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CITY COUNCIL AGENDA ITEM

ACTION REQUESTED:
Provide direction regarding construction and location of noise walls for the 248th Avenue improvement project

DEPARTMENT: Transportation, Engineering and Development

SUBMITTED BY: William J. Novack, Director

BOARD/COMMISSION REVIEW:
While the Transportation Advisory Board (TAB) provided a recommendation for the Preferred Alternative, staff did not seek the board's input relative to noise wall location(s).

BACKGROUND:
In 2026, the City plans to improve and widen 248th Avenue between 95th and 103rd Streets from two lanes to five lanes. To assist with funding for the $9.5 million roadway construction, the City decided to pursue Surface Transportation Funding from the Federal Highway Administration (FHWA). When FHWA funds are used, preliminary engineering must be performed. One of the requirements of preliminary engineering is a noise impact analysis.

Before the Islamic Center of Naperville (ICN) project was approved by the City Council, the City's engineering consultant performed the analysis which showed no noise impact. After meeting with nearby residents, the City asked the FHWA if the noise impact analysis could be performed again with the projected ICN traffic added in.

The second analysis showed that approximately three quarters of the residents adjacent to 248th Avenue had a noise impact. A property is considered to have a noise impact when the modeled noise level meets or exceeds 67 decibels for residential property and 72 decibels for commercial property. The attached exhibit shows the homes in green that met the criteria for a noise impact while those shown in red did not meet the criteria.

The two blocks that did not meet the criteria for a noise impact are located on the east side of 248th from Grassmere Road to Lapp Lane and the east side of 248th from Landsdown Avenue to the Tall Grass Greenway.

The first block did not have a noise impact due to the set back from 248th that allows for stormwater management facilities. The second block did not qualify because of the additional distance from 248th to the homes set back on the cul de sac. In general, the blocks that did have a noise impact barely met the criteria while those that did not have an impact barely missed.

For the blocks that have a noise impact, the following five conditions must be met:

1. The noise wall must be “constructable” from an engineering perspective (there must be space to locate the wall);

2. A five decibel or greater reduction must be achieved for at least two of the receptors in the block;

3. The cost of the noise wall must be less than $30,000 per benefited receptor based on a noise wall cost of $30 per square foot (Please note these are outdated prices, but the FHWA continues to use the old prices for this part of the analysis. Current noise wall prices are between $45 and $50 per square foot);

4. An 8-decibel insertion loss must be achieved for at least one of the receptors; and

5. The majority of the residents in the block must approve the installation of the wall

DISCUSSION:
The full noise impact analysis was certified by the Illinois Department of Transportation in summer 2022 and showed that all locations, with the exception of the house on the southeast corner of 248th and Lapp Lane, qualified for noise wall. That home did not qualify because of the inability to build a continuous wall due to Lapp Lane to the north and the Tall Grass Greenway to the south. The second exhibit shows the locations where noise wall warrants were and were no met.

The residents that did not qualify for noise walls have requested that the City install noise walls along the entire corridor. This project was awarded $6.45 million from the FHWA to assist with the funding. To use FHWA funds the City must install the noise wall at all the locations that meet the warrants. The construction cost for installation is approximately $3.5 million. Adding in land acquisition, design and construction engineering raises the total cost of those walls to approximately $4 million.

The City can choose to install the noise wall at the locations that did not meet warrants without jeopardizing the federal funding, however those walls must be paid for with City funds. The cost to install noise walls at the location that did not meet warrants as shown in red on the exhibit is estimated to be approximately $1.5 million. In addition, but separate, is the northwest corner of 248th Avenue and 103rd Street. That corner is currently being considered for single family homes. The cost to install noise wall at this location is estimated at $450,000. The table below summarizes the choices:

OPTIONS	TOTAL COST
1. Install noise wall only at warranted locations (green areas only on the second exhibit)	$4,000,000
2. Install noise wall at warranted and unwarranted locations (green and red areas on the exhibit)	$5,500,000

3. Install noise wall at locations noted in #2 plus along the future development at 103rd St and 248th Avenue	$5,950,000

The City often receives requests to install noise walls adjacent to arterial roadways. The response has always been that noise walls are funded by the City as part of a federally funded roadway widening project. On most of the projects, the City only installs noise walls adjacent to the homes that met the federal criteria. The one exception was the wall associated with the 75th and Washington Streets improvement.

FISCAL IMPACT:

The cost to install noise wall for each of the three options is noted in the table above.