



JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION

KIRK T. STEUDLE
DIRECTOR

METRO REGION OFFICE

June 22, 2009

The Honorable Greg Hooper
Council President
City of Rochester Hills
1000 Rochester Hills Drive
Rochester Hills, Michigan 48309

The Honorable Brian Barnett
Mayor of the City of Rochester Hills
1000 Rochester Hills Drive
Rochester Hills, Michigan 48309

RE: Sound Wall NB-10, MDOT responses to the Subdivision's questions

Dear Mr. Hooper and Mayor Barnett:

This letter is in reference to our meeting of May 21, 2009, held at the Metro Region Office in Southfield. During this meeting, the Michigan Department of Transportation (MDOT) met with the City and representatives from the Country Club Village (CCV) Community to discuss the Noise Study conducted as part of the upcoming M-59 widening project (i.e.: Sound Wall Segment NB-10 specifically).

During this meeting, the City left MDOT with a list of 13 questions to address. Please know that the answers to these questions are enclosed.

At this same meeting, the CCV Community also left MDOT with a list of 15 questions, which was later increased to 21. Please know that their questions were answered under a separate letter, with a copy being enclosed for your files.

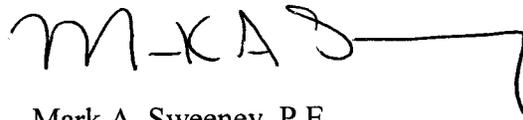
In summary, I would like to report that based on our re-evaluation of the September 2008 Noise Analysis Report, and the corresponding TNM model following our May 21, 2009 meeting, it was determined that nine additional benefiting units will receive at least a five dBA reduction in noise. This raises the total of benefiting units for NB-10 to 44, and lowers the cost per benefiting unit to \$59,173. Unfortunately, this amount is still above the \$38,060 threshold for making the noise barrier reasonable, so NB-10 remains ineligible for Federal Funds and will not be included within the M-59 project. But again, and as was discussed at our meeting, please remember that this determination does not mean that a wall cannot be constructed. It means that, should the Community choose to construct a wall on their own, the State of Michigan would not be able to participate with its cost.

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Within the CCV Community questions was a request for MDOT to provide information that correlated changing wall heights to their respective "noise shadows". However, in attempting to provide this information, we found that our computer model was not set up for this, which necessitates that additional work be completed on our part to accommodate the request. This information will be forwarded as soon as it becomes available.

I appreciate your time, and should you have any questions, please contact me at (248) 483-5151.

Sincerely,

A handwritten signature in black ink that reads "M-KAS" followed by a long horizontal line that curves downwards at the end.

Mark A. Sweeney, P.E.
Metro Region Design Engineer

Enclosures

cc: Paul Davis, City of Rochester Hills
Paul Shumejko, City of Rochester Hills
Paul Ajegba, MDOT
Paige Williams, MDOT

Response to City of Rochester Hills' Noise Barrier Questions from the May 21 MDOT meeting

1. Why wasn't the Country Club Village clubhouse counted as 10 units? It should still be considered a public use facility since all the homes (ultimately 256 home sites) of Country Club Village will be able to use this facility. A park can qualify as a public use and the CCV condominium development should be recognized as having common areas with a walkable trail system and scenic water quality ponds in conjunction with the Ferry Drain similar to a park.

Response – MDOT's determination is that these are private recreation areas, so they are not counted as 10 units like a public park. The Whispering Pines pool/tennis court area was to be counted as one unit since they are close together. The pool/tennis courts at CCV were to be counted as two separate units since the pool was a few hundred feet west of the tennis courts. (Note that the original noise analysis did not count the CCV pool/tennis courts in this manner, and that has been corrected). Neither club house (CCV or Park Place) was counted as a benefiting unit as they are not residences and their outdoor activities are the pools and tennis courts. The walkable trail system and scenic water quality ponds in conjunction with the Ferry Drain were not considered to be "public use" as defined in the Michigan State Transportation Commission Policy on Noise and MDOT's *Procedures and Rules for Implementation*. A "public park/facility" is a location owned by a federal, state, or local government agency where accessibility is not restricted by residency or membership. Based on the revised counts for the CCV pool and tennis courts, the benefited units for NB-10 increased from 35 to 37.

2. When is the date of public knowledge considered for the noise barrier project? Is it when the stimulus funding became announced to cover the M-59 widening project? If so, Appendix B, Page 3, Item 7 states that MDOT will consider noise abatement for future developments that were approved before the date of public knowledge. The Country Club Village development was given construction plan approval for Phase I construction on August 22, 2003 and the remainder of the development (Phase II) was given construction plan approval on August 25, 2004.

Response – The date of public knowledge is the date FHWA approved the environmental documentation stage of project. It is primarily of concern when a residential development is approved after the date of public knowledge. For the M-59 project, the date of public knowledge is April 13, 2009. It is not of concern for this project as the development was addressed in the noise analysis. The stimulus funding does not affect the date of public knowledge.

3. Additional homes will be built in the Country Club Village subdivision on Connors and Hogan and the model should count these homes. It is likely that homes here will be built prior to the completion of the M-59 widening work.

Response – The original noise analysis included four properties on Connors and Hogan. Based on the original analysis, only these four properties would receive a 5 decibel reduction. Based on the additional property information provided by the City of

Rochester Hills, four (4) additional properties west of John R Road, two (2) north and two (2) south of Michelson Road, have been identified that would receive a minimum of 5 decibel reduction from NB-10. This increases the number of benefited units to 41.

4. Why weren't the homes on the north side of Everett Drive counted?

Response – Based on their elevations and distance from the noise barrier, the homes did not receive a 5 decibel reduction and were therefore not counted as benefited units.

5. How is a 2-story versus 1-story home treated? The Country Club Village homes are 2-story and may be affected differently by sound than a 1-story home.

Response – The 2-story homes in CCV were treated the same as 1-story homes. Noise barriers provide the most benefit for ground level receptors. Federal guidance stresses to focus noise analysis on outdoor active use areas where there is evidence of consistent use. This is where the greatest traffic noise impact is experienced. The standard practice across the United States is to place the noise receptors 5 ft above ground level in the outdoor active use areas of the front or rear yards of residences facing the roadway. First and second story interior use for properties is only considered if there is no exterior use.

6. How often is the dollar value for the reasonable threshold revised? This amount is currently set at \$38,060 per the study. Is it updated yearly?

Response – This data is adjusted anywhere between every 12 to 24 months. When the cost data is revised, the new data is not designed to allow more or less residences to receive noise mitigation. Therefore, when the cost to construct a noise barrier increases, the cost per residence criteria also increases.

7. What about sound bouncing off the wall to be constructed on the south side of M59 by Michelson. How does the model take this effect into account?

Response – The present version of TNM[®]2.5 does not model reflection from a single noise barrier, as the reflected noise from a single barrier is not considered to be perceptible by the average human ear.

A more detailed explanation can be found in the following from FHWA's *Noise Policy FAQs- Frequently Asked Questions*:

“32. When only one side of the highway has a noise barrier, does the noise level increase for the opposite side of the highway where there is no noise barrier?

Highway traffic noise levels are not substantially increased by construction of a noise barrier on the opposite side of a highway from a receiver. If both the direct noise levels and the reflected noise levels are not abated by natural or artificial terrain features, the noise increase is theoretically limited to 3 dB(A), due to a doubling of energy from the noise source. In practice, however, not all of the acoustical energy is

reflected back to the receiver. Some of the energy is diffracted over the barrier, some is reflected to points other than the receiver, some is scattered by ground coverings (e.g., grass and shrubs), and some blocked by the vehicles on the highway. Additionally, some of the reflected energy to the receiver is lost due to the longer path that it must travel. Attempts to conclusively measure this reflective increase have never shown an increase of greater than 1-2 dB(A), an increase that is not perceptible to the average human ear.”

8. A home was missed off Vardon (McQuay at 435 East Nawakwa)

Response – Correct, this property was not included in the original count. Based on the additional property information provided by the City of Rochester Hills, two (2) additional properties along East Nawakwa have been identified that would receive a minimum of 5 decibel reduction from NB-10. This increases the number of benefited units to 43.

9. Why don't the Michelson homes east of John R qualify and also the homes on the north side east and west of John R

Response – Those homes did not receive a 5 decibel reduction from NB-10.

10. The parcel southeast of N161 is a parcel that can be developed as a home. It should be counted.

Response – Correct, this property can be developed and has been added to the count increasing the number of benefited units to 44.

11. How many submissions are currently on the Type II noise abatement list and how would the 10 sites that were deemed unreasonable by MDOT rank on this list for future funding consideration?

Response – The Type II program is suspended until 2013 at this time. However, to answer the questions, the Type II program does not have a list of sites. The MDOT policy provided for any community to apply for a Type II noise abatement. The application is reviewed following the criteria set in the *Procedures and Rules for Implementation of State Transportation Commission Policy 10136*. A noise abatement project will be approved if the area and applicant meet the policy's stated criteria and conditions.

The 10 sites that were deemed unreasonable for the proposed M-59 improvements will not be considered for Type II noise mitigation under the current State policy. The definition presented in the previously cited document state, “If noise abatement measures were previously determined to be unreasonable or unfeasible as part of a Type I project, the application will not be considered.”

12. What will the residential side of the noise baffler look like? Any aesthetic treatment or is it smooth-faced concrete?

Response – This is design detail that has not been determined at this time. Typically, some architectural relief or aesthetic treatment is provided on the residential side of the noise barriers. The possible treatments will be discussed at the future public meetings required for the two noise barriers that have been deemed feasible and reasonable.

13. How thick are the concrete noise baffler panels?

Response – This is a design detail that has not been determined at this time. The thickness of the noise barrier is a function of height and wind loading. Typically a concrete post and panel noise barrier is 4 to 6 inches thick.

Attachment A

Noise Barrier NB-10

Attachment B

North of M-59, between John R. and Joshua Dr.

| Receiver Location | Figure # | Land Use ^a | Dwelling Units | Noise Level, L _{eq} (1h) (dBA) | | Build with Barrier | Noise Reduction |
|-------------------|----------|-----------------------|----------------|---|--------------|--------------------|-----------------|
| | | | | Existing Noise Levels (2006) | Build (2035) | | |
| N82 | 7 | Res. | 1 | 65 | 68 | 64 | 4 |
| N83 | 7 | Res. | 1 | 61 | 64 | 61 | 3 |
| N84 | 7 | Res. | 2 | 61 | 64 | 60 | 4 |
| N85 | 7 | Res. | 4 | 62 | 65 | 60 | 5 |
| N86 | 7 | Res. | 2 | 68 | 71 | 64 | 7 |
| N87 | 7 | Res. | 2 | 69 | 72 | 64 | 8 |
| N88 | 6 | Res. | 3 | 68 | 72 | 65 | 7 |
| N89 | 6 | Res. | 3 | 69 | 73 | 66 | 7 |
| N90 | 6 | Res. | 4 | 69 | 73 | 66 | 7 |
| N91 | 6 | Res. | 2 | 69 | 73 | 66 | 7 |
| N92 | 6 | Res. | 1 | 69 | 73 | 68 | 5 |
| N152 | 7 | Res. | 3 | 64 | 67 | 62 | 5 |
| N153 | 7 | Res. | 4 | 67 | 69 | 63 | 6 |
| N154 | 7 | Res. | 1 | 61 | 64 | 60 | 4 |
| N155 | 7 | Res. | 2 | 63 | 66 | 61 | 5 |
| FS-10 | 7 | Res. | 1 | 61 | 65 | 60 | 5 |
| N156 | 7 | Res. | 1 | 62 | 66 | 61 | 5 |
| N157 | 7 | Tennis Courts | 1 | 69 | 73 | 64 | 9 |
| N158 | 7 | Res. | 1 | 64 | 67 | 61 | 6 |
| N159 | 7 | Res. | 6 | 61 | 64 | 60 | 4 |
| N160 | 7 | Res. & CCV Pool | 3 | 68 | 72 | 63 | 9 |
| FS-11 | 7 | Res. | 2 | 64 | 68 | 62 | 6 |
| N161 | 6 | Res. | 2 | 64 | 67 | 62 | 5 |
| N162 | 6 | Res. | 1 | 62 | 65 | 62 | 3 |
| N163 | 6 | Res. | 1 | 60 | 64 | 60 | 4 |
| N164 | 7 | Res. | 3 | 59 | 63 | 57 | 6 |

| Barrier Characteristics | | Cost | Number of Units Attenuated | Cost/Unit |
|-------------------------|-------------|-------------|----------------------------|-----------|
| Length (ft) | Height (ft) | | | |
| 4,562 | 9 - 15 | \$2,603,612 | 44 | \$59,173 |