



# ORLAND PARK

143<sup>rd</sup> Street Phase I Engineering Study  
(Wolf Road to Southwest Highway)

Noise Forum

June 9, 2020

Programs and Engineering Services

# Meeting Agenda

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## ❖ Presentation (6:00 – 6:45pm)

- Introductions
- Project Purpose & Limits
- Preliminary Preferred Improvement
- Traffic Noise Study Overview
- Project Schedule & Next Steps

## ❖ Q & A (7:45 – 8:30pm)

### Instructions:

- Please mute your computer
- We will stop periodically to answer questions.
- You can also type in your questions using the conversation tool.



# Introductions

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## Orland Park

- ❖ Khurshid Hoda – Director | Engineering Programs and Services
- ❖ Sean Marquez – Village Engineer

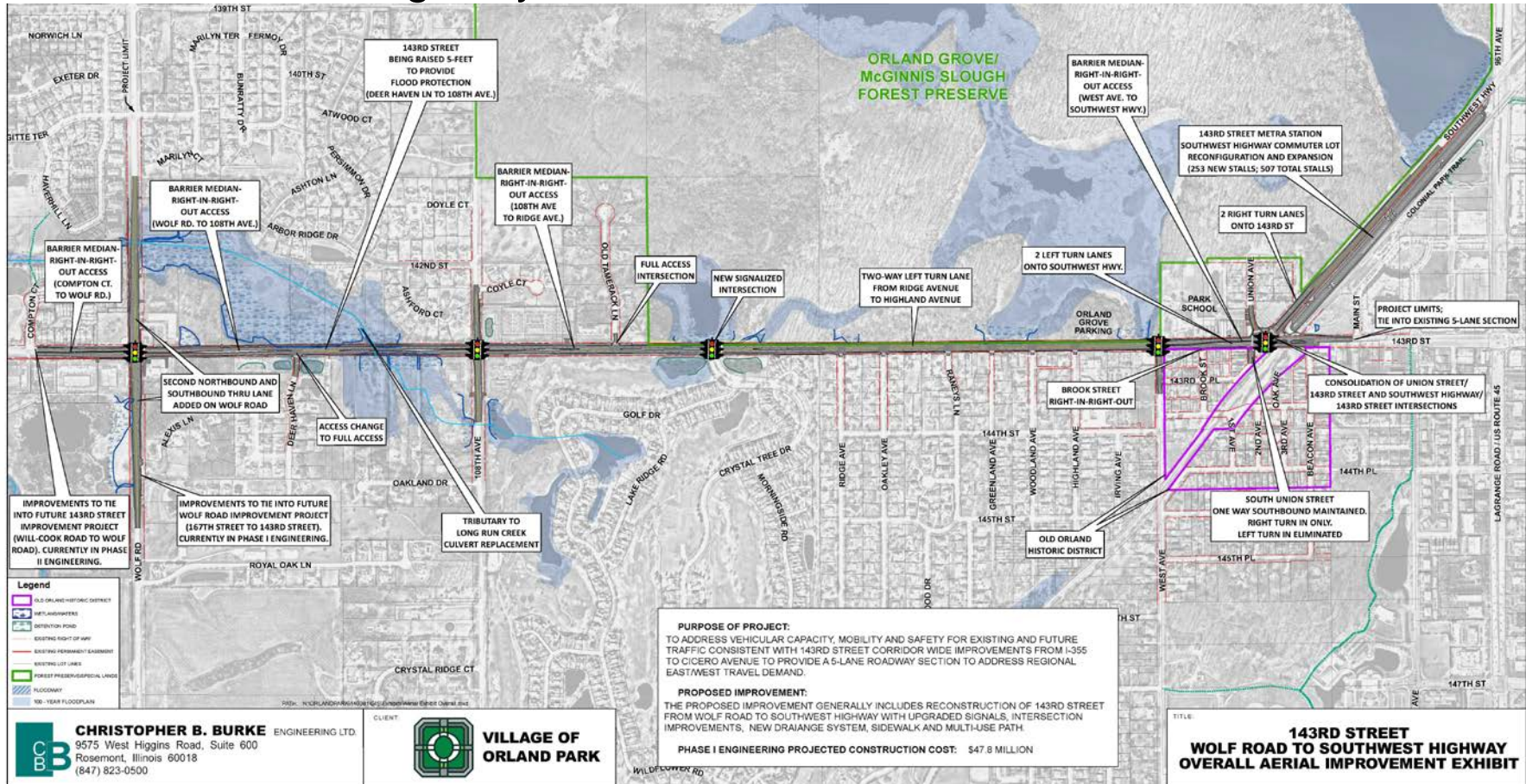
## Project Consultants

- ❖ Matt Huffman (CBBEL)
- ❖ Pete Knysz (CBBEL)
- ❖ Tim Kelly (Huff & Huff)



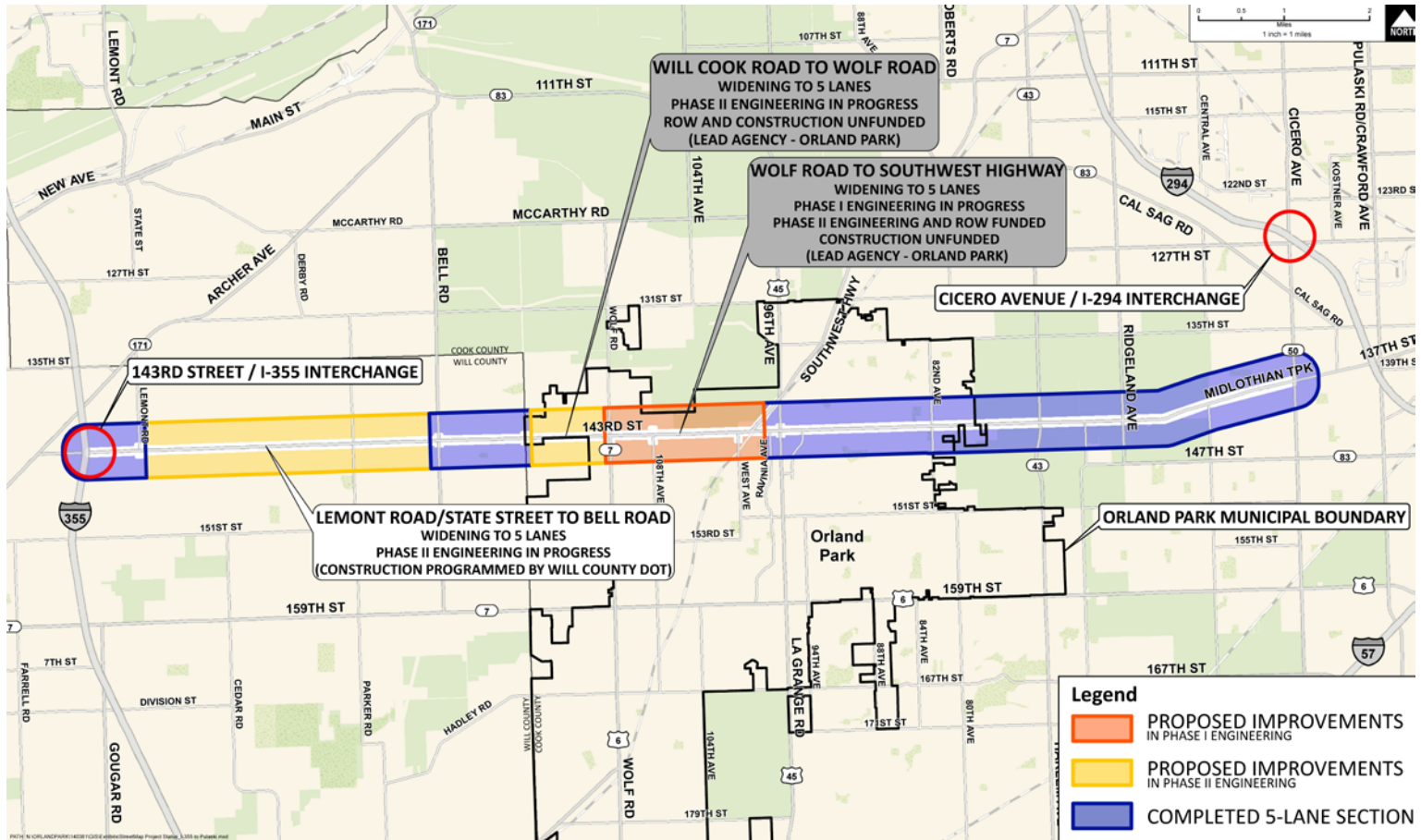
# Project Purpose & Limits

The project purpose is to address capacity, safety, accessibility, and non-motorized connection deficiencies along 143<sup>rd</sup> Street between Wolf Road and Southwest Highway.



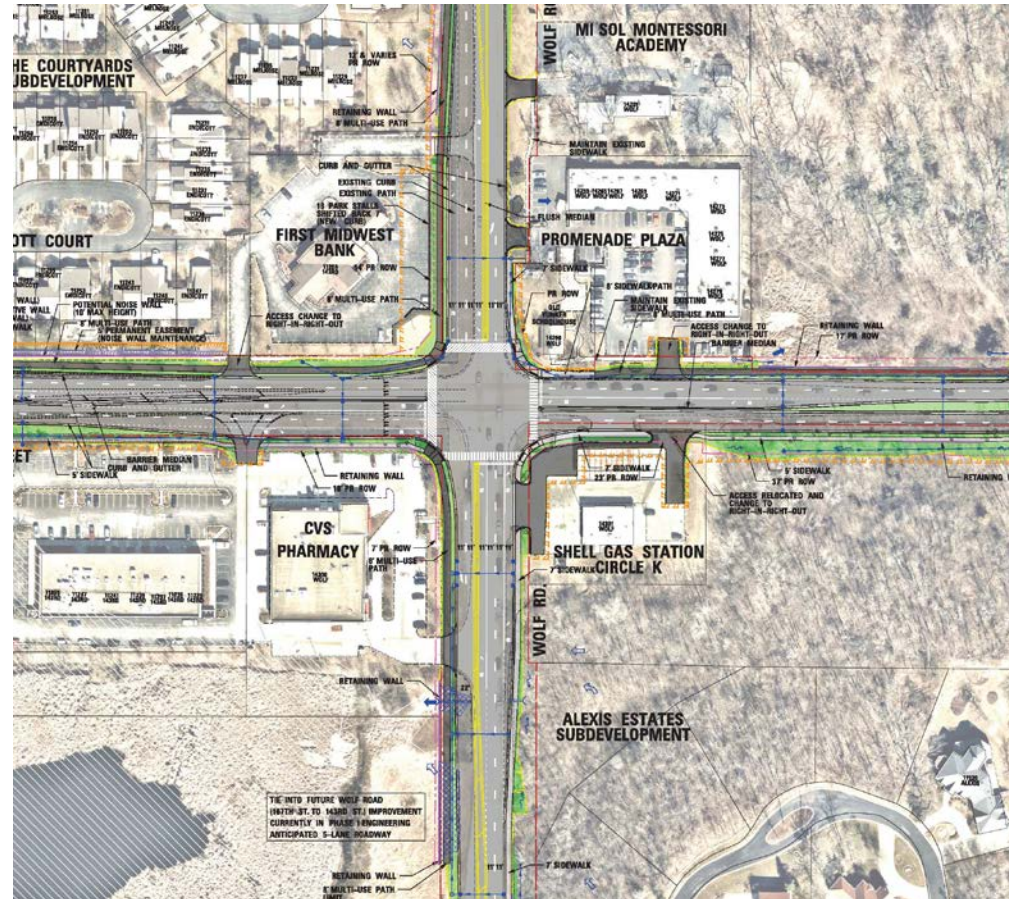
# Project Purpose & Limits

This project is part of regional plan to widen 143<sup>rd</sup> Street from 2-lane to 5-lanes from I-355 on the west to Cicero Avenue on the east. The Village of Orland Park is leading engineering on two of the three remaining sections.



# Preliminary Preferred Improvement 143<sup>rd</sup> Street Near Wolf Road

- ❖ 143<sup>rd</sup> Street widening to 5-lanes
- ❖ Barrier Median
- ❖ Full access at Beacon Ave
- ❖ Bike path (north)
- ❖ Sidewalk (south)
- ❖ Potential Noise Wall (north side from Beacon Avenue to First Midwest Bank driveway)



# Preliminary Preferred Improvement 143<sup>rd</sup> Street Near Wolf Road – Existing Conditions



# Preliminary Preferred Improvement 143<sup>rd</sup> Street Near Compton Ct. – Existing Conditions

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# Preliminary Preferred Improvement

## 143<sup>rd</sup> Street Near Compton Ct. – Existing Conditions

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# Preliminary Preferred Improvement

## 143<sup>rd</sup> Street Near Compton Ct. – Existing Conditions

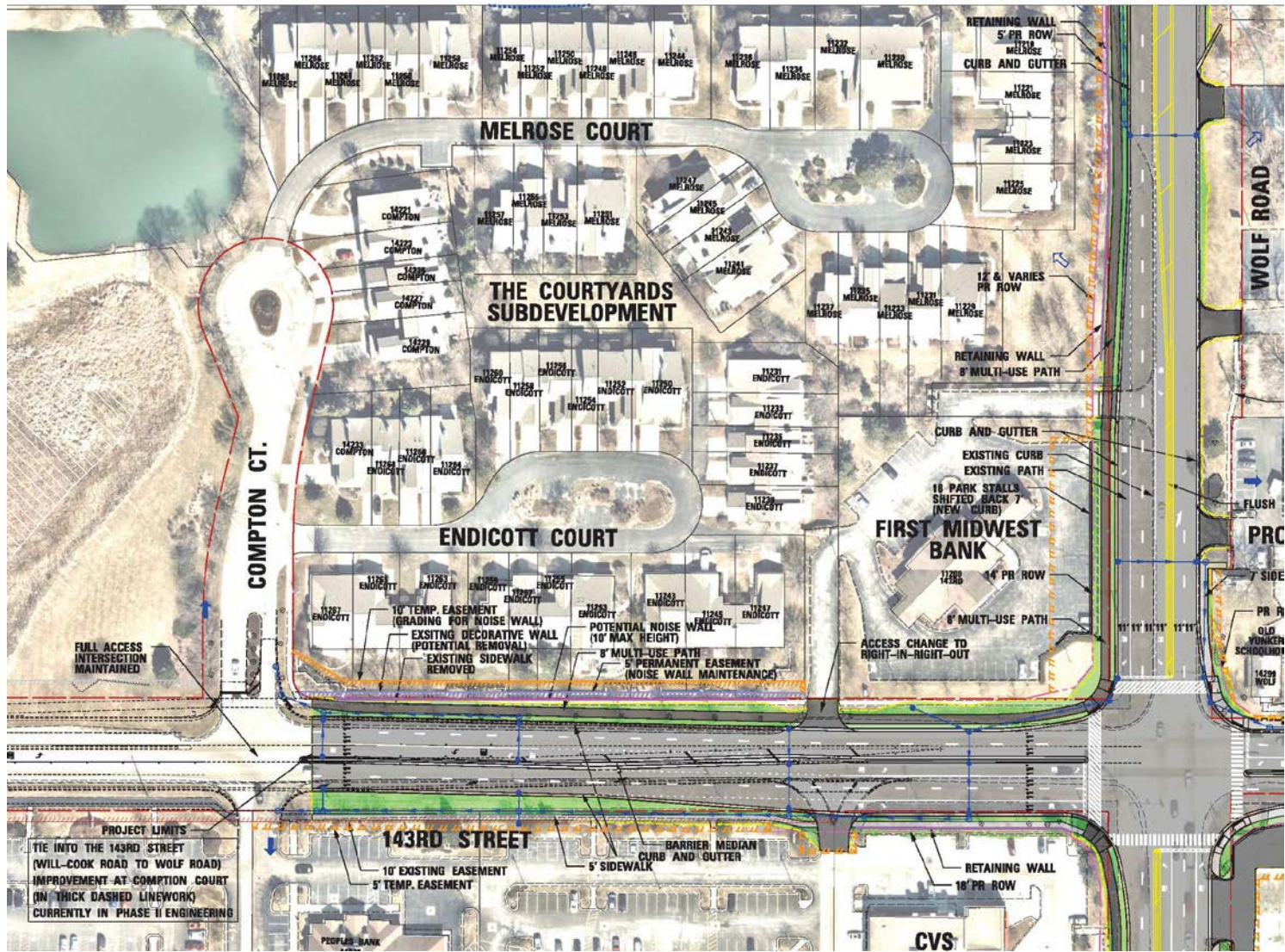
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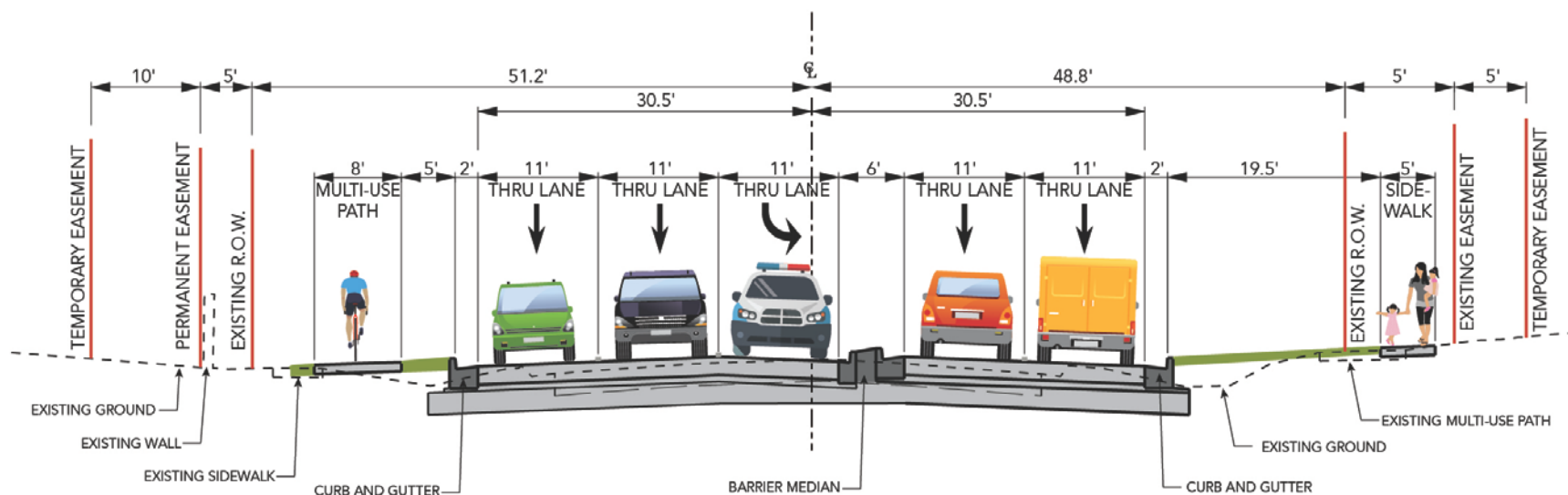
# Preliminary Preferred Improvement

## 143rd Street Near Wolf Road – Proposed Improvement



# Preliminary Preferred Improvement

## 143<sup>rd</sup> Street Typical Section



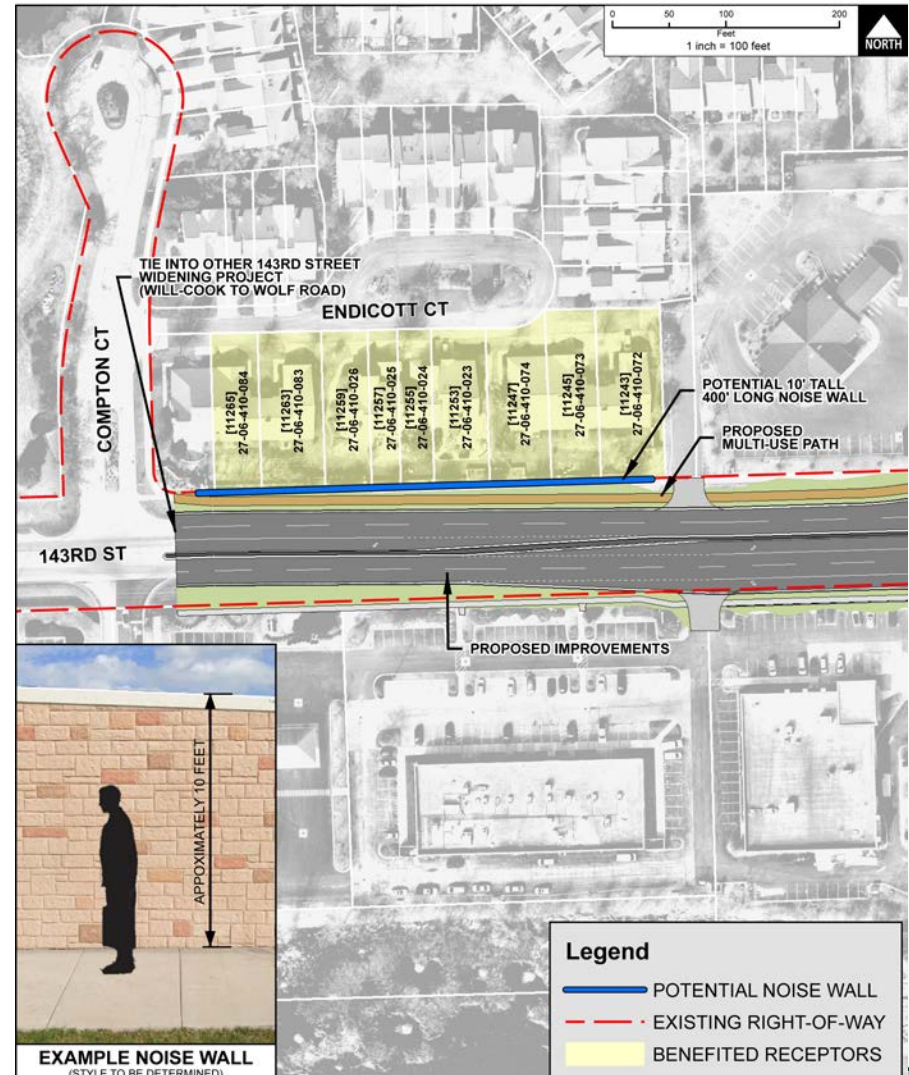
**143<sup>RD</sup> STREET EAST OF BEACON AVE.  
APPROACHING WOLF ROAD INTERSECTION  
(LOOKING EAST)**



# Meeting Agenda

## Traffic Noise Study Overview

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



# Traffic Noise Study Overview

## Policy & Procedures

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### 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



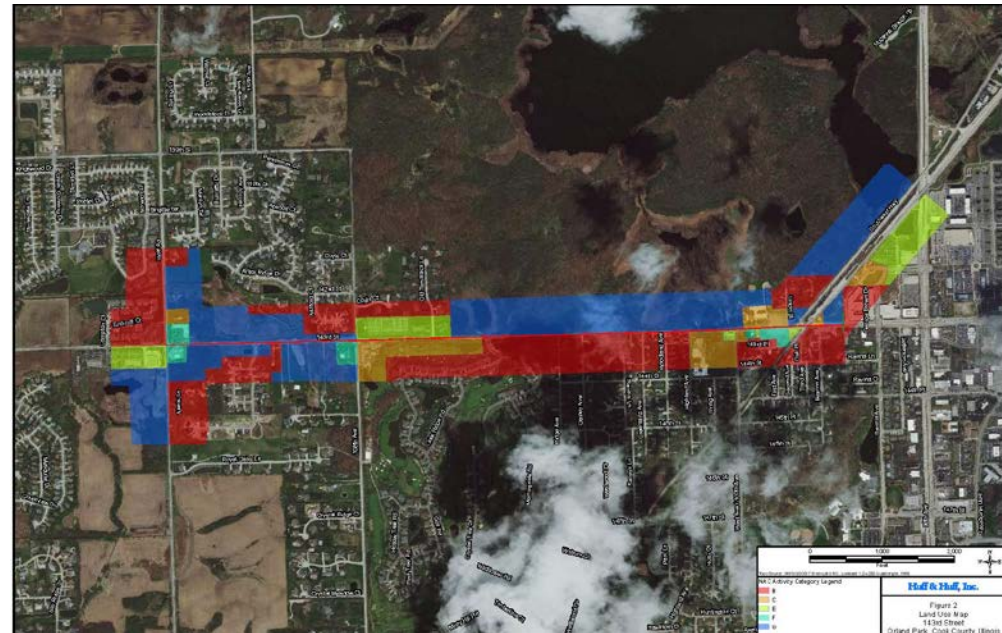


# Traffic Noise Study Overview

## 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

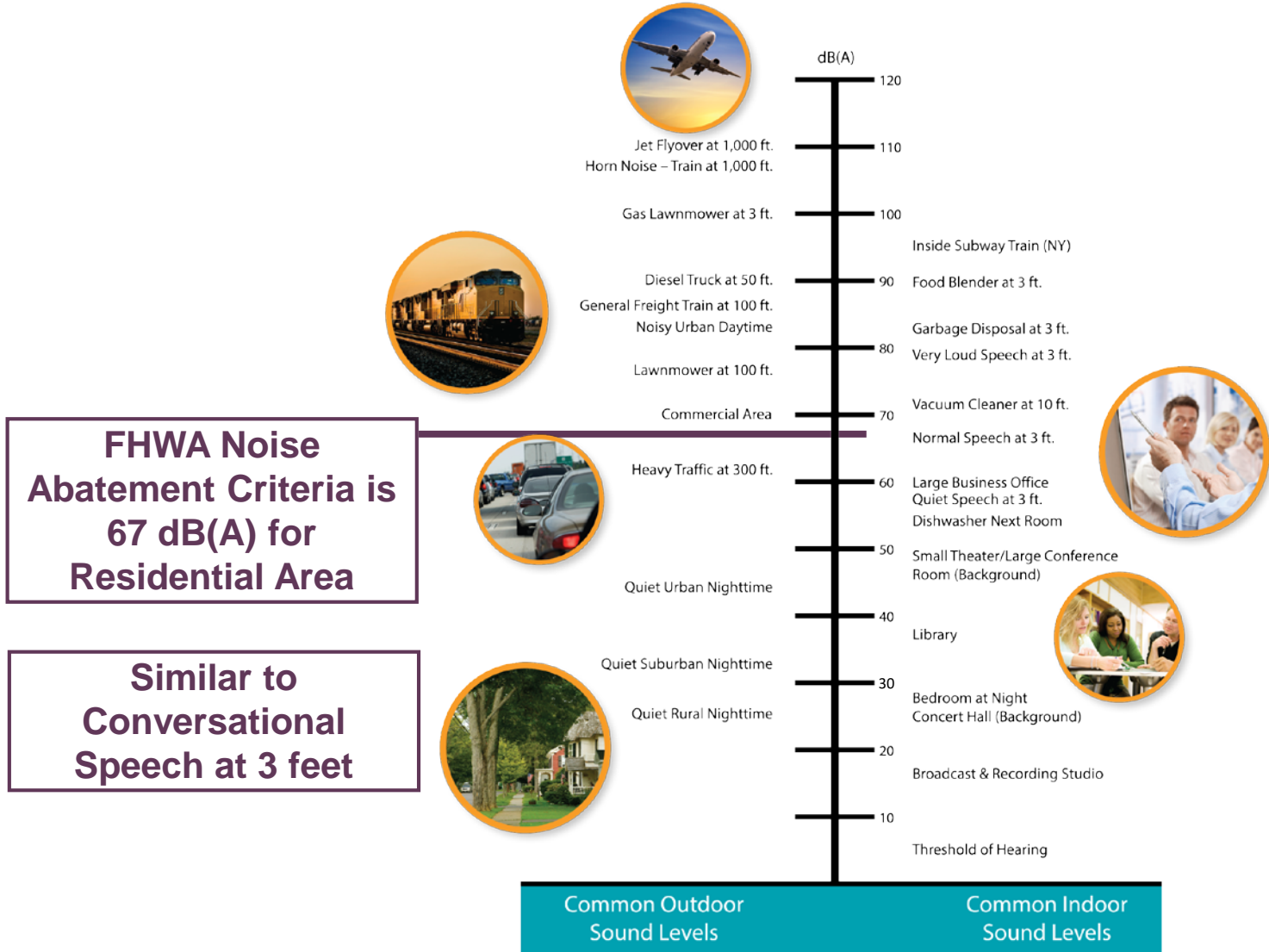
Activity Category	dB(A)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance
<b>B</b>	<b>67 (Exterior)</b>	<b>Residential *</b>
C	67 (Exterior)	Cemeteries, day care centers, hospitals, libraries, medical facilities, parks/recreation areas, 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) – <b>not for residential</b>
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



# Traffic Noise Study Overview

## Policy & Procedures



# Traffic Noise Study Overview

## Policy & Procedures

### CNEs/Receptor Locations

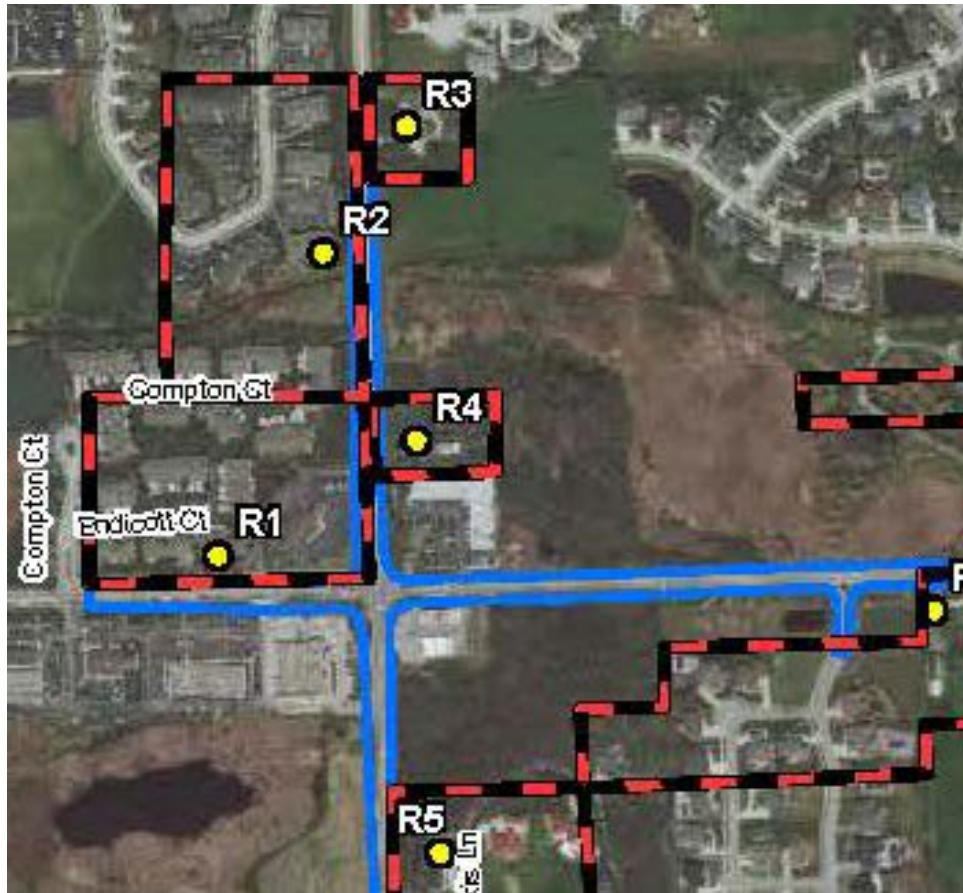
- ❖ 27 CNEs were identified along the Project Corridor



# Traffic Noise Study Overview

## Policy & Procedures

### CNEs/Receptor Locations



- ❖ 27 CNEs were identified along the Project Corridor
- ❖ 6 CNEs are shown in the figure at the Wolf Road at 143<sup>rd</sup> Street intersection

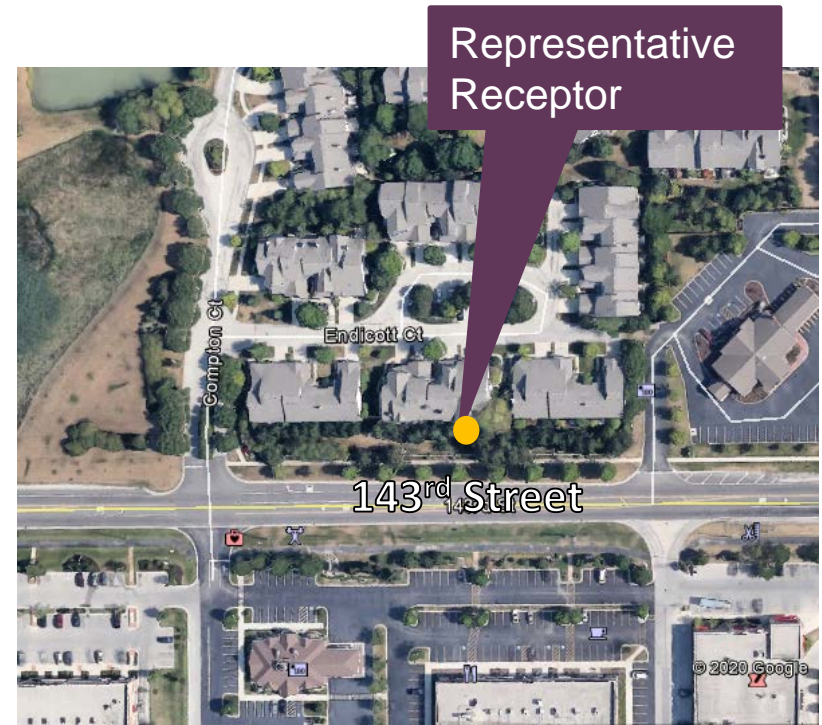


# Traffic Noise Study Overview

## Policy & Procedures

### Common Noise Environment Receptor Location #1

- ❖ 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)



# Traffic Noise Study Overview

## Policy & Procedures

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## 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)





# Traffic Noise Study Overview

## Results

- ❖ Impact = NAC is
  - Approached (within 1 dB(A))
  - Met
  - Exceeded
  - B = Residential; Impact = 66 dB(A)
  - C = Recreational; Impact 66 dB(A)
  - E = Offices/ Restaurant; Impact 72 dB(A)
- ❖ Impact pertains to Build Condition
- ❖ 6 CNEs impacted under Build Condition (Shown in Table)

Impacted Common Noise Environments (CNEs) (Under Build Condition with No Walls)				
CNE/ Receptor #	Activity Category/ NAC	Noise Level at the Representative Receptor dB(A)		
		Existing	No-Build (Year 2050)	Build (Year 2050)
R1	B/67	65	66	68
R10	C/67	64	66	68
R13	B/67	67	69	68
R14	B/67	64	65	67
R15	E/72	69	71	71
R16	E/72	70	72	72

With No Walls

The Courtyards Subdivision



# Traffic Noise Study Overview

## Results

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### How much of a Change?

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



# Traffic Noise Study Overview

## Potential Noise Wall

### ❖ Earth Berms

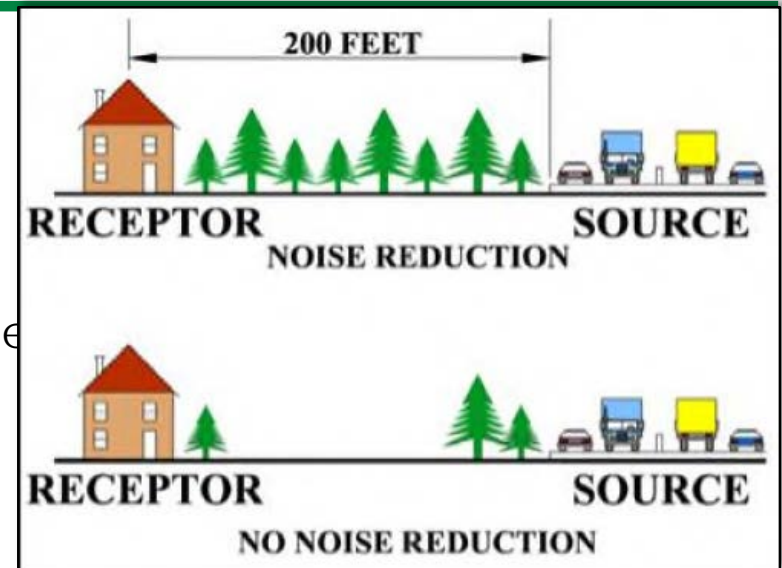
- Earth berms require a large footprint
- 10 ft high = ~60 ft footprint (3H:1V slope)
- Not feasible due to property impact

### ❖ 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



# Traffic Noise Study Overview

## Potential Noise Wall

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### **Abatement is considered for residential receptors with traffic noise levels $\geq 66$ 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 (R1)**
  
- ❖ Noise barrier not feasible at 5 CNEs (R10, R13, R14, R15 and R16)



# Traffic Noise Study Overview

## Potential Noise Wall

Change in Noise Level	Perception of Change
$\pm 3$ dB(A)	Barely Perceivable Change
$\pm 5$ dB(A)	<b>Readily Perceivable Change</b>
$\pm 10$ dB(A)	Doubling/Halving Noise Loudness

### ❖ Benefited Receptor

- Receives  $\geq 5$  dB(A) noise reduction
- Does not need to be impacted



# Traffic Noise Study Overview

## Potential Noise Wall

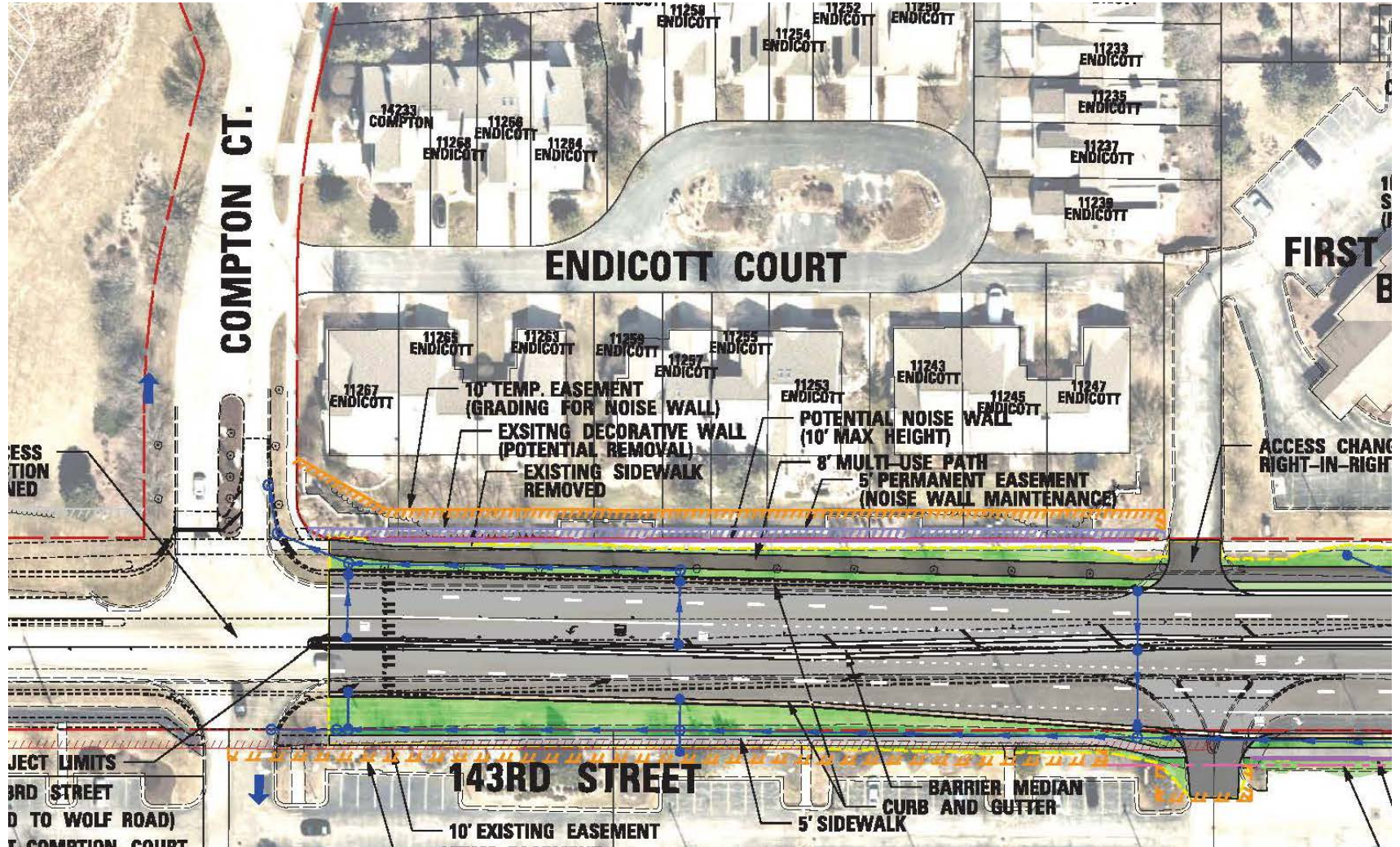
### 9 Benefited Receptors (★)



Potential  
Noise  
Wall  
(approx. location  
– not to scale)



# Preliminary Preferred Improvement Potential Noise Wall



# Traffic Noise Study Overview

## Potential Noise Wall

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### ❖ 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

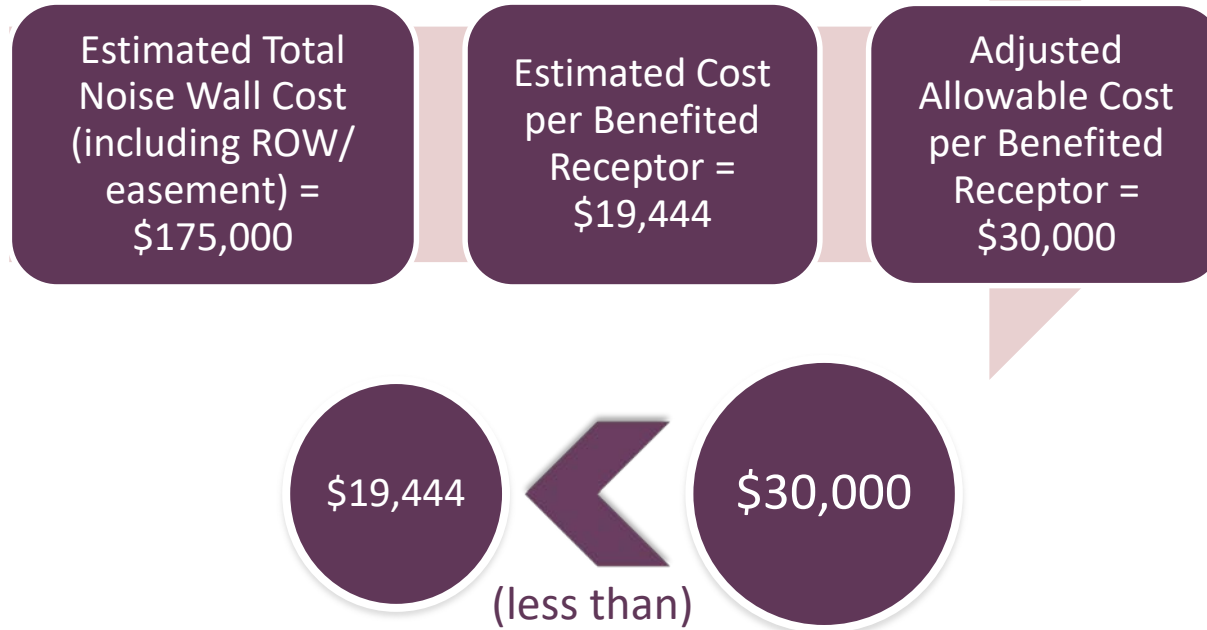




# Traffic Noise Study Overview

## Potential Noise Wall

### CNE 1

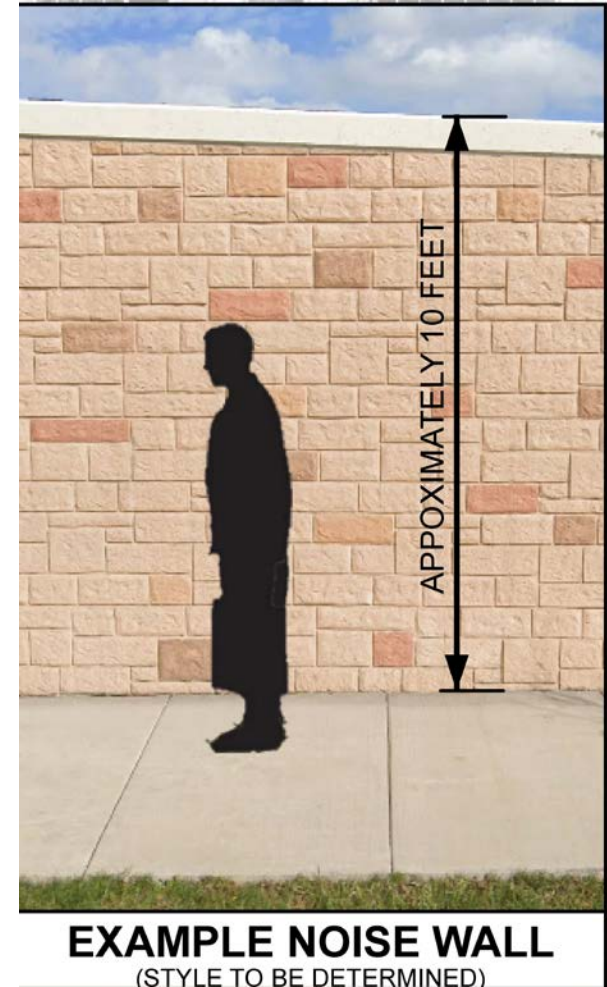
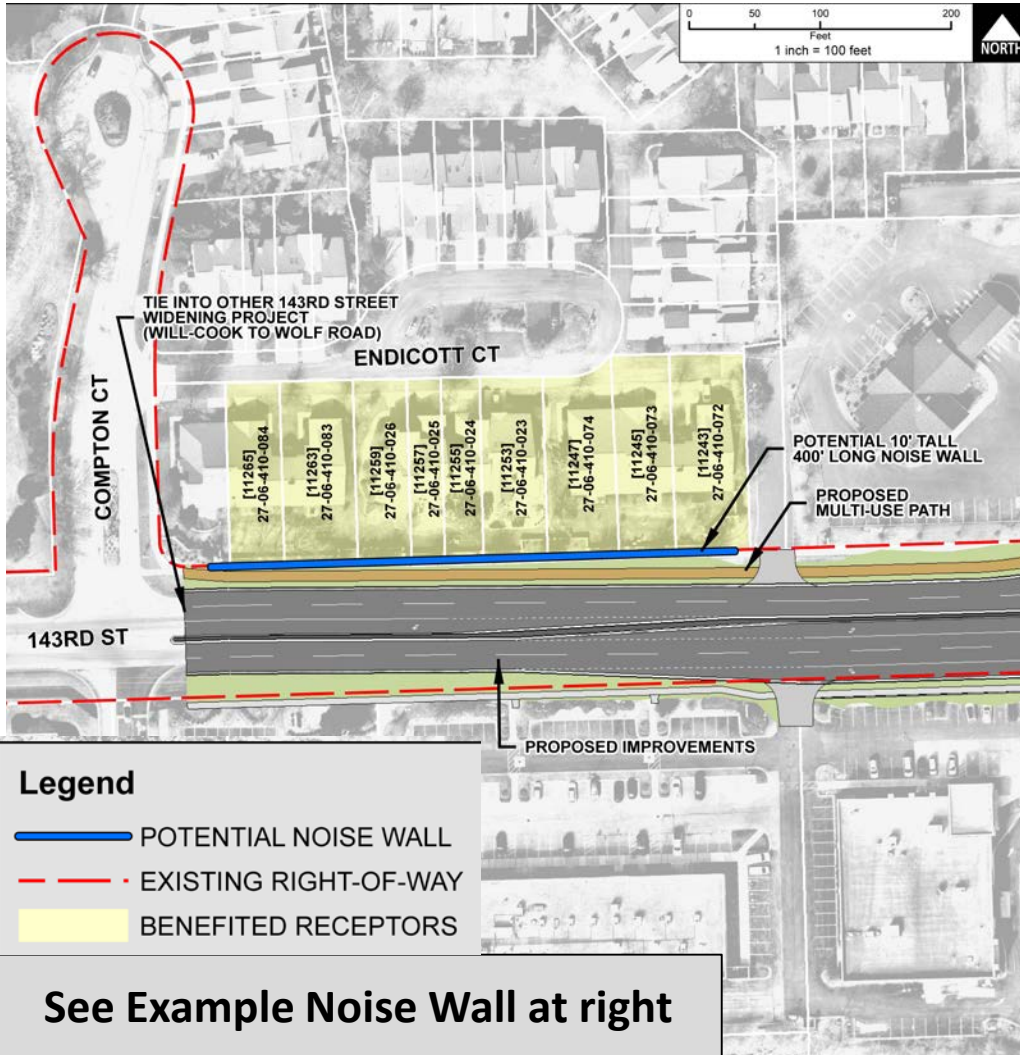


- ❖ A noise wall is considered feasible and reasonable for CNE 1 since the estimated cost does not exceed the adjusted allowable cost per benefited receptor...pending viewpoint solicitation



# Traffic Noise Study Overview

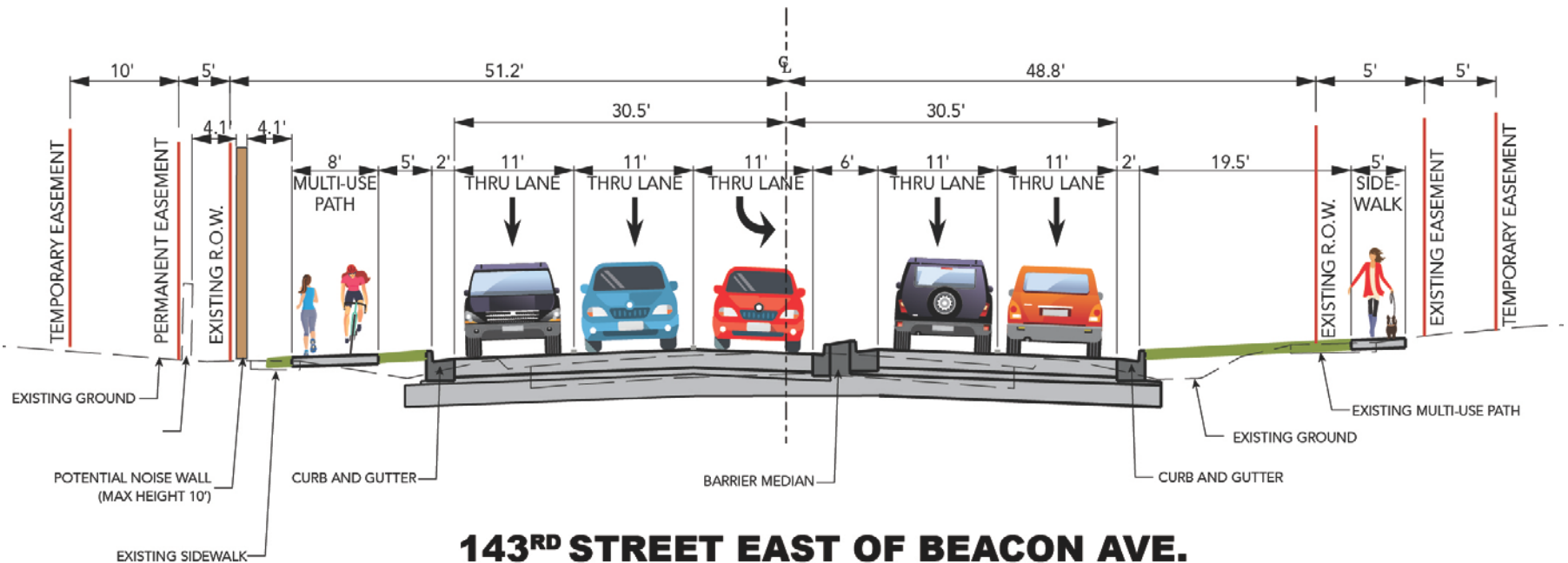
## Potential Noise Wall



# Traffic Noise Study Overview

## Potential Noise Wall

### View looking east along 143<sup>rd</sup> Street



**143<sup>RD</sup> STREET EAST OF BEACON AVE.  
 APPROACHING WOLF ROAD INTERSECTION  
 (WITH NOISE WALL & LOOKING EAST)**



# Traffic Noise Study Overview

## Potential Noise Wall



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



# Traffic Noise Study Overview

## Viewpoint Solicitation (i.e., Voting)

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- ❖ Benefited Receptors Vote (Village does 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**

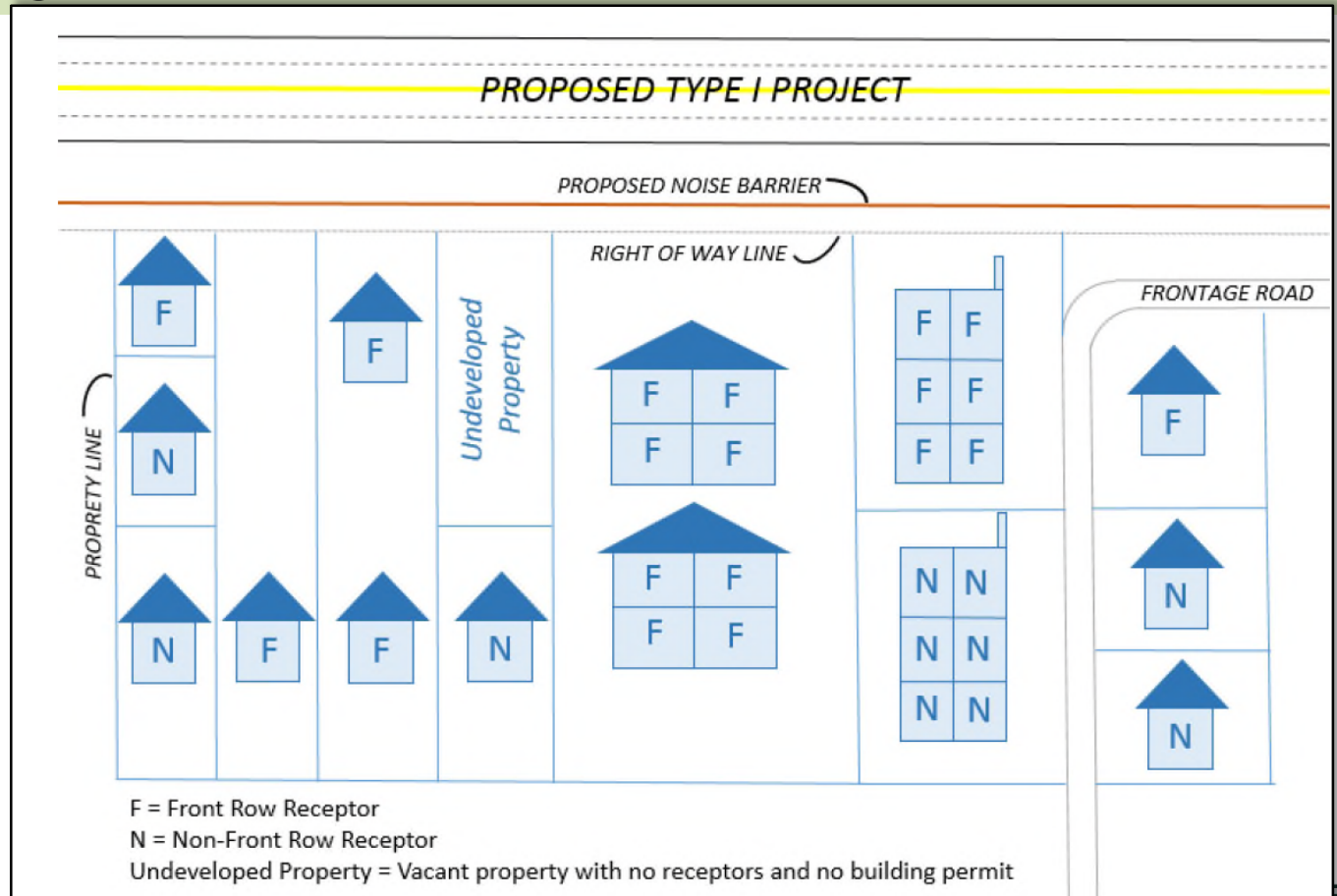


# Traffic Noise Study Overview

## Viewpoint Solicitation (i.e., Voting)

### Votes are Weighted

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



# Traffic Noise Study Overview

## Viewpoint Solicitation (i.e., Voting)

### Votes are Weighted

- ❖ Owner versus Renter (9 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**

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

From IDOT Highway Traffic Noise Assessment Manual, 2017



# 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](mailto:mhuffman@cbbel.com)



**Potential Noise Wall  
Viewpoint Solicitation Form**

The Village of Orland Park requests a viewpoint (i.e., vote) regarding your desire for a potential noise wall near your property along 143<sup>rd</sup> Street (east of Compton Court). Per State and Federal noise analysis policy, public opinion is taken into account before a final decision is made on the inclusion of a noise wall in the proposed improvement. Only each property "benefited" by a noise wall may vote in favor or against the inclusion of a noise wall in the proposed improvement.

You may submit your Viewpoint Solicitation Form using one of the following methods:

- a) Fold in thirds, tape shut, and submit via mail,
- b) Fax to (847) 823-0520, or
- c) Scan and e-mail to [mhuffman@cbbel.com](mailto:mhuffman@cbbel.com).

**Your viewpoint must be received by June 23, 2020, 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, Email & Property Address:*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Signature & Date:*

\_\_\_\_\_ / \_\_\_\_ / 2020

*Comments:*

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# Project Schedule & Next Steps

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## ❖ You have received Viewpoint Solicitation Form via Certified Mail

- ❖ Votes must be received within 2 weeks (after start of voting period - 1<sup>st</sup> Attempt)
- ❖ If necessary, 2<sup>nd</sup> Attempt to obtain 1/3 of potential vote points
- ❖ Public Hearing: Fall 2020
- ❖ Anticipated Phase I Design Approval: End of 2020
- ❖ Phase II Engineering Begins in Mid 2021
- ❖ Construction is currently unfunded. If funding is obtained, Construction could begin in 2024



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# Question and Answer Session



*Thank You!*

**Visit the Project Website at:**

<https://orlandpark.org/services/roads>

