

# Killearn Road

# Public Information Meeting

Town of Washington, NY

Presented by Daniel Farnan

June 5, 2024



Engineering  
& Design





Engineering  
& Design

# Introductions

## Town of Washington Highway Department

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# AGENDA

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Killearn Road Improvements

## 1 INTRODUCTION

Contact  
Purpose  
Project Timeline

## 2 ENGINEERING TERMS

Terminology  
Paved vs. Unpaved Roads  
Materials

## 3 REVIEW OF 2022 FINDINGS

Jan 11, 2023, Meeting





## AGENDA

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Killlearn Road Improvements

### 4 REVIEW OF 2023 FINDINGS

Additional Winter/Spring Visits  
Traffic Study  
Survey  
FHWA Cost-Benefit Analysis

### 5 RECOMMENDATIONS

Improve Drainage  
Unpaved Road Reclamation – “Mill & Fill”

### 6 DISCUSSION

Public Q&A



Section 01

# Purpose & Timeline



# Purpose of the Meeting

Officially Inform the Public of our Findings

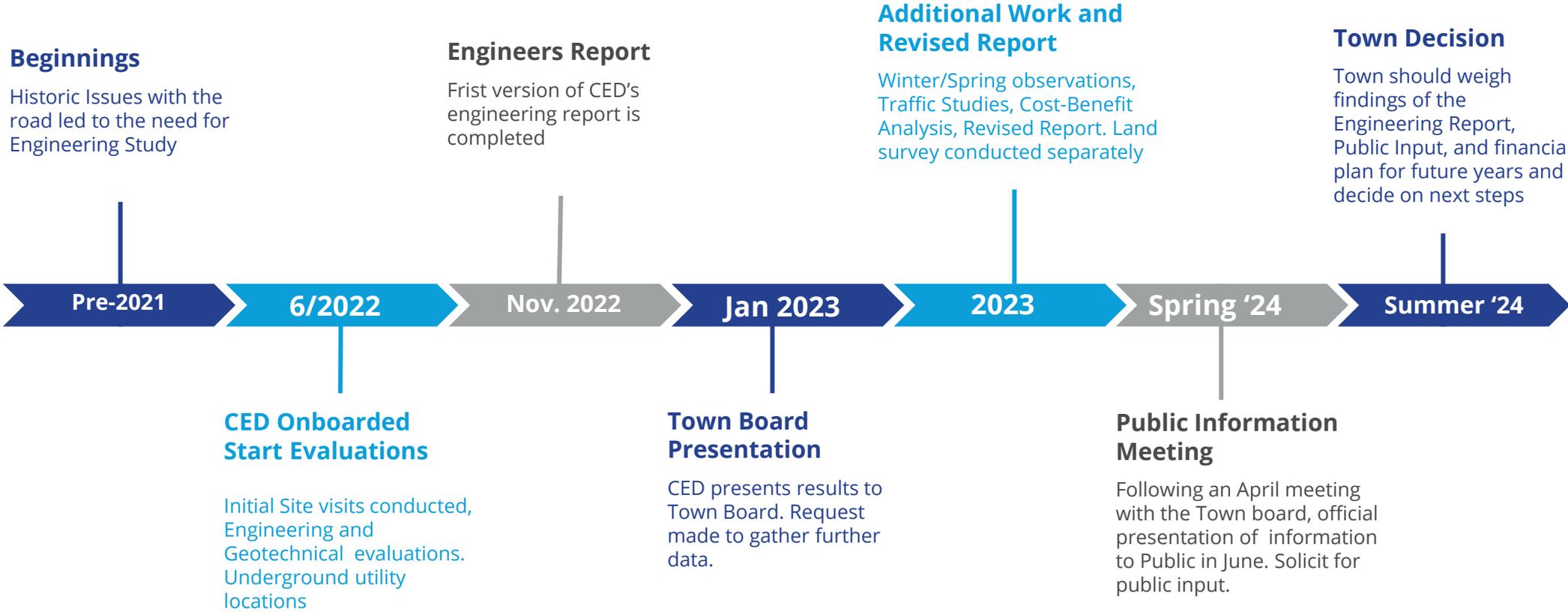
Present Recommended Improvements

Discuss project impacts to the community

Listen to your input and feedback



# Project Timeline



Section 02

Engineering Terms



# Engineering Terms

## Paved vs Unpaved

### **Paved Road:**

Any road that has a semi-permanent surface placed on it such as asphalt or concrete.



### **Unpaved Road:**

Any road that does not have a semi-permanent surface, such as asphalt or concrete. The roadway surface may be comprised of dirt, rock, or gravel.

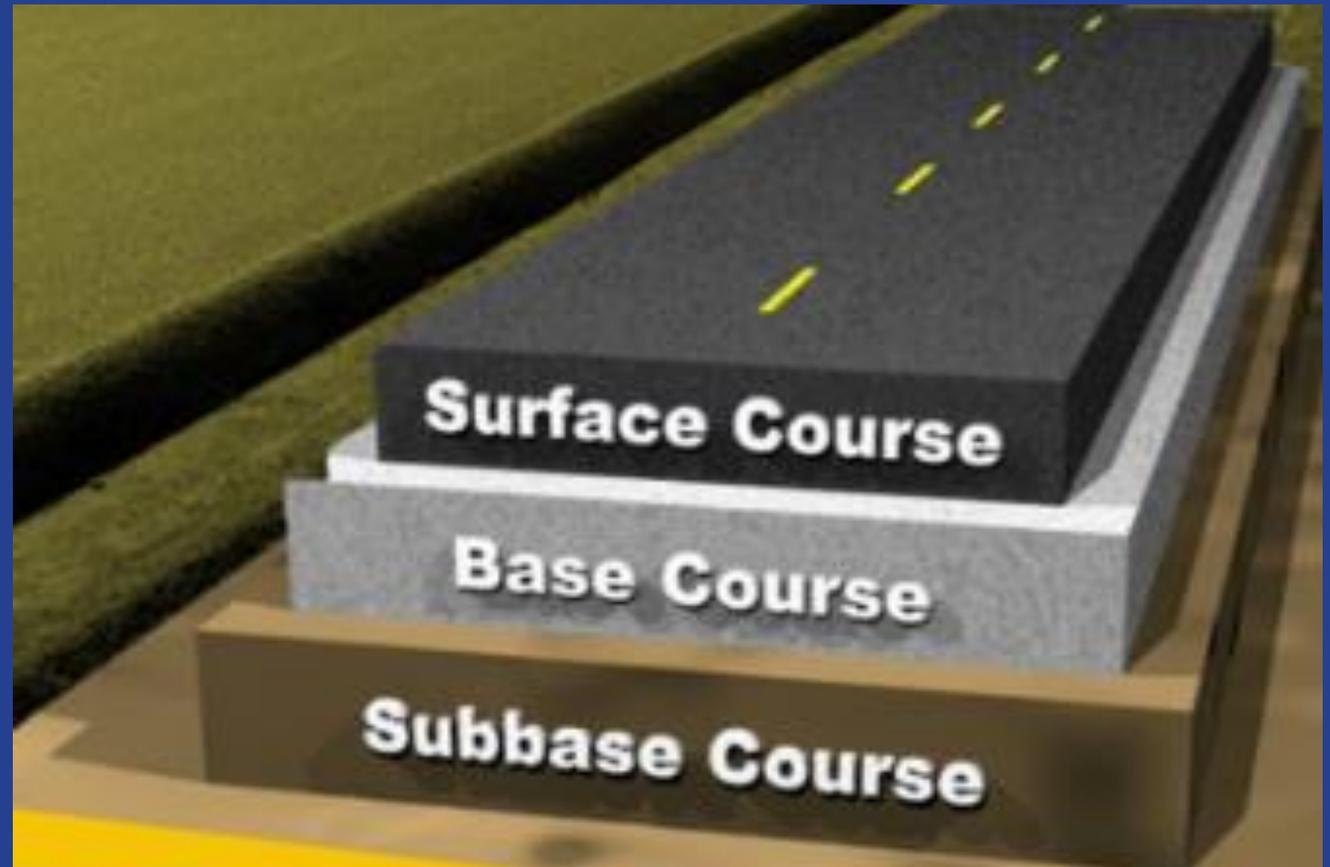
- Definitions from Federal Highway Administration



# Engineering Terms

## Anatomy of a Road

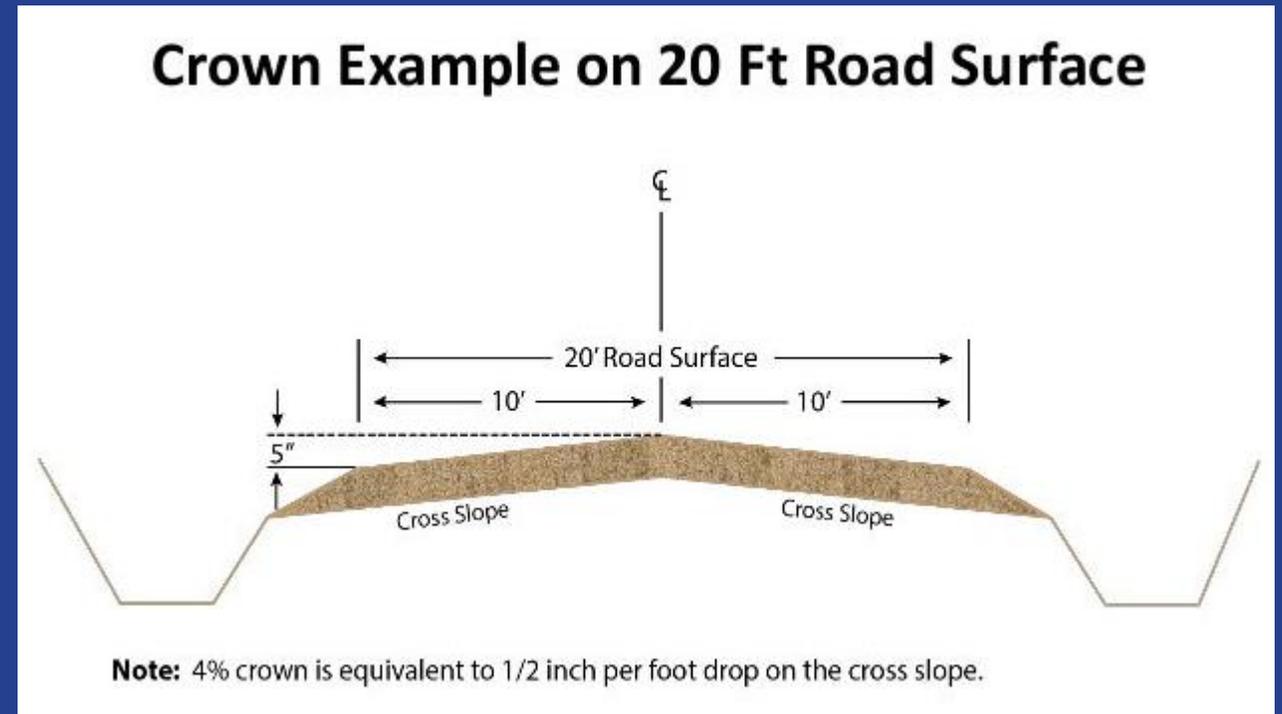
- Sub-grade
  - Natural Soils
- Sub-base
  - First Foundation Usually Gravel
- Base course
  - Gravel or Asphalt
  - Foundation of the road
- Surface course or wearing course
  - Asphalt, Concrete, or surface stone



# Engineering Terms

## Road Crown

- Shape of the Roadway in Section
- "Slope" or "Cross Slope"
- Gravel Roads should have 4% cross slope for proper drainage



# Engineering Terms Materials Used

- Manufactured Gravel
  - Crusher Run
  - Number "57s" or "56s" – Small crushed stone
  - Number "8s"
- Natural Gravels
  - "Item 4"
  - "Run of Bank"



# Engineering Terms Materials Used

- “Millings” are Recycle Asphalt
  - Sometimes called “RAP”
    - Reclaimed Asphalt Pavement
- Economical Material
- Should be mixed with other stone materials



Shady Dell Road – Town of Washington

# Engineering Terms

## Chip & Seal

- Road Wearing Course Treatment
  - After Road Base Repair
  - Apply an emulsifier (Tar or oil)
  - Place small stone “chips”
  - Not necessarily paved or unpaved

“Chip seal can be completed over existing gravel surfaces, unsealed asphalt, concrete, or previously chip sealed surfaces”



# Engineering Terms Chip & Seal



Section 03

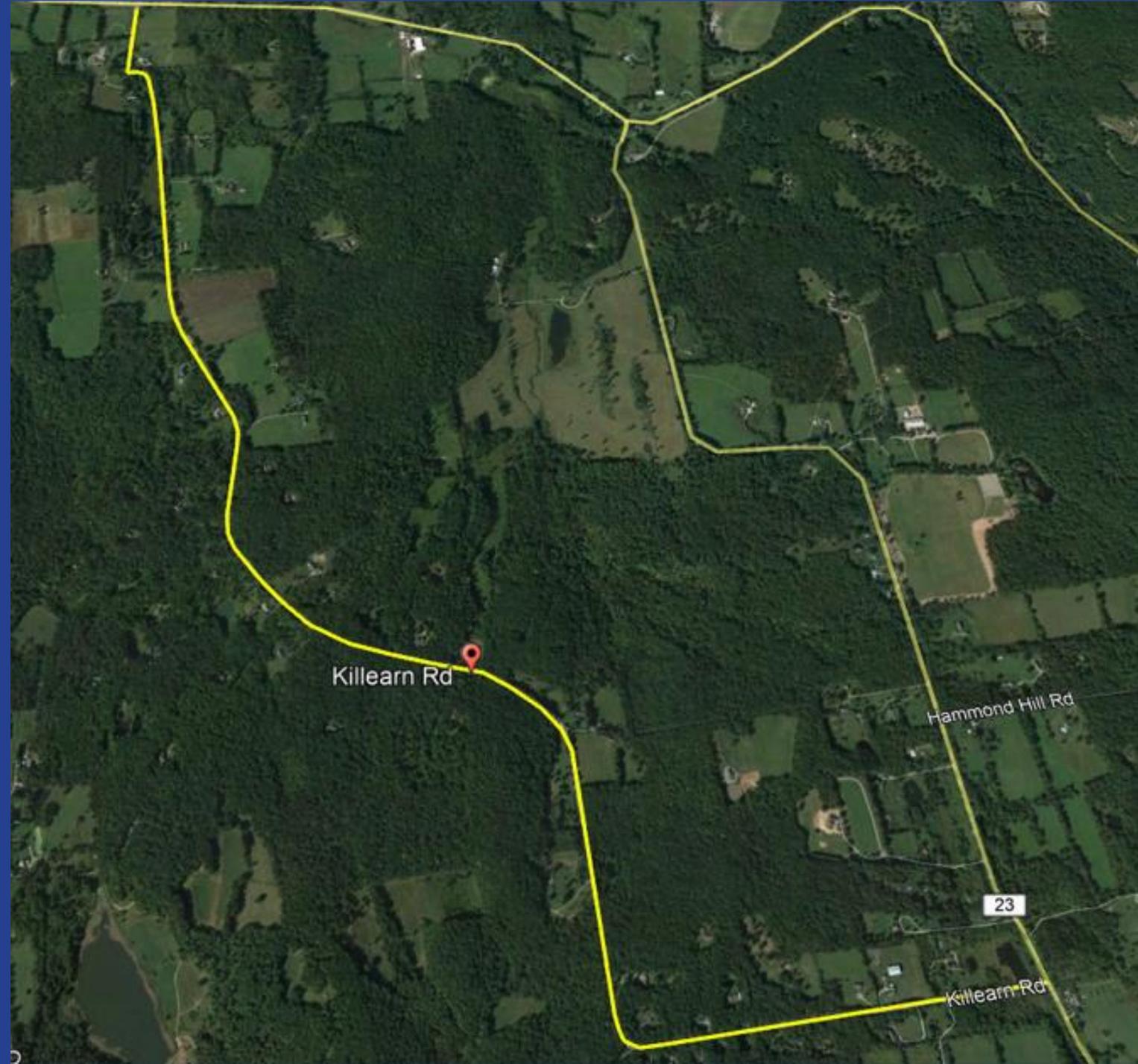
2022 Findings



# Overview

## Project Limits

- 3.25 miles
- One of 20 Gravel roads in Town
- Southern section on Town Line with Union Vale
- Properties fronting on road (2022):
  - 55 Tax Parcels in Washington
  - 10 Tax Parcels in Union Vale



# 2022 Findings Points of Concern

## Major issue

- DRAINAGE

## Additional Issues

- Wear and Tear
- Geometric Limitations
- Soil Conditions
- Structural Deficiencies

**Issues discussed in Depth at a Jan 11,  
2023, Meeting**



# More Data Requested

- Survey
- Winter/Spring observations of Road
- Simple Traffic Study
- Cost-Benefit Analysis



Section 04

2023 Findings



2023 Findings

# Additional Site Visits

**Town Board Requested additional observations between Jan and May 2023**

- Observe Winter Conditions
- Observe Spring Thaw
- 6 additional site visits after major rain/snow events
- Mild Year



# Findings Wear and Tear



Jan 2023



Feb 2023

# Findings

## Wear and Tear

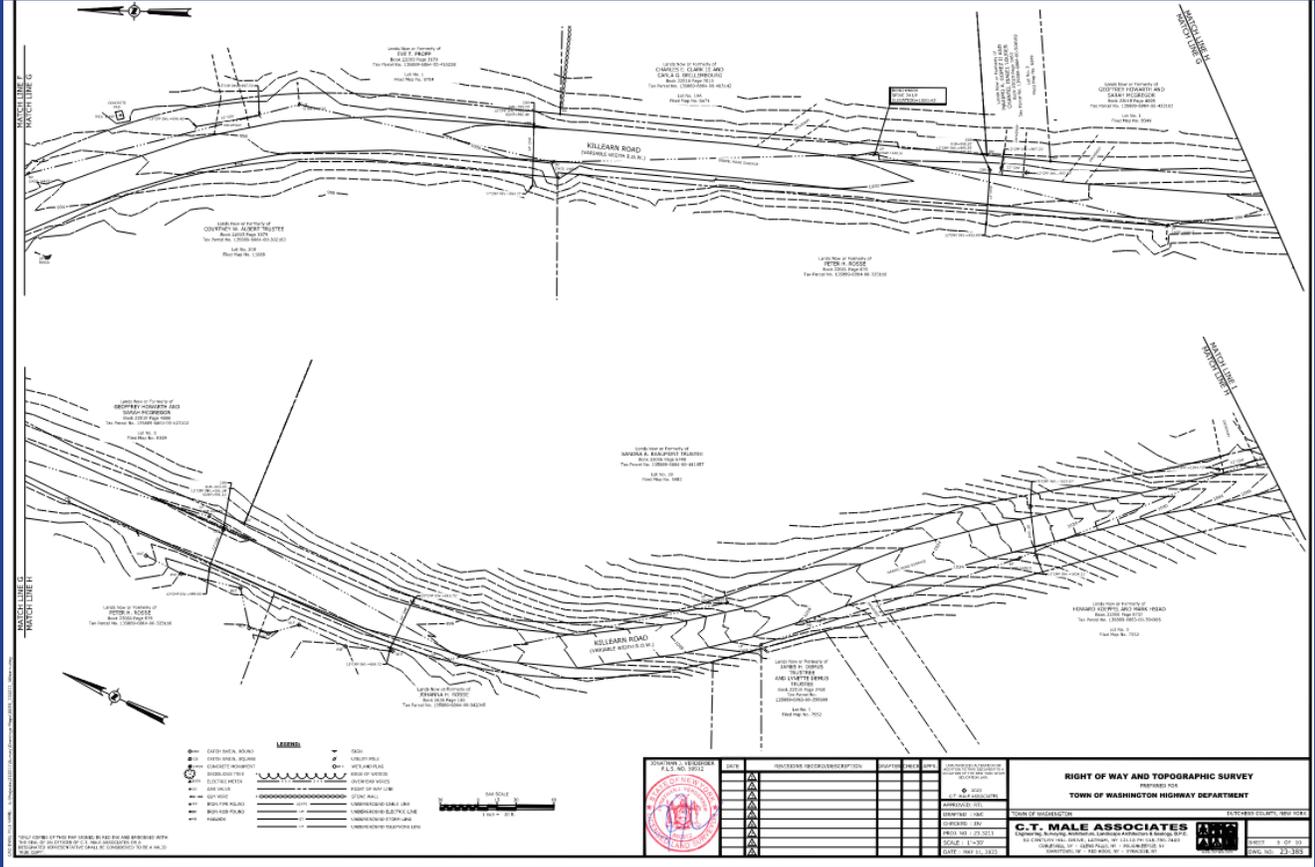


- March 2023



- April 2023

# 2023 Findings Survey

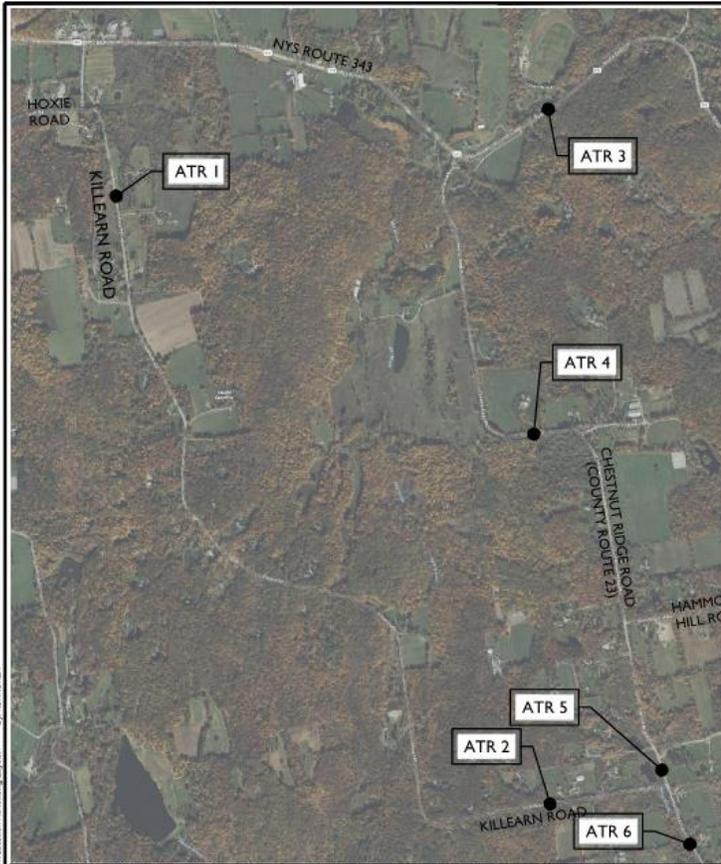


## By C.T. Male Associates

- Variable Right of Way widths
- "User Road"
- Most of road has adequate room for some improvements
- Some official drainage easements for road onto private lands
- Located Wetlands on Roadside
- Provided base mapping and topography for any future design

# 2023 Findings

## Traffic Study



- Conducted in May/June of 2023
- Used available data from State on NYS Route 343
- 155 Vehicles per day – North End of Killlearn Rd
- 66 Vehicles per day – South End of Killlearn Rd
- ~6% Heavy Trucks
- Operating speed higher than posted Speed Limit - North End
- No clear indication of Killlearn Road being used as an excessive pass-thru road for local traffic

Section 05

Recommendations



# Project Alternatives

**Depending on available funding, CED proposed five (5) alternatives to be considered:**

1. ALTERNATIVE 1 – BASIC REPAIRS
2. ALTERNATIVE 2 – DRAINAGE DITCHES
3. ALTERNATIVE 3 – MILL & FILL WITH DRAINAGE IMPROVEMENTS
4. ALTERNATIVE 4 – RECONSTRUCTION – GRAVEL ROAD
5. ALTERNATIVE 5 – RECONSTRUCTION – ASPHALT ROAD

HYBRID OPTION: Mix of alternatives in specific locations



## Project Alternatives

# Alternative 1 – Basic Repairs

- Necessary repair areas determined by the Town and CED.
- Repairing and improving the existing roadway section in limited areas
- Repair areas include:
  - Gravel surface rutting
  - Settlement at existing culvert crossings
  - Embankment erosion
  - Culvert repair/replacements
  - All potholes, rills and erosion encountered on the road by spot-filled and compacted with a 10-ton roller.
  - Applying a layer of topping stone placed along the entire road and graded with crown.
  - Posting a weight limit on the road and establish a permitting process for larger vehicles

## Project Alternatives

# Alternative 2 – Drainage Ditches

- Install drainage ditches along majority of roadway length, on each side
- Key to roadway's life cycle and operation
- Can lead to improved site and roadway conditions, while minimizing actual roadway repairs
- Helps to prevent future deterioration of the existing gravel road



## Project Alternatives

# Alternative 3 – Mill and Fill with Drainage Improvements

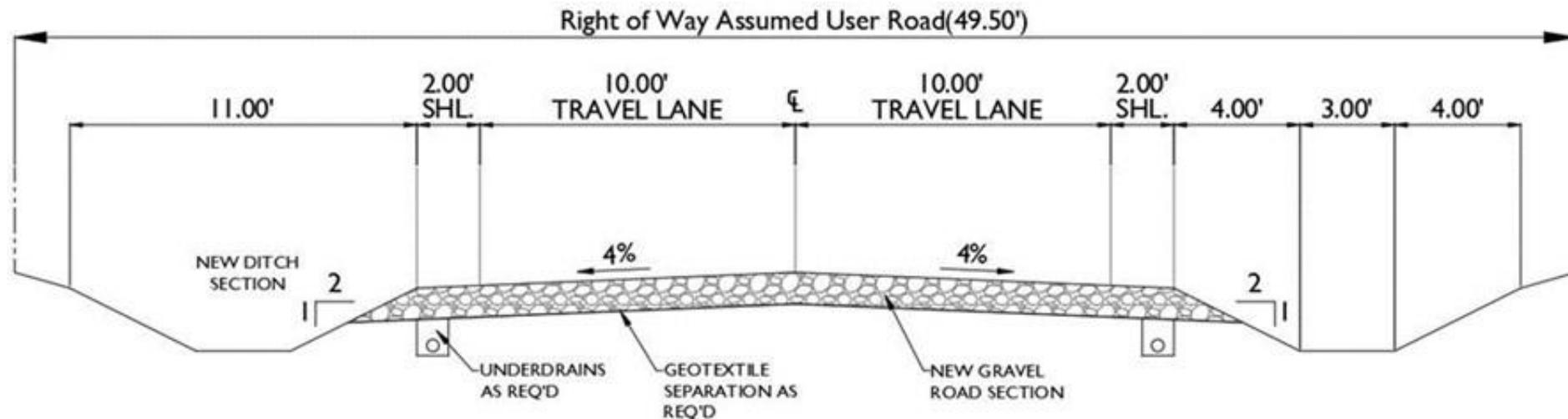
- Gravel reclamation
- Revitalize the existing road without full reconstruction
- Uniformly compacts and reuses material already in the road section, reduces new material needed
- Most useful for portions of road experiencing collapse or failure



## Project Alternatives

# Alternative 4 – Gravel Road Reconstruction

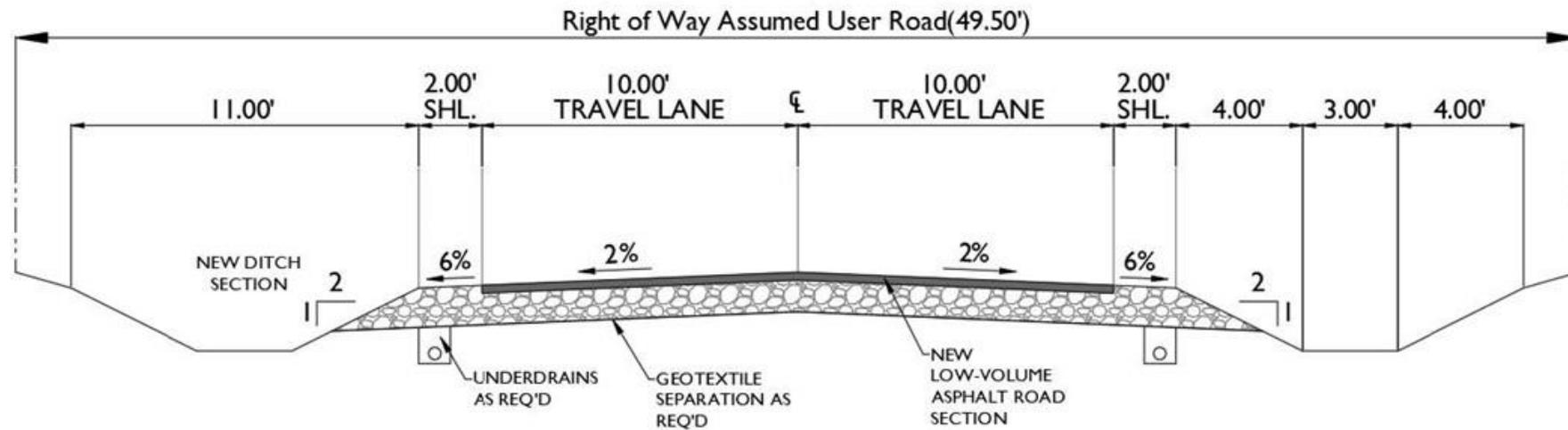
- Two (2) - 10ft Wide Travel Lanes – 2ft Wide shoulders
- Redefines crown and dimensions of roadway
- Install new drainage ditches



## Project Alternatives

# Alternative 5 – Paved Road Reconstruction

- Two (2) - 10ft Wide Travel Lanes – 2ft Wide shoulders
- Redefines crown and dimensions of roadway
- Install new drainage ditches



## 2023 Findings

## Cost Benefit Analysis



- Federal Highway Administration Guide
- 10 Step Process to help determine if a Gravel Road should be paved.
- Cost Portion
  - Maintenance Cost
  - User Costs
  - Construction Costs

| Options                    |               |                      |                             |                     |
|----------------------------|---------------|----------------------|-----------------------------|---------------------|
| Option                     | Life* (Years) | Cost Per Mile        | Maintenance Per Mile/Year** | Cost/Mile Per Year  |
| Repairs                    | 3             | \$ 152,658.00        | \$ 13,645.30                | \$ 64,531.30        |
| Drainage Improvements      | 8             | \$ 538,405.00        | \$ 13,645.30                | \$ 80,945.92        |
| <b>Mill &amp; Fill</b>     | <b>12</b>     | <b>\$ 514,963.00</b> | <b>\$ 13,645.30</b>         | <b>\$ 56,558.88</b> |
| Gravel Road Reconstruction | 12            | \$ 903,566.00        | \$ 13,645.30                | \$ 88,942.46        |
| Pavement (HMA)             | 20            | \$ 2,110,692.00      | \$ -                        | \$ 105,534.60       |

\*Life until first moderate to major repair

\*\* Gravel Road Combined Maintenance & User Cost Total per year

# Recommended Option Alternative 3 – Mill and Fill with Drainage Improvements

- Improve Drainage with roadside swales
- Revitalize the “Base” of the Road with reclamation
- Apply new Surface Stone Treatment
- Establish and maintain 4% crown
- Normal annual maintenance





# Videos



Questions?

## 2023 Findings

# When to Pave a Gravel Road?

- **When Should We Pave This Gravel Road? A Ten Part Answer**

1. After Developing a Road Management Program
2. When the Local Agency Is Committed to Excellence
3. When Traffic Demands It
4. After Standards Have Been Adopted
5. After Considering Safety and Design
6. After the Base and Drainage Are Improved
7. After Determining the Costs of Road Preparation
8. After Comparing Pavement Life and Maintenance Costs
9. After Comparing User Costs
10. After Weighing Public Opinion

- 1. Condition Met
- 2. Condition Met
- 3. Condition Partially Met
- 4. Condition Partially Met
- 5. Condition Not Met
- 6. Condition Not Met
- 7. Condition Met
- 8. Condition Not Met – Based on assumptions of cost
- 9. Condition Not Met – Based on assumptions of cost
- 10. – In Process

**These are just considerations – No Formula to answer the question**