60.3** | **54.5** | 0.5 | 0.8 |
| **MIN** | 58.3 | 52.4 | 59.1 | 53.6 | 0.7 | 1.2 | 59.2 | 53.8 | 0.7 | 1.3 | 58.9 | 53.3 | -3.8 | -1.5 | 58.7 | 53.2 | 0.5 | 0.8 |
| **MAX** | 65.3 | 57.6 | 66.2 | 59.0 | 0.9 | 1.4 | 66.0 | 58.9 | 1.1 | 1.5 | 64.6 | 57.3 | 0.9 | 1.4 | 63.5 | 58.5 | 0.5 | 0.9 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 9 | 9 | 9 | 9 | NA | NA | 9 | 9 | NA | NA | 9 | 9 | NA | NA | 9 | 9 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards.

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

**Table A-7: Area G - Project Corridor - Noise Modeling Results (US 53 / MN 135 At-Grade Intersection)**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R51A (R) | 50.5 | 47.7 | 51.2 | 48.7 | 0.7 | 1.0 | 59.1 | 55.5 | 8.6 | 7.8 | 46.9 | 44.4 | -3.6 | -3.3 | 52.8 | 50.5 | 2.3 | 2.8 |
| R51B (R) | 51.2 | 48.3 | 51.9 | 49.3 | 0.7 | 1.0 | 62.5 | 58.3 | 11.3 | 10.0 | 46.7 | 44.3 | -4.5 | -4.0 | 54.1 | 51.6 | 2.9 | 3.3 |
| **MIN** | 50.5 | 47.7 | 51.2 | 48.7 | 0.7 | 1.0 | 59.1 | 55.5 | 8.6 | 7.8 | 46.7 | 44.3 | -4.5 | -4.0 | 52.8 | 50.5 | 2.3 | 2.8 |
| **MAX** | 51.2 | 48.3 | 51.9 | 49.3 | 0.7 | 1.0 | 62.5 | 58.3 | 11.3 | 10.0 | 46.9 | 44.4 | -3.6 | -3.3 | 54.1 | 51.6 | 2.9 | 3.3 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 2 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R51A (R) | 47.8 | 43.9 | 48.5 | 45.0 | 0.7 | 1.1 | **56.3** | **51.4** | 8.5 | 7.5 | 44.8 | 41.8 | -3.0 | -2.1 | 50.2 | 47.0 | 2.4 | 3.1 |
| R51B (R) | 48.5 | 44.4 | 49.2 | 45.5 | 0.7 | 1.1 | **59.6** | **54.0** | 11.1 | 9.6 | 44.7 | 41.7 | -3.8 | -2.7 | 51.5 | 48.2 | 3.0 | 3.8 |
| **MIN** | 47.8 | 43.9 | 48.5 | 45.0 | 0.7 | 1.1 | 56.3 | 51.4 | 8.5 | 7.5 | 44.7 | 41.7 | -3.8 | -2.7 | 50.2 | 47.0 | 2.4 | 3.1 |
| **MAX** | 48.5 | 44.4 | 49.2 | 45.5 | 0.7 | 1.1 | 59.6 | 54.0 | 11.1 | 9.6 | 44.8 | 41.8 | -3.0 | -2.1 | 51.5 | 48.2 | 3.0 | 3.8 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 2 | 2 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 2 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, and underlined numbers approach or exceed the Federal Noise Abatement Criteria.

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

**Table A-7A: Area G - Project Corridor - Noise Modeling Results (US 53 / MN 135 Interchange)**

| Receptor[1] | Modeled Noise Levels (dBA) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. 2012 Existing US 53 | | B. 2037 Existing US 53 Alternative | | C. Existing US 53 Noise Change (B-A) | | D. Alternative E1A Build 2037 | | E. Alternative E1A Noise Change (D-A) | | F. Alternative M1 | | G. Alternative M1 Noise Change (F-A) | | H Alternative E-2 | | I Alternative E-2 Noise Change (H-A) | |
| **Daytime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R51A (R) | 50.5 | 47.7 | 51.2 | 48.7 | 0.7 | 1.0 | 59.1 | 55.7 | 8.6 | 8.0 | 46.9 | 44.4 | -3.6 | -3.3 | 52.9 | 50.7 | 2.4 | 3.0 |
| R51B (R) | 51.2 | 48.3 | 51.9 | 49.3 | 0.7 | 1.0 | 62.5 | 58.4 | 11.3 | 10.1 | 46.7 | 44.3 | -4.5 | -4.0 | 54.2 | 51.8 | 3.0 | 3.5 |
| **MIN** | 50.5 | 47.7 | 51.2 | 48.7 | 0.7 | 1.0 | 59.1 | 55.7 | 8.6 | 8.0 | 46.7 | 44.3 | -4.5 | -4.0 | 52.9 | 50.7 | 2.4 | 3.0 |
| **MAX** | 51.2 | 48.3 | 51.9 | 49.3 | 0.7 | 1.0 | 62.5 | 58.4 | 11.3 | 10.1 | 46.9 | 44.4 | -3.6 | -3.3 | 54.2 | 51.8 | 3.0 | 3.5 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 2 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| **Nighttime** | | | | | | | | | | | | | | | | | | |
| | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 | L10 | L50 |
| R51A (R) | 47.8 | 43.9 | 48.5 | 45.0 | 0.7 | 1.1 | **56.4** | **51.7** | 8.6 | 7.8 | 44.8 | 41.8 | -3.0 | -2.1 | 50.5 | 47.4 | 2.7 | 3.5 |
| R51B (R) | 48.5 | 44.4 | 49.2 | 45.5 | 0.7 | 1.1 | **59.7** | **54.2** | 11.2 | 9.8 | 44.7 | 41.7 | -3.8 | -2.7 | 51.8 | 48.6 | 3.3 | 4.2 |
| **MIN** | 47.8 | 43.9 | 48.5 | 45.0 | 0.7 | 1.1 | 56.4 | 51.7 | 8.6 | 7.8 | 44.7 | 41.7 | -3.8 | -2.7 | 50.5 | 47.4 | 2.7 | 3.5 |
| **MAX** | 48.5 | 44.4 | 49.2 | 45.5 | 0.7 | 1.1 | 59.7 | 54.2 | 11.2 | 9.8 | 44.8 | 41.8 | -3.0 | -2.1 | 51.8 | 48.6 | 3.3 | 4.2 |
| **Exceedances** | | | | | | | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 2 | 2 | NA | NA | 0 | 0 | NA | NA | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 2 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, and underlined numbers approach or exceed the Federal Noise Abatement Criteria.

[1] (R) indicates residential location. (C) indicates commercial location. (I) indicates industrial location.

**Table B-1**
**Co. 7 – Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| Receptor[1, 2] | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | |
| | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| C43A (C) | 64.2 | 56.3 | 67.3 | 60.6 | 3.1 | 4.3 | 61.2 | 52.5 | 65.5 | 58.5 | 4.3 | 6.0 |
| P43 (1) | 64.5 | 55.0 | **68.6** | **60.4** | 4.1 | 5.4 | **60.2** | 49.5 | **67.0** | **58.5** | 6.8 | 9.0 |
| P43A (1) | 63.4 | 54.8 | **67.2** | 59.8 | 3.8 | 5.0 | **59.5** | 49.8 | **65.6** | **57.9** | 6.1 | 8.1 |
| P45 (1) | **74.6** | **61.9** | **79.3** | **67.7** | 4.7 | 5.8 | **69.5** | **55.6** | **77.8** | **66.0** | 8.3 | 10.4 |
| P46 (1) | 54.6 | 47.8 | 58.0 | 52.6 | 3.4 | 4.8 | 50.8 | 42.7 | **56.6** | **50.9** | 5.8 | 8.2 |
| P47 (1) | 57.7 | 49.4 | 61.7 | 54.8 | 4.0 | 5.4 | 53.3 | 43.6 | **60.3** | **53.1** | 7.0 | 9.5 |
| P48 (1) | 57.9 | 49.3 | 62.0 | 54.9 | 4.1 | 5.6 | 53.3 | 43.2 | **60.6** | **53.2** | 7.3 | 10.0 |
| P49 (1) | **73.0** | **60.8** | **77.7** | **66.7** | 4.7 | 5.9 | **67.9** | **54.6** | **76.2** | **64.9** | 8.3 | 10.3 |
| P49A (1) | 52.6 | 45.4 | 56.4 | 50.7 | 3.8 | 5.3 | 48.3 | 39.6 | 55.0 | 49.0 | 6.7 | 9.4 |
| P49B (1) | 53.3 | 46.0 | 57.1 | 51.3 | 3.8 | 5.3 | 49.0 | 40.2 | **55.7** | 49.6 | 6.7 | 9.4 |
| P50 (1) | 60.5 | 51.2 | 64.7 | 56.9 | 4.2 | 5.7 | **55.7** | 45.1 | **63.2** | **55.2** | 7.5 | 10.1 |
| P51 (1) | 55.1 | 47.2 | 59.1 | 52.7 | 4.0 | 5.5 | 50.6 | 41.2 | **57.6** | **51.0** | 7.0 | 9.8 |
| R52 (2) | 59.9 | 50.8 | 64.1 | 56.4 | 4.2 | 5.6 | **55.1** | 44.6 | **62.6** | **54.7** | 7.5 | 10.1 |
| P53 (1) | 61.8 | 52.2 | **66.1** | 57.9 | 4.3 | 5.7 | **57.0** | 46.0 | **64.6** | **56.2** | 7.6 | 10.2 |
| P53A (1) | 55.2 | 47.3 | 59.2 | 52.7 | 4.0 | 5.4 | 50.7 | 41.2 | **57.8** | **51.1** | 7.1 | 9.9 |
| P55 (1) | 61.1 | 51.7 | **65.3** | 57.4 | 4.2 | 5.7 | **56.3** | 45.5 | **63.8** | **55.7** | 7.5 | 10.2 |
| P57 (2) | 56.4 | 48.1 | 60.4 | 53.6 | 4.0 | 5.5 | 51.8 | 42.0 | **59.0** | **51.9** | 7.2 | 9.9 |
| P57A (8) | 48.5 | 42.0 | 52.1 | 47.2 | 3.6 | 5.2 | 44.3 | 36.2 | 50.8 | 45.5 | 6.5 | 9.3 |
| P57B (3) | 54.0 | 46.2 | 57.9 | 51.6 | 3.9 | 5.4 | 49.4 | 40.1 | **56.5** | 50.0 | 7.1 | 9.9 |
| P57C (1) | 46.8 | 40.8 | 50.4 | 45.8 | 3.6 | 5.0 | 42.7 | 35.1 | 49.0 | 44.2 | 6.3 | 9.1 |
| P57D (1) | 52.7 | 45.2 | 56.5 | 50.6 | 3.8 | 5.4 | 48.2 | 39.2 | **55.1** | 48.9 | 6.9 | 9.7 |
| P63 (1) | 60.1 | 50.9 | 64.3 | 56.6 | 4.2 | 5.7 | **55.4** | 44.7 | **62.9** | **54.9** | 7.5 | 10.2 |
| P66 (1) | 62.0 | 52.5 | **66.3** | 58.2 | 4.3 | 5.7 | **57.2** | 46.3 | **64.8** | **56.4** | 7.6 | 10.1 |
| P67 (1) | 58.2 | 49.5 | 62.4 | 55.1 | 4.2 | 5.6 | 53.5 | 43.3 | **60.9** | **53.4** | 7.4 | 10.1 |
| P70 (3) | 59.8 | 50.7 | 64.0 | 56.4 | 4.2 | 5.7 | **55.1** | 44.6 | **62.6** | **54.7** | 7.5 | 10.1 |
| P70A (7) | 48.7 | 42.4 | 52.3 | 47.6 | 3.6 | 5.2 | 44.5 | 36.6 | 51.0 | 46.0 | 6.5 | 9.4 |
| P70B (1) | 56.6 | 48.3 | 60.6 | 53.9 | 4.0 | 5.6 | 52.0 | 42.2 | **59.2** | **52.2** | 7.2 | 10.0 |

Attachment B
Noise Technical Report. No Build Impact Tables

| Receptor[1, 2] | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | |
| | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| P71 (2) | 62.8 | 52.9 | **67.1** | 58.6 | 4.3 | 5.7 | **57.9** | 46.7 | **65.6** | **56.9** | 7.7 | 10.2 |
| P71A (6) | 57.1 | 48.8 | 61.2 | 54.3 | 4.1 | 5.5 | 52.5 | 42.7 | **59.7** | **52.6** | 7.2 | 9.9 |
| P71B (4) | 57.7 | 49.2 | 61.8 | 54.8 | 4.1 | 5.6 | 53.1 | 43.0 | **60.4** | **53.1** | 7.3 | 10.1 |
| P72 (1) | 60.1 | 50.9 | 64.3 | 56.6 | 4.2 | 5.7 | **55.3** | 44.7 | **62.9** | **54.9** | 7.6 | 10.2 |
| P73 (1) | 60.8 | 51.5 | **65.1** | 57.2 | 4.3 | 5.7 | **56.0** | 45.3 | **63.6** | **55.5** | 7.6 | 10.2 |
| P75 (1) | 61.3 | 51.8 | **65.6** | 57.5 | 4.3 | 5.7 | **56.5** | 45.6 | **64.1** | **55.8** | 7.6 | 10.2 |
| P77 (1) | 60.2 | 51.1 | 64.5 | 56.8 | 4.3 | 5.7 | **55.5** | 44.9 | **63.0** | **55.1** | 7.5 | 10.2 |
| R78 (1) | 53.5 | 46.5 | 57.4 | 52.1 | 3.9 | 5.6 | 49.2 | 40.6 | **56.1** | **50.6** | 6.9 | 10.0 |
| P83 (1) | 64.0 | 55.0 | **71.4** | **64.9** | 7.4 | 9.9 | **59.7** | 49.2 | **69.7** | **62.8** | 10.0 | 13.6 |
| P84 (1) | 60.0 | 51.5 | **67.5** | **61.8** | 7.5 | 10.3 | **55.8** | 45.8 | **65.7** | **59.6** | 9.9 | 13.8 |
| P92 (3) | 57.4 | 49.1 | **65.2** | 59.9 | 7.8 | 10.8 | 53.3 | 43.4 | **63.3** | **57.5** | 10.0 | 14.1 |
| P92A (8) | 47.0 | 41.2 | 53.8 | 50.7 | 6.8 | 9.5 | 43.4 | 36.0 | 52.0 | 48.6 | 8.6 | 12.6 |
| P92B (1) | 55.1 | 47.4 | 62.6 | 57.9 | 7.5 | 10.5 | 51.1 | 41.8 | **60.8** | **55.6** | 9.7 | 13.8 |
| P93 (1) | 58.2 | 49.6 | **66.1** | **60.5** | 7.9 | 10.9 | 54.1 | 44.0 | **64.2** | **58.2** | 10.1 | 14.2 |
| P96 (1) | 63.0 | 53.3 | **71.3** | **64.5** | 8.3 | 11.2 | **58.6** | 47.5 | **69.3** | **62.1** | 10.7 | 14.6 |
| C97 (C) | 57.5 | 49.0 | 65.3 | 59.8 | 7.8 | 10.8 | 53.3 | 43.3 | 63.4 | 57.5 | 10.1 | 14.2 |
| P101 (1) | 55.1 | 47.3 | 62.6 | 57.9 | 7.5 | 10.6 | 51.1 | 41.7 | **60.8** | **55.6** | 9.7 | 13.9 |
| P103 (2) | 48.7 | 42.4 | 55.6 | 52.2 | 6.9 | 9.8 | 45.0 | 37.0 | 53.9 | **50.1** | 8.9 | 13.1 |
| P108 (3) | 54.2 | 45.5 | 62.1 | 56.5 | 7.9 | 11.0 | 50.8 | 41.0 | **60.2** | **54.0** | 9.4 | 13.0 |
| P108A (1) | 50.7 | 43.1 | 58.1 | 53.5 | 7.4 | 10.4 | 47.0 | 38.0 | **56.2** | **51.3** | 9.2 | 13.3 |
| P108B (1) | 53.8 | 45.1 | 61.7 | 56.0 | 7.9 | 10.9 | 51.0 | 41.4 | **59.7** | **53.5** | 8.7 | 12.1 |
| P108C (3) | 48.4 | 40.9 | 55.7 | 51.3 | 7.3 | 10.4 | 45.8 | 37.5 | 53.8 | 48.9 | 8.0 | 11.4 |
| P108D (5) | 43.3 | 36.8 | 50.2 | 46.7 | 6.9 | 9.9 | 40.9 | 33.5 | 48.4 | 44.4 | 7.5 | 10.9 |
| P108E (2) | 41.6 | 35.4 | 48.4 | 45.1 | 6.8 | 9.7 | 39.2 | 32.2 | 46.6 | 42.9 | 7.4 | 10.7 |
| P108F (5) | 43.7 | 37.1 | 50.6 | 47.0 | 6.9 | 9.9 | 41.1 | 33.6 | 48.8 | 44.7 | 7.7 | 11.1 |
| P108G (3) | 50.4 | 42.5 | 58.0 | 53.1 | 7.6 | 10.6 | 47.4 | 38.4 | **56.1** | **50.7** | 8.7 | 12.3 |
| P109 (1) | 59.8 | 49.3 | **68.4** | **61.0** | 8.6 | 11.7 | **59.8** | 49.3 | **66.0** | **57.9** | 6.2 | 8.6 |
| P109A (1) | 53.6 | 44.9 | 61.3 | 56.0 | 7.7 | 11.1 | 53.3 | 44.5 | **59.1** | **53.1** | 5.8 | 8.6 |
| P109B (6) | 48.8 | 41.7 | 55.8 | 52.0 | 7.0 | 10.3 | 48.3 | 40.8 | 53.9 | 49.4 | 5.6 | 8.6 |

Attachment B
Noise Technical Report. No Build Impact Tables

| Receptor[1, 2] | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | |
| | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| P109C (5) | 42.9 | 37.1 | 49.6 | 46.6 | 6.7 | 9.5 | 41.5 | 35.1 | 47.7 | 44.3 | 6.2 | 9.2 |
| P109D (3) | 40.8 | 35.2 | 47.4 | 44.6 | 6.6 | 9.4 | 39.2 | 33.1 | 45.5 | 42.3 | 6.3 | 9.2 |
| P109E (5) | 42.5 | 36.8 | 49.1 | 46.3 | 6.6 | 9.5 | 41.2 | 35.0 | 47.2 | 44.0 | 6.0 | 9.0 |
| P109F (3) | 40.5 | 35.1 | 47.1 | 44.4 | 6.6 | 9.3 | 39.1 | 33.2 | 45.2 | 42.1 | 6.1 | 8.9 |
| C109 (C) | 35.4 | 30.6 | 41.8 | 39.5 | 6.4 | 8.9 | 33.7 | 28.3 | 40.0 | 37.3 | 6.3 | 9.0 |
| C114 (C) | 55.3 | 45.9 | 63.3 | 57.2 | 8.0 | 11.3 | 55.3 | 45.8 | 61.1 | 54.2 | 5.8 | 8.4 |
| P110 (1) | 59.0 | 48.7 | **67.5** | **60.3** | 8.5 | 11.6 | **59.0** | 48.7 | **65.1** | **57.3** | 6.1 | 8.6 |
| P111 (1) | 59.5 | 49.1 | **68.0** | **60.7** | 8.5 | 11.6 | **59.5** | 49.0 | **65.6** | **57.6** | 6.1 | 8.6 |
| P112 (1) | 60.3 | 49.7 | **68.9** | **61.3** | 8.6 | 11.6 | **60.3** | 49.6 | **66.5** | **58.2** | 6.2 | 8.6 |
| P114 (1) | 59.8 | 49.3 | **68.4** | **61.0** | 8.6 | 11.7 | **59.8** | 49.3 | **66.0** | **57.9** | 6.2 | 8.6 |
| P117 (1) | 59.2 | 48.8 | **67.7** | **60.5** | 8.5 | 11.7 | **59.2** | 48.8 | **65.3** | **57.4** | 6.1 | 8.6 |
| P117A (5) | 49.1 | 41.2 | 56.4 | 51.9 | 7.3 | 10.7 | 49.1 | 41.1 | 54.3 | 49.1 | 5.2 | 8.0 |
| P118 (C) | 59.7 | 49.2 | 68.2 | 60.8 | 8.5 | 11.6 | 59.7 | 49.2 | 65.8 | 57.7 | 6.1 | 8.5 |
| C118 (C) | 55.1 | 45.7 | 63.1 | 57.0 | 8.0 | 11.3 | 55.0 | 45.6 | 60.8 | 54.0 | 5.8 | 8.4 |
| **MAX** | 74.6 | 61.9 | 79.3 | 67.7 | 8.6 | 11.7 | 69.5 | 55.6 | 77.8 | 66.0 | 10.7 | 14.6 |
| **MIN** | 35.4 | 30.6 | 41.8 | 39.5 | 3.1 | 4.3 | 33.7 | 28.3 | 40.0 | 37.3 | 4.3 | 6.0 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 2 | 2 | 21 | 13 | NA | NA | 25 | 2 | 48 | 46 | NA | NA |
| **Federal** | 2 | NA | 3 | NA | 35 | NA | 1 | NA | 4 | NA | 69 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, underlined numbers approach or exceed the Federal Noise Abatement Criteria.
[1] (C) indicates commercial location.
[2] The number in parentheses represents the number of residences at that receptor.

**Table B-2**
**MN 37 South – Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| Receptor[1, 2] | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | |
| | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| P0 (1) | 50.8 | 42.4 | 53.6 | 46.2 | 2.8 | 3.8 | 44.8 | 34.5 | 51.6 | 43.7 | 6.8 | 9.2 |
| P1 (DNR) (C) | 54.7 | 47.5 | 57.3 | 51.2 | 2.6 | 3.7 | 49.0 | 39.7 | **55.4** | 48.8 | 6.4 | 9.1 |
| P2 (1) | 61.1 | 52.8 | 63.9 | 56.6 | 2.8 | 3.8 | **55.3** | 45.0 | **61.9** | **54.1** | 6.6 | 9.1 |
| P3 (1) | 60.6 | 52.4 | 63.3 | 56.1 | 2.7 | 3.7 | **56.2** | 46.5 | **61.3** | **53.7** | 5.1 | 7.2 |
| P3A (1) | 64.4 | 55.2 | **67.3** | 59.1 | 2.9 | 3.9 | **59.9** | 49.4 | **65.2** | **56.6** | 5.3 | 7.2 |
| P11 (2) | 63.6 | 54.7 | **66.5** | 58.5 | 2.9 | 3.8 | **59.2** | 48.8 | **64.4** | **56.0** | 5.2 | 7.2 |
| P11A (1) | 63.4 | 54.5 | **66.3** | 58.4 | 2.9 | 3.9 | **59.0** | 48.7 | **64.2** | **55.9** | 5.2 | 7.2 |
| P11B (1) | 58.7 | 51.0 | 61.4 | 54.7 | 2.7 | 3.7 | 54.5 | 45.2 | **59.4** | **52.3** | 4.9 | 7.1 |
| P11C (1) | 62.6 | 54.0 | **65.5** | 57.8 | 2.9 | 3.8 | **58.2** | 48.1 | **63.5** | **55.3** | 5.3 | 7.2 |
| P12 (2) | 62.1 | 53.6 | 64.9 | 57.4 | 2.8 | 3.8 | **57.7** | 47.7 | **62.9** | **54.9** | 5.2 | 7.2 |
| P12A (1) | 59.7 | 51.8 | 62.4 | 55.5 | 2.7 | 3.7 | **55.4** | 46.0 | **60.4** | **53.1** | 5.0 | 7.1 |
| P13 (1) | 56.1 | 49.1 | 58.7 | 52.7 | 2.6 | 3.6 | 52.0 | 43.4 | **56.8** | **50.3** | 4.8 | 6.9 |
| P14 (2) | 62.5 | 53.8 | **65.3** | 57.6 | 2.8 | 3.8 | **58.1** | 48.0 | **63.3** | **55.2** | 5.2 | 7.2 |
| P15 (2) | 64.5 | 55.3 | **67.4** | 59.2 | 2.9 | 3.9 | **60.0** | 49.4 | **65.3** | **56.7** | 5.3 | 7.3 |
| P16 (1) | 62.1 | 53.6 | 64.9 | 57.4 | 2.8 | 3.8 | **57.7** | 47.7 | **62.9** | **54.9** | 5.2 | 7.2 |
| P17 (1) | 52.6 | 46.5 | 55.1 | 50.0 | 2.5 | 3.5 | 48.7 | 41.0 | 53.2 | 47.7 | 4.5 | 6.7 |
| P17A (1) | 48.2 | 42.9 | 50.5 | 46.3 | 2.3 | 3.4 | 44.5 | 37.6 | 48.7 | 44.0 | 4.2 | 6.4 |
| P18 (1) | 55.1 | 48.2 | 57.6 | 51.9 | 2.5 | 3.7 | 51.0 | 42.6 | **55.8** | 49.5 | 4.8 | 6.9 |
| P19 (1) | 59.6 | 51.7 | 62.3 | 55.4 | 2.7 | 3.7 | **55.3** | 45.9 | **60.4** | **53.0** | 5.1 | 7.1 |
| P20 (5) | 55.7 | 48.8 | 58.3 | 52.4 | 2.6 | 3.6 | 51.6 | 43.1 | **56.4** | 50.0 | 4.8 | 6.9 |
| P21 (1) | 63.2 | 54.3 | **66.0** | 58.2 | 2.8 | 3.9 | **58.7** | 48.5 | **64.0** | **55.7** | 5.3 | 7.2 |
| P21A (1) | 52.9 | 46.6 | 55.4 | 50.1 | 2.5 | 3.5 | 49.0 | 41.1 | 53.5 | 47.8 | 4.5 | 6.7 |
| P22 (1) | 58.7 | 51.0 | 61.4 | 54.7 | 2.7 | 3.7 | 54.5 | 45.2 | **59.4** | **52.3** | 4.9 | 7.1 |
| P22A (1) | 51.1 | 45.2 | 53.5 | 48.6 | 2.4 | 3.4 | 47.2 | 39.7 | 51.7 | 46.3 | 4.5 | 6.6 |
| P23 (1) | 59.8 | 51.8 | 62.5 | 55.5 | 2.7 | 3.7 | **55.5** | 46.1 | **60.5** | **53.1** | 5.0 | 7.0 |
| P24 (1) | 63.3 | 54.4 | **66.1** | 58.2 | 2.8 | 3.8 | **58.9** | 48.6 | **64.1** | **55.8** | 5.2 | 7.2 |
| P24A (1) | 61.8 | 53.3 | 64.6 | 57.1 | 2.8 | 3.8 | **57.5** | 47.6 | **62.6** | **54.6** | 5.1 | 7.0 |
| P25 (1) | 60.1 | 52.0 | 62.8 | 55.8 | 2.7 | 3.8 | **57.4** | 48.8 | **60.8** | **53.4** | 3.4 | 4.6 |

Attachment B
Noise Technical Report. No Build Impact Tables

| Receptor[1, 2] | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | |
| | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| P26 (1) | 64.5 | 55.3 | **67.4** | 59.2 | 2.9 | 3.9 | **61.8** | **52.2** | **65.3** | **56.7** | 3.5 | 4.5 |
| P36 (1) | 58.8 | 51.0 | 61.5 | 54.7 | 2.7 | 3.7 | **56.2** | 47.9 | **59.5** | **52.3** | 3.3 | 4.4 |
| P37 (1) | 64.1 | 55.0 | **66.9** | 58.9 | 2.8 | 3.9 | **61.5** | **51.9** | **64.9** | **56.4** | 3.4 | 4.5 |
| P38 (1) | 58.1 | 50.6 | 60.7 | 54.3 | 2.6 | 3.7 | **55.5** | 47.5 | **58.8** | **51.9** | 3.3 | 4.4 |
| P39 (1) | 58.3 | 50.7 | 61.0 | 54.4 | 2.7 | 3.7 | **55.8** | 47.7 | **59.0** | **52.0** | 3.2 | 4.3 |
| C40 (1) | 60.3 | 52.2 | 63.0 | 56.0 | 2.7 | 3.8 | 57.7 | 49.2 | 61.0 | 53.5 | 3.3 | 4.3 |
| P41 (1) | 59.3 | 51.5 | 62.0 | 55.3 | 2.7 | 3.8 | **56.7** | 48.4 | **60.1** | **52.9** | 3.4 | 4.5 |
| P42 (1) | 61.4 | 53.1 | 64.2 | 56.9 | 2.8 | 3.8 | **58.8** | 50.0 | **62.2** | **54.5** | 3.4 | 4.5 |
| P42A (1) | 50.6 | 45.3 | 53.1 | 48.9 | 2.5 | 3.6 | 48.1 | 42.2 | 51.3 | 46.7 | 3.2 | 4.5 |
| **MAX** | 64.5 | 55.3 | 67.4 | 59.2 | 2.9 | 3.9 | 61.8 | 52.2 | 65.3 | 56.7 | 6.8 | 9.2 |
| **MIN** | 48.2 | 42.4 | 50.5 | 46.2 | 2.3 | 3.4 | 44.5 | 34.5 | 48.7 | 43.7 | 3.2 | 4.3 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 0 | 0 | 10 | 0 | NA | NA | 24 | 2 | 30 | 27 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 18 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, <u>underlined</u> numbers approach or exceed the Federal Noise Abatement Criteria.
[1] (C) indicates commercial location.
[2] The number in parentheses represents the number of residences at that receptor.

**Table B-3**
**Co. 101 – Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | |
| **Receptor** [1] | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| P129 | 63.6 | 54.7 | **66.7** | 59.3 | 3.1 | 4.6 | **59.3** | 48.9 | **66.7** | **59.3** | 7.4 | 10.4 |
| P129A | 55.5 | 48.7 | 58.2 | 53.0 | 2.7 | 4.3 | 51.6 | 43.2 | **58.1** | **52.9** | 6.5 | 9.7 |
| P130 | 63.3 | 54.5 | **66.5** | 59.2 | 3.2 | 4.7 | **59.1** | 48.8 | **66.5** | **59.2** | 7.4 | 10.4 |
| P131 | 55.6 | 48.9 | 58.3 | 53.1 | 2.7 | 4.2 | 51.7 | 43.3 | **58.3** | **53.1** | 6.6 | 9.8 |
| P135 (R/C) | 64.7 | 55.5 | **67.9** | **60.2** | 3.2 | 4.7 | **60.3** | 49.7 | **67.9** | **60.2** | 7.6 | 10.5 |
| P137 (R/C) | 63.5 | 54.7 | **66.7** | 59.4 | 3.2 | 4.7 | **59.3** | 49.0 | **66.7** | **59.4** | 7.4 | 10.4 |
| P155 | 63.2 | 55.9 | **66.3** | **60.2** | 3.1 | 4.3 | **59.1** | **50.2** | **66.3** | **60.2** | 7.2 | 10.0 |
| P156 | 61.4 | 54.6 | 64.5 | 58.8 | 3.1 | 4.2 | **57.4** | 48.9 | **64.5** | **58.8** | 7.1 | 9.9 |
| P159 | 64.5 | 57.0 | **67.6** | **61.3** | 3.1 | 4.3 | **60.3** | **51.2** | **67.6** | **61.3** | 7.3 | 10.1 |
| P162 | 63.0 | 55.8 | **66.1** | **60.2** | 3.1 | 4.4 | **58.9** | **50.1** | **66.1** | **60.1** | 7.2 | 10.0 |
| P163 | 60.9 | 54.3 | 63.9 | 58.6 | 3.0 | 4.3 | **56.9** | 48.7 | **63.9** | **58.5** | 7.0 | 9.8 |
| P164 | 64.0 | 56.6 | **67.2** | **61.3** | 3.2 | 4.7 | **59.8** | **50.9** | **67.1** | **61.1** | 7.3 | 10.2 |
| **MAX** | 64.7 | 57.0 | 67.9 | 61.3 | 3.2 | 4.7 | 60.3 | 51.2 | 67.9 | 61.3 | 7.6 | 10.5 |
| **MIN** | 55.5 | 48.7 | 58.2 | 53.0 | 2.7 | 4.2 | 51.6 | 43.2 | 58.1 | 52.9 | 6.5 | 9.7 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 0 | 0 | 8 | 5 | NA | NA | 10 | 4 | 12 | 12 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 12 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, underlined numbers approach or exceed the Federal Noise Abatement Criteria.
[1] (R/C) indicates residential and commercial location. The more stringent residential land use was used to identify exceedances of the state standards.

**Table B-4**
**MN 37 North – Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Noise Level Increase | |
| **Receptor[1, 2]** | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| N72 (R/C) | 61.7 | 52.6 | 63.6 | 55.5 | 1.9 | 2.9 | **57.4** | 46.9 | **61.2** | **52.4** | 3.8 | 5.5 |
| N73 (R/C) | 55.4 | 47.9 | 57.2 | 50.7 | 1.8 | 2.8 | 51.4 | 42.3 | 54.9 | 47.7 | 3.5 | 5.4 |
| N74 (R/C) | 54.7 | 47.4 | 56.4 | 50.1 | 1.7 | 2.7 | 50.7 | 41.8 | 54.2 | 47.1 | 3.5 | 5.3 |
| N77A | 61.4 | 52.4 | 63.3 | 55.3 | 1.9 | 2.9 | **57.1** | 46.7 | **60.9** | **52.2** | 3.8 | 5.5 |
| N77 (R/C) | 55.5 | 48.1 | 57.2 | 50.8 | 1.7 | 2.7 | 51.5 | 42.5 | 54.9 | 47.8 | 3.4 | 5.3 |
| N78 (R/C) | 62.9 | 53.5 | 64.8 | 56.5 | 1.9 | 3.0 | **58.5** | 47.8 | **62.4** | **53.3** | 3.9 | 5.5 |
| N81 | 58.3 | 51.1 | 60.1 | 53.8 | 1.8 | 2.7 | 54.2 | 45.5 | **58.0** | **51.1** | 3.8 | 5.6 |
| N83 | 52.9 | 47.3 | 54.6 | 49.7 | 1.7 | 2.4 | 49.2 | 41.9 | 52.7 | 47.3 | 3.5 | 5.4 |
| N84 | 61.3 | 53.4 | 63.2 | 56.0 | 1.9 | 2.6 | **57.1** | 47.7 | **61.2** | **53.5** | 4.1 | 5.8 |
| N88 | 57.5 | 51.1 | 59.3 | 53.6 | 1.8 | 2.5 | 53.6 | 45.5 | **57.4** | **51.3** | 3.8 | 5.8 |
| N93 | 58.0 | 51.5 | 59.8 | 54.0 | 1.8 | 2.5 | 54.1 | 45.9 | **57.9** | **51.6** | 3.8 | 5.7 |
| N94 | 64.3 | 56.2 | **66.3** | 58.9 | 2.0 | 2.7 | **60.1** | **50.4** | **64.3** | **56.4** | 4.2 | 6.0 |
| N95 | **67.2** | 58.3 | **69.2** | **61.0** | 2.0 | 2.7 | **62.8** | **52.5** | **67.2** | **58.5** | 4.4 | 6.0 |
| N99 (R/C) | **65.1** | 56.8 | **67.1** | 59.5 | 2.0 | 2.7 | **60.8** | **51.0** | **65.1** | **57.0** | 4.3 | 6.0 |
| N99A (R/C) | 58.2 | 51.6 | 60.0 | 54.1 | 1.8 | 2.5 | 54.2 | 46.0 | **58.1** | **51.8** | 3.9 | 5.8 |
| N101 (C) | 63.7 | 55.6 | **65.7** | 58.3 | 2.0 | 2.7 | **59.4** | 49.8 | **63.7** | **55.8** | 4.3 | 6.0 |
| **MIN** | 52.9 | 47.3 | 54.6 | 49.7 | 1.7 | 2.4 | 49.2 | 41.8 | 52.7 | 47.1 | 3.4 | 5.3 |
| **MAX** | **67.2** | 58.3 | **69.2** | 61.0 | 2.0 | 3.0 | 62.8 | 52.5 | **67.2** | 58.5 | 4.4 | 6.0 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 2 | 0 | 4 | 1 | NA | NA | 8 | 3 | 12 | 12 | NA | NA |
| **Federal** | 0 | NA | 1 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards, underlined numbers approach or exceed the Federal Noise Abatement Criteria.
[1] (R/C) indicates residential and commercial location. The more stringent residential land use was used to identify exceedances of the state standards.
[2] (C) indicates commercial location.

**Table B-5:**
**US 53 - Area A - Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | |
| **Receptors[1, 2]** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** |
| R15A (C) | 65.7 | 61.8 | 61.0 | 55.2 | -4.7 | -6.6 | 61.7 | 56.1 | 56.0 | 48.2 | -5.7 | -7.9 |
| R15B (C) | 62.5 | 59.3 | 57.8 | 52.7 | -4.7 | -6.6 | 58.6 | 53.8 | 53.0 | 45.8 | -5.6 | -8.0 |
| R15F (C) | 66.4 | 62.4 | 62.0 | 56.3 | -4.4 | -6.1 | 62.4 | 56.6 | 57.0 | 49.2 | -5.4 | -7.4 |
| R16 (C) | 59.7 | 56.9 | 55.1 | 50.6 | -4.6 | -6.3 | 55.9 | 51.6 | 50.5 | 43.9 | -5.4 | -7.7 |
| R17 (C) | 63.5 | 60.2 | 58.6 | 53.3 | -4.9 | -6.9 | 59.7 | 54.7 | 53.8 | 46.4 | -5.9 | -8.3 |
| **MIN** | 59.7 | 56.9 | 55.1 | 50.6 | -4.9 | -6.9 | 55.9 | 51.6 | 50.5 | 43.9 | -5.9 | -8.3 |
| **MAX** | 66.4 | 62.4 | 62.0 | 56.3 | -4.4 | -6.1 | 62.4 | 56.6 | 57.0 | 49.2 | -5.4 | -7.4 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

[1] (C) indicates commercial location.
[2] Receptors R16 and R17 represent religious facilities.

**Table B-6**
**US 53 - Area B - Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | |
| **Receptors[1]** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** |
| R19A | 67.3 | 63.3 | 62.2 | 56.0 | -5.1 | -7.3 | 63.3 | 57.5 | 57.1 | 48.9 | -6.2 | -8.6 |
| R19B | 67.5 | 63.4 | 62.2 | 56.0 | -5.3 | -7.4 | 63.4 | 57.6 | 57.1 | 48.9 | -6.3 | -8.7 |
| R19C | 67.7 | 63.5 | 62.2 | 56.0 | -5.5 | -7.5 | 63.6 | 57.7 | 57.1 | 48.8 | -6.5 | -8.9 |
| R19 | 68.0 | 63.6 | 62.1 | 55.9 | -5.9 | -7.7 | 63.9 | 57.8 | 57.0 | 48.8 | -6.9 | -9.0 |
| R19D | 68.1 | 63.7 | 61.9 | 55.8 | -6.2 | -7.9 | 64.0 | 57.8 | 56.8 | 48.6 | -7.2 | -9.2 |
| R19E | 68.1 | 63.7 | 61.7 | 55.6 | -6.4 | -8.1 | 64.0 | 57.8 | 56.6 | 48.5 | -7.4 | -9.3 |
| R20 | 67.9 | 63.6 | 61.4 | 55.4 | -6.5 | -8.2 | 63.9 | 57.8 | 56.4 | 48.4 | -7.5 | -9.4 |
| **MIN** | 67.3 | 63.3 | 61.4 | 55.4 | -6.5 | -8.2 | 63.3 | 57.5 | 56.4 | 48.4 | -7.5 | -9.4 |
| **MAX** | 68.1 | 63.7 | 62.2 | 56.0 | -5.1 | -7.3 | 64.0 | 57.8 | 57.1 | 48.9 | -6.2 | -8.6 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

[1] These receptors represent a city park.

**Table B-7**
**Area C - Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | |
| **Receptors[1]** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** |
| R21 (I) | 66.5 | 60.7 | 65.3 | 58.1 | -1.2 | -2.6 | 61.6 | 53.7 | 60.0 | 50.8 | -1.6 | -2.9 |
| R22 (I) | 62.2 | 58.4 | 60.0 | 54.1 | -2.2 | -4.3 | 57.9 | 52.3 | 55.0 | 47.0 | -2.9 | -5.3 |
| R23 (I) | 58.9 | 55.9 | 56.4 | 51.2 | -2.5 | -4.7 | 54.9 | 50.1 | 51.6 | 44.4 | -3.3 | -5.7 |
| R24 (R) | 58.8 | 55.5 | 56.7 | 51.5 | -2.1 | -4.0 | 54.6 | 49.6 | 51.9 | 44.6 | -2.7 | -5.0 |
| R26 (R) | 59.1 | 55.7 | 57.1 | 51.8 | -2.0 | -3.9 | 54.9 | 49.8 | 52.2 | 44.9 | -2.7 | -4.9 |
| R29 (I) | 55.6 | 52.7 | 53.1 | 48.4 | -2.5 | -4.3 | 51.5 | 47.1 | 48.4 | 41.6 | -3.1 | -5.5 |
| R30 (R) | 57.2 | 54.0 | 55.2 | 50.2 | -2.0 | -3.8 | 53.1 | 48.2 | 50.4 | 43.4 | -2.7 | -4.8 |
| R31 (R) | 57.8 | 54.3 | 56.2 | 50.9 | -1.6 | -3.4 | 53.6 | 48.3 | 51.3 | 44.0 | -2.3 | -4.3 |
| R34 (R) | 56.5 | 53.1 | 54.9 | 49.7 | -1.6 | -3.4 | 52.3 | 47.2 | 50.0 | 42.9 | -2.3 | -4.3 |
| R35 (R) | 57.4 | 53.7 | 56.0 | 50.7 | -1.4 | -3.0 | 53.1 | 47.6 | 51.1 | 43.8 | -2.0 | -3.8 |
| R36 (R) | 56.1 | 52.6 | 54.7 | 49.4 | -1.4 | -3.2 | 51.8 | 46.5 | 49.8 | 42.5 | -2.0 | -4.0 |
| R37 (R) | 56.8 | 52.8 | 55.6 | 50.2 | -1.2 | -2.6 | 52.4 | 46.6 | 50.7 | 43.2 | -1.7 | -3.4 |
| R40 (R) | 55.8 | 52.0 | 54.4 | 49.1 | -1.4 | -2.9 | 51.4 | 45.8 | 49.5 | 42.1 | -1.9 | -3.7 |
| R41 (R) | 56.4 | 52.3 | 55.3 | 49.7 | -1.1 | -2.6 | 51.9 | 46 | 50.3 | 42.7 | -1.6 | -3.3 |
| R43 (R) | 55.7 | 51.4 | 54.6 | 48.9 | -1.1 | -2.5 | 51.2 | 44.9 | 49.6 | 41.8 | -1.6 | -3.1 |
| R44 (R) | 55.3 | 51.3 | 54.1 | 48.4 | -1.2 | -2.9 | 50.9 | 45 | 49.1 | 41.4 | -1.8 | -3.6 |
| R46 (I) | 53.7 | 50.6 | 51.8 | 46.7 | -1.9 | -3.9 | 49.6 | 44.8 | 47.0 | 39.8 | -2.6 | -5.0 |
| **MIN** | 53.7 | 50.6 | 51.8 | 46.7 | -2.5 | -4.7 | 49.6 | 44.8 | 47.0 | 39.8 | -3.3 | -5.7 |
| **MAX** | 66.5 | 60.7 | 65.3 | 58.1 | -1.1 | -2.5 | 61.6 | 53.7 | 60.0 | 50.8 | -1.6 | -2.9 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 0 | 0 | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

[1] (R) indicates residential location. (I) indicates industrial location.

**Table B-8**
**US 53 - Area D - Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | |
| **Receptors[1]** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** |
| R14 (C) | **70.5** | **65.6** | 65.4 | 58.5 | -5.1 | -7.1 | 66.3 | 59.5 | 60.1 | 51.2 | -6.2 | -8.3 |
| R15 (C) | 69.5 | 64.8 | 64.6 | 58.0 | -4.9 | -6.8 | 65.4 | 58.8 | 59.4 | 50.7 | -6.0 | -8.1 |
| R12A (R) | 61.9 | 58.8 | 57.4 | 52.5 | -4.5 | -6.3 | 58.1 | 53.3 | 52.7 | 45.8 | -5.4 | -7.5 |
| R12B (R) | 62.6 | 59.3 | 58.2 | 53.3 | -4.4 | -6.0 | 58.7 | 53.8 | 53.5 | 46.5 | -5.2 | -7.3 |
| R12C (R) | 62.8 | 59.5 | 58.7 | 53.8 | -4.1 | -5.7 | 59.0 | 53.9 | 53.9 | 47.0 | -5.1 | -6.9 |
| **MIN** | 61.9 | 58.8 | 57.4 | 52.5 | -5.1 | -7.1 | 58.1 | 53.3 | 52.7 | 45.8 | -6.2 | -8.3 |
| **MAX** | 70.5 | 65.6 | 65.4 | 58.5 | -4.1 | -5.7 | 66.3 | 59.5 | 60.1 | 51.2 | -5.1 | -6.9 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 1 | 1 | 0 | 0 | NA | NA | 0 | 0 | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards.
[1] (R) indicates residential location. (C) indicates commercial location.

**Table B-9**
**US 53 Area E - Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | |
| **Receptors[1]** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** |
| R8 (R) | 60.4 | 57.5 | 55.8 | 51.2 | -4.6 | -6.3 | **56.6** | **52.2** | 51.2 | 44.5 | -5.4 | -7.7 |
| R9 (R) | 58.2 | 55.6 | 53.6 | 49.4 | -4.6 | -6.2 | 54.4 | **50.4** | 49.1 | 42.9 | -5.3 | -7.5 |
| R10 (R) | 55.7 | 53.4 | 51.0 | 47.3 | -4.7 | -6.1 | 51.9 | 48.3 | 46.6 | 40.9 | -5.3 | -7.4 |
| R12 (R) | 60.7 | 57.7 | 56.1 | 51.4 | -4.6 | -6.3 | **56.8** | **52.3** | 51.4 | 44.7 | -5.4 | -7.6 |
| R13 (R) | 60.0 | 57.2 | 55.5 | 51.0 | -4.5 | -6.2 | **56.2** | **51.8** | 50.9 | 44.3 | -5.3 | -7.5 |
| **MIN** | 55.7 | 53.4 | 51.0 | 47.3 | -4.7 | -6.3 | 51.9 | 48.3 | 46.6 | 40.9 | -5.4 | -7.7 |
| **MAX** | 60.7 | 57.7 | 56.1 | 51.4 | -4.5 | -6.1 | 56.8 | 52.3 | 51.4 | 44.7 | -5.3 | -7.4 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 0 | 0 | 0 | 0 | NA | NA | 3 | 4 | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards.
[1] (R) indicates residential location.

**Table B-10:**
**US 53 - Area F - Comparison of 2017 Existing Conditions Noise Impacts With 2037 Impacts With US 53 Removed**

| | Modeled Daytime Noise Level (dBA) | | | | | | Modeled Nighttime Noise Level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | | 2017 With US 53 (Existing Conditions) | | 2037 "No Build" US 53 Removed | | Change | |
| **Receptors[1]** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** | **L10** | **L50** |
| R2 (C) | 69.3 | 64.0 | 60.7 | 52.6 | -8.6 | -11.4 | 65.0 | 57.8 | 55.0 | 45.0 | -10.0 | -12.8 |
| R2B (C) | 68.8 | 63.5 | 60.2 | 52.2 | -8.6 | -11.3 | 64.5 | 57.4 | 54.5 | 44.6 | -10.0 | -12.8 |
| R2C (C) | 68.1 | 62.9 | 59.4 | 51.5 | -8.7 | -11.4 | 63.8 | 56.7 | 53.8 | 43.9 | -10.0 | -12.8 |
| R1 (C) | 69.0 | 63.5 | 60.2 | 52.0 | -8.8 | -11.5 | 64.6 | 57.2 | 54.5 | 44.4 | -10.1 | -12.8 |
| R3 (C) | 69.6 | 64.2 | 60.9 | 52.8 | -8.7 | -11.4 | 65.3 | 58.0 | 55.2 | 45.2 | -10.1 | -12.8 |
| R4 (R) | 64.9 | **60.1** | 56.4 | 48.9 | -8.5 | -11.2 | **60.7** | **54.0** | 50.9 | 41.4 | -9.8 | -12.6 |
| R5 (R) | 63.6 | 59.3 | 55.3 | 48.3 | -8.3 | -11.0 | **59.5** | **53.4** | 49.8 | 40.8 | -9.7 | -12.6 |
| R5A (R) | 63.3 | 59.1 | 55.0 | 48.2 | -8.3 | -10.9 | **59.2** | **53.2** | 49.6 | 40.8 | -9.6 | -12.4 |
| R5B (R) | 63.9 | 59.4 | 55.6 | 48.4 | -8.3 | -11.0 | **59.8** | **53.5** | 50.1 | 40.9 | -9.7 | -12.6 |
| R5C (R) | 64.1 | 59.8 | 55.8 | 48.9 | -8.3 | -10.9 | **60.0** | **54.0** | 50.4 | 41.5 | -9.6 | -12.5 |
| R5D (R) | 64.2 | 59.6 | 55.8 | 48.5 | -8.4 | -11.1 | **60.1** | **53.6** | 50.3 | 41.0 | -9.8 | -12.6 |
| R6 (R) | 64.1 | 59.8 | 55.8 | 48.9 | -8.3 | -10.9 | **60.0** | **54.0** | 50.4 | 41.5 | -9.6 | -12.5 |
| R7 (R) | **65.3** | **60.8** | 56.9 | 49.8 | -8.4 | -11.0 | **61.2** | **54.9** | 51.5 | 42.3 | -9.7 | -12.6 |
| R51 (R) | 64.7 | **60.3** | 56.4 | 49.4 | -8.3 | -10.9 | **60.6** | **54.4** | 50.9 | 41.9 | -9.7 | -12.5 |
| **MIN** | 63.3 | 59.1 | 55.0 | 48.2 | -8.8 | -11.5 | 59.2 | 53.2 | 49.6 | 40.8 | -10.1 | -12.8 |
| **MAX** | 69.6 | 64.2 | 60.9 | 52.8 | -8.3 | -10.9 | 65.3 | 58.0 | 55.2 | 45.2 | -9.6 | -12.4 |
| **Exceedances** | | | | | | | | | | | | |
| **State** | 1 | 3 | 0 | 0 | NA | NA | 9 | 9 | 0 | 0 | NA | NA |
| **Federal** | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

Note: **Bold** numbers exceed Minnesota State Noise Standards.
[1] (R) indicates residential location. (C) indicates commercial location.

**Table D-1. Area D**
**Noise Wall Analysis - Alternative M-1**

| | **$L_{10}$ Daytime Peak-Hour Levels** dBA | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis | | 10' Wall Analysis | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R14(1) | 69.4 | 60.6 | **8.8** | 62.4 | **7.0** | 65.7 | 3.7 |
| R15(1) | 67.7 | 59 | **8.7** | 61.4 | **6.3** | 64.7 | 3 |
| R12A(2) | 67.5 | 67.3 | 0.2 | 67.4 | 0.1 | 67.4 | 0.1 |
| R12A2(2) | 60.4 | 56.6 | 3.8 | 58.3 | 2.1 | 59.8 | 0.6 |
| R12B(6) | 60.2 | 57.5 | 2.7 | 58.6 | 1.6 | 59.8 | 0.4 |
| R12C(3) | 60.8 | 57.4 | 3.4 | 58.7 | 2.1 | 60.2 | 0.6 |
| Benefitted receivers achieving 5 dBA | | | **2** | | **2** | | **0** |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | **yes** | | **no** |
| Length of Wall = 1100 feet[12] | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$220,000** | | **$165,000** | | **N/A** |
| | **$L_{10}$ Nighttime Peak-Hour Levels** dBA | | | | | | |
| | | 20' Wall Analysis | | 15' Wall Analysis | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R14 (1) | 67.6 | 59 | **8.6** | 60.8 | 6.8 | | |
| R15 (1) | 66 | 57.4 | **8.6** | 59.7 | 6.3 | | |
| R12A (2) | 65.8 | 65.6 | 0.2 | 65.7 | 0.1 | | |
| R12B (6) | 58.8 | 55 | 3.8 | 56.7 | 2.1 | | |
| R12C (3) | 58.7 | 56 | 2.7 | 57.1 | 1.6 | | |
| Benefitted receivers achieving 5 dBA | | | **2** | | **3** | | |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | **no** | | |
| Length of Wall = 1100 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$220,000** | | **N/A** | | **N/A** |

[1] Number in parentheses is the number of residences/commercial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' wall was not analyzed because a 15' wall did not achieve a 7 dBA reduction

**Table D-2. Area E**
**Noise Wall Analysis - Alternative M-1**

| | $L_{10}$ Daytime Peak-Hour Levels dBA | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis[2] | | 10' Wall Analysis[2] | |
| Receptor[1] | No Wall | Level | Reduction | 15' Wall | Reduction | 10' Wall | Reduction |
| R8(2) | 62.0 | 59.3 | 2.7 | | | | |
| R9(4) | 60.1 | 56.5 | 3.6 | | | | |
| R10(3) | 58.7 | 54.7 | 4.0 | | | | |
| R10A | 54.5 | 51.8 | 2.7 | | | | |
| R12(2) | 61.8 | 60.5 | 1.3 | | | | |
| R13 | 60.2 | 59.2 | 1.0 | | | | |
| Benefitted receivers achieving 5 dBA | | | **0** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **N/A** | | | | |
| Length of Wall = 2017 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **N/A** | | **N/A** | | **N/A** |

| | $L_{10}$ Nighttime Peak-Hour Levels dBA | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis | | 10' Wall Analysis | |
| Receptor[1] | No Wall | Level | Reduction | 15' Wall | Reduction | 10' Wall | Reduction |
| R8(2) | 60.5 | 57.8 | 2.7 | | | | |
| R9(4) | 58.6 | 55 | 3.6 | | | | |
| R10(3) | 57.1 | 53.2 | 3.9 | | | | |
| R10A | 53.1 | 50.5 | 2.6 | | | | |
| R12(2) | 60.2 | 58.8 | 1.4 | | | | |
| R13 | 58.8 | 57.7 | 1.1 | | | | |
| Benefitted receivers achieving 5 dBA | | | **0** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **N/A** | | | | |
| Length of Wall = 2017 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **N/A** | | **N/A** | | **N/A** |

[1] Number in parentheses is the number of residences/commercial buildings represented
[2] 15' and 10' barriers were not analyzed because a 20' wall could not achieve the 7 dBA minimum reduction.

**Table D-3. Area F**
**Noise Wall Analysis - Alternative M-1**

| | **$L_{10}$ Daytime Peak-Hour Levels dBA** | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R2(1) | 65.9 | 57.6 | **8.3** | | | | |
| R2b(1) | 66.9 | 59.0 | **7.9** | | | | |
| R2C(1) | 66.6 | 60.7 | **5.9** | | | | |
| R1(2) | 67.9 | 61.8 | **6.1** | | | | |
| R3(1) | 64.1 | 57.6 | **6.5** | | | | |
| R4(3) | 64.3 | 62.5 | 1.8 | | | | |
| R5(2) | 62.1 | 56.8 | **5.3** | | | | |
| R5A(2) | 61.7 | 55.9 | **5.8** | | | | |
| R5B(2) | 62.6 | 57.9 | 4.7 | | | | |
| R5C(2) | 61.9 | 54.9 | **7.0** | | | | |
| R5D(2) | 63.2 | 59.6 | 3.6 | | | | |
| R6(2) | 62.2 | 55.1 | **7.1** | | | | |
| R7(1) | 62.4 | 55.4 | **7.0** | | | | |
| R51(2) | 61.6 | 55.7 | **5.9** | | | | |
| Benefitted receivers achieving 5 dBA | | | **17** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | | | |
| Length of Wall = 1366 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$32,141** | | | | |
| | **$L_{10}$ Nighttime Peak-Hour Levels dBA** | | | | | | |
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R2(1) | 62.9 | 55 | **7.9** | | | | |
| R2b(1) | 63.7 | 56.2 | **7.5** | | | | |
| R2C(1) | 63.4 | 57.7 | **5.7** | | | | |
| R1(2) | 64.6 | 58.7 | **5.9** | | | | |
| R3(1) | 61.5 | 55.2 | **6.3** | | | | |
| R4(3) | 61.2 | 59.3 | 1.9 | | | | |
| R5(2) | 59.3 | 54 | **5.3** | | | | |
| R5A(2) | 58.9 | 53.2 | **5.7** | | | | |
| R5B(2) | 59.7 | 55 | 4.7 | | | | |
| R5C(2) | 59.2 | 52.4 | **6.8** | | | | |
| R5D(2) | 60.2 | 56.5 | 3.7 | | | | |
| R6(2) | 59.4 | 52.5 | **6.9** | | | | |
| R7(1) | 59.8 | 52.9 | **6.9** | | | | |
| R51(2) | 59.1 | 53.4 | **5.7** | | | | |
| Benefitted receivers achieving 5 dBA | | | **17** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **Yes** | | | | |
| Length of Wall = 1366 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$32,141** | | | | |

[1] Number in parentheses is the number of residences/commercial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' and 15' walls were not analyzed because the 20' wall achieved the cost-effectiveness requirement.

**Table D-4. Area C**
**Noise Wall Analysis –Alternative E1A**

| | $L_{10}$ Daytime Peak-Hour Levels (dBA) | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 19' Wall Analysis | | 18' Wall Analysis | |
| Receptor[1] | No Wall | Level | Reduction[2] | 19' Wall | Reduction[2] | 18' Wall | Reduction[2] |
| R21(1) | 66.4 | 66.2 | 0.2 | 66.2 | 0.2 | 66.2 | 0.2 |
| R22(2) | 68.4 | 67.0 | 1.4 | 67.0 | 1.4 | 67.0 | 1.4 |
| R24(2) | 65.6 | 58.5 | **7.1** | 58.6 | **7.0** | 58.7 | 6.9 |
| R26(3) | 64.6 | 59.6 | **5.0** | 59.7 | 4.9 | 59.8 | 4.8 |
| R26A(2) | 63.9 | 61.0 | 2.9 | 61.1 | 2.8 | 61.1 | 2.8 |
| R26B(2) | 64.6 | 63.3 | 1.3 | 63.3 | 1.3 | 63.3 | 1.3 |
| R29(1) | 64.4 | 61.3 | 3.1 | 61.3 | 3.1 | 61.3 | 3.1 |
| R30(2) | 63.8 | 58.8 | **5.0** | 58.9 | 4.9 | 58.9 | 4.9 |
| R31(1) | 62.9 | 58.8 | 4.1 | 58.8 | 4.1 | 58.8 | 4.1 |
| R34(1) | 61.8 | 59.4 | 2.4 | 59.4 | 2.4 | 59.5 | 2.3 |
| R35(1) | 61.6 | 58.9 | 2.7 | 59.0 | 2.6 | 59.0 | 2.6 |
| R36(1) | 60.5 | 59.0 | 1.5 | 59.0 | 1.5 | 59.0 | 1.5 |
| R37(1) | 60.0 | 58.6 | 1.4 | 58.6 | 1.4 | 58.6 | 1.4 |
| R40(1) | 59.5 | 58.3 | 1.2 | 58.3 | 1.2 | 58.4 | 1.1 |
| R41(1) | 59.3 | 58.1 | 1.2 | 58.1 | 1.2 | 58.2 | 1.1 |
| R43(1) | 58.1 | 57.3 | 0.8 | 57.3 | 0.8 | 57.3 | 0.8 |
| R44(1) | 58.3 | 57.4 | 0.9 | 57.4 | 0.9 | 57.4 | 0.9 |
| R46(1) | 59.3 | 58.5 | 0.8 | 58.5 | 0.8 | 58.5 | 0.8 |
| Benefitted receivers achieving 5 dBA | | | **7** | | **2** | | |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | **yes** | | **no** |
| Length of Wall = 805 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$46,000** | | **$152,950** | | **N/A** |
| | $L_{10}$ Nighttime Peak Hour Levels (dBA) | | | | | | |
| | | 20' Wall Analysis | | 19' Wall Analysis | | 18' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 19' Wall | Reduction[2] | 18' Wall | Reduction[2] |
| R21(1) | 64.7 | 64.4 | 0.3 | 64.4 | 0.3 | 64.5 | 0.2 |
| R22(2) | 66.5 | 65.0 | 1.5 | 65.0 | 1.5 | 65.1 | 1.4 |
| R24(2) | 63.9 | 56.7 | **7.2** | 56.8 | **7.1** | 58.1 | 5.8 |
| R26(3) | 62.8 | 57.7 | **5.1** | 57.8 | **5.0** | 58.3 | 4.5 |
| R26A(2) | 62.1 | 59.0 | 3.1 | 59.0 | 3.1 | 59.3 | 2.8 |
| R26B(2) | 62.6 | 60.9 | 1.7 | 61.0 | 1.6 | 61.1 | 1.5 |
| R29(1) | 62.7 | 59.6 | 3.1 | 59.6 | 3.1 | 59.7 | 3.0 |
| R30(2) | 62.0 | 57.1 | 4.9 | 57.2 | 4.8 | 57.5 | 4.5 |
| R31(1) | 61.2 | 57.0 | 4.2 | 57.0 | 4.2 | 57.3 | 3.9 |
| R34(1) | 60.1 | 57.7 | 2.4 | 57.7 | 2.4 | 57.9 | 2.2 |
| R35(1) | 59.8 | 57.2 | 2.6 | 57.2 | 2.6 | 57.4 | 2.4 |
| R36(1) | 58.8 | 57.3 | 1.5 | 57.3 | 1.5 | 57.4 | 1.4 |
| R37(1) | 58.3 | 56.8 | 1.5 | 56.8 | 1.5 | 56.9 | 1.4 |
| R40(1) | 57.8 | 56.6 | 1.2 | 56.6 | 1.2 | 56.7 | 1.1 |
| R41(1) | 57.5 | 56.4 | 1.1 | 56.4 | 1.1 | 56.5 | 1.0 |
| R43(1) | 56.3 | 55.5 | 0.8 | 55.5 | 0.8 | 55.6 | 0.7 |
| R44(1) | 56.6 | 55.7 | 0.9 | 55.7 | 0.9 | 55.7 | 0.9 |
| R46(1) | 57.7 | 56.9 | 0.8 | 56.9 | 0.8 | 56.9 | 0.8 |
| Benefitted receivers achieving 5 dBA | | | **5** | | **5** | | |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | **yes** | | **no** |
| Length of Wall = 805 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$64,400** | | **$61,180** | | **N/A** |

[1] Number in parentheses is the number of residences/commercial-industrial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' and 15' walls were not analyzed because the 18' wall did not achieve the minimum 7 dBA reduction.

**Table D-5. Area F**
**Noise Wall Analysis - Alternative E-1A**

| | **$L_{10}$ Daytime Peak-Hour Levels dBA** | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R2(1) | 67.7 | 66.4 | 1.3 | | | | |
| R2b(1) | 68.0 | 58.5 | **9.5** | | | | |
| R2C(1) | 67.3 | 58.8 | **8.5** | | | | |
| R1(2) | 68.3 | 58.9 | **9.4** | | | | |
| R3(1) | 69.3 | 69.2 | 0.1 | | | | |
| R4(3) | 64.4 | 62.3 | 2.1 | | | | |
| R5(2) | 62.5 | 57.0 | **5.5** | | | | |
| R5A(2) | 62.1 | 57.1 | **5.0** | | | | |
| R5B(2) | 62.9 | 57.8 | **5.1** | | | | |
| R5C(2) | 62.4 | 59.8 | 2.6 | | | | |
| R5D(2) | 63.3 | 59.4 | 3.9 | | | | |
| R6(2) | 62.5 | 58.2 | 4.3 | | | | |
| R7(1) | 63.9 | 62.9 | 1.0 | | | | |
| R51(2) | 63.7 | 63.1 | 0.6 | | | | |
| Benefitted receivers achieving 5 dBA | | | **10** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | | | |
| Length of Wall = 837 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$33,480** | | | | |
| | **$L_{10}$ Nighttime Peak-Hour Levels dBA** | | | | | | |
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R2(1) | 64.4 | 63.0 | 1.4 | | | | |
| R2b(1) | 64.8 | 55.6 | **9.2** | | | | |
| R2C(1) | 64.1 | 55.9 | **8.2** | | | | |
| R1(2) | 65.1 | 56.0 | **9.1** | | | | |
| R3(1) | 66.0 | 65.9 | 0.1 | | | | |
| R4(3) | 61.3 | 59.1 | 2.2 | | | | |
| R5(2) | 59.6 | 54.2 | **5.4** | | | | |
| R5A(2) | 59.2 | 54.3 | 4.9 | | | | |
| R5B(2) | 59.9 | 54.9 | **5.0** | | | | |
| R5C(2) | 59.5 | 56.8 | 2.7 | | | | |
| R5D(2) | 60.3 | 56.3 | 4.0 | | | | |
| R6(2) | 59.5 | 55.3 | 4.2 | | | | |
| R7(1) | 60.9 | 59.8 | 1.1 | | | | |
| R51(2) | 60.7 | 60.0 | 0.7 | | | | |
| Benefitted receivers achieving 5 dBA | | | **8** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **Yes** | | | | |
| Length of Wall = 837 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$41,850** | | | | |

[1] Number in parentheses is the number of residences/commercial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' and 15' walls were not analyzed because the 20' wall achieved the cost-effectiveness requirement.

## Table D-6. Area G
## Noise Wall Analysis –Alternative E1A (US 53 / MN 135 At-Grade Intersection)

| | **$L_{10}$ Daytime Peak-Hour Levels (dBA)** | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R51A(1) | 59.1 | 58.6 | 0.5 | | | | |
| R51B(1) | 62.5 | 62.4 | 0.1 | | | | |
| Benefitted receivers achieving 5 dBA | | | **0** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **no** | | | | |
| Length of Wall = 417 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **N/A** | | | | |
| | **$L_{10}$ Nighttime Peak Hour Levels (dBA)** | | | | | | |
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R51A(1) | 56.3 | 55.8 | 0.5 | | | | |
| R51B(1) | 59.6 | 59.5 | 0.1 | | | | |
| Benefitted receivers achieving 5 dBA | | | **0** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **no** | | | | |
| Length of Wall = 417 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **N/A** | | | | |

[1] Number in parentheses is the number of residences/commercial-industrial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' and 15' walls were not analyzed because the 20' wall did not achieve the minimum 7 dBA reduction.

## Table D-6A. Area G
## Noise Wall Analysis –Alternative E1A (US 53 / MN 135 Interchange)

| | **$L_{10}$ Daytime Peak-Hour Levels (dBA)** | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R51A(1) | 59.1 | 58.6 | 0.5 | | | | |
| R51B(1) | 62.5 | 62.4 | 0.1 | | | | |
| Benefitted receivers achieving 5 dBA | | | **0** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **no** | | | | |
| Length of Wall = 417 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **N/A** | | | | |
| | **$L_{10}$ Nighttime Peak Hour Levels (dBA)** | | | | | | |
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R51A(1) | 56.4 | 56.0 | 0.4 | | | | |
| R51B(1) | 59.7 | 59.6 | 0.1 | | | | |
| Benefitted receivers achieving 5 dBA | | | **0** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **No** | | | | |
| Length of Wall = 417 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **N/A** | | | | |

[1] Number in parentheses is the number of residences/commercial-industrial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' and 15' walls were not analyzed because the 20' wall did not achieve the minimum 7 dBA reduction.

**Table D-7. Area C**
**Noise Wall Analysis –Alternative E-2**

| | $L_{10}$ Daytime Peak-Hour Levels (dBA) | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R21(1) | 65.7 | 65.3 | 0.4 | | | | |
| R22(2) | 68.4 | 64.6 | 3.8 | | | | |
| R23(1) | 68.5 | 60.3 | **8.2** | | | | |
| R24(2) | 66.8 | 59.8 | **7.0** | | | | |
| R26(3) | 65.6 | 60.3 | **5.3** | | | | |
| R26A(2) | 64.7 | 61.3 | 3.4 | | | | |
| R26B(2) | 65.2 | 63.5 | 1.7 | | | | |
| R29(1) | 68.3 | 59.6 | **8.7** | | | | |
| R30(2) | 66.1 | 58.9 | **7.2** | | | | |
| R31(1) | 64.9 | 59 | **5.9** | | | | |
| R34(1) | 64.6 | 59.8 | 4.8 | | | | |
| R35(1) | 63.9 | 59.2 | 4.7 | | | | |
| R36(1) | 63.6 | 60.6 | 3 | | | | |
| R37(1) | 62.7 | 60 | 2.7 | | | | |
| R40(1) | 62.7 | 60.9 | 1.8 | | | | |
| R41(1) | 62.1 | 60.3 | 1.8 | | | | |
| R43(1) | 60.9 | 59.9 | 1 | | | | |
| R44(1) | 61.4 | 60.4 | 1 | | | | |
| R46(1) | 64 | 63.3 | 0.7 | | | | |
| Benefitted receivers achieving 5 dBA | | | **10** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | | | |
| Length of Wall = 1070 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$42,800** | | | | |

[1] Number in parentheses is the number of residences/commercial-industrial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' and 15' walls were not analyzed because the 20' wall achieved the cost-effectiveness requirement.

**Table D-7. Area C (Continued)**
**Noise Wall Analysis –Alternative E-2**

| | $L_{10}$ Nighttime Peak Hour Levels (dBA) | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20' Wall Analysis | | 15' Wall Analysis[3] | | 10' Wall Analysis[3] | |
| Receptor[1] | No Wall | Level | Reduction[2] | 15' Wall | Reduction | 10' Wall | Reduction |
| R21(1) | 63.9 | 63.4 | 0.5 | | | | |
| R22(2) | 66.7 | 62.8 | 3.9 | | | | |
| R23(1) | 66.8 | 58.6 | **8.2** | | | | |
| R24(2) | 65.1 | 58 | **7.1** | | | | |
| R26(3) | 63.9 | 58.5 | **5.4** | | | | |
| R26A(2) | 62.9 | 59.3 | 3.6 | | | | |
| R26B(2) | 63.2 | 61.2 | 2 | | | | |
| R29(1) | 66.6 | 57.9 | **8.7** | | | | |
| R30(2) | 64.4 | 57.2 | **7.2** | | | | |
| R31(1) | 63.3 | 57.2 | **6.1** | | | | |
| R34(1) | 63.0 | 58.1 | 4.9 | | | | |
| R35(1) | 62.2 | 57.5 | 4.7 | | | | |
| R36(1) | 61.9 | 58.9 | 3 | | | | |
| R37(1) | 61.0 | 58.3 | 2.7 | | | | |
| R40(1) | 61.0 | 59.2 | 1.8 | | | | |
| R41(1) | 60.5 | 58.6 | 1.9 | | | | |
| R43(1) | 59.3 | 58.2 | 1.1 | | | | |
| R44(1) | 59.8 | 58.7 | 1.1 | | | | |
| R46(1) | 62.4 | 61.7 | 0.7 | | | | |
| Benefitted receivers achieving 5 dBA | | | **10** | | | | |
| Does wall achieve a 7 dBA reduction? | | | **yes** | | | | |
| Length of Wall = 1070 feet | | | | | | | |
| Cost of Wall per 5 dBA receiver= | | | **$42,800** | | | | |

[1] Number in parentheses is the number of residences/commercial-industrial buildings represented by the receptor.
[2] Bolded numbers indicate receptors that would have a five dBA reduction or more due to a noise barrier that reduces at least one receptor by 7 dBA or more.
[3] 10' and 15' walls were not analyzed because the 20' wall achieved the cost-effectiveness requirement.

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**Memorandum**

Date: November 30, 2014
To: John Crawford, Kimley Horn
From: Steve Platisha
Re: TH 53 Virginia – High Noise Hour Evaluation

The following table summarizes the TH 53 high noise hour evaluation. It includes all hours with 7 percent or greater of the AADT.

**TH 53 High Noise Hour Evaluation**

| | North of 135 – Design Year | | | South of 135 – Design Year | | |
|---|---|---|---|---|---|---|
| Hour | Total Hourly Traffic | Total Truck Traffic | $L_{10}$ (dBA) (Rec R20B) | Total Hourly Traffic | Total Truck Traffic | L10 (dBA) (Rec R3) |
| 12:00 | 1720 | 138 | 64.2 | 1444 | 102 | 69.2 |
| 13:00 | 2005 | 140 | **64.5**[1] | 1442 | 86 | 68.9 |
| 14:00 | 2005 | 148 | 64.3 | 1648 | 99 | 69.4 |
| 15:00 | 2578 | 103 | 63.8 | 2060 | 83 | **69.6**[1] |
| 16:00 | 2578 | 76 | 63.2 | 1648 | 50 | 68.2 |
| 17:00 | 2006 | 60 | 62.3 | 1442 | 44 | 67.7 |

[1]Highest modeled hour.

Based on these results, the 1300 hour traffic was used for north of Hwy 135, and 1500 hour traffic was used for areas south of 135.

The modeling was based on the E2 layout and the attached vehicle classification data. Receptor R20B is representative of residential receptors north of 135, and receptor R3 is representative of residential receptors south of 135.