

M-59 Noise Barrier Technical Review Committee Presentation to City Council



March 16, 2010

Committee Members

Council Appointed Resident Committee Members

Michael McGlynn (also the Committee Chairman)

Jennifer Lagerbohm

Charles Lam

Council Members

Greg Hooper

Nathan Klomp/Erik Ambrozaitis

Government Youth Council Member

Trip Brennan

Administration Support Members

Paul Davis

Doug Walther

Council Charge to the Committee:

- » Recommend criteria, metrics and individual ratings for MR-42E to determine a fair review of the twelve (12) wall segments that are both funded and not funded by the Michigan Department of Transportation (MDOT)
- » The Committee is to make recommendations by December 15, 2009

5 committee meetings were held to develop a noise barrier rating formula and rank the 12 locations identified in the MDOT report and one additional location (Chateau Avon)

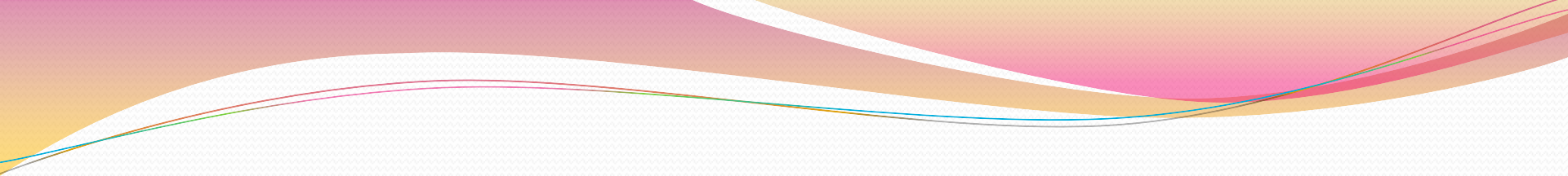
October 13, 2009

November 10, 2009

December 8, 2009

January 12, 2010

February 9, 2010



Our approach: The most logical starting point for our analysis was to use what information we had available in the existing MDOT report. This report provided information that was necessary for us to compare the proposed walls.

Next, we identified key factors that we felt were missing from the MDOT report that would be necessary for use in comparing the proposed walls in order to offer a more balanced approach.

We then tailored our analysis to ensure that all relevant evaluation factors were considered.

MDOT report vs. Committee report comparison

MDOT Report criteria considerations:

- 1) *Sound levels (dBA)*
- 2) *Cost per benefitting unit*
- 3) *Benefitting units derived by the Traffic Noise Model (TNM) software program*

Committee Report criteria considerations:

- 1) *Sound levels (dBA)*
- 2) *Cost per benefitting unit*
- 3) *Expanded Location Considerations*
- 4) *Lower cost alternatives*
- 5) *Expanded definition of a public area is used*
- 6) *Maintenance Consideration*
- 7) *Expanded decibel range*

Additional factors discussed but not included in the final ranking formula

- » Differences in Existing Home Property Values
- » Sound Reflection from a Barrier Built on the opposite side of M-59
- » Effectiveness of using trees for noise reduction

The M-59 Noise Barrier ranking formula is similar to the version used for the Capital Improvement Plan process

- 150 total possible points
- Eight categories are used and three are completed from information in the MDOT noise study report

M-59 Noise Barrier Rating Form					
Noise Barrier #	1	Total Score:	73		
Location:		South of M-59, Dearborn to Simpson Dr			
Total possible points for this rating form is 150					
	Score Range	Rater Score	Weight	Total Points	
1 Predicted peak noise levels w/o barrier (per updated MDOT report)	74 to 77 dBA	5	5	5	25
	70 to 73 dbA	4			
	less than 70 dBA	3			
2 Number of first floor attenuated units (per updated MDOT report)	greater than 40	5	2	5	10
	26 to 40	4			
	11 to 25	3			
	less than 11	0			
3 Cost per benefitting unit (per updated MDOT study)	less than \$45,000	5	1	5	5
	\$45,001 - \$60,000	4			
	\$60,001 - \$75,000	3			
	\$75,001 - \$90,000	2			
	greater than \$90,000	1			
4 Number of first floor home sites within 500 feet	50 or greater	5	2	4	8
	40 to 49	4			
	30 to 39	3			
	20 to 29	2			
	less than 20	1			
5 Public areas within 500 ft of M59 (multi count possible, max 5 items)	School or Licensed Daycare	2	0	4	0
	Church	1			
	Clubhouse or Swimming Pool	1			
	Common Area / Park/ Pavillion / Event Center	1			
	Tennis Courts	1			
	Walking / Bike trails	1			
6 Elevation difference between first homes and M-59 (plurality)	M-59 is typically lower than home ground elevations by 6 feet	5	3	3	9
	M-59 is typically within 6 feet of home ground elevations	3			
	M-59 is typically higher than home ground elevations by 6 feet	1			
7 Is a berm or other alternative feasible?	Yes - full berm	5	3	2	6
	Yes - partial berm	3			
	No	0			
8 Maintenance access rating for the proposed wall location	Good - road access from both sides	5	5	2	10
	Fair - easy access from M59, but no road access behind	3			
	Poor - difficult from both sides	0			

Item 1 of the Rating Formula

	<u>Score</u> <u>Range</u>	<u>Rater</u> <u>Score</u>	<u>Weight</u>	<u>Total</u> <u>Points</u>
Predicted peak noise levels w/o barrier (per updated MDOT report)				
74 to 77 dBA	5	5	5	25
70 to 73 dbA	4			
less than 70 dBA	3			

(Total Possible Points = 25)

Item 2 of the Rating Formula

Number of first floor attenuated units (per updated MDOT report)

greater than 40

26 to 40

11 to 25

less than 11

<u>Score Range</u>	<u>Rater Score</u>	<u>Weight</u>	<u>Total Points</u>
5			
4	3	5	15
3			
0			

(Total Possible Points = 25)

Item 3 of the Rating Formula

Cost per Benefitting Unit
(per updated MDOT report)

less than \$45,000

\$45,001 - \$60,000

\$60,001 - \$75,000

\$75,001 - \$90,000

greater than \$90,000

<u>Score</u> <u>Range</u>	<u>Rater</u> <u>Score</u>	<u>Weight</u>	<u>Total</u> <u>Points</u>
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5

4

3

2

1

4

5

20

(Total Possible Points = 25)

Item 4 of the Rating Formula

Number of first floor home sites
within 500 feet of M-59

50 or greater

40 to 49

30 to 39

20 to 29

less than 20

<u>Score Range</u>	<u>Rater Score</u>	<u>Weight</u>	<u>Total Points</u>
5			
4	3	4	12
3			
2			
1			

(Total Possible Points = 20)

Item 5 of the Rating Formula

	<u>Score</u> <u>Range</u>	<u>Rater</u> <u>Score</u>	<u>Weight</u>	<u>Total</u> <u>Points</u>
Public areas within 500 feet of M-59 (multi count possible, max 5 items)				
School or Licensed Daycare	2			
Church	1	2	4	8
Clubhouse or Swimming Pool	1			
Common Area/Park/Pavillion/Event Center	1			
Tennis Courts	1			
Walking/Bike Trail	1			

(Total Possible Points = 20)

Item 6 of the Rating Formula

Elevation difference between first homes and M-59 (plurality)

M-59 is typically lower than home ground elevations by 6 feet

5

M-59 is typically within 6 feet of home ground elevations

3

M-59 is typically higher than home ground elevations by 6 feet

1

<u>Score Range</u>	<u>Rater Score</u>	<u>Weight</u>	<u>Total Points</u>
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(Total Possible Points = 15)

Item 7 of the Rating Formula

Is a berm or other alternative feasible?

Yes - full berm

Yes - partial berm

No

<u>Score</u> <u>Range</u>	<u>Rater</u> <u>Score</u>	<u>Weight</u>	<u>Total</u> <u>Points</u>
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5

3

2

6

3

0

(Total Possible Points = 10)

Item 8 of the Rating Formula

Maintenance access rating for the proposed wall location

- Good – road access from both sides
- Fair – easy access from M-59, but no road access behind
- Poor - difficult from both sides

<u>Score Range</u>	<u>Rater Score</u>	<u>Weight</u>	<u>Total Points</u>
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5

5

2

10

3

0

(Total Possible Points = 10)

Noise Barrier Designation	MDOT Noise Barrier Ranking based on their Reasonable Cost Criteria	City Technical Committee Noise Barrier Ranking per the Rating Formula
NB-8	1	1
NB-6A	2	3
NB-4	3	8
NB-5	4	5 (tie with NB-3)
NB-10	5	2
NB-13	6	7
NB-3	7	5 (tie with NB-5)
NB-12	8	13
NB-11	9	9
NB-1	10	11
NB-9	11	10
NB-2	12	12
Chateau Avon	n/a	4

Chateau Avon Noise Barrier

MDOT 1993 Draft Environmental Assessment Noise Study Information:

215 feet from near lane of M-59 - estimated that the noise would be 69 decibels in 2015 after the Adams Road interchange was built.

320 feet from the near lane of M-59 - estimated that the noise would be 67 decibels in 2015 after the Adams Road interchange was built.

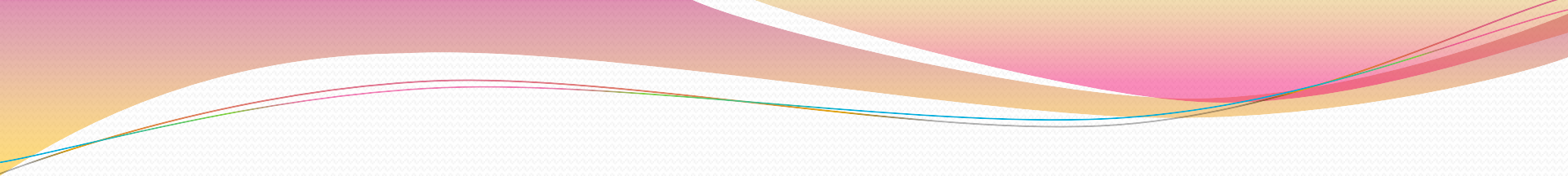
Conceptual Design Assumptions:

Since the resident unit elevation is typically at least 6 feet lower than the elevation at M-59, a uniform 9-foot high and 2,600-foot barrier is assumed

Cost Estimate: Using the MDOT criteria of \$25.50 per square foot and \$250 per foot of length, an estimated cost of \$1,246,700 is determined.

Conclusions and Recommendation to City Council:

- » The highest ranking unfunded noise barrier based on the technical committee's rating formula is NB-10 which is located on the north side of M-59 between Joshua and John R Roads.
- » The 2011 -2016 Capital Improvement Project for the unfunded noise barriers (MR-42E) should be revised to add the Chateau Avon option and also indicate each barrier's ranking in the project description according to the order determined by the technical review committee. The combined listing will mimic the local road project need included in the CIP (LS-01).



The Committee wishes to thank City Council for forming the M-59 noise barrier technical review committee and using our final ranking order if the City proceeds with approving and funding future noise barrier construction.

Any Questions?