Montgomery County
Department of Transportation

Montrose Parkway East Noise Study

From Parklawn Drive to Veirs Mill Road

Please Hold Questions

We will answer all questions at the end of the presentation.

WHO ARE WE?

Department of Transportation

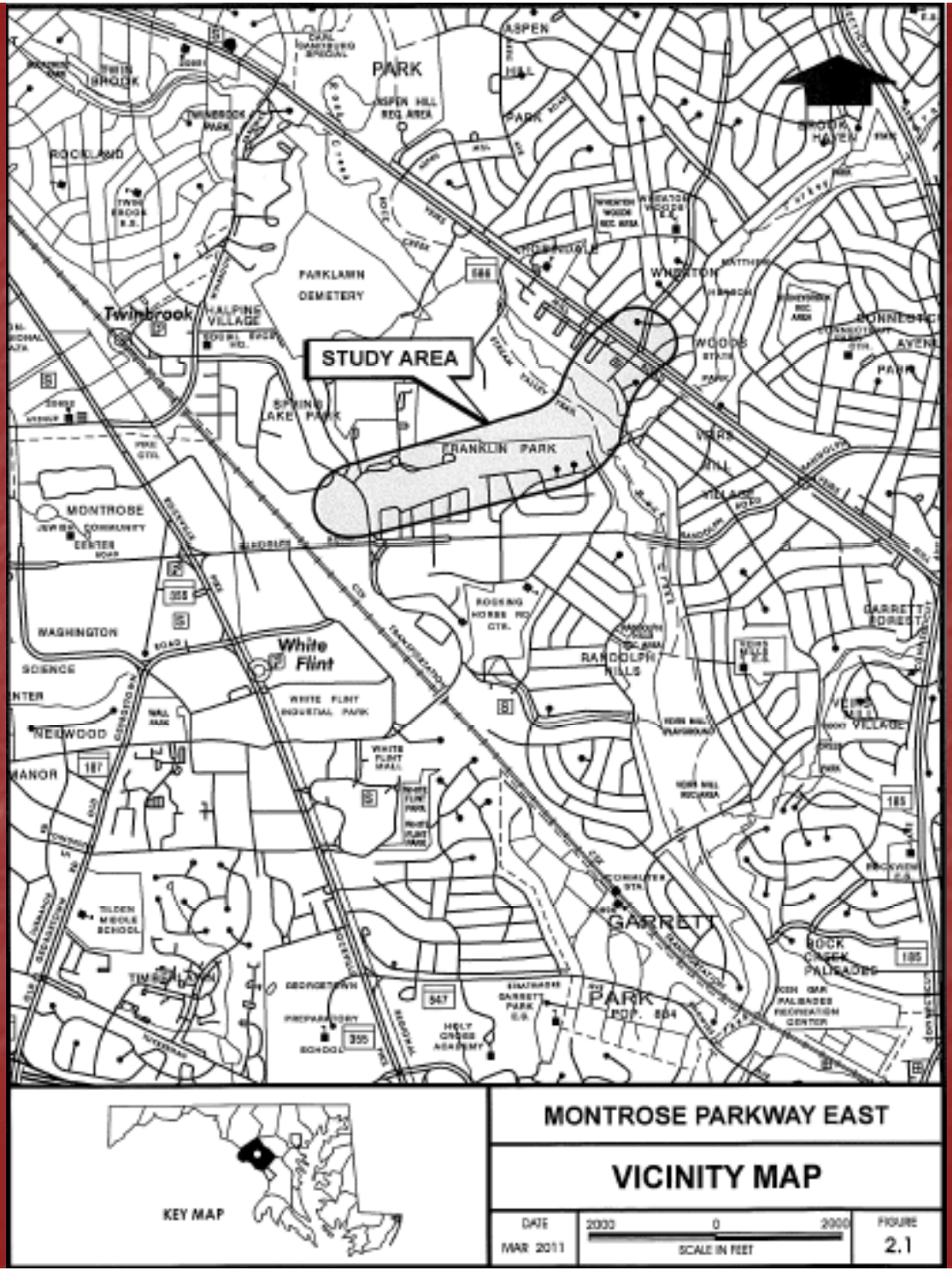
Division of Transportation Engineering

Bruce Johnston
Sogand Seirafi
Michael Mitchell (Program Manager)

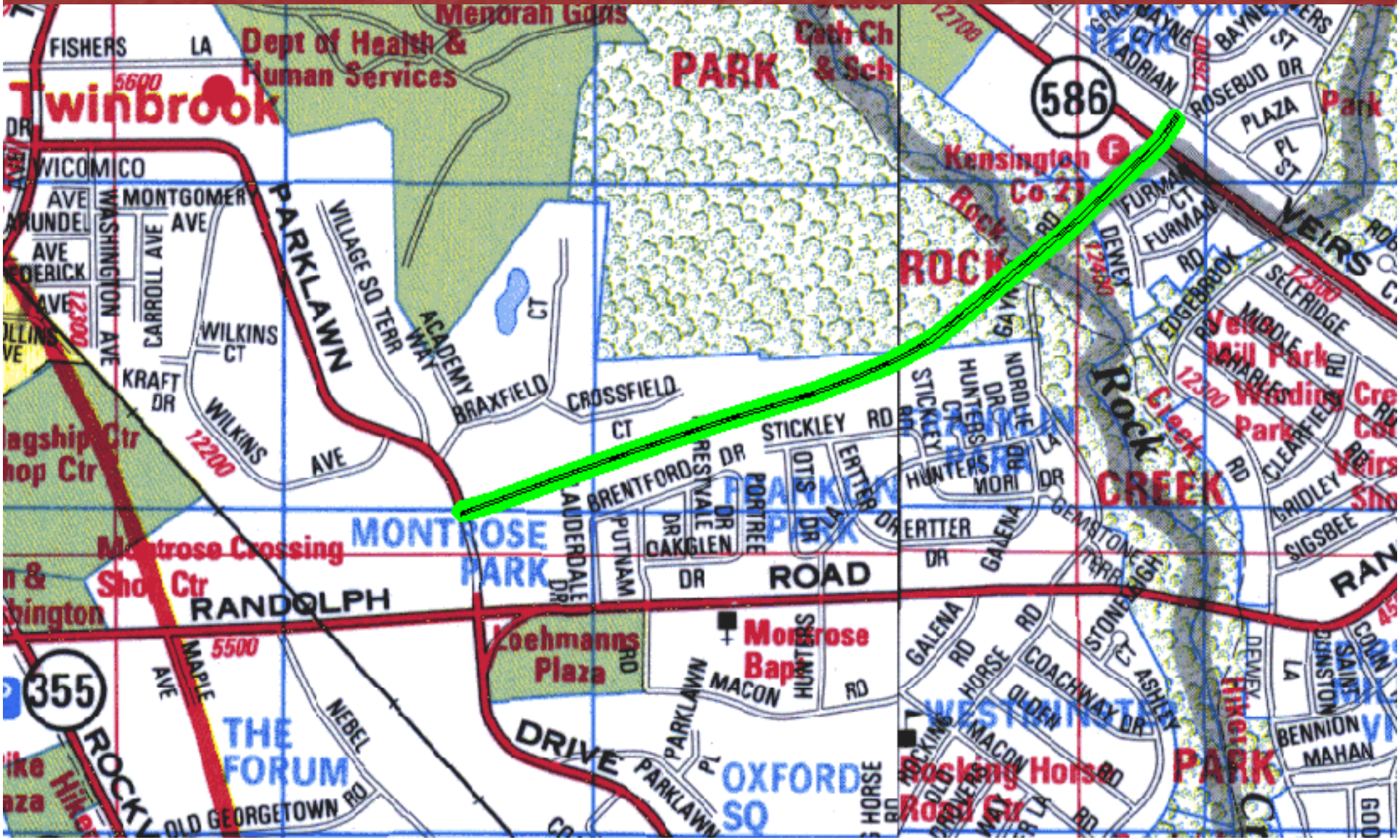
PURPOSE OF THIS MEETING ?

- Present the results of the noise study.
- Answer Community's questions.
- Receive feedback from the public on the findings of the study.

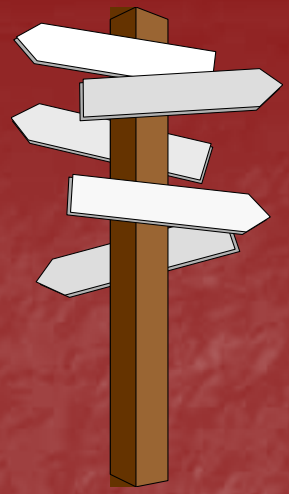
Study Area


STUDY AREA
PARK
PARKLAWN CEMETERY
Twinbrook
HALPINE VILLAGE
SPRING LAKE PARK
FRANKLIN PARK
MONTROSE
WASHINGTON
SCIENCE
White Flint
WHITE FLINT INDUSTRIAL PARK
NEELWOOD
MANOR
RANDOLPH HILLS
GARRETT
GARRETT PARK
KEY MAP
MONTROSE PARKWAY EAST
VICINITY MAP
DATE
MAR 2011
2000 0 2000
SCALE IN FEET
FIGURE
2.1

Study Area


Dept of Health & Human Services
Twinbrook
PARK
Cash Ch & Sch
586
Kensington
Co 21
ROCK
VEIRS
FISHERS LA
WICOMICO AVE
MONTGOMERY AVE
PARKLAWN
VILLAGE SQ TERR
ACADEMY WAY
WILKINS CT
KRAFT DR
WILKINS AVE
CARROLL AVE
WASHINGTON AVE
BRAXFIELD CT
CROSSFIELD CT
STICKLEY RD
BRENTFORD DR
RESTVALE DR
PORTREE DR
OAKGLEN DR
OTIS DR
ERTTER DR
HUNTERS MORI DR
GALENA DR
GEMSTONE TERR
STONEHIGH CT
MONTROSE PARK
Montrose Crossing Shop Ctr
RANDOLPH ROAD
LAUDERDALE DR
PUTNAM DR
Loehmanns Plaza
Montrose Bap
HUNTERS RD
MACON RD
355
MAPLE AVE
NEBEL
THE FORUM
OLD GEORGETOWN RD
DRIVE PARKLAWN
OXFORD SQ
ROCK CREEK
ROSEBUD DR
PLAZA
SELFRIDGE
EDGEBROOK RD
Veirs Mill Park
Wheaton Cre Park
CLEARFIELD RD
GRIDLEY RD
SIGSBEE
DEWEY
FURMAN CT
FURMAN RD
GALENA RD
HORSE RD
COACHWAY DR
OLDEN
ASHLEY
Rocking Horse Road Ctr
WESTFIELD
BENNION
MAHAN
Hiker

Project Need:



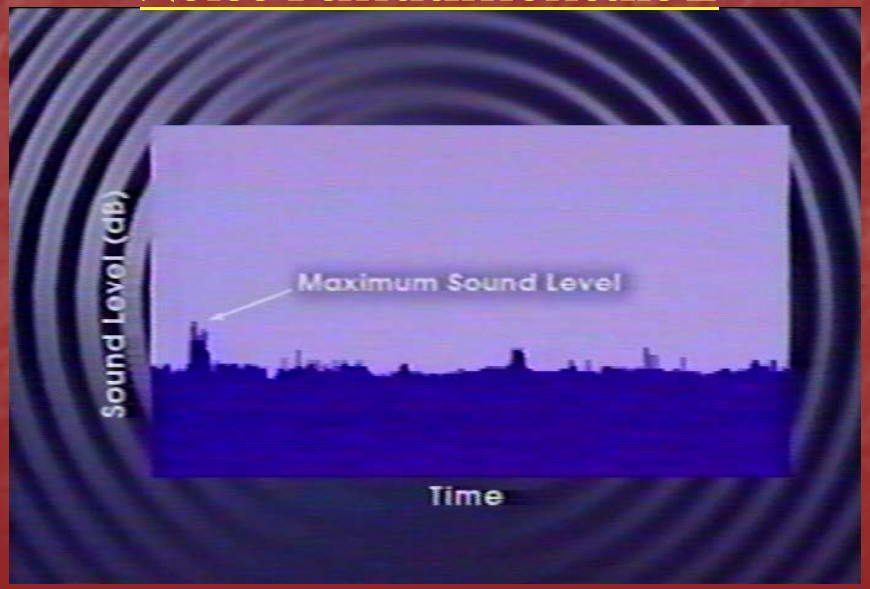
- This project is a study to assess noise levels generated by road traffic only.
- The study determines the need, qualification and feasibility of noise mitigation measures.

Noise Fundamentals

- Two short videos on fundamentals of quantifying and measuring highway noise and designing barriers.

Noise Fundamentals 1

Noise Fundamentals 2



Noise Fundamentals

- Concerned with traffic noise (trucks, cars, buses, and motorcycles). Noise is generated by the stack, engine, and tires and increases with speed and volumes.
- Background noise (rustling leaves, aircraft, children playing, insects, etc.)
- Unit of noise measurement is DECIBEL, a logarithmic scale based on energy.
- A doubling of sound energy, as would be a doubling of traffic volume, would be 3 dBA change.
- Human Hearing ability affects how noise is heard.
  - **3 dBA change generally barely perceptible**
  - **5 dBA change readily noticeable**
  - **10 dBA change 'sounds' twice as loud to most people**

Study Criteria

- The Noise Study was done as per the County's Highway Noise Abatement Policy

  The County's noise study criteria is very similar to noise study criteria used by the Federal government and other state governments

- Noise Measurements are taken at outdoor ground level (i.e. rear useable yard) approximately 25 feet from the house, five feet above ground (approx. human ear level).

  Typically the noise inside the dwelling is 15 to 20 dBA below that outside the dwelling

Methodology
How The Study Was Conducted

- **Logical Implementation Segments (LIS)**

  LIS is a Logical assessment area that has similar noise characteristics. An LIS is generally selected such that protection would be provided by an individual noise barrier wall.

- **Receptor Locations**

  Receptor locations selected to accurately show noise levels within each LIS.

- **Scope of Study (Noise Measurements & Modeling)**

  Investigate current noise levels as well as noise levels projected to occur within the next 20 years (at Level of Service ‘D’)

LIS Map


LIS 1
LIS 2
LIS 3
M-01
M-02
M-03
M-04
M-05
M-06
M-07
M-08
M-09
M-10
M-11
M-24
M-26
R-01
R-02
R-03
R-04
R-05
R-06
R-07
R-09
R-21
MATCH LINE SEE SHEET NO. 2.3
MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
MONTROSE PARKWAY EAST
NOISE BARRIER ANALYSIS
LIS 1
MAY, 2011
SCALE: 1" = 200'
2.2

LIS Map continued

LIS Map continued

Terms (More Fundamentals)

- Impacted: A receptor experiencing a peak-noise hour equivalent sound level of 67 dBA or higher due to vehicular traffic noise.
- Affected (By Construction): Properties on which the implementation of the noise mitigation measures created temporary or permanent property impacts.
- Benefited: Receptors (or homeowners) which are noise impacted and experience barrier insertion loss of at least 3 dBA.
- Insertion Loss: The decrease in the sound level measured at a receptor location when a noise barrier is placed in the noise propagation path between the receptor and a roadway
- Level of Service (LOS-D): A qualitative measure of traffic flow conditions (primarily traffic volume and average speed), differentiated into six levels and given letter designations (‘A’ through ‘F’) where ‘A’ represents the best operating conditions (low volume/high speed) and ‘F’ the worst. The greatest noise generation from a roadway generally occurs at LOS-D, characterized by high traffic density with stable, high speeds.

Scope of Noise Study

1. Review study area and select LIS and receptor sites.

2. Take short term (20 minute) and long term (24 hour) noise measurements.

   * Traffic counts taken with short term measurements. Noise measurements and traffic counts used to calibrate computer model used for acoustical analysis

   * 24-hour noise measurements used to determine sound variations over a day and to determine noisiest hours

3. Set up and calibrate computer model used to determine noise levels in the future design year. Transportation Noise Model (TNM) of Federal Highway Administration used to model noise levels. Input includes traffic types, volumes and speeds; locations and types of roadways and receivers; intervening objects that would affect the noise levels such as buildings, trees, ground, and grass.

Scope of Noise Study continued

5. Run calibrated model based on projected traffic levels expected to occur within 20 years (use LOS-D traffic volume if expected to occur within 20 years). Where noise levels exceed 67 dBA analyze barriers.

6. Input proposed barrier locations, lengths and heights into TNM computer program.

7. Vary barrier heights as required until desired noise reduction is obtained.

8. Estimate cost and perform cost/benefit analysis

9. Prepare report

Ambient Noise Measurements — highest receptors

LIS	Receiver	Location	Description	Adjusted Ambient (dBA)
1	R-2	Bethesda Park Apts. Pool	Apartments	51
2	R-5	Randolph Square Apts. Pool	Apartments	52
3	R-9	12115 Portree Drive	Single Family	51
4	R-10	4921 Stickley Road	Single Family	49
5	R-6	Rock Creek Park	Park	47

Note: Adjusted ambient is peak ambient noise level to be expected during a 24-hour period.

Ambient Noise Measurements— highest receptors

LIS	Receiver	Location	Description	Adjusted Ambient (dBA)
6A	R-19	12411 Dewey Road	Single Family	51
6B	R-14	4502 Furman Court	Single Family	57
7	R-16	12510 Rock Creek Terr	Apartments	58
8	R-17	4520 Adrian Street	Single Family	60
9	R-18	4607 Adrian Street	Single Family	53

Note: Adjusted ambient is peak ambient noise level to be expected during a 24-hour period.

Noise Mitigation Criteria

Feasibility Criteria

- The barrier can be built to provide an insertion loss of at least 7 dBA for the most seriously traffic-noise impacted receptors.
- The barrier can be built without either unduly restricting pedestrian or vehicular access, or without interfering with safe sight distances for motorists.
- Any right-of-way required for the construction and maintenance of the barrier must either be dedicated to the County at no cost or the County is granted permanent easement.

Noise Mitigation Criteria continued

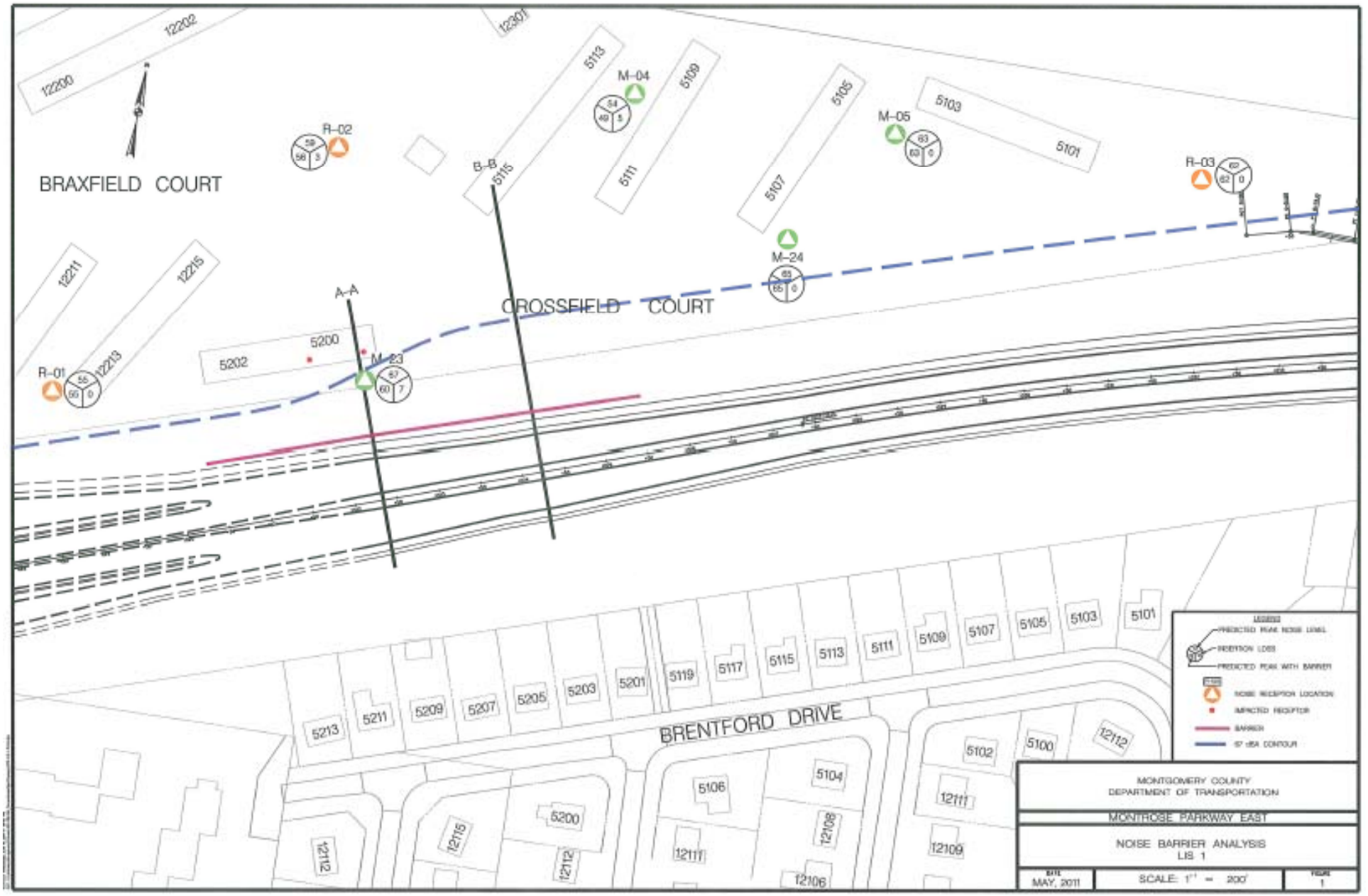
Reasonableness Criteria

- The measured or projected sound level must equal or exceed 67 dBA.
- The barrier will not result in undue negative impacts on the environment or historical resources.
- The County costs to install the barrier will not exceed $100,000* per benefited receptor (where benefited receptors are considered to be the owners of those dwellings which will enjoy a barrier loss of at least 3 dBA).
- The barrier designs and payment responsibility, if any, are approved by the benefited property owners.

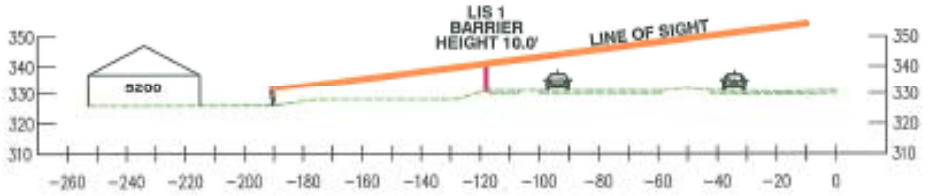
Summary of Results

- LIS 1, 6B, 8, and 9 meet the criteria for noise mitigation.

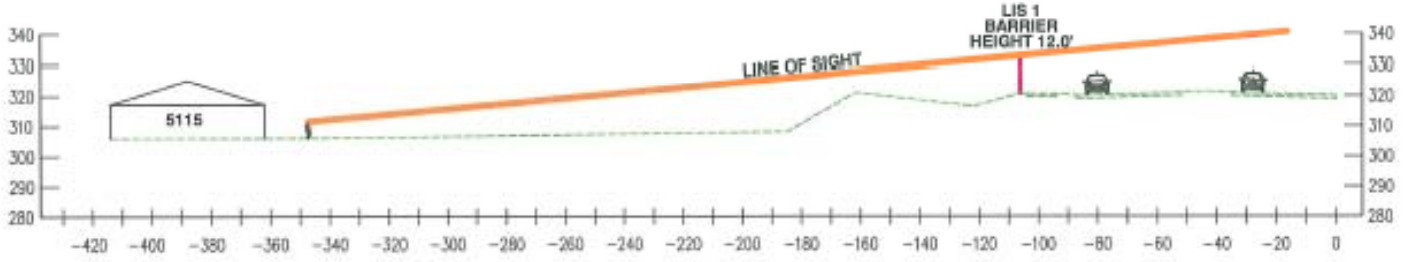
LIS 1 with proposed barrier



LIS 1 proposed typical sections



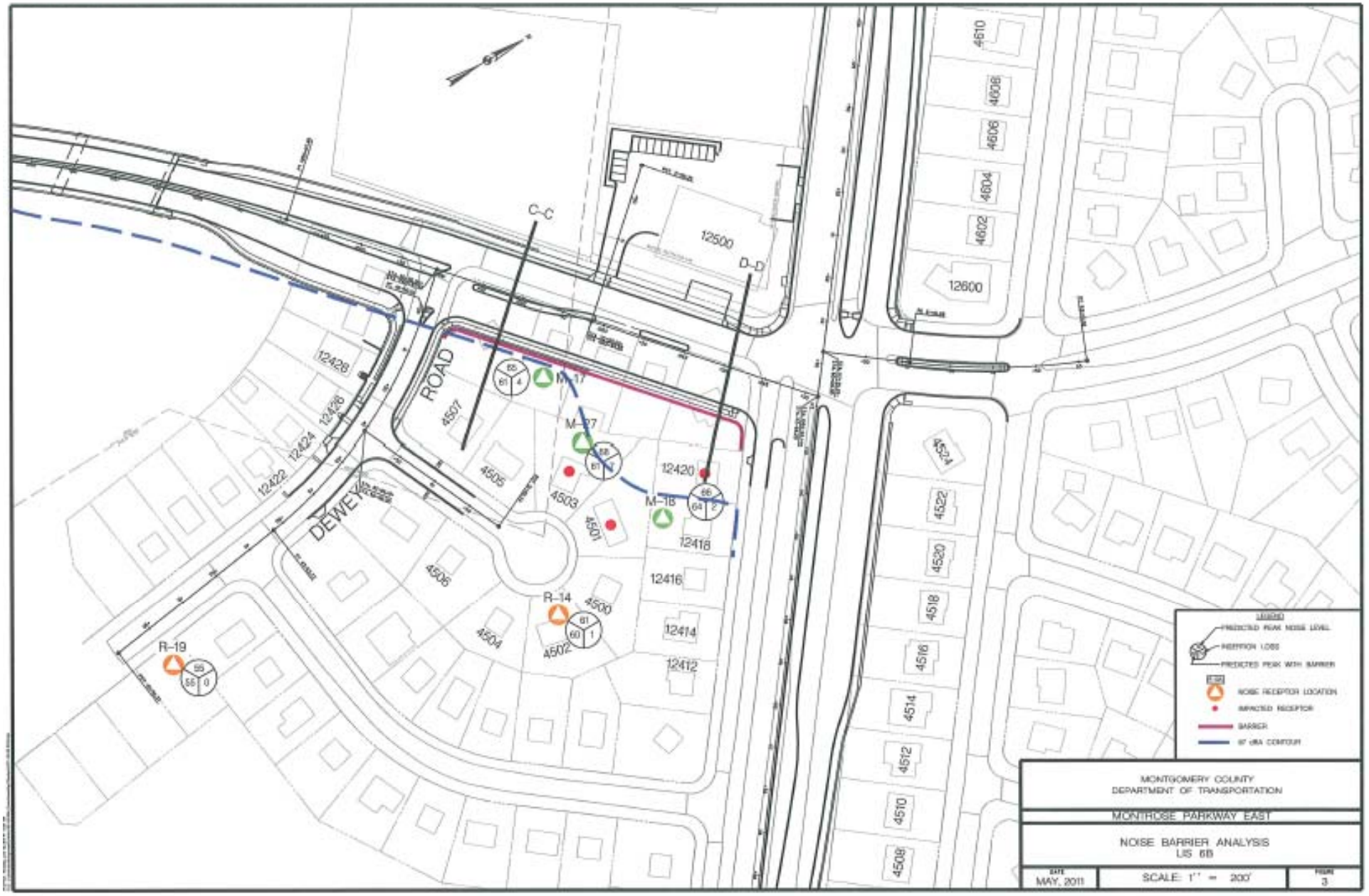
SECTION A-A



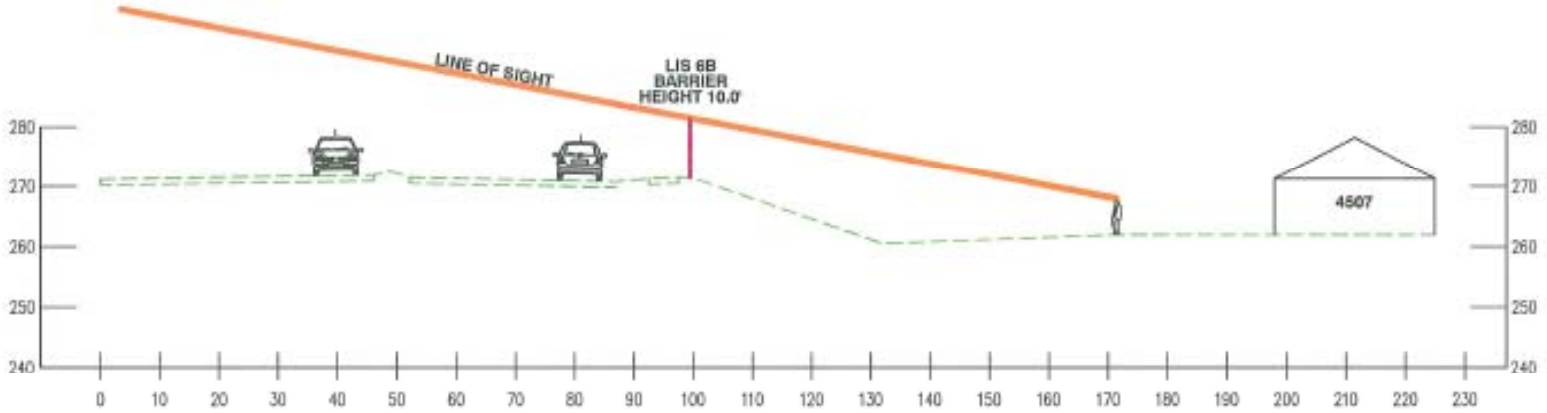
SECTION B-B

MONTGOMERY COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		
MONTROSE PARKWAY EAST		
NOISE ABATEMENT BARRIER LIS 1		
DATE MAY, 2011	20 0 20 40	FIGURE 2

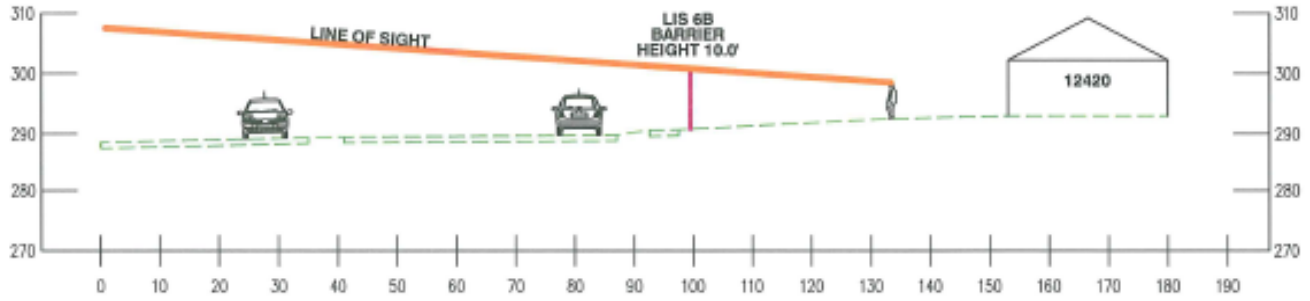
LIS 6B with proposed barrier



LIS 6B proposed typical sections



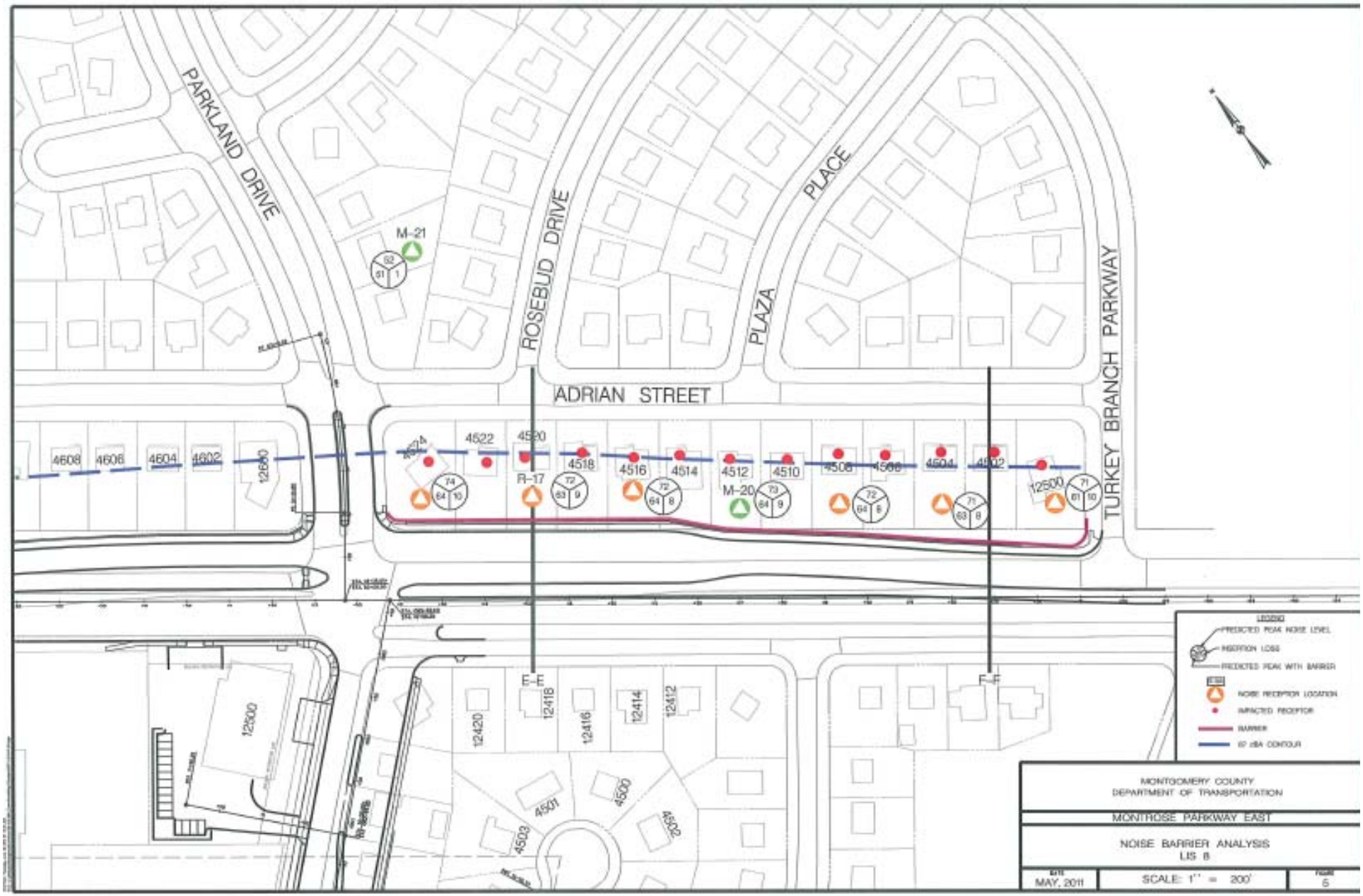
SECTION C-C



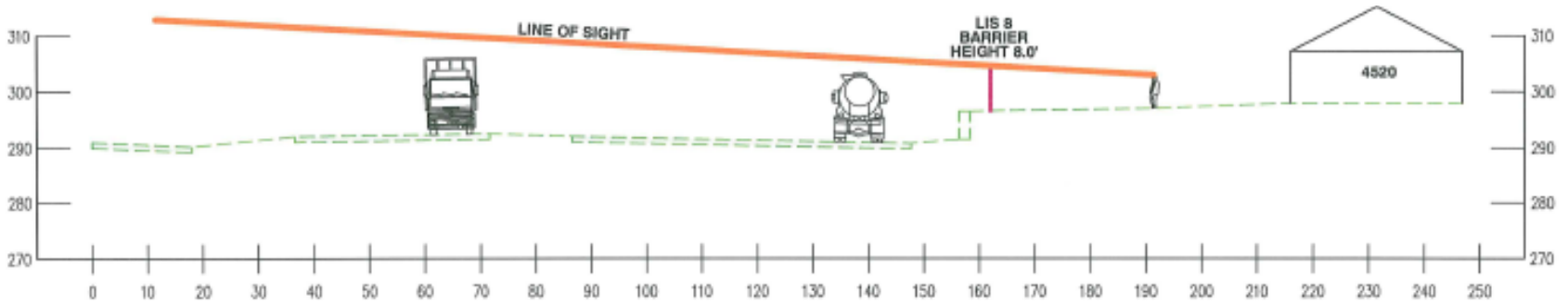
SECTION D-D

MONTGOMERY COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		
MONTROSE PARKWAY EAST		
NOISE ABATEMENT BARRIER LIS 6B		
DATE MAY, 2011	10 0 10 20	FIGURE 4

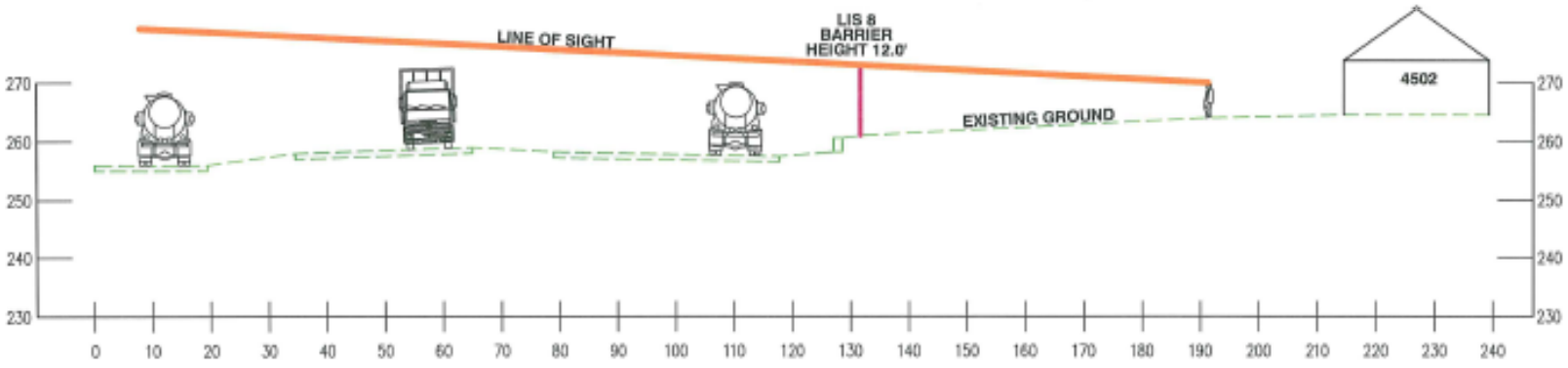
LIS 9 proposed typical sections



LIS 8 with proposed barrier



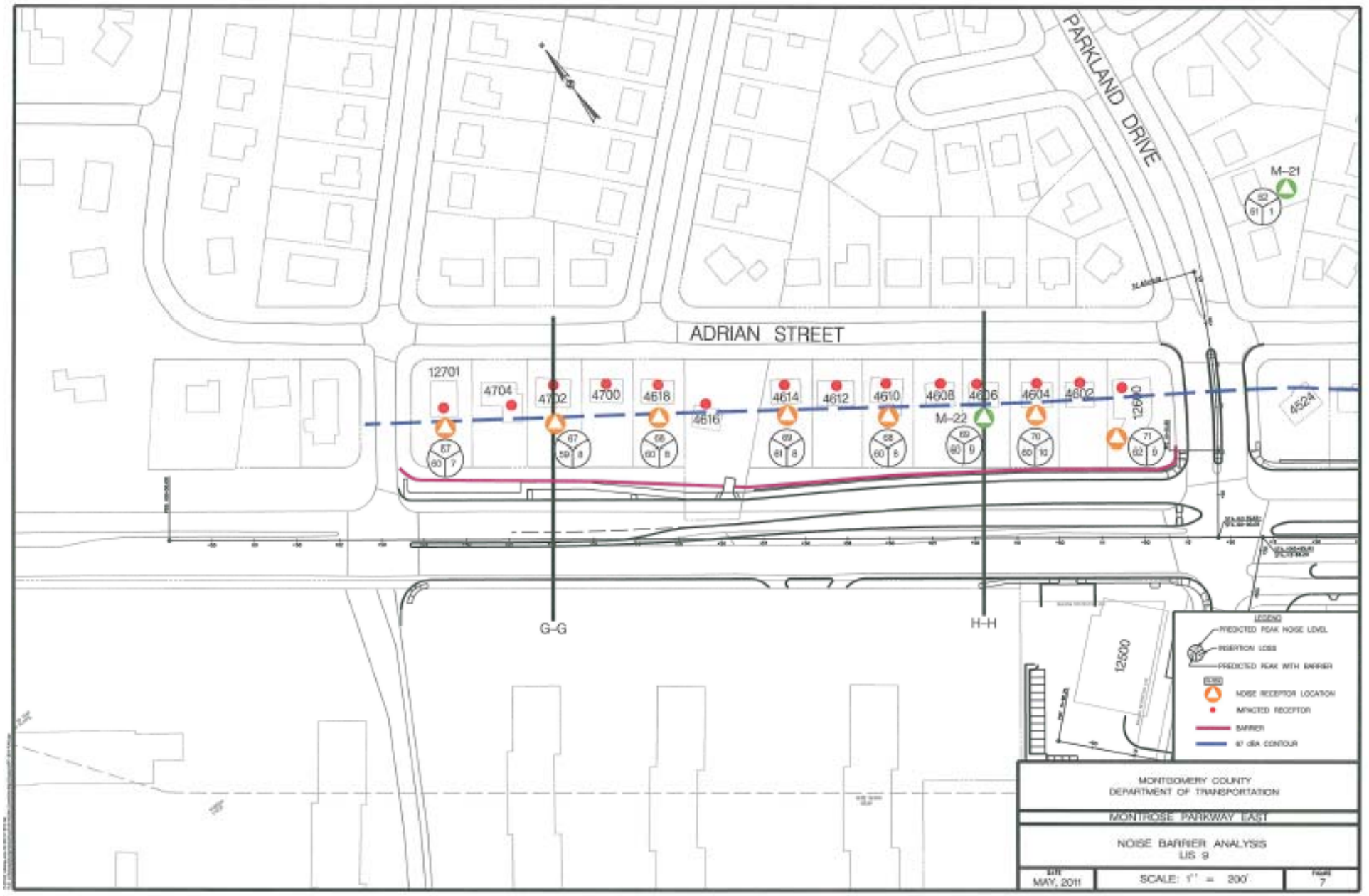
SECTION E-E



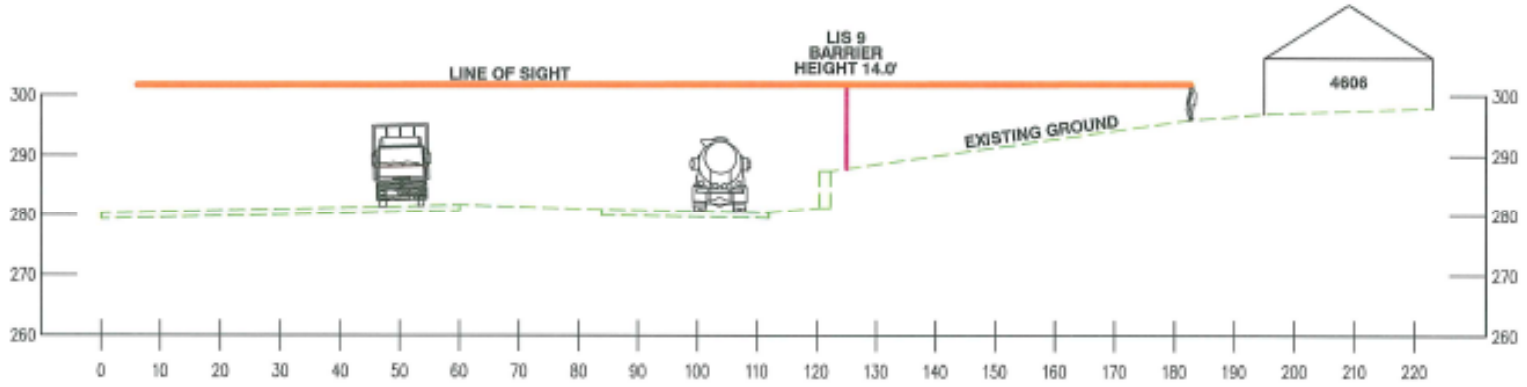
SECTION F-F

MONTGOMERY COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		
MONTROSE PARKWAY EAST		
NOISE ABATEMENT BARRIER LIS 8		
DATE MAY, 2011	10 0 10 20	FIGURE 6

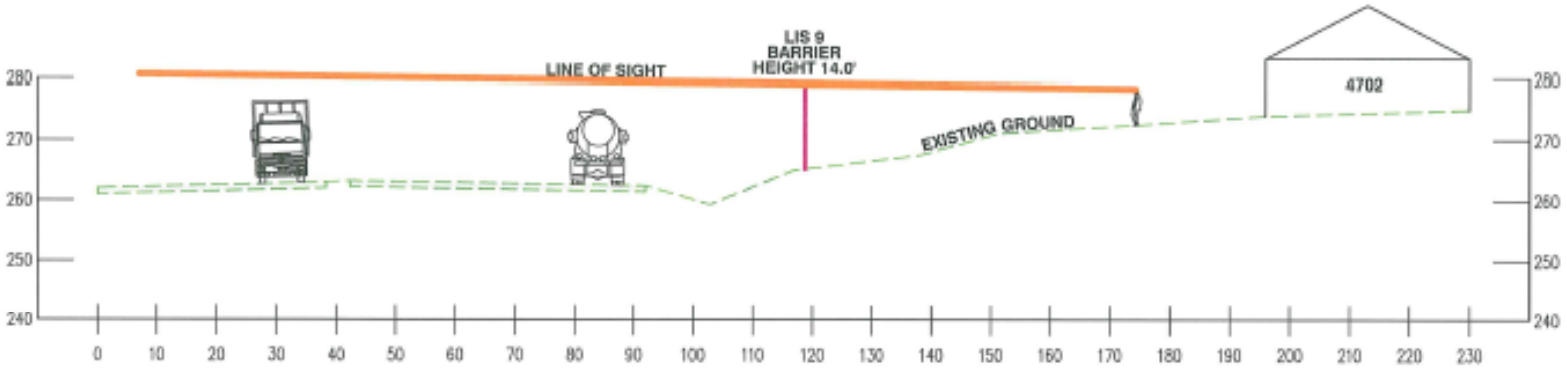
LIS 8 proposed typical sections



LIS 9 with proposed barrier



SECTION G-G



SECTION H-H

MONTGOMERY COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		
MONTROSE PARKWAY EAST		
NOISE ABATEMENT BARRIER LIS 9		
DATE MAY, 2011	10 0 10 20	FIGURE 8

Summary of Estimated Costs

LIS	Avg Peak Hour Noise ($L_{Aeq\ 1hrpk}$) dBA	Est. Total Cost*	Number of Benefited Homes	Avg Cost per Benf. Home	Date Built [Master Plan]	Total Per Resident Co-Pay
1	67	$1,344,155	2	$262,485	’80 [‘92]	$162,485
6B	68	$458,375	3	$119,542	’46 [‘92]	$19,542
8	73	$750,025	13	$57,694	’54 [‘92]	$0
9	70	$1,176,385	14	$84,028	’52-’56 [‘92]	$0

* Average Cost based on $95/s.f. for full implementation cost

Rankings & Funding Priority

The "Score"

S = NIP + TLOSD + HCD + HPD + NBH + CBH + EOB

- MC-DOT provides County Council with rankings of eligible communities biennially
- Council selects which LISs will be funded for mitigation

Your Choices

1. Mitigation (Noise Barrier): agree to the co-pay amount and provide fee simple property or easement to build barrier, where necessary. 60% of the each LIS community has to agree. 100% of property owners from whom property is needed have to agree.

   If an LIS community rejects a barrier, it has to wait at least six 6 years before requesting reconsideration for barriers.

2. Non-Mitigating measures (fences or vegetative landscaping): will not reduce the noise impact, but provide visual obstruction of the road and give the *perception* that traffic noise is less objectionable.

   If an LIS community requests non-mitigating measures, it has to wait 12 years before requesting consideration for mitigation (barriers).

Next Steps:

- Get Community Input
- Conduct Survey (Voting) for all eligible LISs
- Present the Study and the “Voting” results to the County Council along with results of studies/voting for other locations around the County
- County Council will decide which locations will be funded for Final Design and Construction

QUESTIONS?