Noise Analysis Study along I - 29

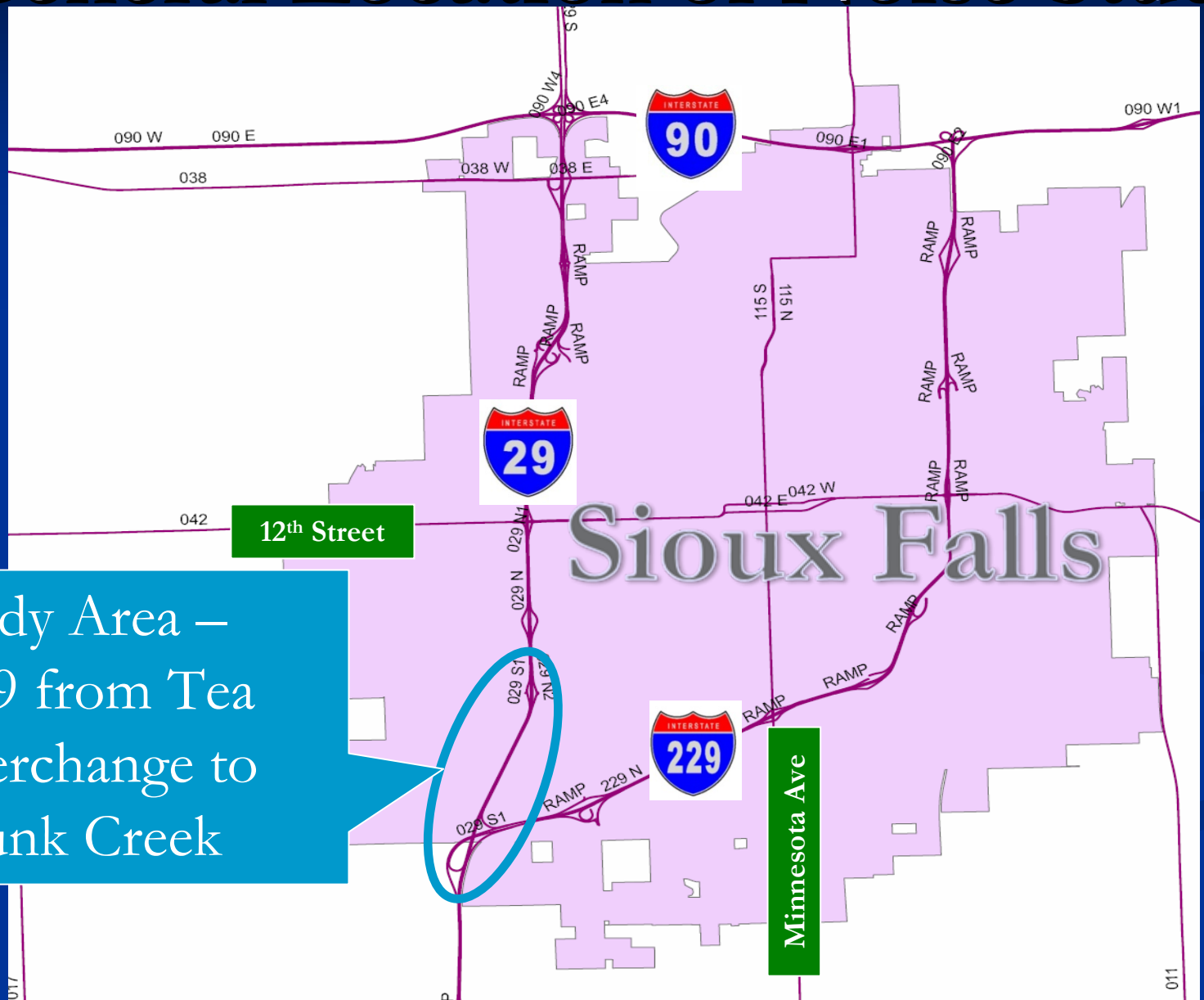
Public Meeting

August 26, 2010

Meeting Format

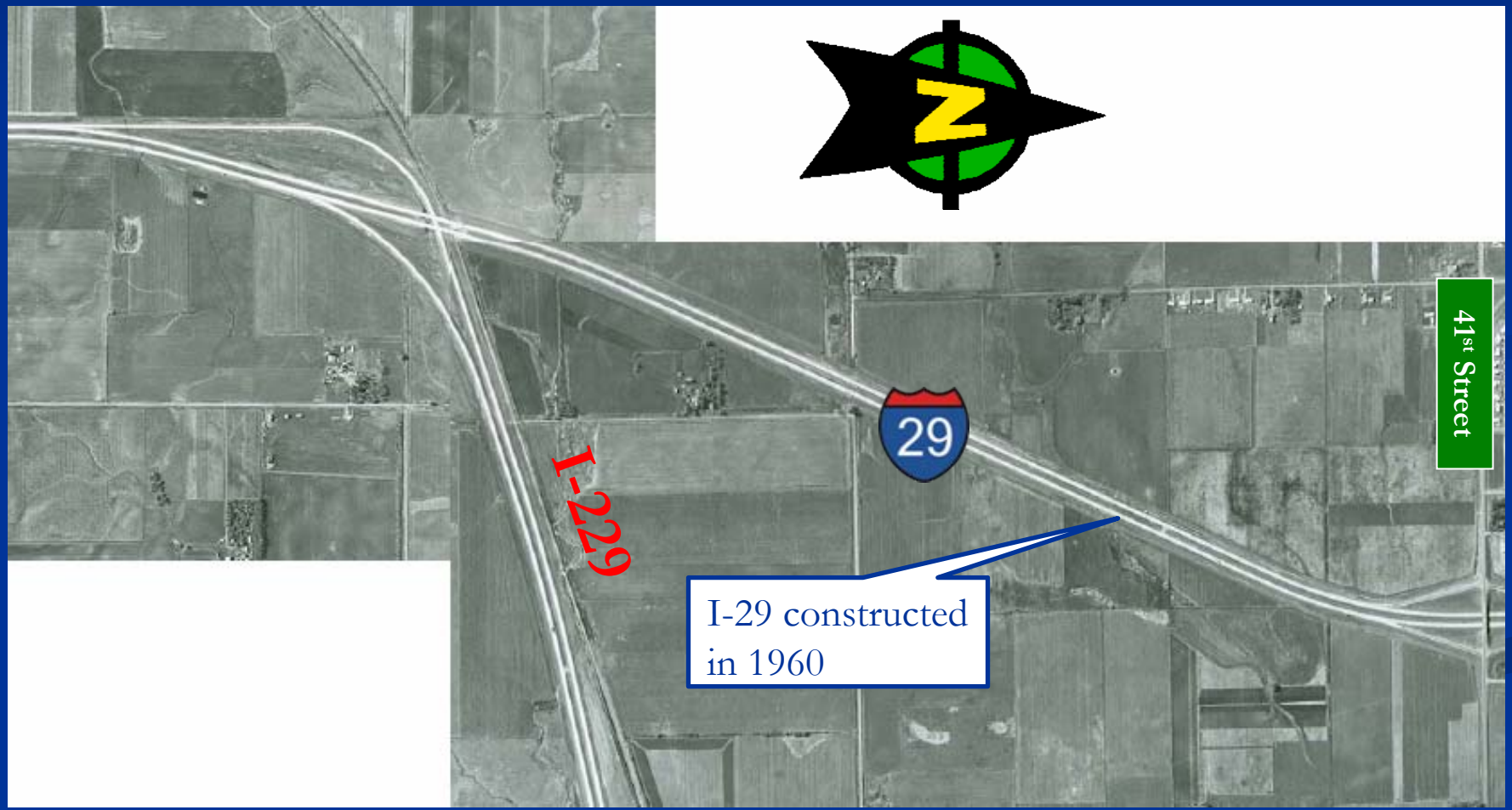
- Introductions
- Presentation
- General questions/comments after presentation
- Submittal of noise wall ballots (accepted via mail until September 3, 2010)

General Location of Noise Study



Study Area – I-29 from Tea interchange to Skunk Creek

History of Study Area
Aerial Photo (1962)



Aerial Photo (1991)

Aerial Photo (2004)

I-29 Reconstruction Project

I-29 looking north from 57th Street overpass

I-29 Reconstruction Project

- Add auxiliary lane from I-229 to 26th Street
- Reconstruct existing through lanes
- Begin construction in 2011 (phased over several years)

State and Federal Policy Regarding Noise Analysis & Mitigation

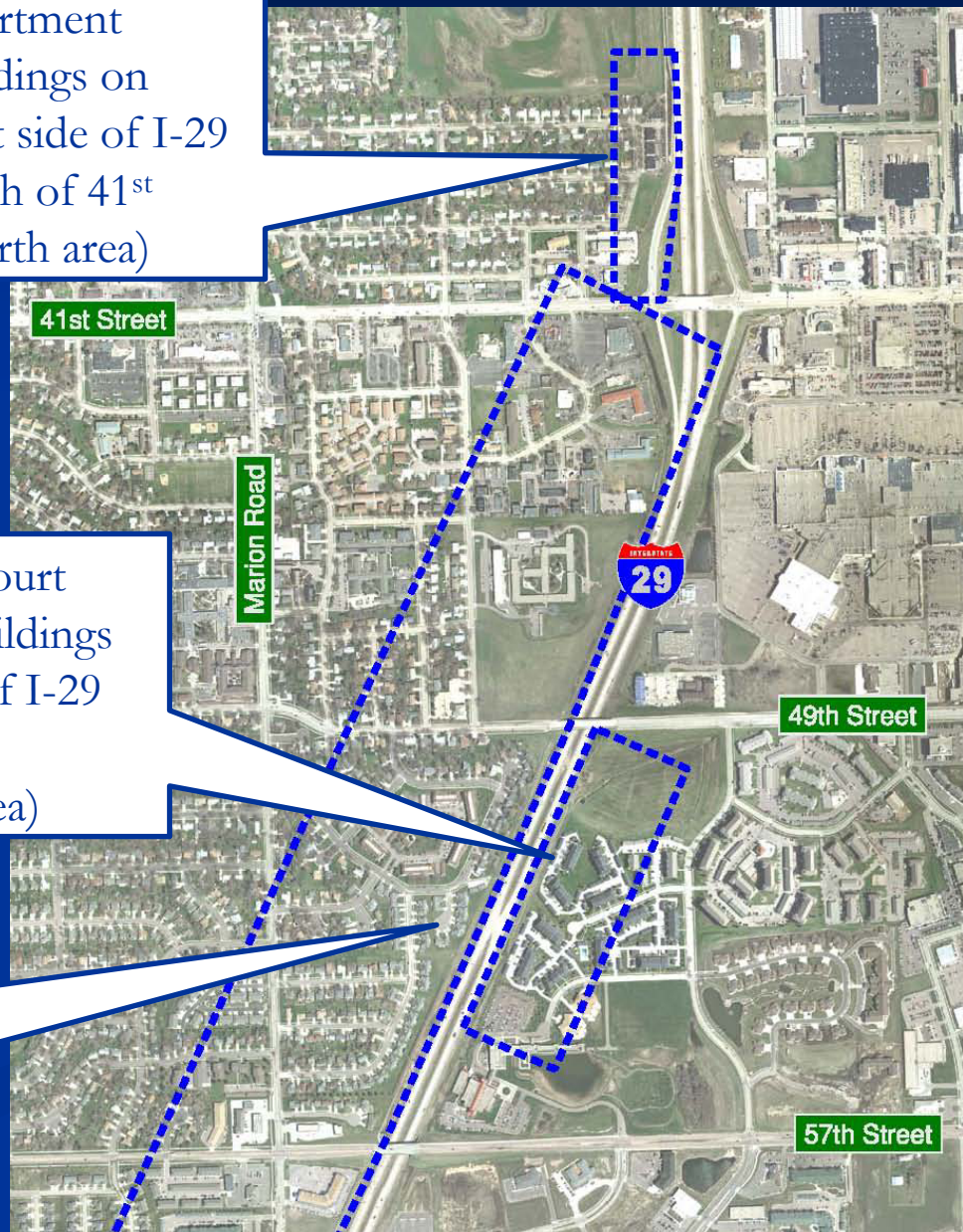
- Federal Policy: Code of Federal Regulations (CFR)Title 23 Part 772
- SDDOT Policy: PD-2004-02

Noise Analysis is required if:

- A new highway is built on a new location,
- An alignment of an existing highway is significantly altered
- The number of through traffic lanes is increased or if the length of an added auxiliary lane is 1.5 miles or longer. (I-29 project meets this criteria.)

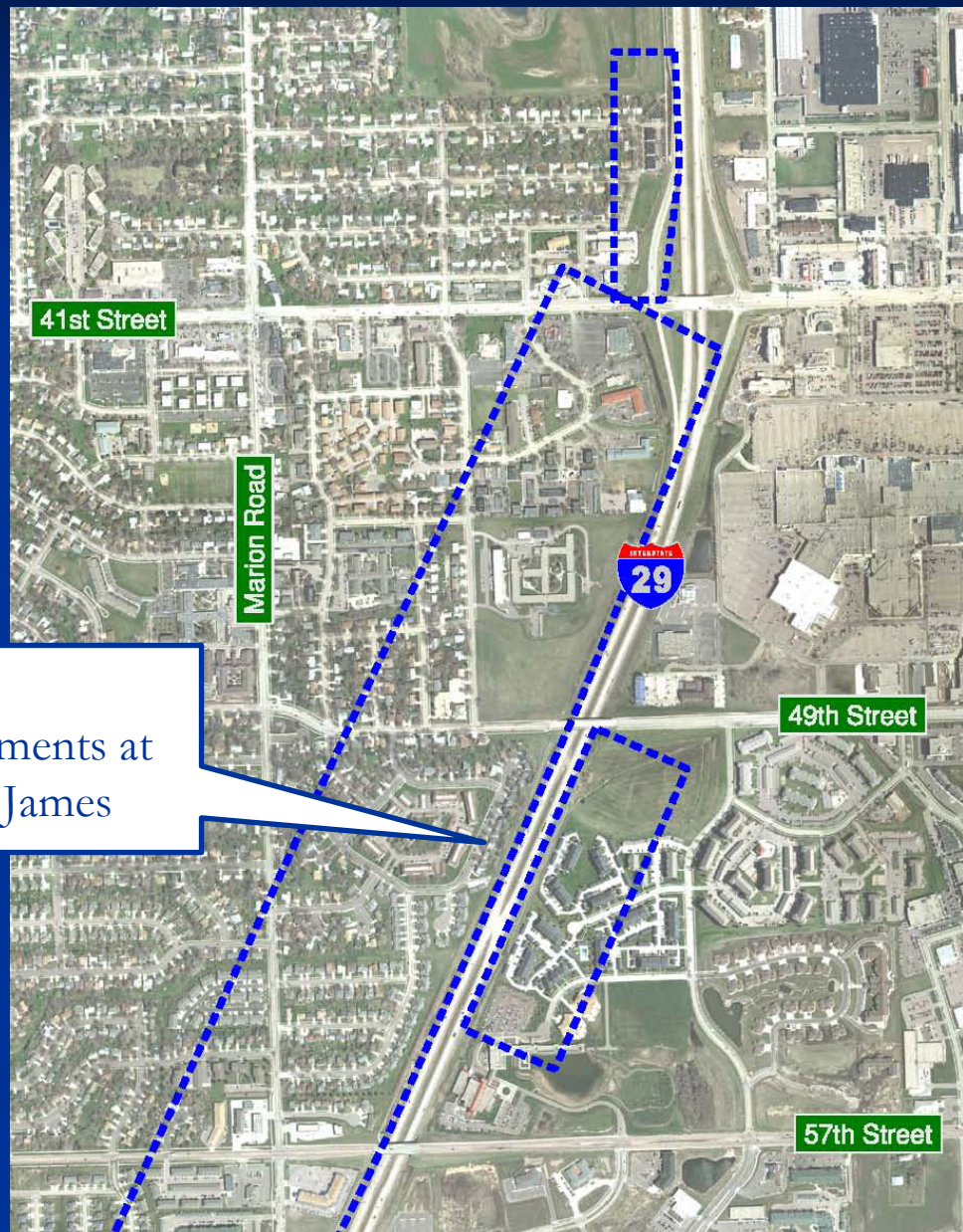
2005 Noise Study Review

Identified 3 areas of potential noise impacts from I-29 project

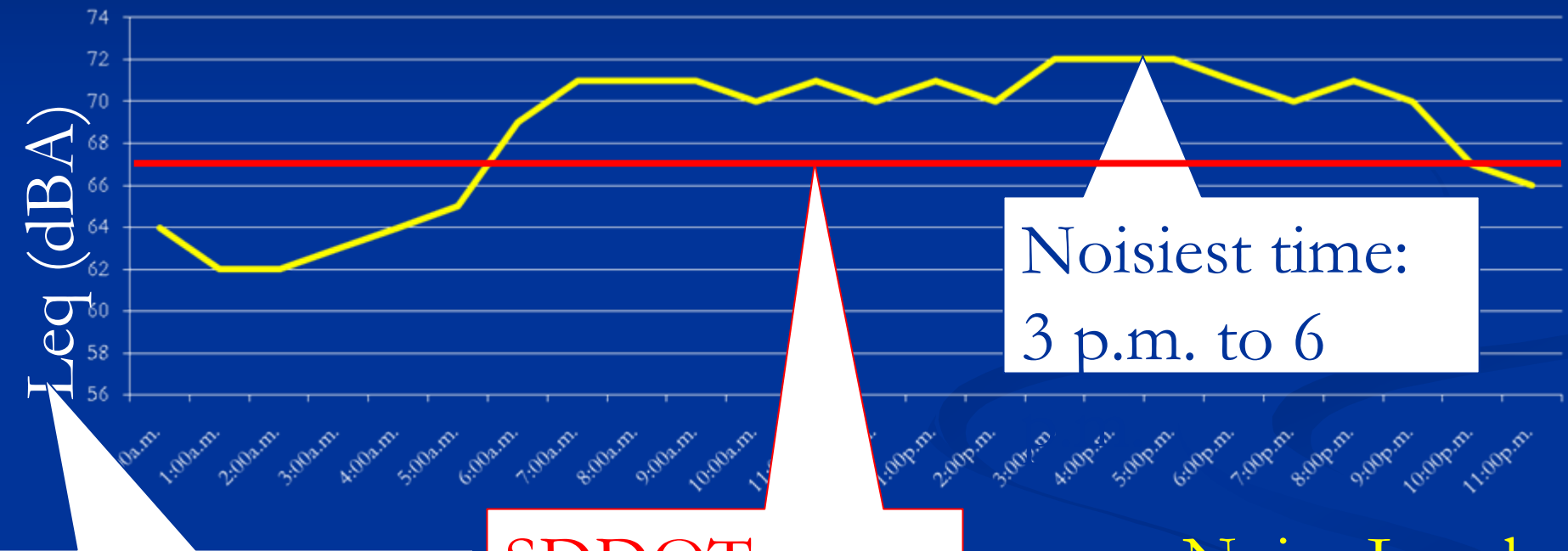


2005 Noise Study Review

Noise measurements were taken in July and August 2005

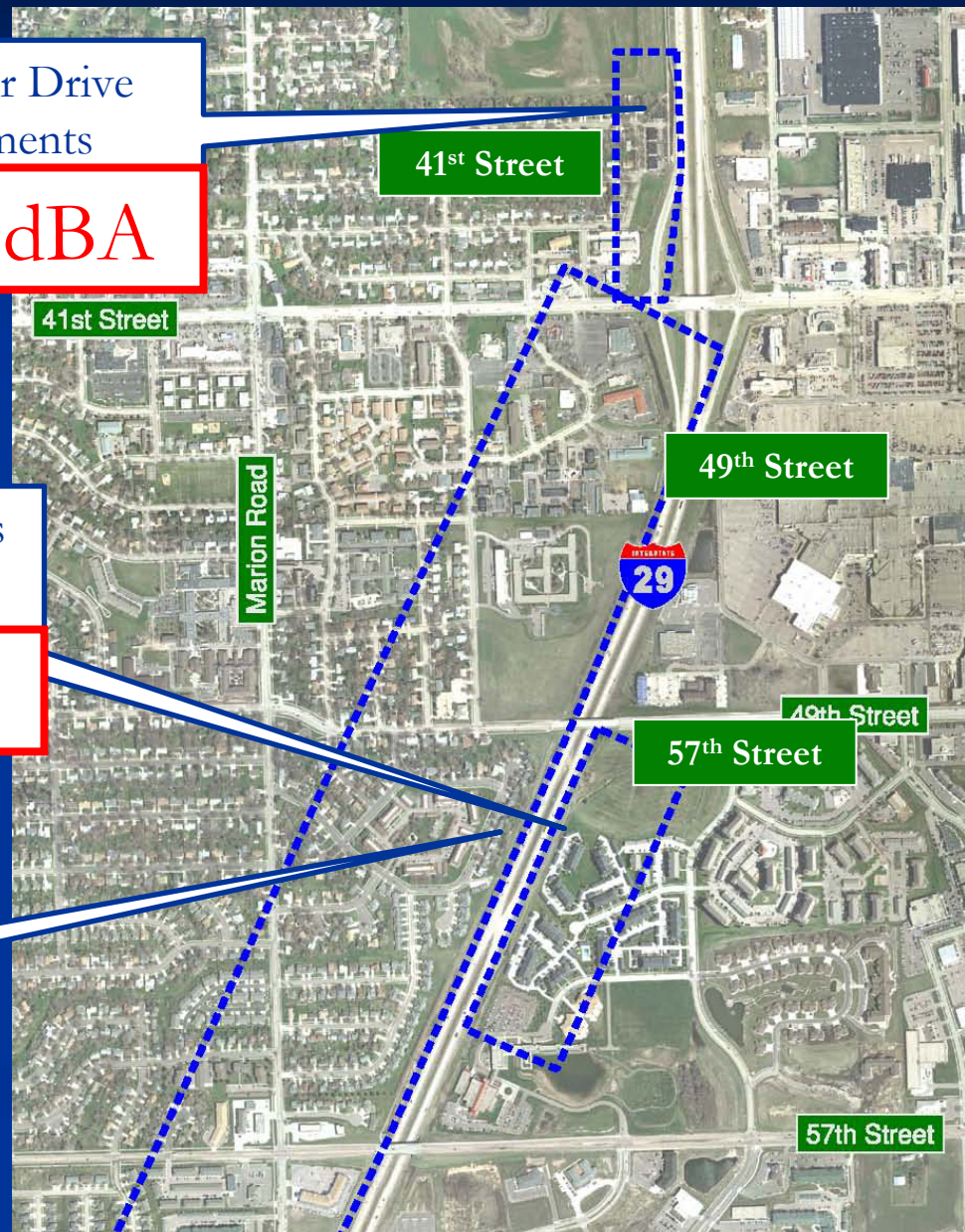


2005 24-hour Monitoring Results at 4801 St. James Dr.



2005 Noise Study Review

2005 P.M. peak hour noise measurements



Data Collection & Future Projections

- Data was collected according to FHWA "Sound Procedures for Measuring Highway Noise, Final Report" - Existing noise levels exceeded SDDOT standards
- Future noise levels were determined using the FHWA Traffic Noise Model Version 2.1

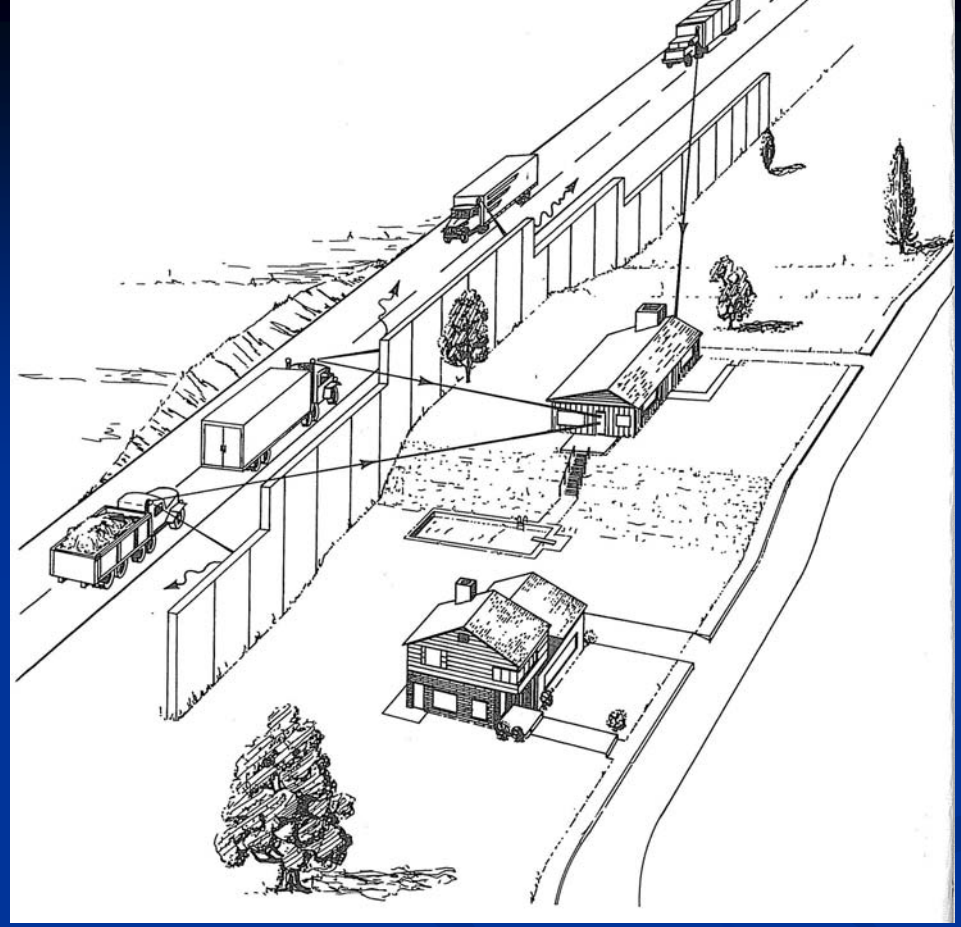
Noise Analysis 101

Common Noise Sources and Levels

Sound Pressure Level (dB)	Typical Sources
120	Jet aircraft takeoff at 100 feet
110	Same aircraft at 400 feet
90	Motorcycle at 25 feet
80	Garbage disposal
70	City street corner
60	Conversational Speech
50	Typical office
40	Living room (without TV)
30	Quiet bedroom at night

SDDOT standard = 67 dB

Noise Analysis 101



Computer model calculates noise levels from:

- Number, speed, and type of vehicles
- Distance from roadway to residence
- Elements between roadway and residence/receptor to block or absorb noise

Identification of Traffic Noise Impacts

- A traffic noise impact occurs when:
  - The predicted levels approach or exceed the standard
  - When predicted traffic noise levels substantially exceed the existing noise level, even though the predicted levels may not exceed the standard.
  - "Approach" shall mean at least 1dBA less than the standard (or 66 dBA for residential land use)
  - "Substantially exceed the existing noise levels" shall mean an increase of at least 15 dBA above existing noise levels.

2010 Noise Study Update

Year 2008 and year 2035 P.M. peak hour noise levels were analyzed

Impacted = noise level at or above 66 dBA

North area – 27 receptors analyzed

Year 2008 – 20 above 66 dBA

Year 2035 – 25 above 66 dBA

Southwest area – 106 receptors analyzed

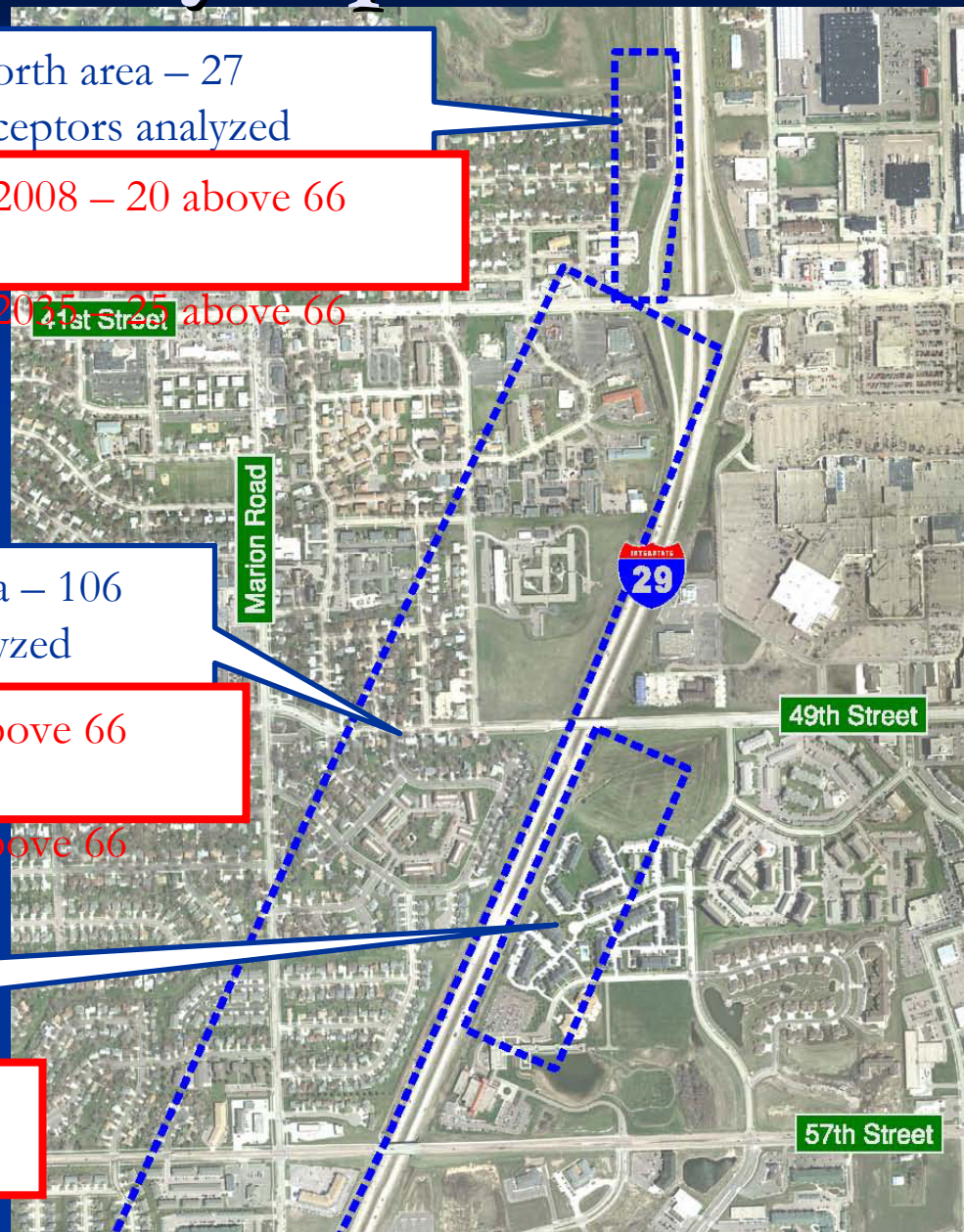
Year 2008 – 44 above 66 dBA

Year 2035 – 65 above 66 dBA

Southeast area – 60 receptors analyzed

Year 2008 – 41 above 66 dBA

Year 2035 – 60 above 66



I-29 Reconstruction Project

Year 2035 traffic volumes are predicted to be more than double the existing volumes with or without the auxiliary lanes

I-29 looking north from 57th Street overpass

Interpretation of SDDOT Policy for this project

- In many locations the existing and future noise levels approach or exceed the SDDOT standard of 67 dBA, therefore noise abatement (mitigation) measures must be considered.

Consideration of Abatement

- Abatement measures must be feasible and reasonable.
  - Feasible – topographically possible, minimal safety or maintenance issues
  - Reasonable – 7 dBA noise reduction, abatement shall not exceed $15,000 / benefitted residence
  - Public hearings shall be held to determine public opinion.

Abatement Options

Options Considered to be Impractical

- Modify horizontal and/or vertical alignments of the roadway (Too expensive)
- Traffic management measures (speed limits, restrict truck traffic) (Not viable)
- Acquisition of property rights for construction of noise barriers (Too expensive)
- Acquisition of property to serve as buffer zone (Too expensive)
- Noise insulation of public use or nonprofit institutional structures (All structures are privately owned)

Abatement Options (continued)

Options considered for further review

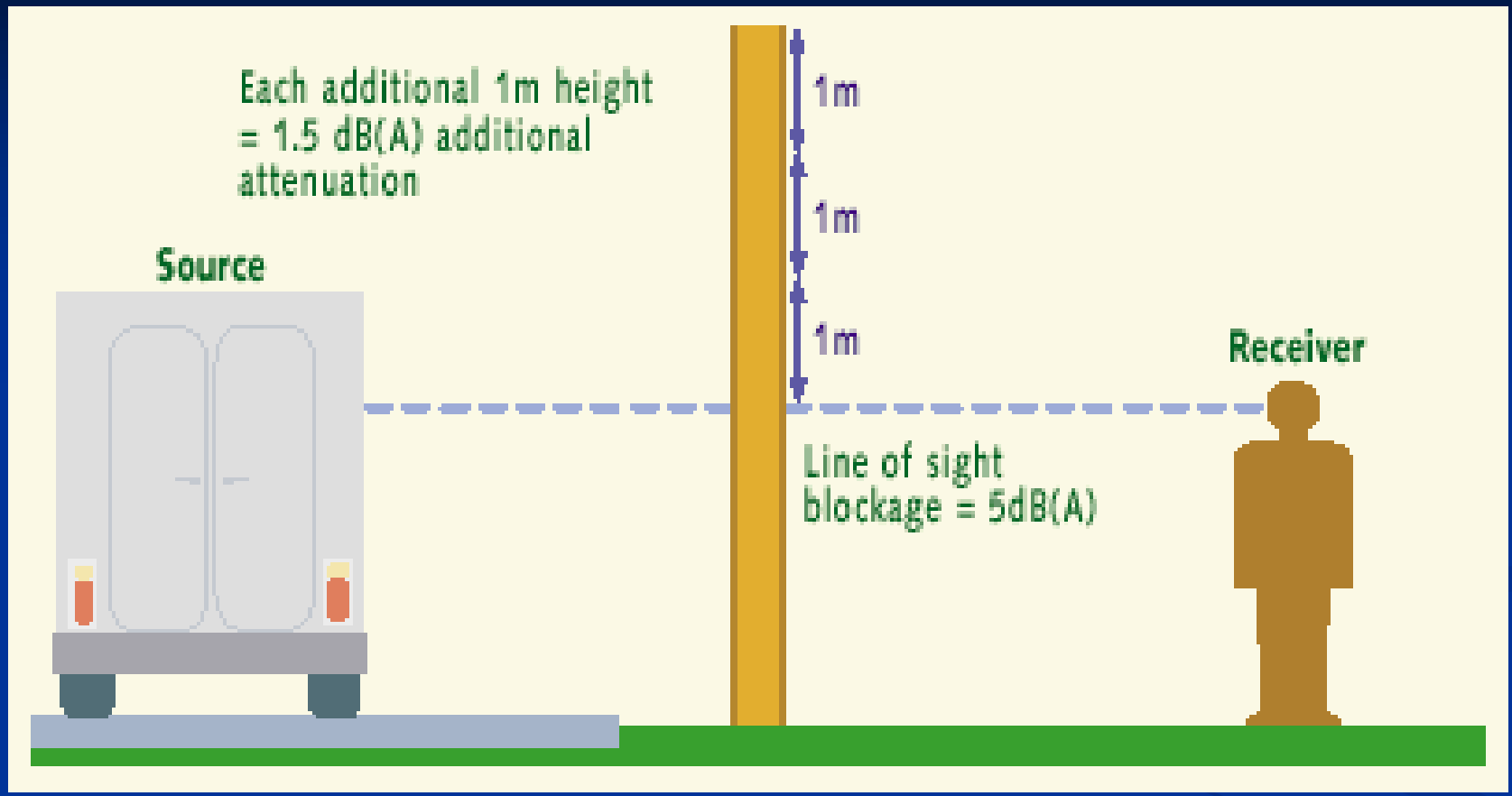
- Vegetation
- Construction of noise barrier along or within ROW
- Roadway surface type

Abatement – Vegetation

Approximately 100’ of dense vegetation would be needed for a 3 dBA reduction

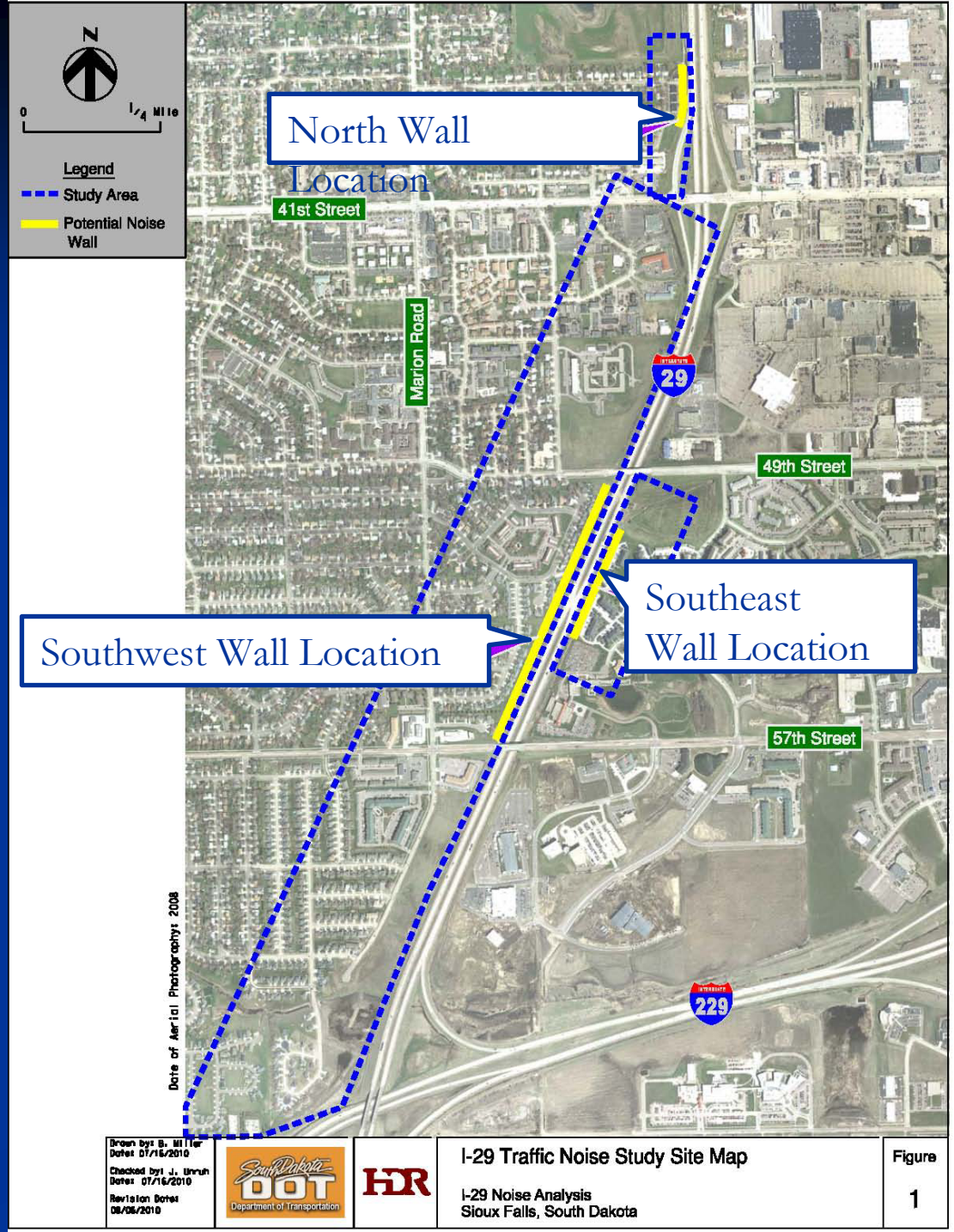
- Feasible
  - Not topographically possible; it might present safety or maintenance issues (snow, animal hits, etc.)
- Reasonableness
  - A 7 dBA reduction is not possible; cost to purchase additional property to provide for dense vegetation would be above $15,000 per number benefited. (Additional 100’ – 300’ of Right of Way would be needed)

Abatement -Noise Walls



Wall must block line of sight between noise source and receiver

Potential Noise Wall Locations



Southwest Noise Wall

2010 Noise Study Update

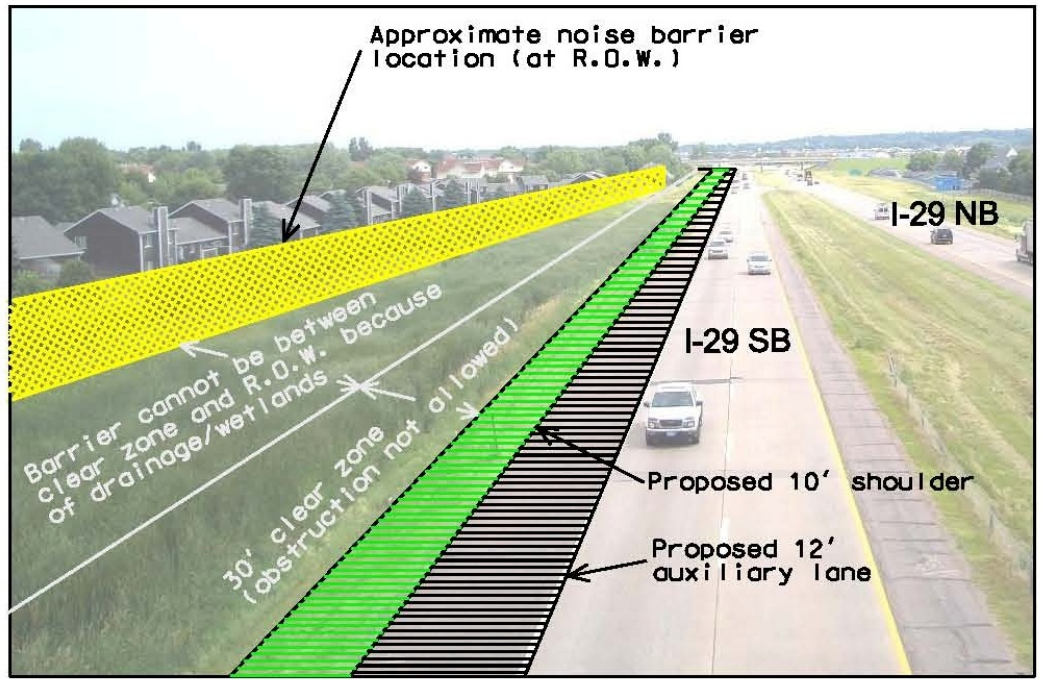
- Wall length = 2,701 ft
- Average height = 11 ft
- Wall cost = $888,540 (@ $30 per square foot)
- Benefitted receptors = 69 (at least 5 dBA reduction)
- Cost reasonability = $12,877 per benefitted receptor

Southwest Noise Wall

4801 St. James Dr.

- 2005 peak hour measured noise level = 72 dBA
- 2008 peak hour calculated noise level = 70 dBA
- 2035 peak hour calculated noise level (w/o wall) = 73 dBA
- 2035 peak hour calculated noise level (w/ wall)= 64 dBA
- Wall provides 9 dBA reduction

Southwest Noise Wall Location Considerations



Looking North from 57th Street

Southeast Noise Wall

2010 Noise Study Update

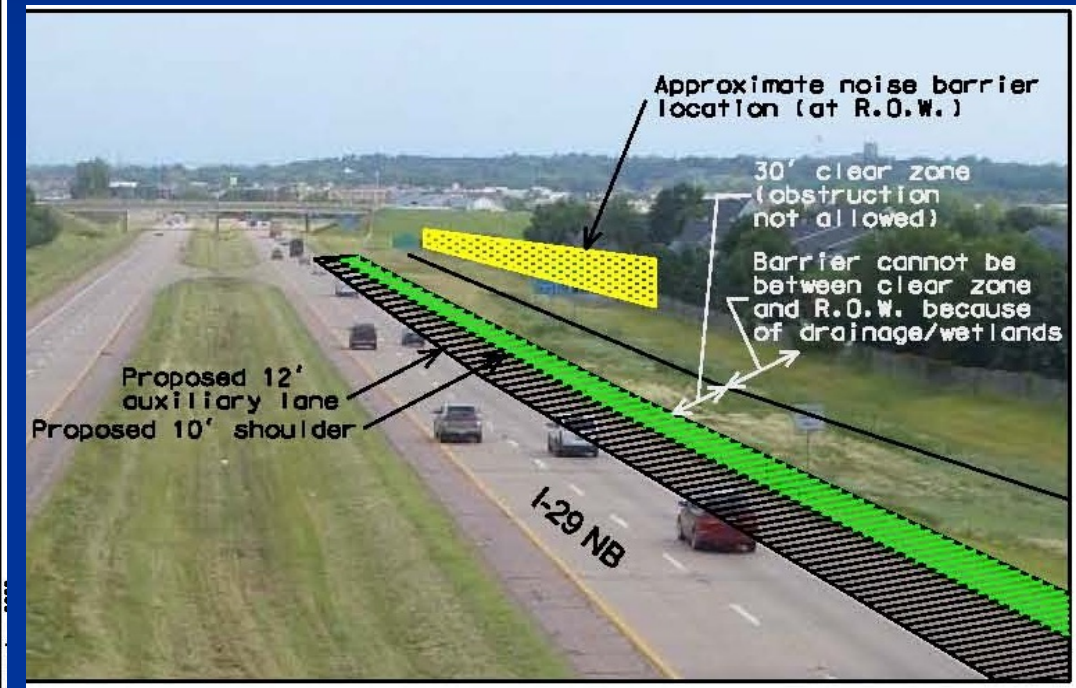
- Wall length = 1,074 ft
- Average height = 14 ft
- Wall cost = $447,000 (@ $30 per square foot)
- Benefitted receptors = 59
- Cost reasonability = $7,576 per benefitted

Southeast Noise Wall

Apartment next to I-29

- 2005 peak hour measured noise level = 67 dBA
- 2008 peak hour calculated noise level = 67 dBA
- 2035 peak hour calculated noise level (w/o wall) = 72 dBA
- 2035 peak hour calculated noise level (w/ wall)= 61 dBA
- Wall provides 11 dBA reduction

Southeast Noise Wall Location Considerations



Looking North from 57th Street

North Noise Wall

2010 Noise Study Update

- Wall length = 606 ft
- Average height = 16.6 ft
- Wall cost = $301,980 (@ $30 per square foot)
- Benefitted receptors = 22
- Cost reasonability = $13,726 per benefitted receptor

North Noise Wall

Apartment next to I-29

- 2005 peak hour measured noise level = 70 dBA
- 2008 peak hour calculated noise level = 71 dBA
- 2035 peak hour calculated noise level (w/o wall) = 75 dBA
- 2035 peak hour calculated noise level (w/ wall)= 65 dBA
- Wall provides 10 dBA reduction

North Noise Wall Location Considerations

North Noise Wall Location Considerations

Looking North from 41st Street Bridge

Feasibility and Reasonableness of Constructing Noise Walls

- Noise walls are a feasible option
  - Topographically possible, minimal safety or maintenance issues
- Noise walls are a reasonable option
  - There would be a 7 dBA reduction at most impacted receptors and the construction cost is below $15,000 per benefitted receptor.

Noise Walls Types

Original I-35W in Minneapolis, MN

Wood panel wall not desirable:

- Aesthetics
- Maintenance
- Wood shrinkage/gaps

Noise Walls Types

I-35W in Minneapolis
Constructed in 2009
Cost not available

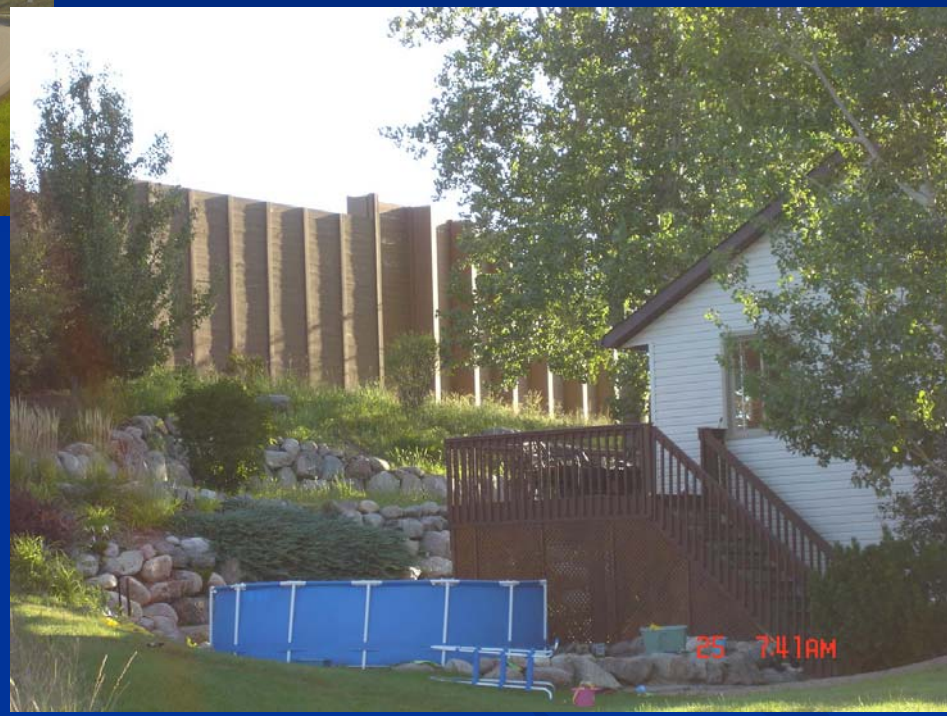
I-94 in Fargo, ND
Constructed in 2003
Cost approx. $30/sq. ft.

Noise Walls Types

TH 52 in
Rochester, MN
Constructed in 2003
Cost not available

I-94 in Moorhead, MN
Cost not available

Noise Walls Types



TH 212 in Chanhassen, MN
Constructed in 2007
Cost not available

Noise Walls Types

6’ high noise fence screens at 57th Street in Sioux Falls – Constructed in 2008

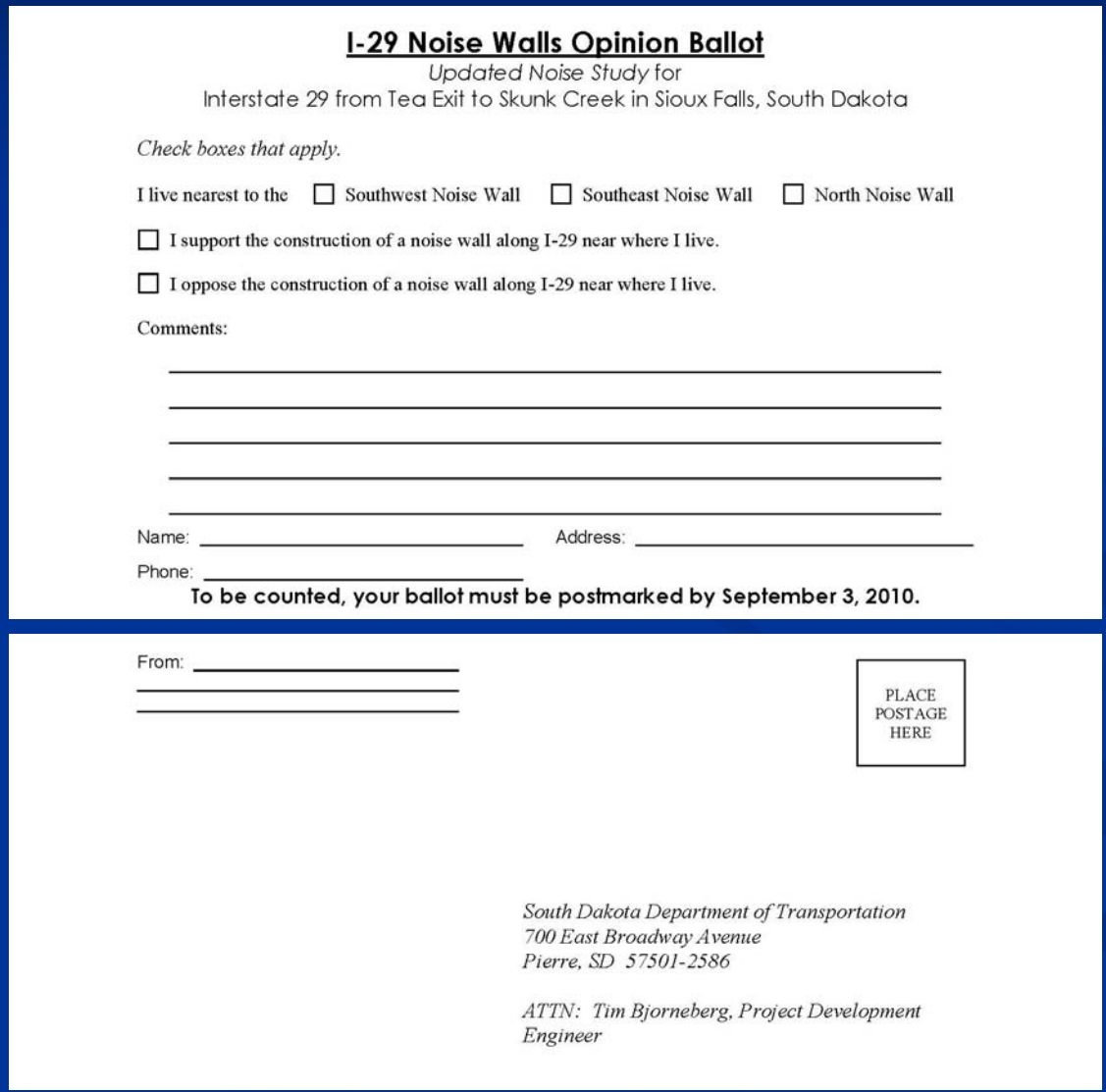
Noise Walls Types

Precast concrete wall with form-liner face; cost approx. $35/sq. ft.

High-density vinyl surface wall; cost approx. $30/sq. ft.

Noise Walls – Next Steps

- Return opinion ballot tonight or by September 3



I-29 Noise Walls Opinion Ballot

Updated Noise Study for
Interstate 29 from Tea Exit to Skunk Creek in Sioux Falls, South Dakota

Check boxes that apply.

I live nearest to the ☐ Southwest Noise Wall ☐ Southeast Noise Wall ☐ North Noise Wall

☐ I support the construction of a noise wall along I-29 near where I live.

☐ I oppose the construction of a noise wall along I-29 near where I live.

Comments:

_____

_____

_____

_____

_____

Name: _____ Address: _____

Phone: _____

To be counted, your ballot must be postmarked by September 3, 2010.

From: _____

_____

_____

PLACE POSTAGE HERE

South Dakota Department of Transportation
700 East Broadway Avenue
Pierre, SD 57501-2586

ATTN: Tim Bjorneberg, Project Development Engineer

Noise Walls – Next Steps

- If SDDOT decides to construct walls:
  - Wall options will be analyzed by:
    - SDDOT
    - City of Sioux Falls
    - Metropolitan Planning Organization (MPO)
    - Citizen Advisory Committee (?)
  - Walls will be constructed within the same timeframe as the I-29 roadway project.

Abatement – Surface Type

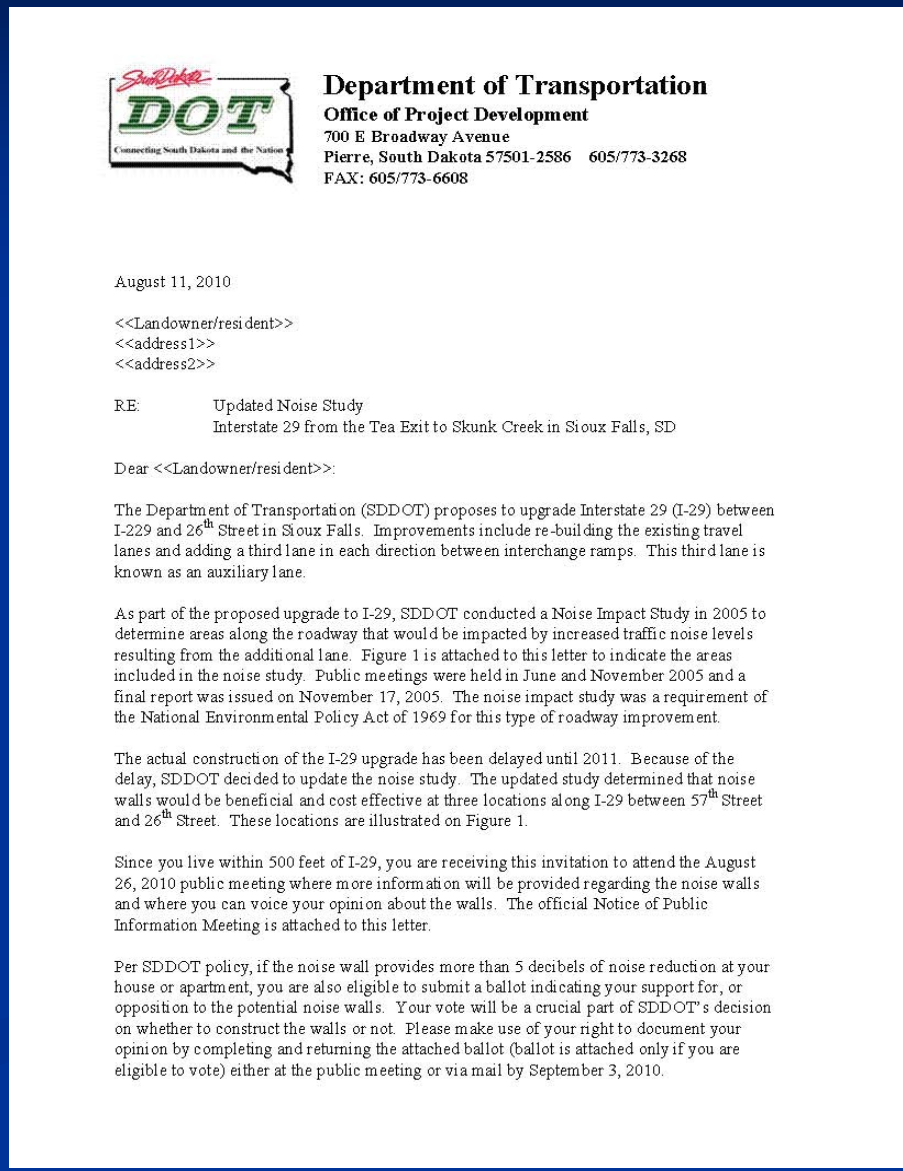
- If noise is taken into consideration when designing the surface of the new roadway the noise levels can be reduced by 4 or more dBA
  - Asphalt
    - Results in a smoother pavement and therefore a quieter ride
  - Concrete (most of the new lanes will be concrete)
    - Can be tined differently in order to maintain vehicle control and produce a quieter surface
    - Size and location of joints may be modified

SDDOT Recommendation

- Construct noise walls if 75% of benefitted residents (that submit ballot) are in favor.
- Reconstruct segment and utilize noise conscious surfacing design to reduce noise by up to 4 dBA.

Final Comments

- Total letters sent: 265
- Letters sent to homeowners: 55
- Letters delivered to property owners for distribution to tenants: 210
- Total ballots included with letters: 216



Department of Transportation
Office of Project Development
700 E Broadway Avenue
Pierre, South Dakota 57501-2586 605/773-3268
FAX: 605/773-6608

August 11, 2010

<<Landowner/resident>>
<<address1>>
<<address2>>

RE: Updated Noise Study
Interstate 29 from the Tea Exit to Skunk Creek in Sioux Falls, SD

Dear <<Landowner/resident>>:

The Department of Transportation (SDDOT) proposes to upgrade Interstate 29 (I-29) between I-229 and 26th Street in Sioux Falls. Improvements include re-building the existing travel lanes and adding a third lane in each direction between interchange ramps. This third lane is known as an auxiliary lane.

As part of the proposed upgrade to I-29, SDDOT conducted a Noise Impact Study in 2005 to determine areas along the roadway that would be impacted by increased traffic noise levels resulting from the additional lane. Figure 1 is attached to this letter to indicate the areas included in the noise study. Public meetings were held in June and November 2005 and a final report was issued on November 17, 2005. The noise impact study was a requirement of the National Environmental Policy Act of 1969 for this type of roadway improvement.

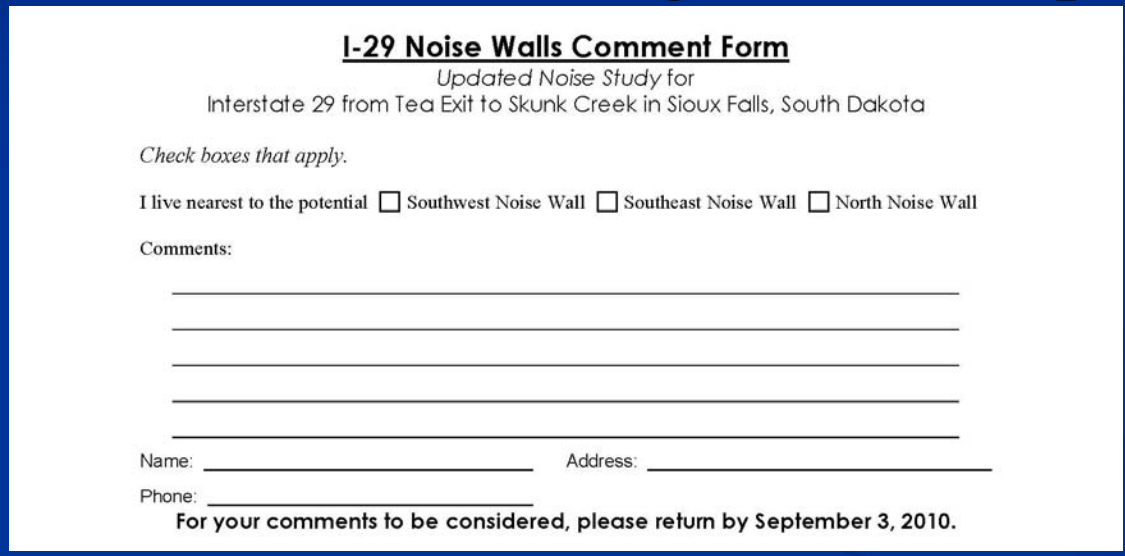
The actual construction of the I-29 upgrade has been delayed until 2011. Because of the delay, SDDOT decided to update the noise study. The updated study determined that noise walls would be beneficial and cost effective at three locations along I-29 between 57th Street and 26th Street. These locations are illustrated on Figure 1.

Since you live within 500 feet of I-29, you are receiving this invitation to attend the August 26, 2010 public meeting where more information will be provided regarding the noise walls and where you can voice your opinion about the walls. The official Notice of Public Information Meeting is attached to this letter.

Per SDDOT policy, if the noise wall provides more than 5 decibels of noise reduction at your house or apartment, you are also eligible to submit a ballot indicating your support for, or opposition to the potential noise walls. Your vote will be a crucial part of SDDOT's decision on whether to construct the walls or not. Please make use of your right to document your opinion by completing and returning the attached ballot (ballot is attached only if you are eligible to vote) either at the public meeting or via mail by September 3, 2010.

Final Comments

- Return opinion ballot tonight or by September 3
- Return comment form tonight or by September 3



I-29 Noise Walls Comment Form

Updated Noise Study for
Interstate 29 from Tea Exit to Skunk Creek in Sioux Falls, South Dakota

Check boxes that apply.

I live nearest to the potential ☐ Southwest Noise Wall ☐ Southeast Noise Wall ☐ North Noise Wall

Comments:

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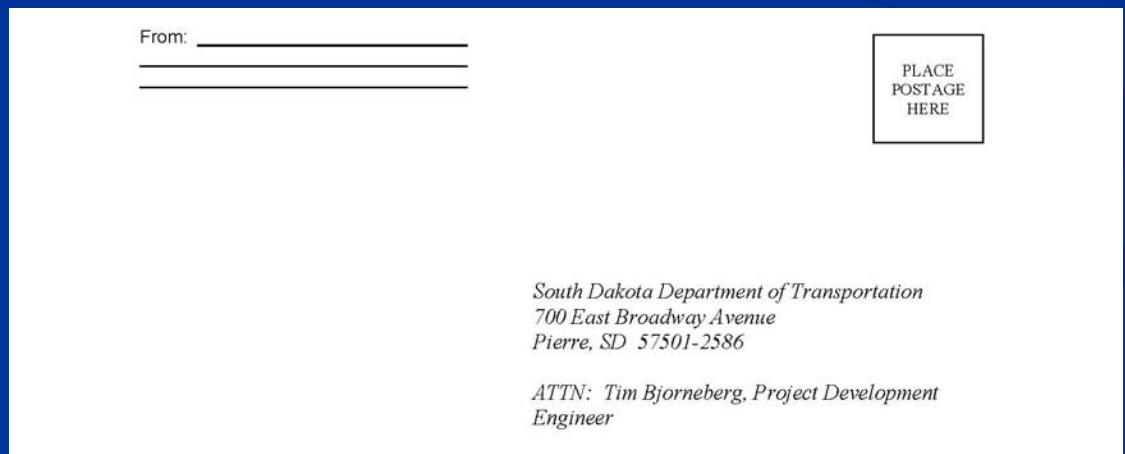
Name: _____ Address: _____

Phone: _____

For your comments to be considered, please return by September 3, 2010.



From: _____

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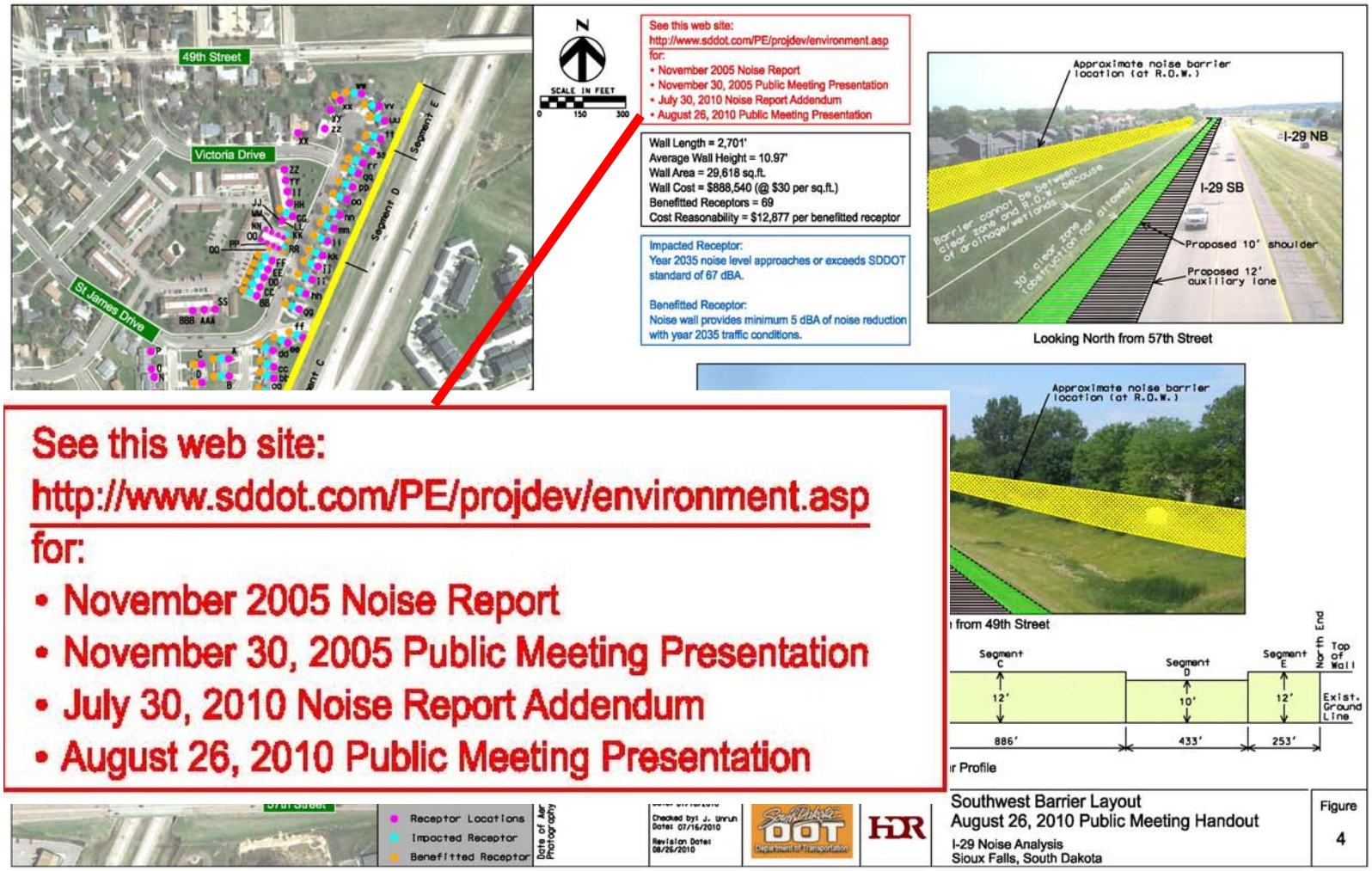
South Dakota Department of Transportation
700 East Broadway Avenue
Pierre, SD 57501-2586

ATTN: Tim Bjorneberg, Project Development Engineer

Final Comments

- Take copy of handout



See this web site:
http://www.sddot.com/PE/projdev/environment.asp
for:
• November 2005 Noise Report
• November 30, 2005 Public Meeting Presentation
• July 30, 2010 Noise Report Addendum
• August 26, 2010 Public Meeting Presentation

Thank you for your attention!!!
Questions and Comments????