



ENGINEERING • 1140 Terex Road • Hudson, Ohio 44236 • (330) 342-1770

MEMORANDUM

Date: February 20, 2025

To: City Council and the Honorable Mayor Anzevino

From: Bradley Kosco, P.E., P.S., City Engineer

C: Thomas Sheridan, City Manager
Brian Griffith, Assistant City Manager
David Rapp, P.E., P.S., Asst. City Engineer
Jon Szalay, P.E., Senior Engineer

Re: Introduction of Noise Walls at Neighborhoods Adjacent to I-80, I-480 & S.R. 8

Each year, citizens abutting major freeways in Hudson, including I-80 (turnpike), I-480 (ODOT) or SR 8 (ODOT) inquire with City staff regarding the introduction of noise walls near their property. This memo summarizes current funding opportunities and estimated cost for noise wall design and construction along existing adjacent subdivisions to I-80, I-480 & S.R. 8.

Background and Funding

Design and construction of noise mitigation improvements (noise analysis and abatement), such as noise walls, are often justified when an Ohio Turnpike & Infrastructure Commission (OTIC) or Ohio Department of Transportation (ODOT) project is (1) adjacent to a noise sensitive area and the project consists of a new highway built on a new location, or (2) an existing highway is significantly altered by substantially changing the horizontal or vertical characteristics of the road.

City staff has contacted both ODOT and OTIC to identify if projects planned by either entity are planned in Hudson. Both ODOT and OTIC stated that neither scenario applies to the City of Hudson and no projects are planned at this time. Staff also inquired about potential grant funding opportunities through ODOT or OTIC for noise walls. Similarly, both entities noted that no current or planned grant opportunities for noise walls exist.

Therefore, all design and construction costs of a new noise wall would need to be 100% locally funded by the City.

Noise Study and Feasibility Analysis

According to ODOT's Noise Wall Program, the first step in the noise wall construction process is to conduct a comprehensive noise study. This study is essential to identify areas where noise levels exceed acceptable limits. The Federal Highway Administration (FHWA) has established noise level criteria for highways, and these criteria are adopted by ODOT. This study involves measuring traffic volume, monitoring noise levels, and analyzing surrounding land use.

Once the noise study has identified areas with excessive noise levels, a feasibility analysis is conducted to determine if a noise wall is a viable solution. This analysis considers factors such as the cost-effectiveness of the wall, its impact on the environment, and its compatibility with the surrounding area.

The ODOT Noise Wall Program outlines specific criteria for ODOT’s evaluation of the feasibility of noise walls. These criteria include the expected noise reduction benefits, the visual impact of the wall, and the potential for property acquisitions.

The cost of a noise study and feasibility analysis will vary depending on the complexity of the project and the extent of the area to be evaluated. The estimated cost for the study and analysis is \$30,000/mile.

Detailed Design Considerations:

After capturing the necessary data and if the data justifies a noise barrier, a noise analysis professional most typically evaluates one of two potential design considerations when evaluating the proposed locations; the first is a standard pre-cast noise barrier and the second an earthen berm. Design features such as height, location and proximity to residential neighborhoods would all then be designed to ODOT and FHWA guidelines and procedures.

The design process also includes an environmental impact assessment (EIA) to evaluate the potential effects of the wall on the environment, such as wildlife habitat and water quality, public input and engineering plan design. The estimated cost for the detailed design is \$300,000/per mile.

Construction Costs and Impacts

City staff inquired with ODOT on the estimated costs of noise walls and identified that the costs are currently estimated at \$40/square foot. Based upon this average cost, the cost for a 14-foot-tall wall is:

$\$40/\text{square foot} \times 14 \text{ feet} \times 5,280 \text{ feet/mile} = \$3,000,000/\text{mile}$ (rounded, 2025 cost). ODOT or OTIC construction must include pre-qualified, professional construction management and inspection at an additional cost of 10-15% of the construction cost. Therefore, the construction cost used for estimating is $\$3,000,000 + 10\%$ for Construction Management = $\$3,300,000/\text{mile}$.

Summary of Noise Wall Cost

Based upon the average costs identified for noise wall study, design and construction, staff created the attached Noise Wall Cost Estimate Spreadsheet. In addition, an Exhibit of potential noise wall construction alignments near residential neighborhoods was generated to identify the approximate lengths of noise walls for each abutting neighborhood/subdivision.

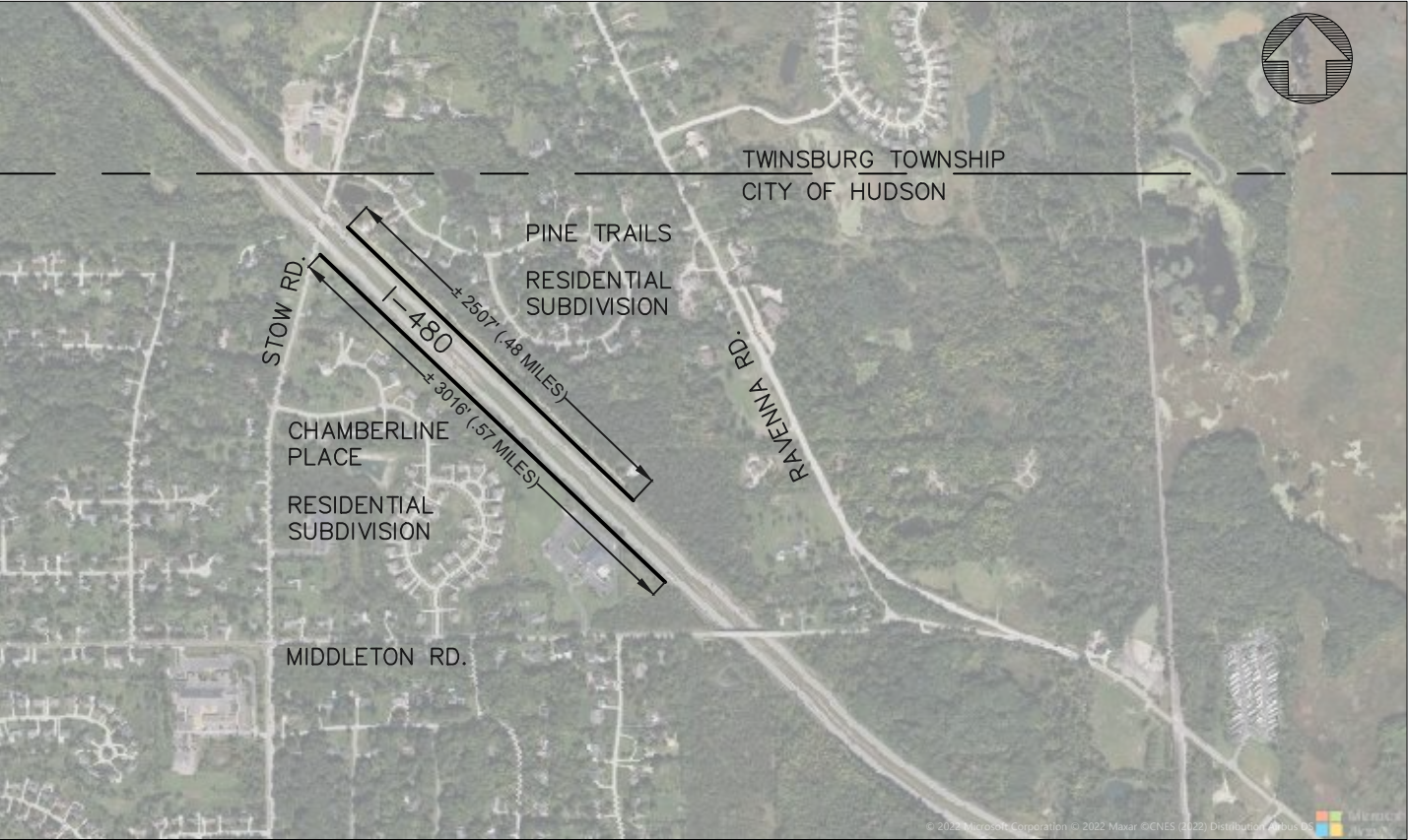
A summary of the cost for noise walls along Hudson neighborhoods is summarized below:

Ref. No.	Location	Approx. Length (feet)	Approx. Length (miles)	Estimated Cost Per Subdivision (2028)*
1	Hunt Club of Hudson	4,100	0.78	\$4,744,508
2	Winston Manor VII and V	1,850	0.35	\$2,140,814
3	Colony Terrace 1,3	2,875	0.54	\$3,326,941
4	White Horse Acres	1,500	0.28	\$1,735,795
5	Pine Trails	2,507	0.48	\$2,932,800
6	Pine Trails	3,016	0.57	\$3,482,700
	Totals	15,848	3.01	\$18,363,562

*Attachments: Exhibit A – Map of Potential Noise Wall Areas in Hudson
Summary Spreadsheet of Noise Wall Costs*

ODOT Noise Program Website: <https://www.transportation.ohio.gov/programs/noise>

NOISE WALLS ADJACENT TO I-80



NOISE WALLS ADJACENT TO I-480



NOISE WALL ADJACENT TO S.R. 8

Noise Wall Cost Estimate

Ref. No.	Location	Approx. Length (feet)	Approx. Length (miles)	Estimated Cost Per Subdivision (2028)*
1	Hunt Club of Hudson	4,100	0.78	\$4,744,508
2	Winston Manor VII and V	1,850	0.35	\$2,140,814
3	Colony Terrace 1,3	2,875	0.54	\$3,326,941
4	White Horse Acres	1,500	0.28	\$1,735,795
5	Pine Trails	2,507	0.48	\$2,932,800
6	Pine Trails	3,016	0.57	\$3,482,700
	Totals	15,848	3.01	\$18,363,562

* =Length (miles) x \$6.11 million/mile

Estimated Costs per Mile (2024)

ODOT Const. Estimate Cost of 14' Wall in 2024	\$3,000,000.00 (Using \$40/SF Per ODOT Website)
Construction Inspection & Testing	\$300,000.00 (10% of Construction)
Eng. Design (Survey, Geotech, Enviro Permits, Public Input, etc.)	\$300,000.00 (10% of Construction)
Noise Study	\$30,000.00 (1% of Construction)
Total Design & Construction per mile (2024)	\$3,630,000.00

Additional Costs

Inflation (5.7% per year for 4 years to 2028)	\$798,600.00
Total with inflation	\$4,428,600.00
Construction Contingency (10%)	\$885,720.00

2028 Estimated Total Cost per mile (Rounded)	\$6,110,000
---	--------------------