

TRAFFIC NOISE PRACTITIONER SUMMIT JUNE 2018



OHIO DEPARTMENT OF
TRANSPORTATION

Optimum Wall Height

- How are states selecting optimum wall height if several wall heights meet criteria?
- In Ohio, we don't typically select the maximum or minimum wall height modeled. Our max wall height is 20' but we rarely go that high because a 14' or 16' height is typically more than sufficient.
- Cost minimization approach?
- Consideration of future maintenance/replacement costs?
- Benefits added per foot of added wall height?
- Budget/funding constraints; Type I vs Type II?
- Heights of existing/proposed adjacent noise walls?
- % of impacted receptors that benefit?

Optimum Wall Height

NSA 8 Scenario 1				
Barrier Height	Barrier Length	Cost of barrier	Benefited Receptors	Cost per benefited Receptor
12	1,910	\$573,717	19	\$30,195
13	1,910	\$621,526	20	\$31,076
14	1,910	\$669,366	22	\$30,425
15	1,910	\$717,146	26	\$27,582
16	1,910	\$764,956	28	\$27,319
17	1,910	\$774,000	30	\$25,666
18	1,910	\$859,500	30	\$28,650

Optimum Wall Height

**Table 5.
Noise Barrier Evaluation Summary**

Barrier	Barrier Length (feet)	Barrier Height (feet)	Square Footage of Barrier	Maximum Insertion Loss (dB)	Barrier Cost	Impacts	Benefited Properties	Cost per benefited receptor	Feasible	Reasonable	Barrier Location	Barrier Recommended
NSA 1-a	1,410	10.0	14,100	6.7	\$352,500	30	9	\$39,167	No	No	EOS	No
NSA 1-a	1,410	12.0	16,920	8.3	\$423,000	30	28	\$15,107	Yes	Yes	EOS	Yes
NSA 1-a	1,410	14.0	19,740	9.7	\$493,500	30	31	\$15,919	Yes	Yes	EOS	No
NSA 1-b	1,050	10.0	10,500	7.0	\$262,500	22	8	\$32,813	Yes	No	EOS	No
NSA 1-b	1,050	12.0	12,600	8.0	\$315,000	22	34	\$9,265	Yes	Yes	EOS	Yes
NSA 1-b	1,050	14.0	14,700	8.7	\$367,500	22	36	\$10,208	Yes	Yes	EOS	No
NSA 2-a	1,410	10.0	14,100	6.6	\$352,500	11	2	\$176,250	No	No	EOS	No
NSA 2-a	1,410	12.0	16,920	7.7	\$423,000	11	17	\$24,882	Yes	Yes	EOS	Yes
NSA 2-a	1,410	14.0	19,740	8.7	\$493,500	11	19	\$25,974	Yes	Yes	EOS	No
NSA 2-b	1,050	10.0	10,500	7.3	\$262,500	14	10	\$26,250	Yes	Yes	EOS	No
NSA 2-b	1,050	12.0	12,600	8.3	\$315,000	14	20	\$15,750	Yes	Yes	EOS	Yes
NSA 2-b	1,050	14.0	14,700	9.2	\$367,500	14	21	\$17,500	Yes	Yes	EOS	No

Optimum Wall Height

DYB (2030) L/A Noise Barrier Cost-Benefit Table

Barrier Height (ft.)	Barrier Length (ft.)	Area (ft ²)	Cost per ft ²	Total Cost	Impacted Receivers	Benefited Receivers	Cost per Benefited Receiver
12	1254	15,051	\$25	\$376,272	16	6	\$62,712.00
14	1254	17,559	\$25	\$438,984	16	18	\$24,388.00
16	1254	20,068	\$25	\$501,696	16	21	\$23,890.29
18	1254	22,576	\$25	\$564,408	16	29	\$19,462.34
20	1254	25,085	\$25	\$627,119	16	39	\$16,079.97

DYB(2030) EOP Barrier

Barrier Height (ft.)	Barrier Length (ft.)	Area (ft ²)	Cost per ft ²	Barrier Cost	Total Cost	Impacted Receivers	Benefited Receivers	Cost per Benefited Receiver
12	1421	17,051	\$25	\$426,273	\$533,925	16	29	\$18,411.19
14	1421	19,893	\$25	\$497,318	\$604,970	16	51	\$11,862.15
16	1421	22,735	\$25	\$568,364	\$676,016	16	58	\$11,655.44
18	1421	25,576	\$25	\$639,409	\$747,061	16	59	\$12,662.04
20	1427	28,543	\$25	\$713,576	\$821,228	16	59	\$13,919.11

Questions, comments?

Questions or comments?

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