DEERFIELD Road

Milwaukee Avenue to Saunders/Riverwoods Road

Welcome!

Deerfield Road Phase I

Engineering and Environmental Study

Noise Forum

September 19, 2019

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Meeting Agenda

- Presentation (7:00 – 7:45pm)
  - Introductions
  - Project Purpose & Limits
  - Preliminary Preferred Improvement
  - Traffic Noise Study Overview
  - Project Schedule & Next Steps
- Q & A (7:45 – 8:00pm)
- Open House (8:00 – 9:00pm)

Introductions

LCDOT

- Kevin Carrier, Director of Planning and Programming
- Chuck Gleason, Project Manager

Project Consultants

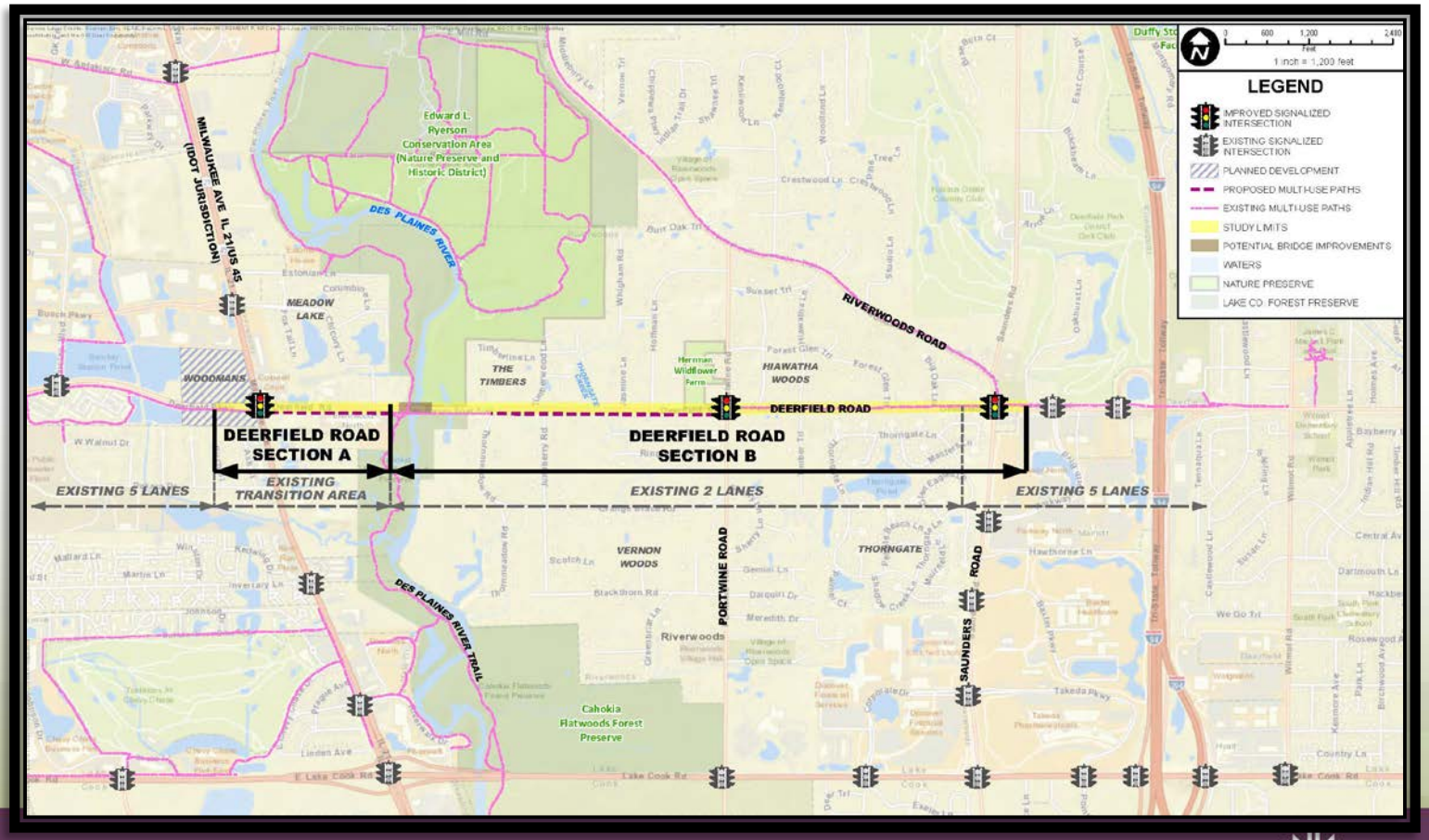
- Matt Huffman (CBBEL)
- Pete Knysz (CBBEL)
- Ryan Duffy (CBBEL)

DEERFIELD Road

MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Project Purpose & Limits

The project purpose it to address capacity, safety, accessibility, and non-motorized connection deficiencies along Deerfield Road between Milwaukee Avenue (US 45/IL 21) and Saunders/Riverwoods Road.



LakeCounty Division of Transportation

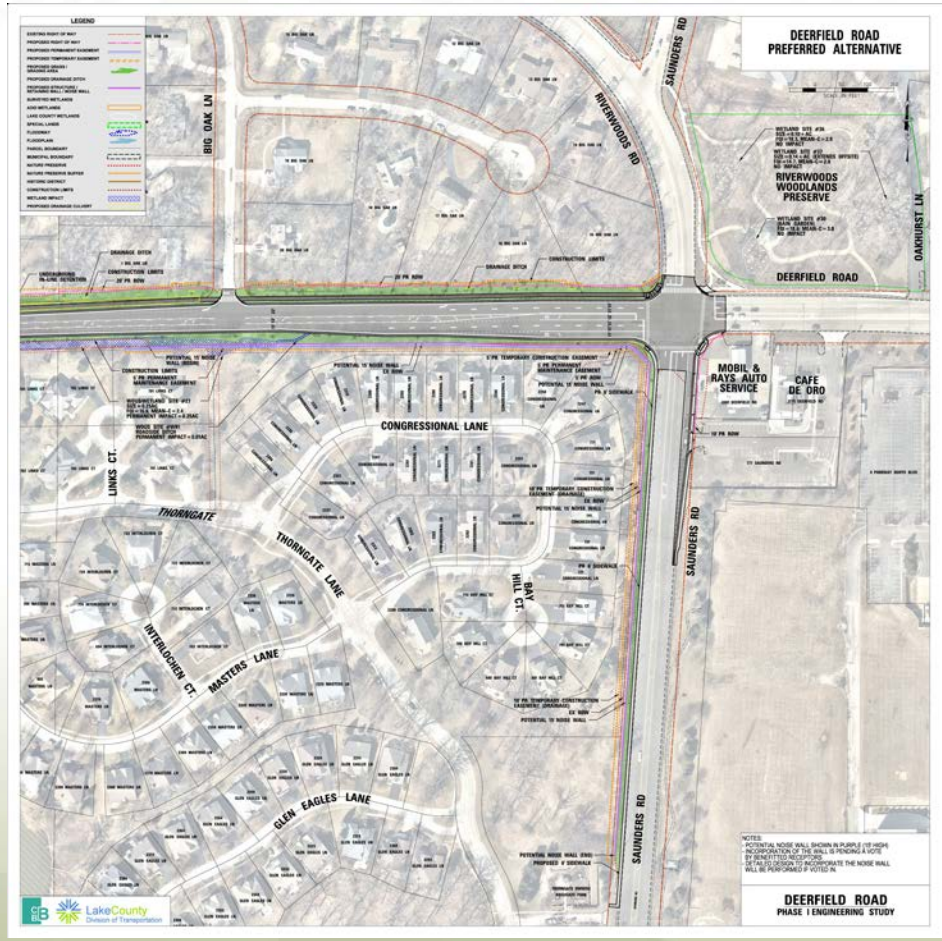
DEERFIELD Road

MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Preliminary Preferred Improvement

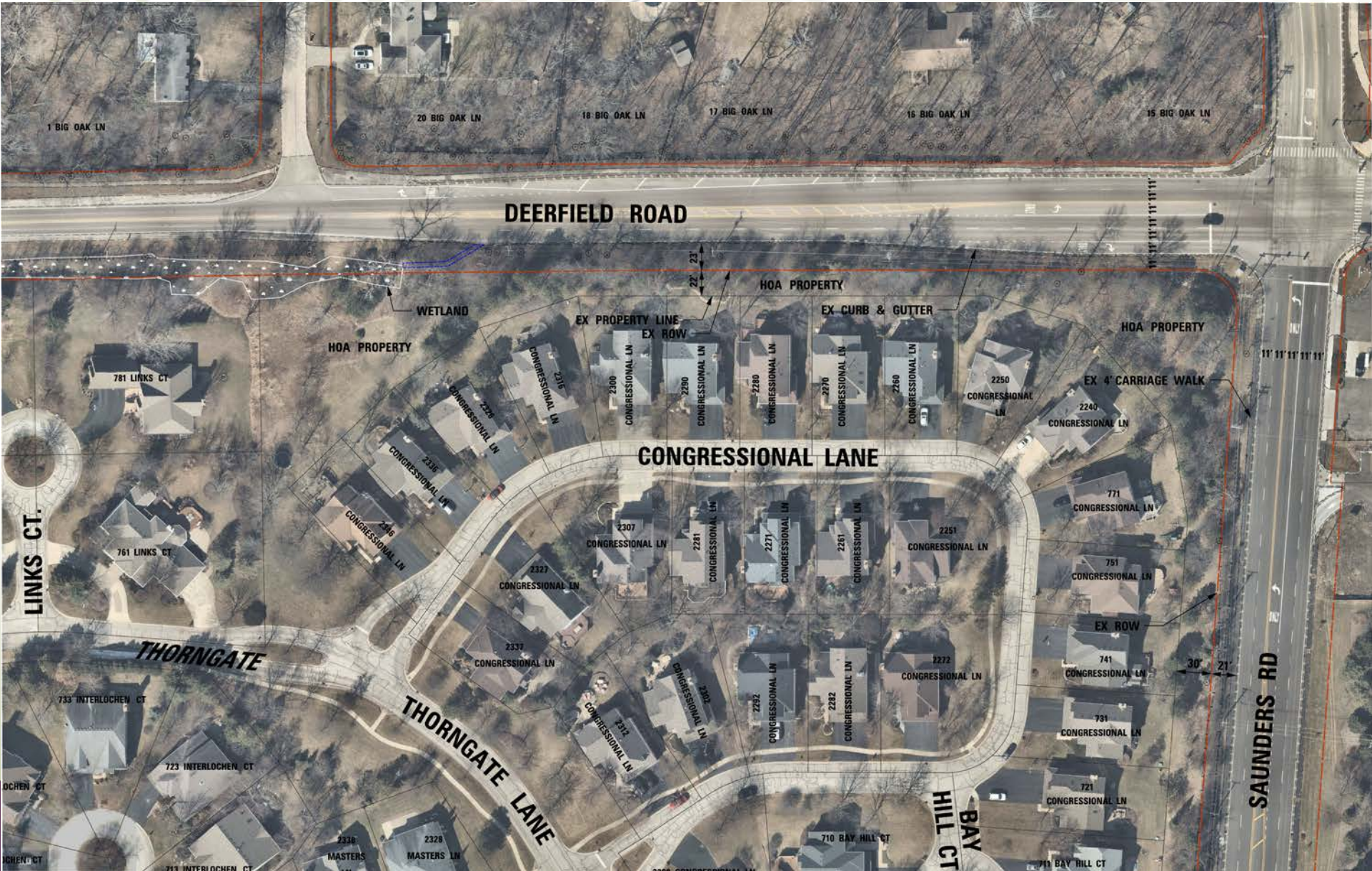
Deerfield Road Near Saunders Road

- Focus On East End of Project near Saunders/Riverwoods & Deerfield Road Intersection
- Deerfield Road Improvements
- Saunders Road Improvements
- Potential Noise Wall



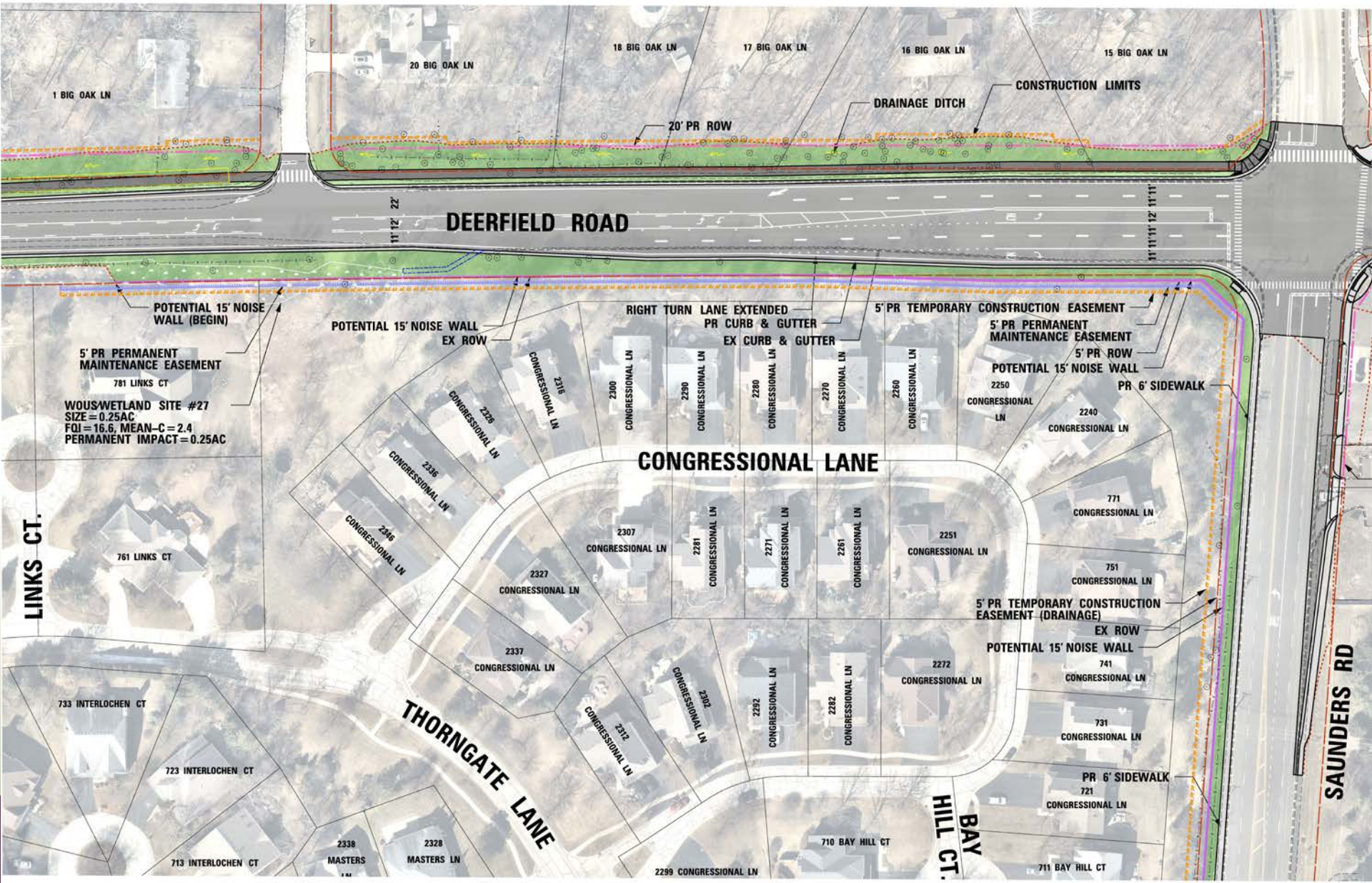
Preliminary Preferred Improvement

Deerfield Road Near Saunders Road – Existing Conditions



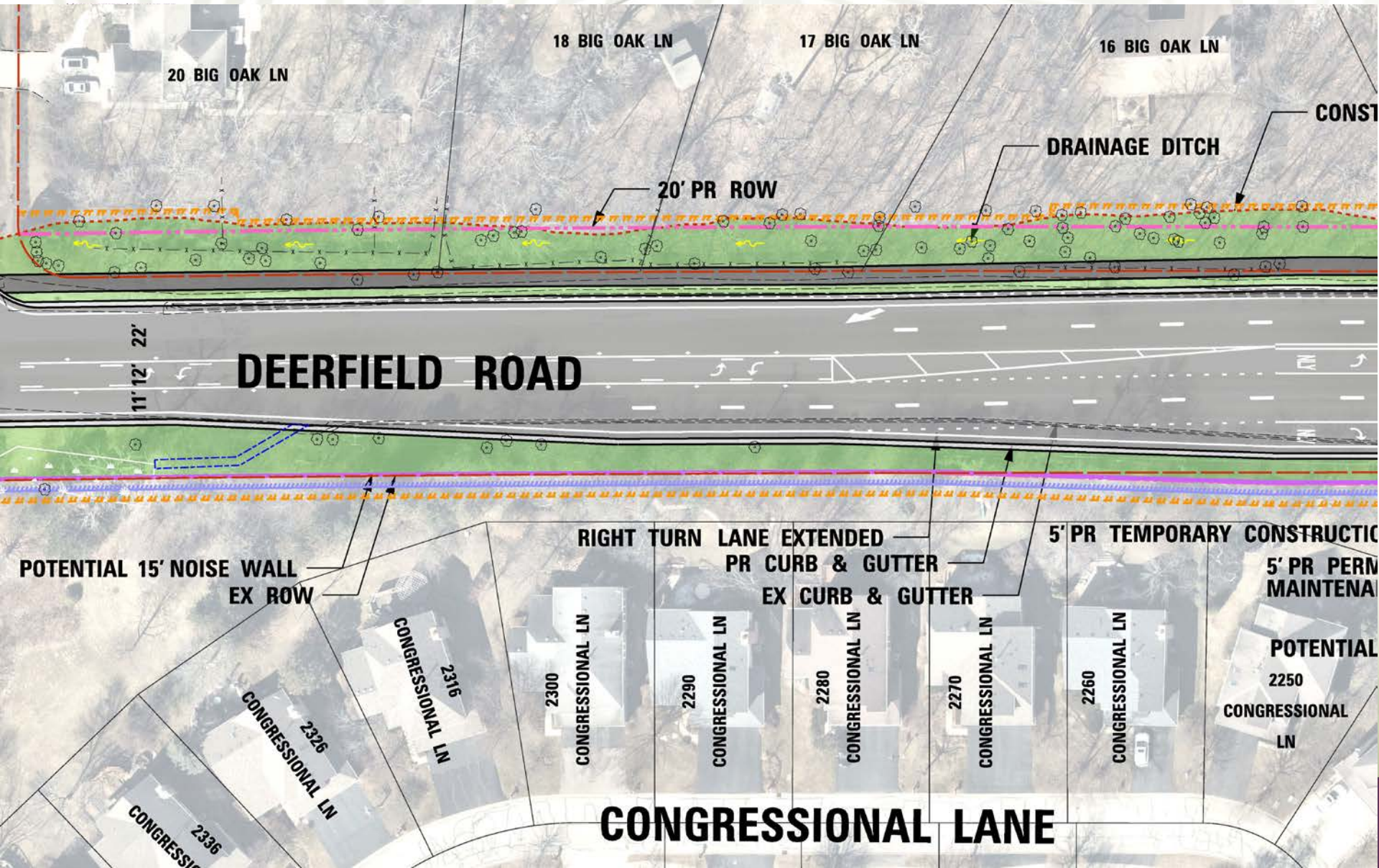
Preliminary Preferred Improvement

Deerfield Road Near Saunders Road – Proposed Improvement



Preliminary Preferred Improvement

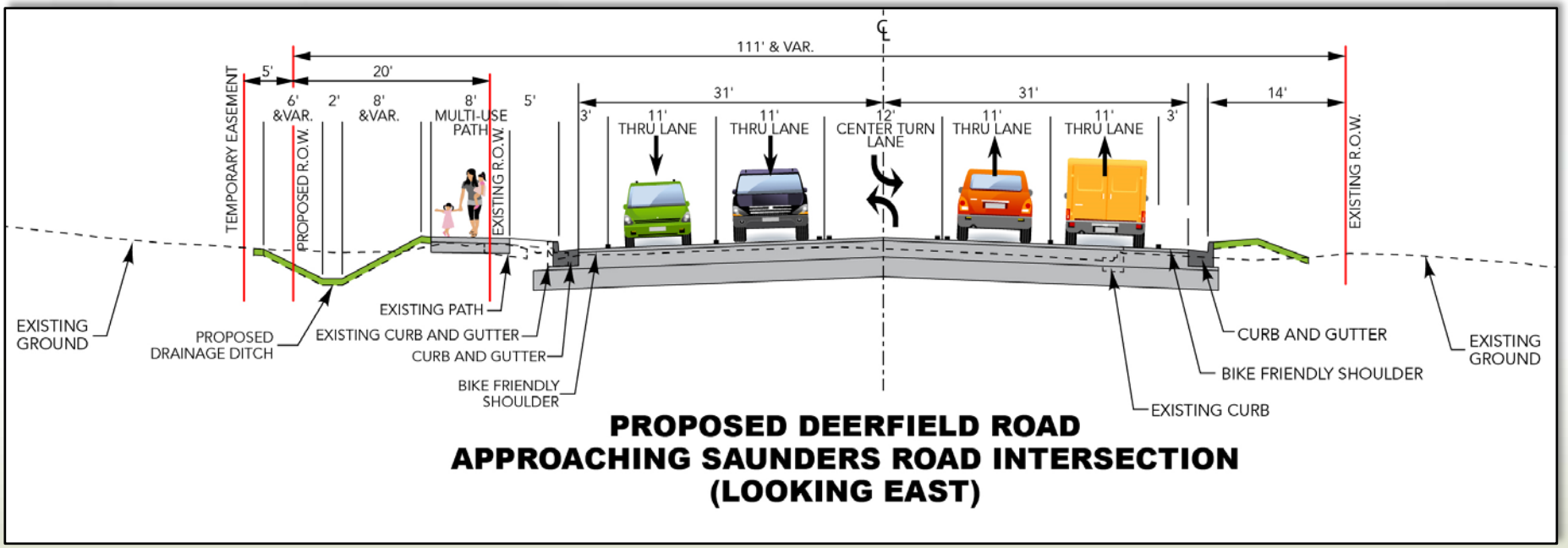
Deerfield Road Near Saunders Road – Proposed Improvement



DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Preliminary Preferred Improvement

Deerfield Road Typical Section



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DEERFIELD Road

MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Preliminary Preferred Improvement

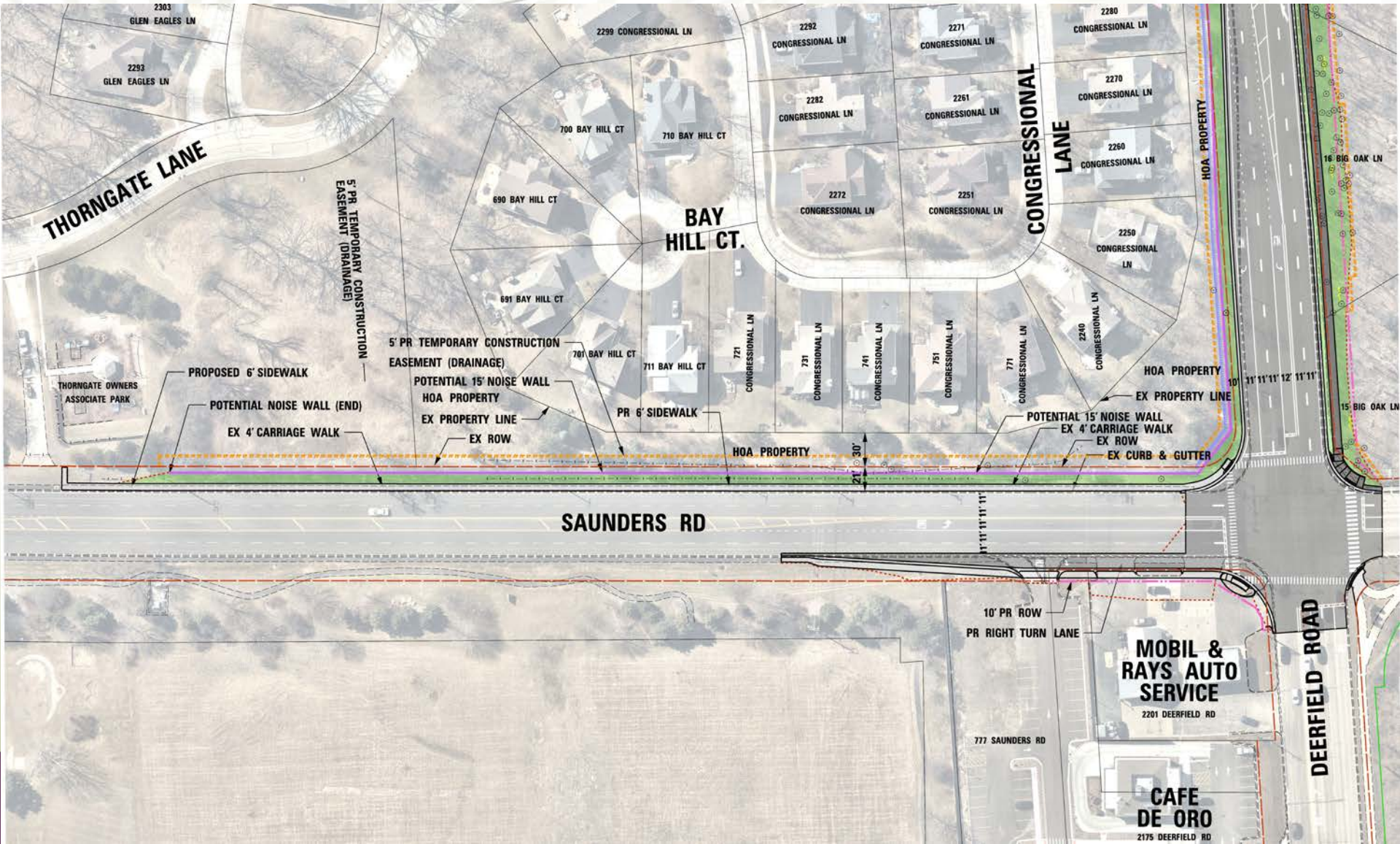
Saunders Road Near Deerfield Road – Existing Conditions

DEERFIELD Road

MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Preliminary Preferred Improvement

Saunders Road Near Deerfield Road – Proposed Improvement



DEERFIELD Road
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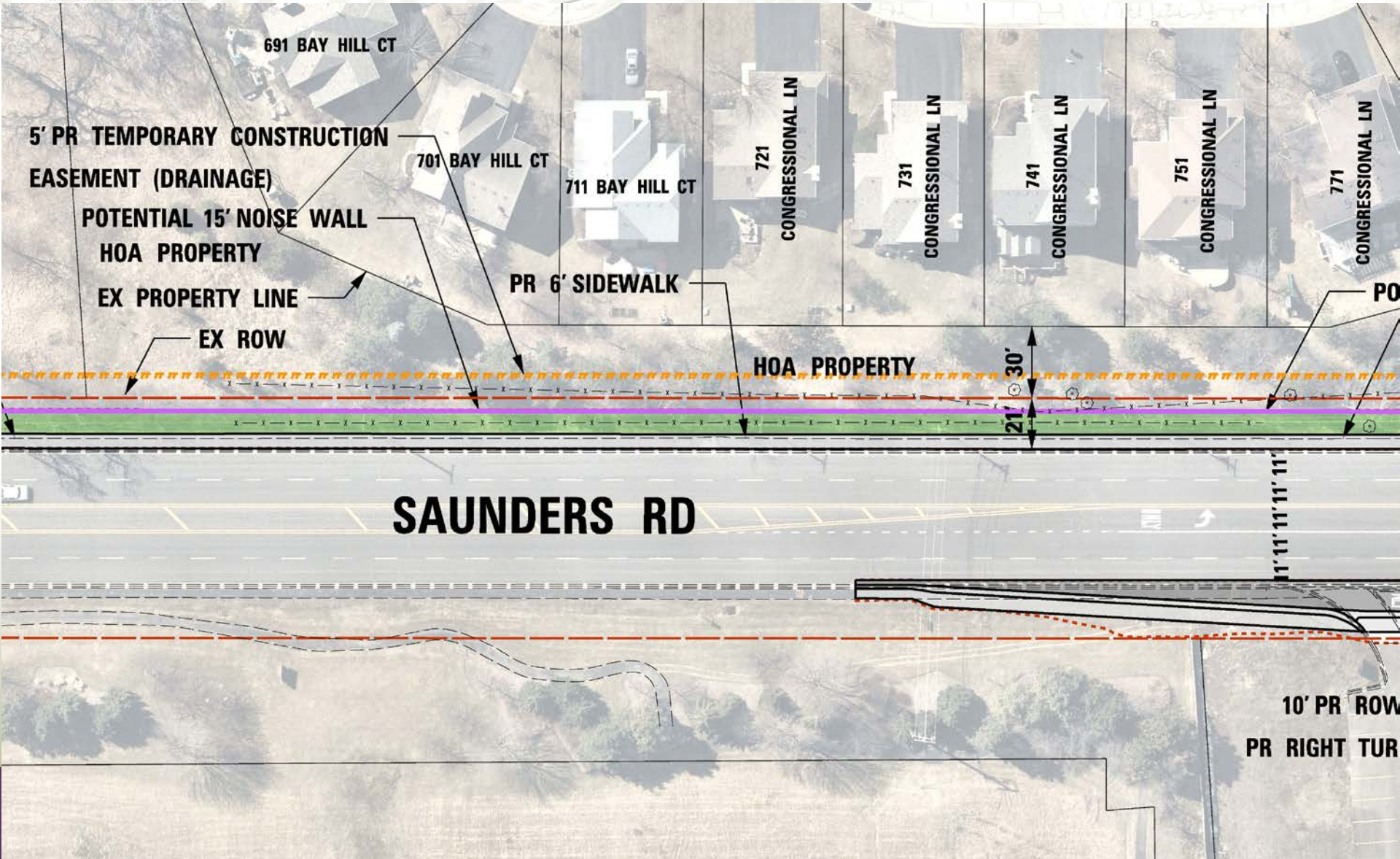
Preliminary Preferred Improvement

Saunders Road Near Deerfield Road – Proposed Improvement



DEERFIELD Road
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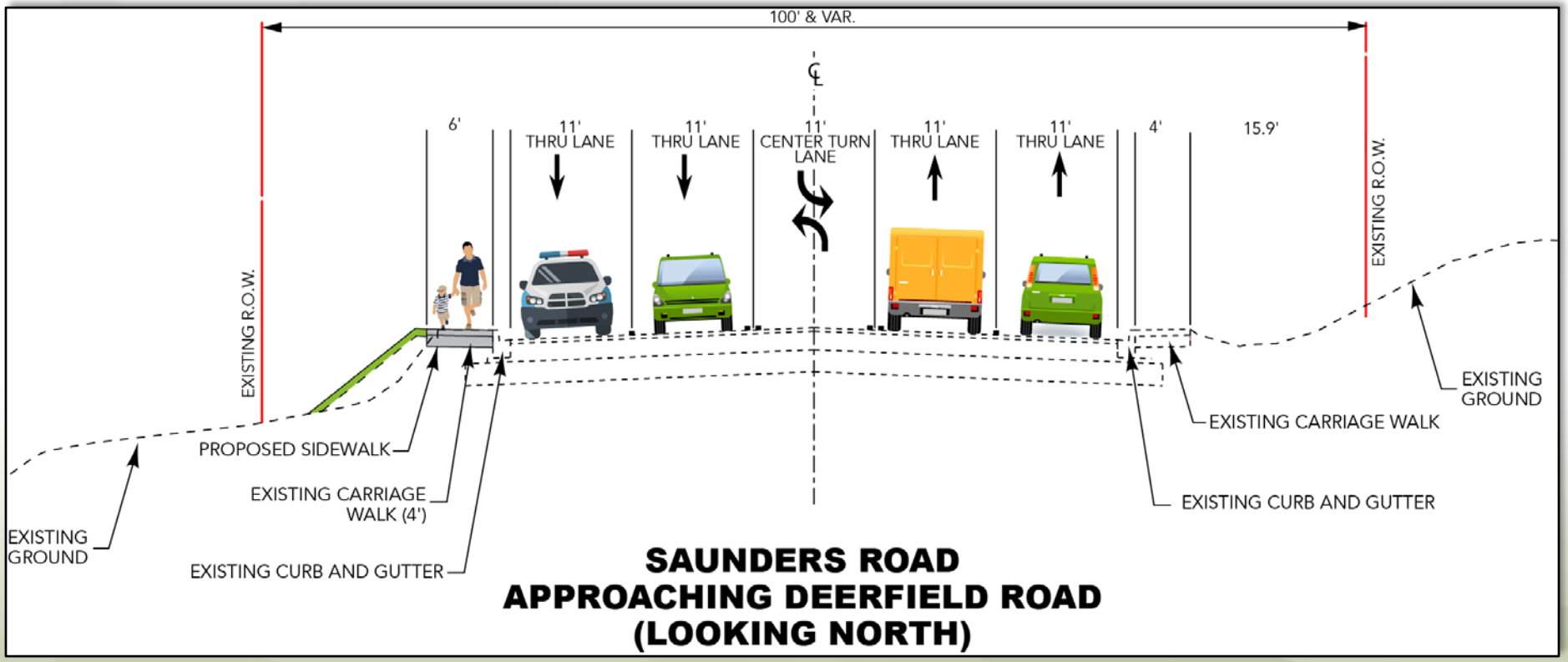
Preliminary Preferred Improvement

Saunders Road Typical Section



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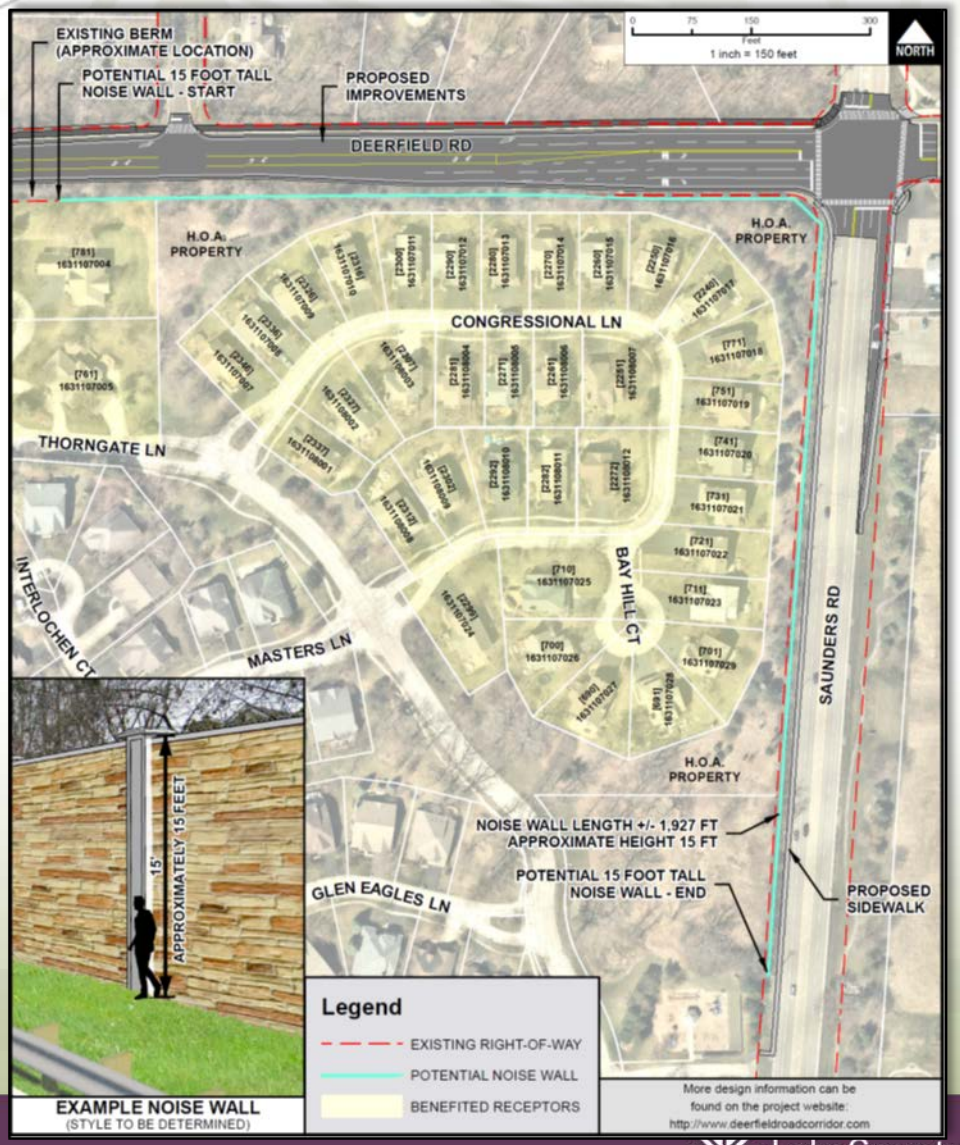
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Meeting Agenda – Traffic Noise Study Overview

- Policy & Procedures
- Results
- Potential Noise Walls
- Viewpoint Solicitation (i.e., Voting)



Traffic Noise Study Overview – Policy & Procedures

Purpose of a Traffic Noise Study

- Comply with IDOT and FHWA policy
- Required if adding a travel lane or a significant alignment or elevation change
- Predict worst hour traffic noise conditions
- Identify and evaluate potential traffic noise impacts for the entire project area
- Evaluate feasibility and reasonableness of potential traffic noise reduction techniques

Traffic Noise Study Overview – Policy & Procedures

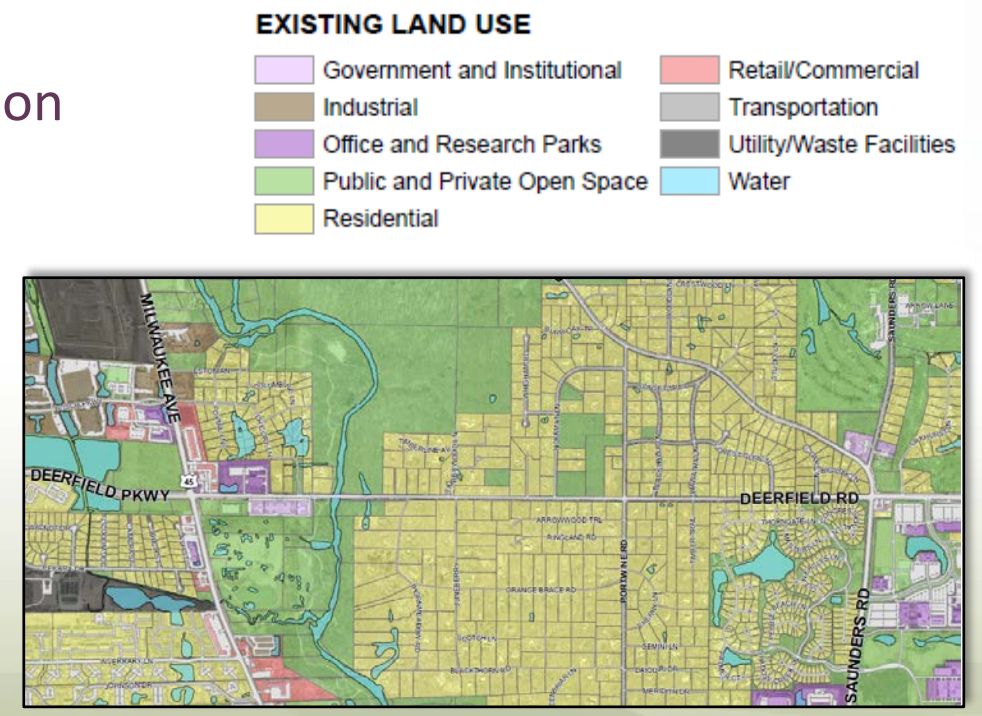
Traffic Noise Studies

- Identify Common Noise Environments (CNEs) and noise receptors
- Conduct noise monitoring and validate existing model
- Perform computer modeling
- Complete traffic noise abatement analysis
- Determine traffic noise abatement feasibility and reasonableness per IDOT and FHWA policy
- Obtain benefited receptor viewpoints

Traffic Noise Study Overview – Policy & Procedures

CNEs/Receptor Locations

- Review land use
- Divide corridor into CNEs based on FHWA Activity Categories
- CNE = Group of receptors with:
  - Similar land use
  - Similar traffic characteristics (e.g., traffic volume, traffic mix)
  - Same basic topography



Traffic Noise Study Overview – Policy & Procedures

FHWA Noise Abatement Criteria (NAC) – Used to identify CNEs and determine impacts

Activity Category	dB(A)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance
B	**67 (Exterior)**	**Residential ***
C	67 (Exterior)	Cemeteries, day care centers, hospitals, libraries, medical facilities, parks/recreation areas, picnic areas, places of worship, schools
D	52 (Interior)	Day care centers, hospitals, libraries, medical facilities, places of worship, schools (only when no exterior activities) – **not for residential**
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands not included in Categories A-D or F
F	---	Agriculture, industrial, maintenance facilities, manufacturing, retail facilities, warehousing
G	---	Undeveloped lands that are not permitted

* Noise abatement is considered when the noise level, at a given receptor, approaches [within 1 dB(A)], meets, or exceeds the NAC in the Build Condition

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Traffic Noise Study Overview – Policy & Procedures

FHWA Noise Abatement Criteria is 67 dB(A) for Residential Area

Similar to Conversational Speech at 3 feet

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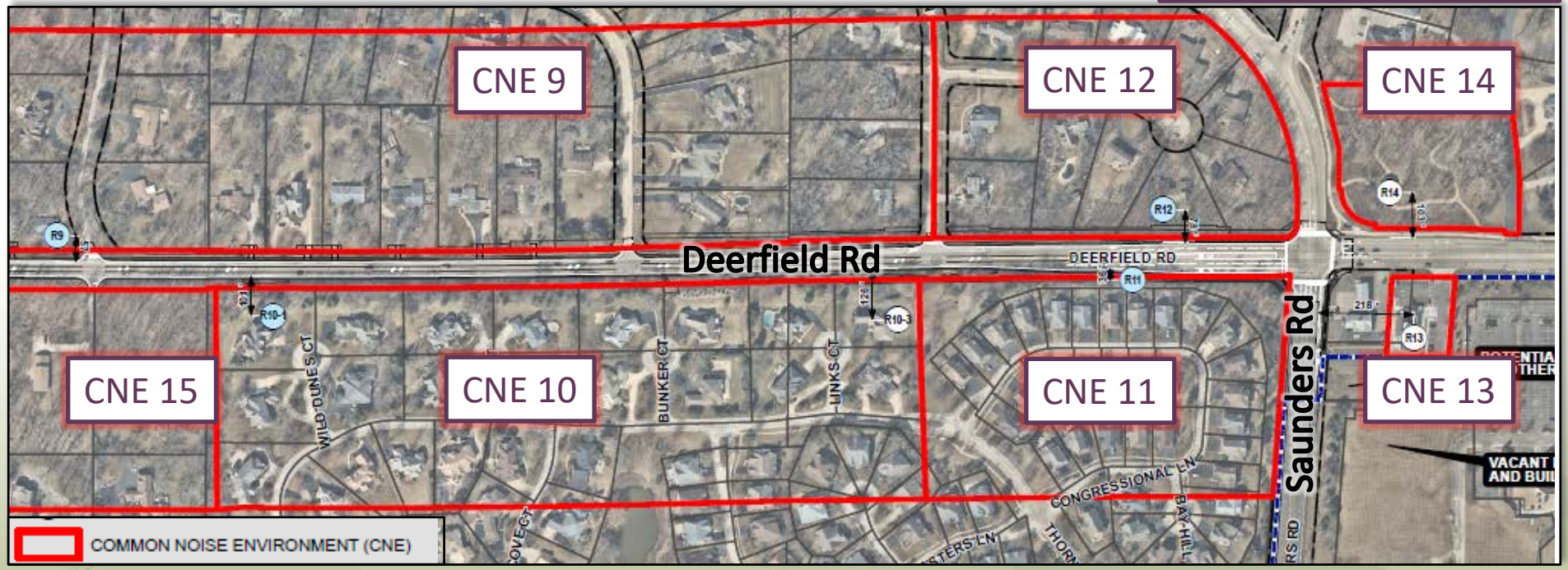
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Policy & Procedures

CNEs/Receptor Locations

- 15 CNEs were identified along the Project Corridor

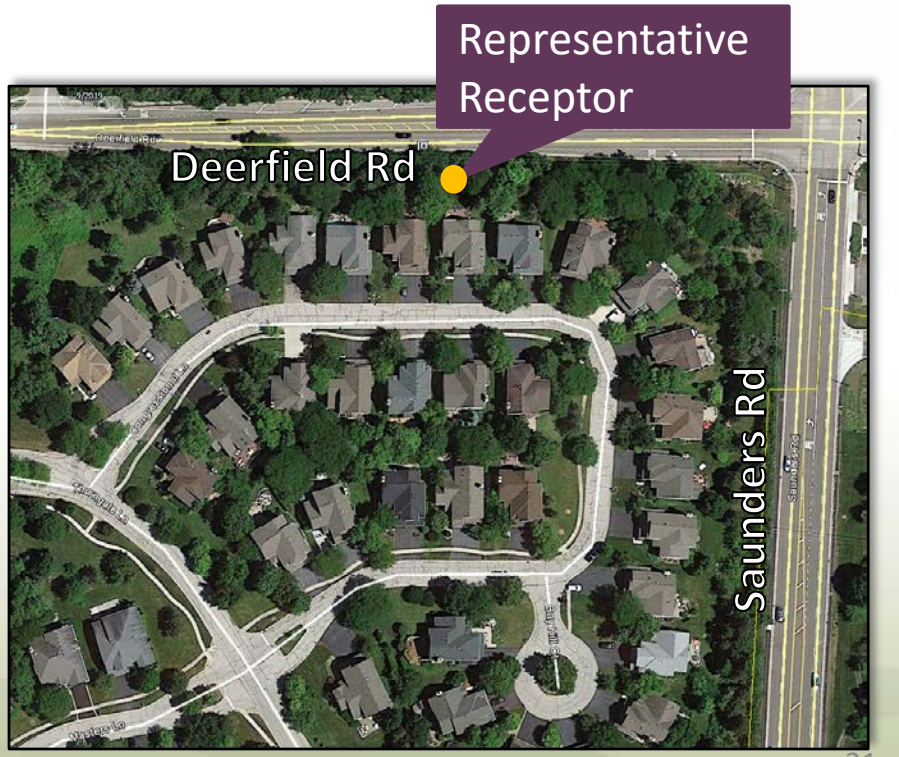
Portions of 7 CNEs are shown below



Traffic Noise Study Overview – Policy & Procedures

Common Noise Environment Receptor Location #11

- One representative receptor per CNE
- Typically – Exterior location of frequent human use
- Represents the worst case noise condition for the CNE
- This receptor is studied to determine if there is an impact



Traffic Noise Study Overview – Policy & Procedures

Noise Monitoring

- Used to validate Existing Condition Traffic Noise Model
- At 25-50% of Representative Receptors
- Measure existing sound levels for 8-15 minutes
- Record weather data
- Collect traffic data (e.g., traffic counts and approx. speed)

Noise monitoring does not define impacts

Traffic Noise Study Overview – Policy & Procedures

Traffic Noise Model

- Input
  - Traffic volumes, speed, and composition
  - Roadway alignment (horizontal and vertical)
  - Receptor location and elevation
  - Terrain lines
  - Traffic control devices (e.g., traffic signals)
- Scenarios Modeled
  - Existing Condition
  - Year 2050 Traffic with No Improvement (No-Build Condition)
  - Year 2050 Traffic with Improvement (Build Condition)

DEERFIELD Road
Milwaukee Avenue to Saunders/Riverwoods Road

Traffic Noise Study Overview – Results

- Impact = NAC is
  - Approached (within 1 dB(A))
  - Met
  - Exceeded
  - B = Residential; Impact = 66 dB(A)
- Impact pertains to Build Condition
- 3 CNEs impacted under Build Condition (★)
- R11 "approached" NAC under Existing Condition

CNE/ Receptor #	Activity Category/ NAC	Noise Level at the Representative Receptor dB(A)		
		Existing	No-Build (Year 2050)	Build (Year 2050)
R1	E/72	62	63	63
R2	B/67	57	58	58
R3	E/72	62	63	63
R4	E/72	65	66	69
R5	C/67	61	63	64
R6	B/67	59	61	63
R7	B/67	65	66	67 ★
R8	B/67	64	66	66 ★
R9	B/67	63	64	65
R10-3	B/67	58	59	60
R11	**B/67**	**66**	**68**	**69** ★
R12	B/67	62	64	65
R13	E/72	60	60	62
R14	C/67	62	62	64
R15	B/67	59	60	61

No Wall

Thorngate Subdivision

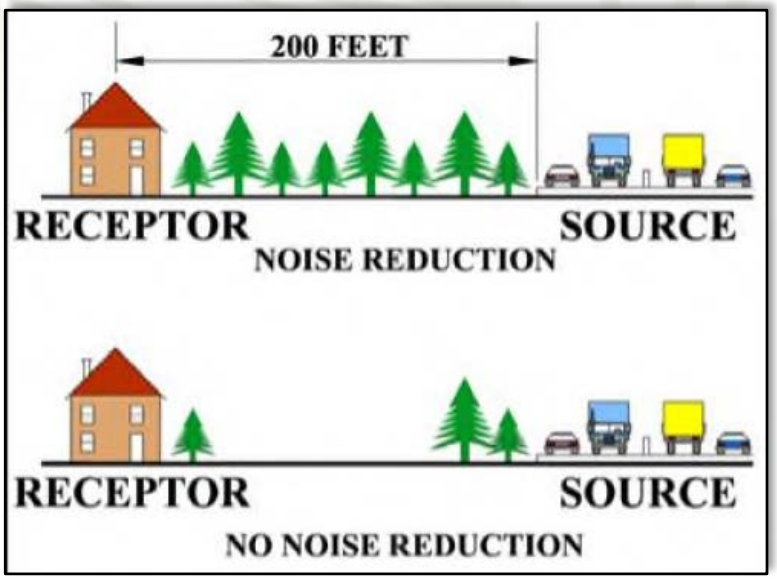
Traffic Noise Study Overview – Results

How much of a Change?

Change in Noise Level	Perception of Change
±3 dB(A)	**Barely Perceivable Change**
±5 dB(A)	Readily Perceivable Change
±10 dB(A)	Doubling/Halving Noise Loudness

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall



- Earth Berms
  - Earth berms require a large footprint
  - 15 ft high = ~90 ft footprint (3H:1V slope)
  - Not feasible due to property impact
- Landscaping (Vegetation)
  - Not recognized by FHWA as noise abatement
  - Generally, 100-200 feet wide; 16-18 feet tall; and dense understory
- Noise Walls
  - Most effective when close to the road or homes
  - Loses effectiveness with breaks for driveways/side roads
  - Much smaller footprint (~1 ft wide) than an earth berm

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MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

Abatement is considered for residential receptors with traffic noise levels ≥66 dB(A) in the Build Condition

- Feasible
  - Noise barrier can be built, and
  - Achieve at least 5 dB(A) reduction for at least 2 impacted receptors

- **Noise barrier feasible at 1 CNE (R11)**

- Noise barrier not feasible at 2 CNEs (R7 and R8)

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MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

How much of a Change?

Change in Noise Level	Perception of Change
±3 dB(A)	Barely Perceivable Change
±5 dB(A)	**Readily Perceivable Change**
±10 dB(A)	Doubling/Halving Noise Loudness

- Benefited Receptor
  - Receives ≥5 dB(A) noise reduction
  - Does not need to be impacted

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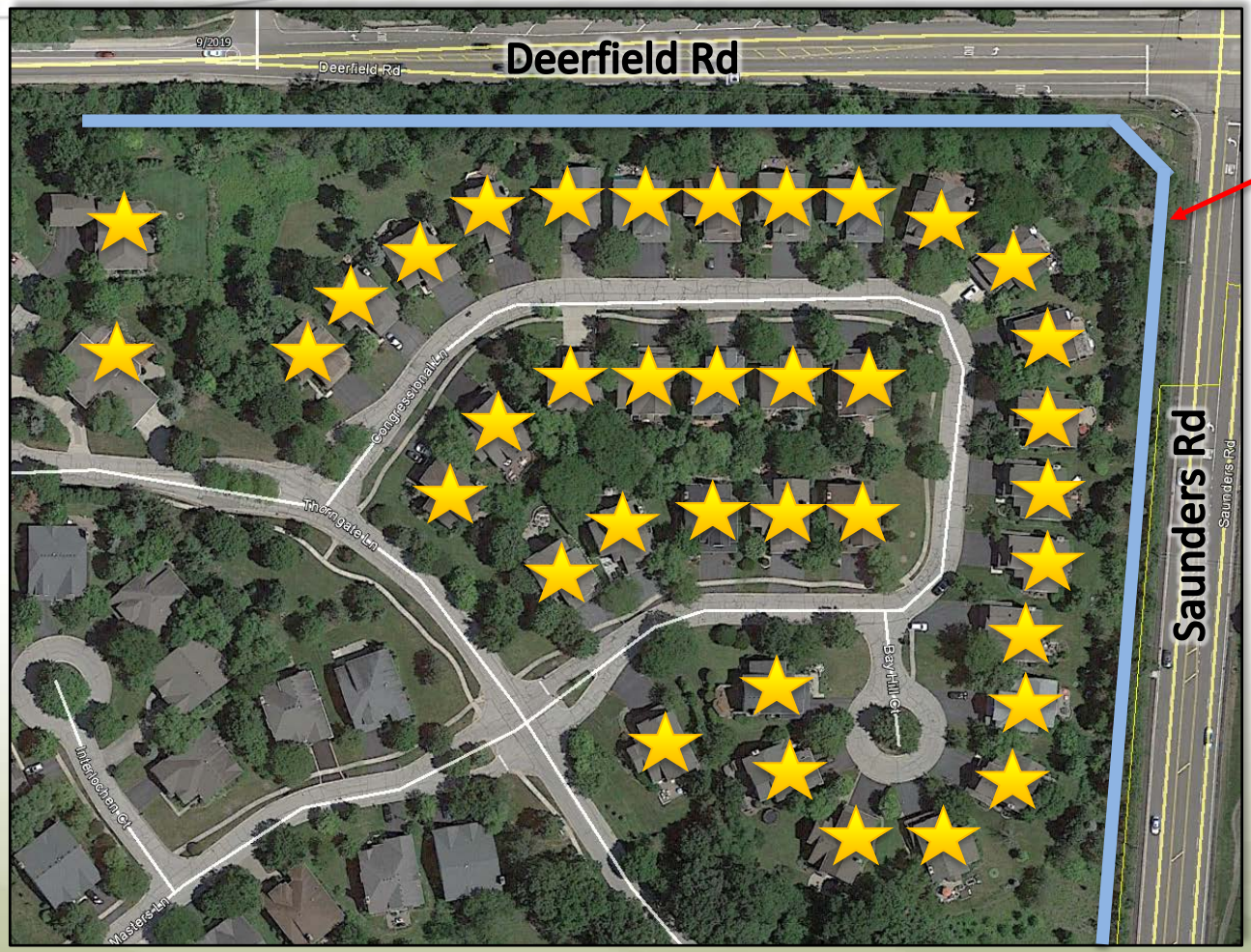
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

37 Benefited Receptors (★)



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MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

- Reasonable
  - At least 8 dB(A) reduction for at least 1 benefited receptor
  - Cost effective (IDOT policy - $30,000/benefited receptor), and
  - Desired by the majority of benefited receptors

- Abatement will reduce noise levels…but noise will still be present

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MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

CNE 11

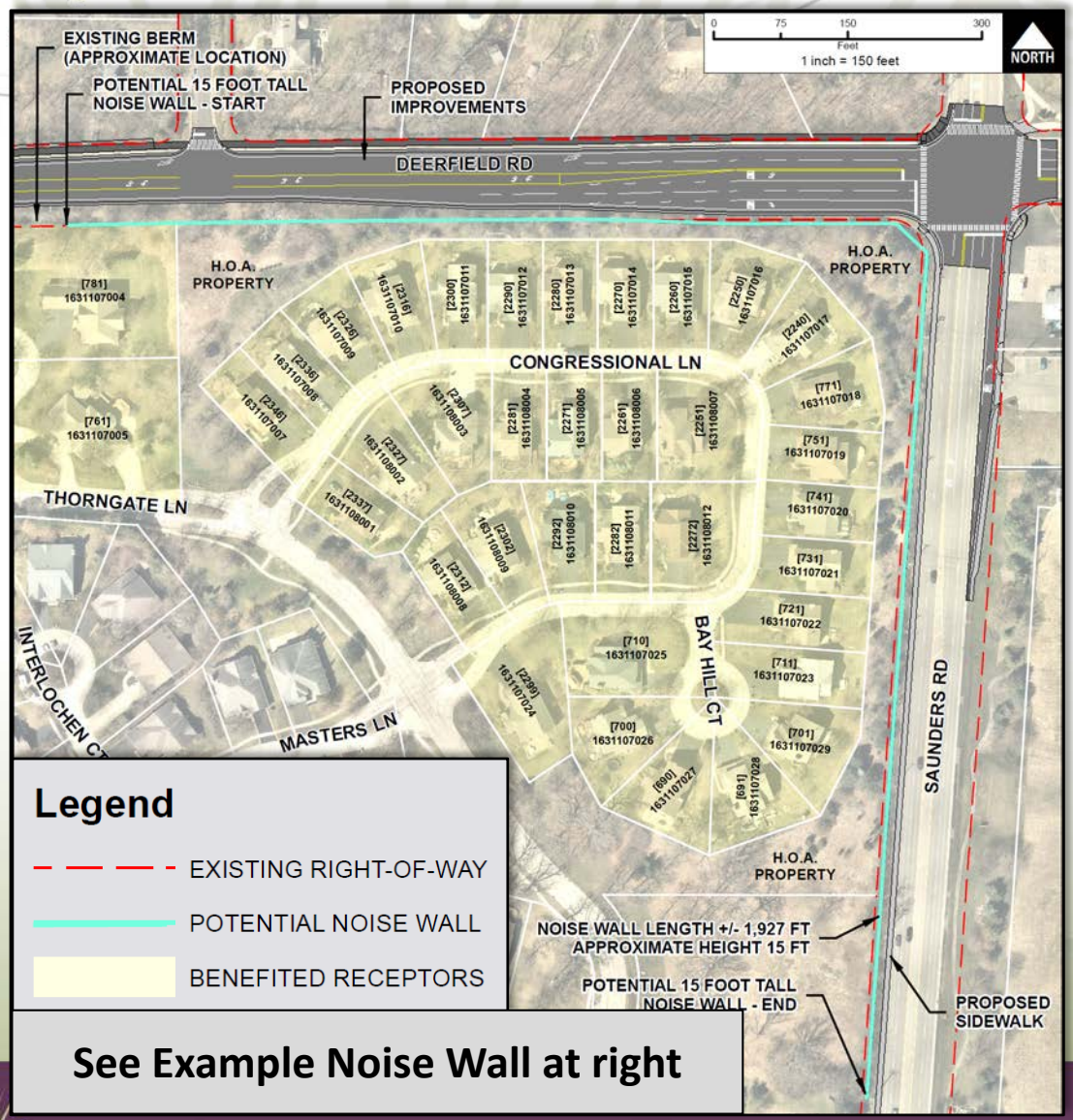
Estimated Total Noise Wall Cost (including ROW/ easement) = $992,400

Estimated Cost per Benefited Receptor = $26,822

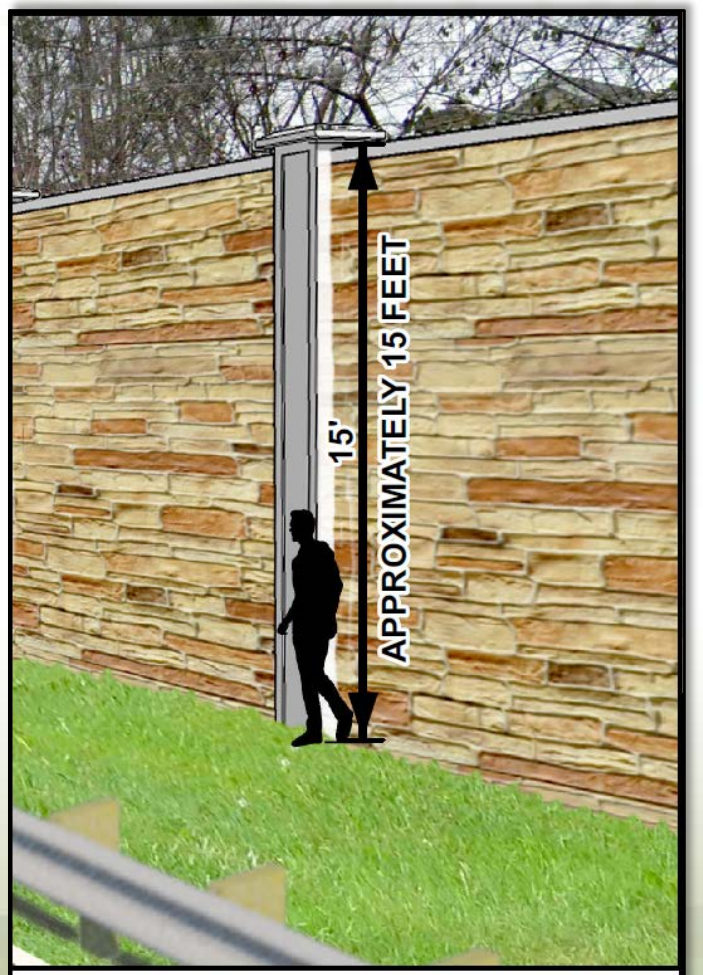
Adjusted Allowable Cost per Benefited Receptor = $30,000

- A noise wall is considered feasible and reasonable for CNE 11 since the estimated cost does not exceed the adjusted allowable cost per benefited receptor…pending viewpoint solicitation

Traffic Noise Study Overview – Potential Noise Wall



See Example Noise Wall at right



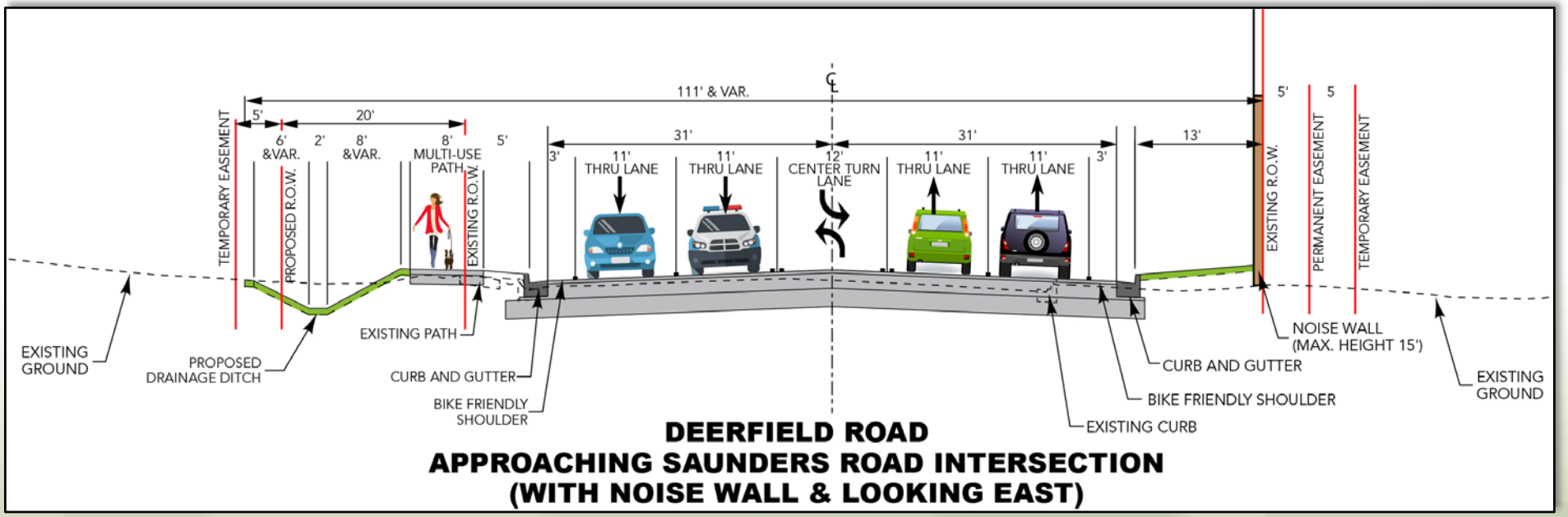
EXAMPLE NOISE WALL
(STYLE TO BE DETERMINED)

LakeCounty Division of Transportation

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

View looking east along Deerfield Road



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Traffic Noise Study Overview – Potential Noise Wall

For informational purposes only – Dimensions are approximate; Style to be determined

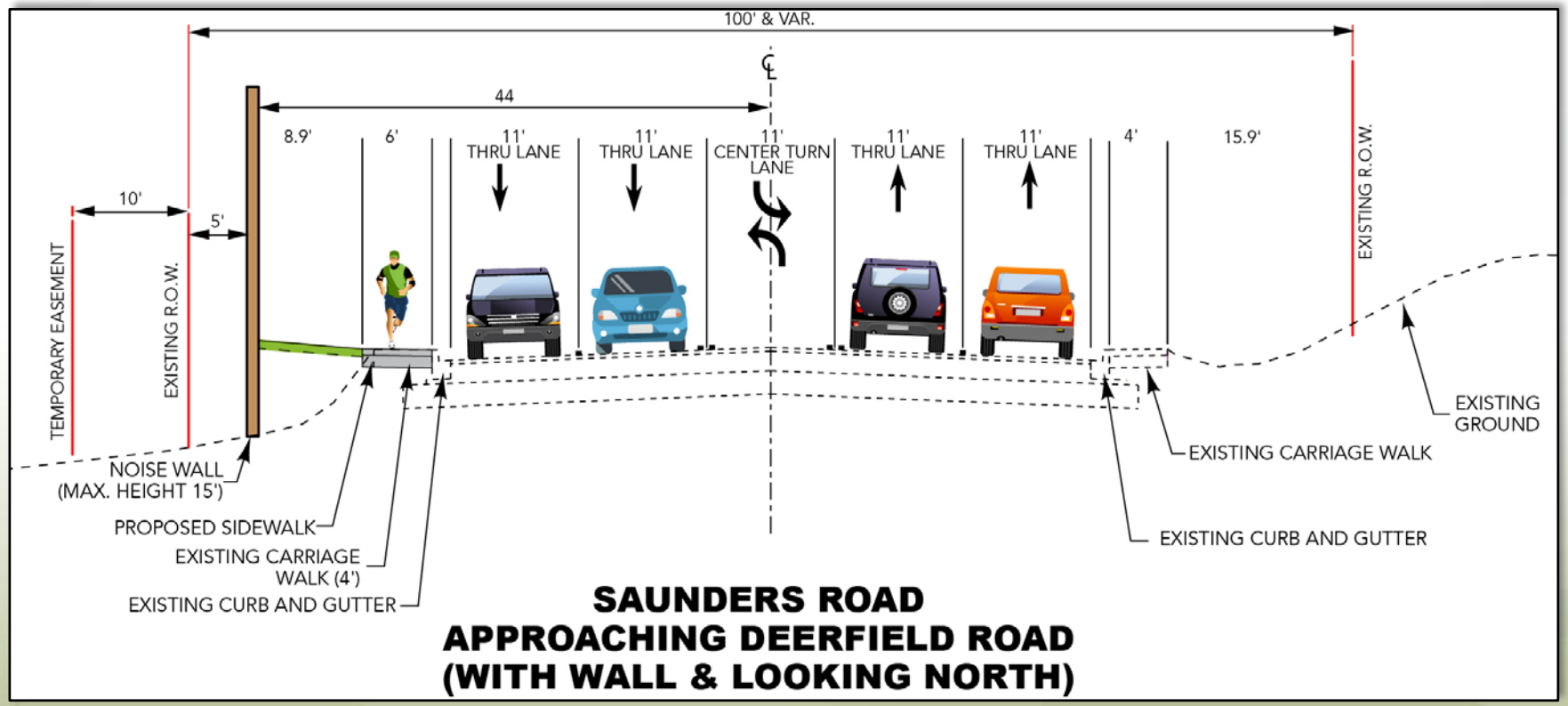
Traffic Noise Study Overview – Potential Noise Wall

Sample Noise Wall Panel - For informational purposes only – Style to be determined

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

View looking north along Saunders Road



Traffic Noise Study Overview – Potential Noise Wall

For informational purposes only – Dimensions are approximate; Style to be determined

Note: From roadway perspective, Noise Wall is ±11 ft tall along road and ±15 ft tall behind wall (see Typical Section)

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Potential Noise Wall

From Rear Yard of Residential Home Along Deerfield Road

Before Noise Wall

After Noise Wall

For informational purposes only – Dimensions are approximate; Style to be determined

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Viewpoint Solicitation (i.e., Voting)

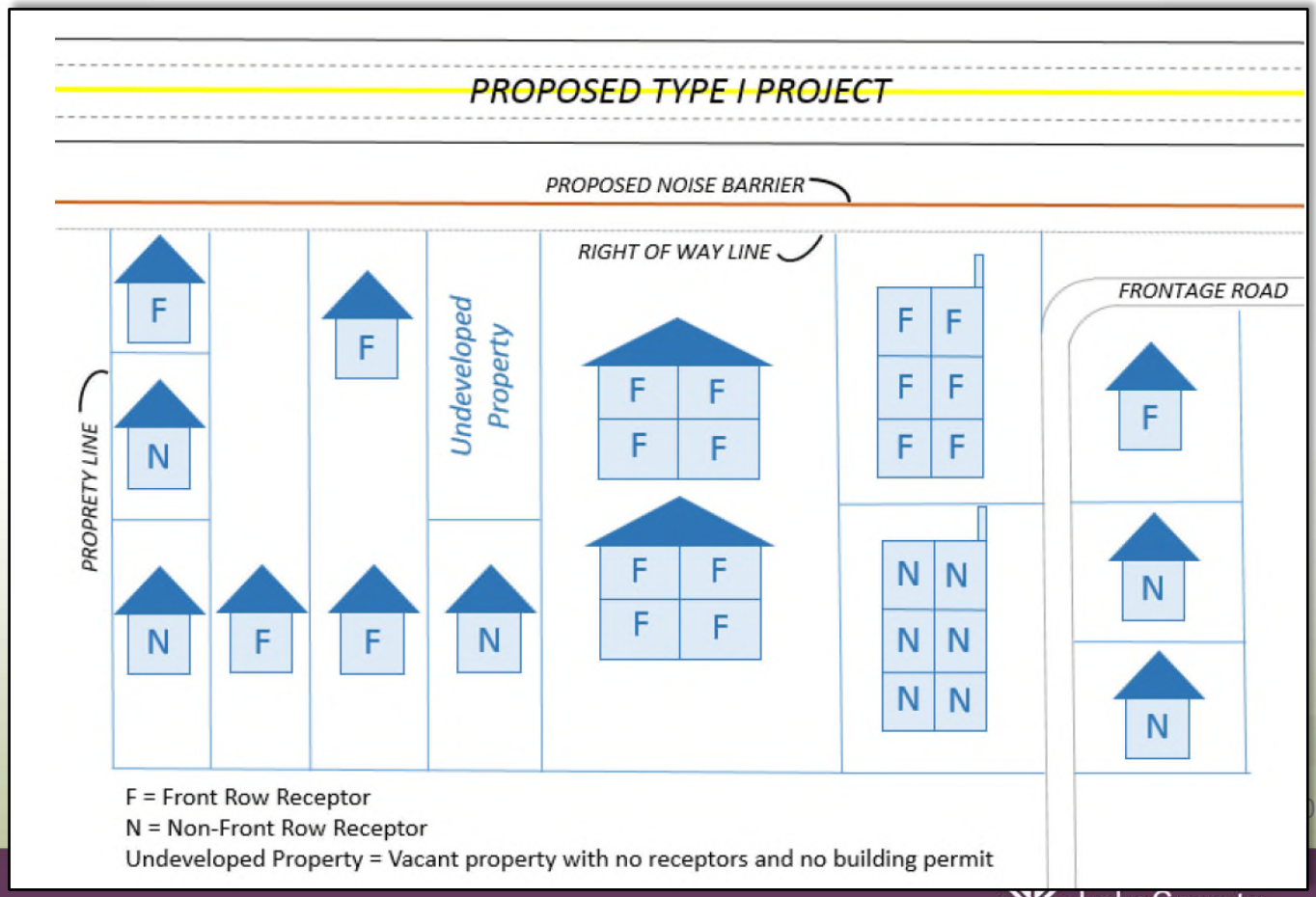
- Benefited Receptors Vote (LCDOT and Village do not vote)
- Goal is to obtain **at least 1/3** of potential vote points
- Up to two attempts (mailings) to achieve goal
- If 1/3 vote points are not received after 2 attempts…use results received
- **Do not double count…only allowed to vote once**
- Results are based on the majority of vote points received
- If no votes are received…noise wall will not be recommended
- **If greater than 50% of the vote points received are in favor of the noise wall, it will be recommended for construction**

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Viewpoint Solicitation (i.e., Voting)

Votes are Weighted

- Front Row versus Non-Front Row
- Front Row property is adjacent to the potential noise wall



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MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Viewpoint Solicitation (i.e., Voting)

Votes are Weighted

- Owner versus Renter (37 residences)
- Both the Owner and the Renter are provided the opportunity to vote
- Same number of vote points

TABLE 4-5
NUMBER OF VOTES PER BENEFITED RECEPTOR

Receptor Location	*Rental Property*		*Owner Occupied Property: Number of Votes Per Unit*
	Owner: Number of Votes Per Unit	*Renter: Number of Votes Per Unit*	
Front Row	2	2	4
Non-Front Row	1	1	2

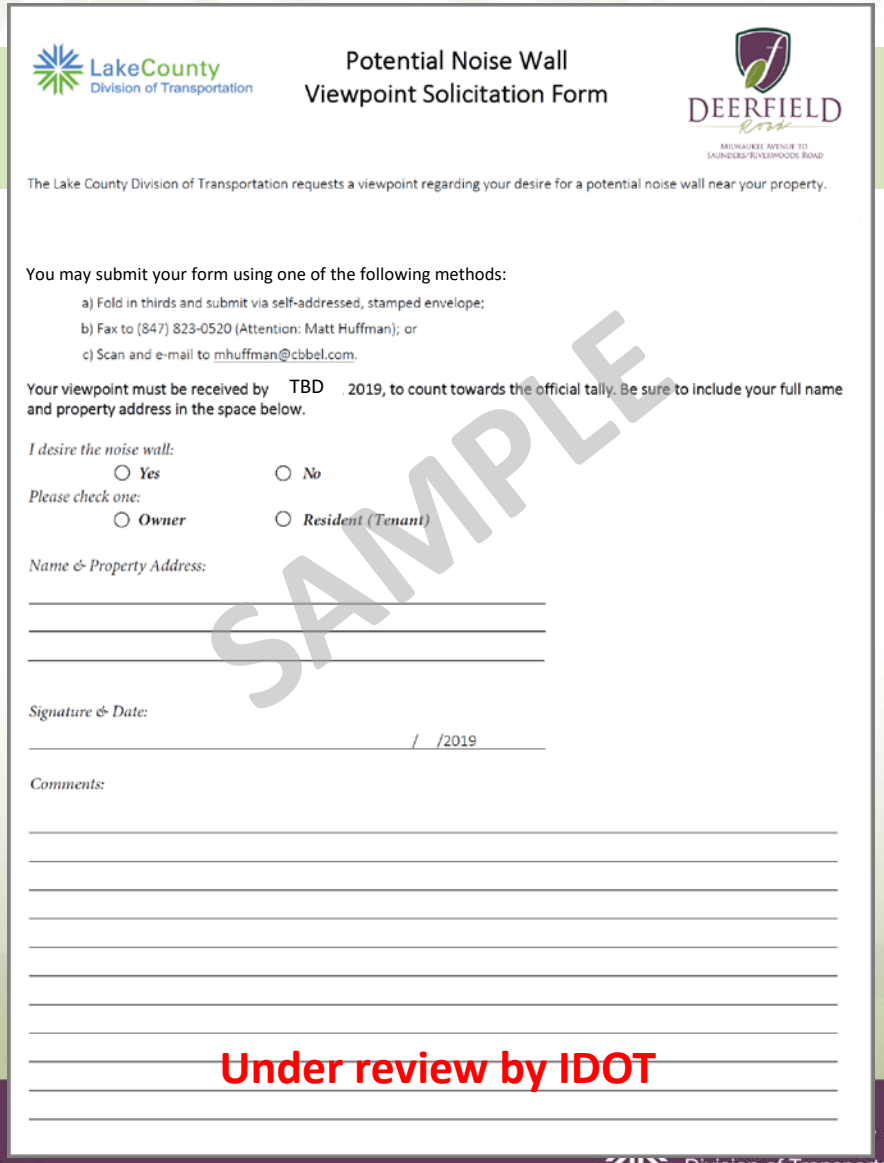
From IDOT Highway Traffic Noise Assessment Manual, 2017

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Traffic Noise Study Overview – Viewpoint Solicitation (i.e., Voting)

Voting Options

- Submit the Viewpoint Solicitation form via self-addressed, stamped envelope
- Fax the Viewpoint Solicitation form to (847) 823-0520
  Attn: Matt Huffman
- Scan the Viewpoint Solicitation form and e-mail to mhuffman@cbbel.com



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Potential Noise Wall
Viewpoint Solicitation Form

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

The Lake County Division of Transportation requests a viewpoint regarding your desire for a potential noise wall near your property.

You may submit your form using one of the following methods:

a) Fold in thirds and submit via self-addressed, stamped envelope;
b) Fax to (847) 823-0520 (Attention: Matt Huffman); or
c) Scan and e-mail to mhuffman@cbbel.com.

Your viewpoint must be received by TBD 2019, to count towards the official tally. Be sure to include your full name and property address in the space below.

I desire the noise wall:
○ *Yes* ○ *No*

Please check one:
○ *Owner* ○ *Resident (Tenant)*

Name & Property Address:

Signature & Date:
/ /2019

Comments:

SAMPLE

Under review by IDOT

DEERFIELD Road
MILWAUKEE AVENUE TO SAUNDERS/RIVERWOODS ROAD

Project Schedule & Next Steps

- **<u>You will receive Viewpoint Solicitation Form when Voting Period begins (waiting for IDOT approval)</u>**
- Votes must be received within 2 weeks (after start of voting period - 1st Attempt)
- If necessary, 2nd Attempt to obtain 1/3 of potential vote points
- Submit Traffic Noise Report (with voting results to IDOT): October/early November 2019 (anticipated)
- Public Hearing: Late 2019/Early 2020
- Anticipated Phase I Design Approval: Spring 2020
- Based on available funding…Construction could begin in 2023

Question and Answer Session

Thank You!

Visit the Project Website at:
www.deerfieldroadcorridor.com