

VE: Bringing value and innovation beyond the 11' lane



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What is VE?

- Review of a project in design
- Multidisciplinary, independent team
- Systematic process

- Makes recommendations on:
 - Improving the function
 - Reducing the cost while retaining needed function

Why do it?

- Introduce creative or innovative solutions that may not have been considered
- Can confirm design elements
- Identify solutions based on changed conditions on long-term projects



Lessons Learned



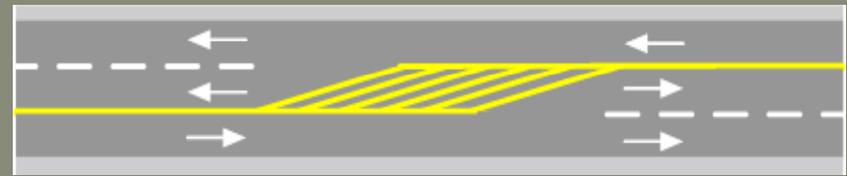
Traffic Forecasting: the foundation of project decisions

Annual Growth Rate	20 Year Growth Multiplier	Base Traffic	Forecast Traffic
1%	122%	8000	10000
2%	149%	8000	12000
3%	181%	8000	14500

Annual Growth Rate	20 Year Growth Multiplier	Base Traffic	Forecast Traffic
1%	122%	13000	16000
2%	149%	13000	19500
3%	181%	13000	23500

Annual Growth Rate	20 Year Growth Multiplier	Base Traffic	Forecast Traffic
1%	122%	180	220
2%	149%	180	270
3%	181%	180	330

Traffic Forecasting: the foundation of project decisions



Which design is needed for a forecast ADT of 5,000 vpd?
10,000? 25,000?

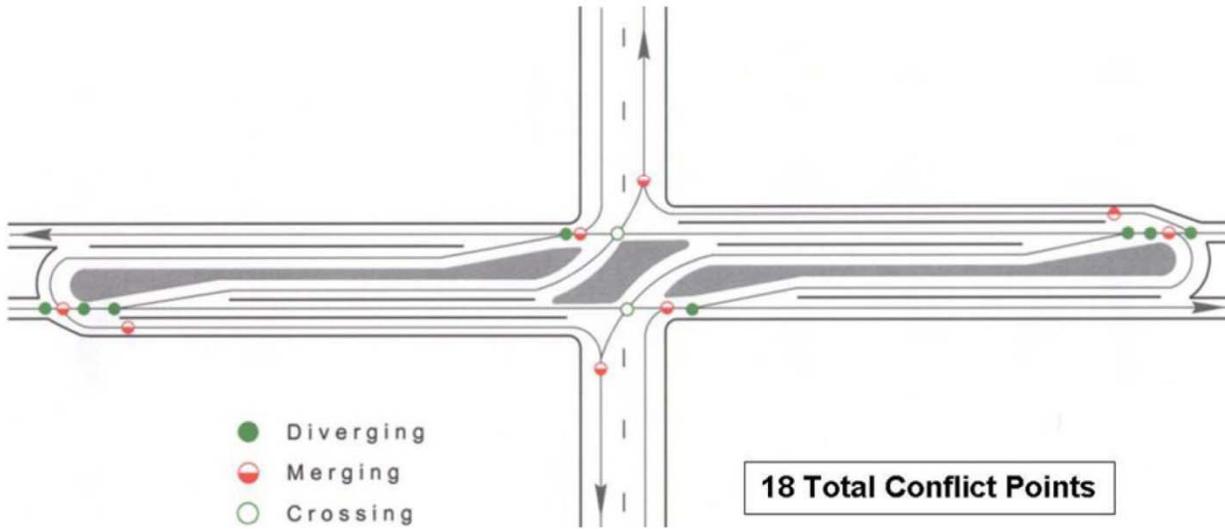
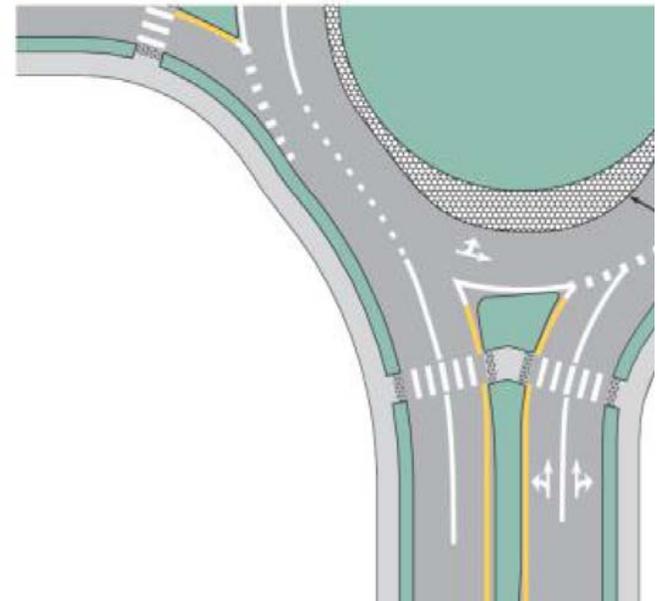
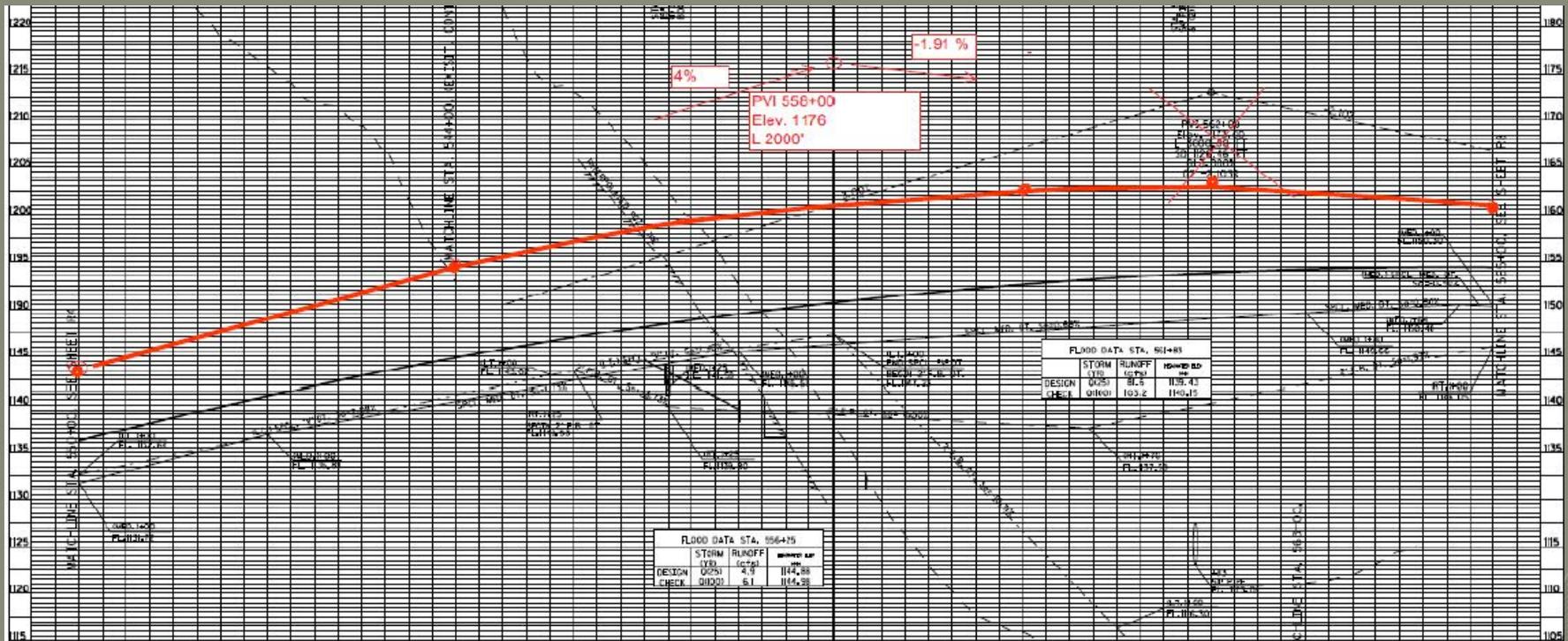


Diagram of Superstreet Concept (Alternative 2)



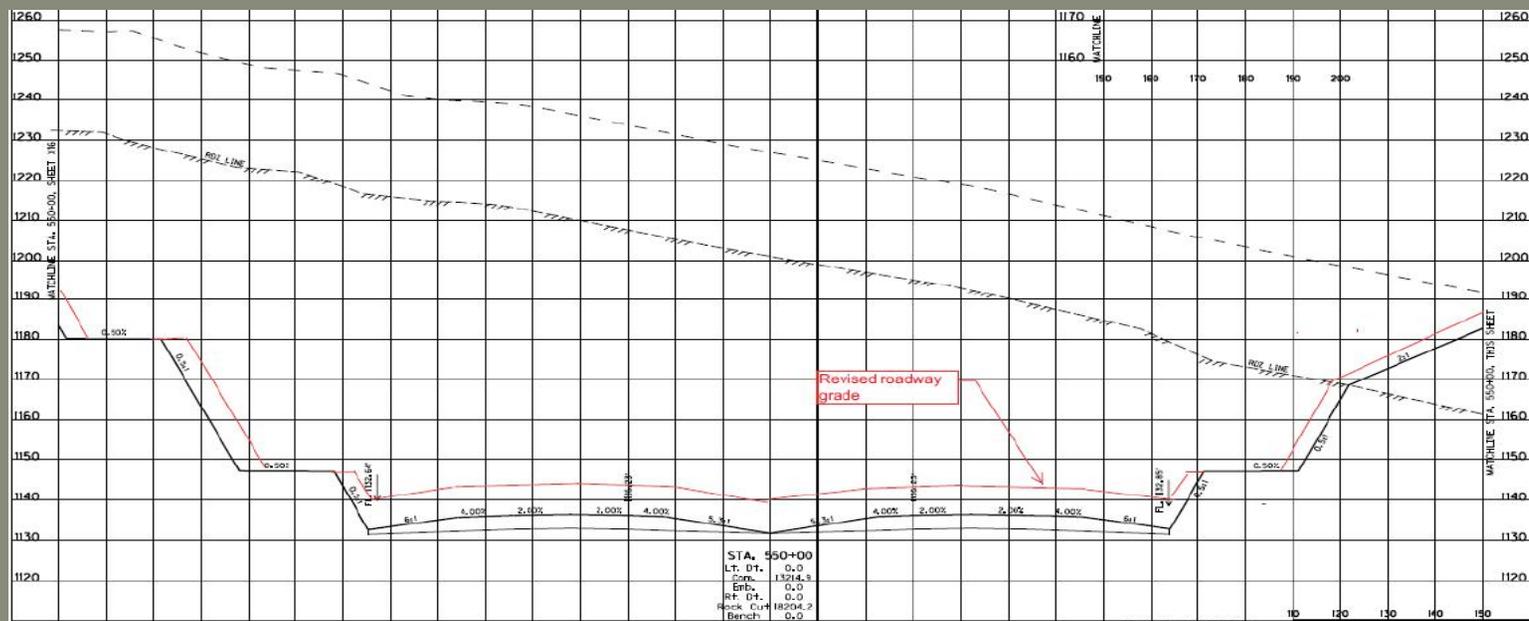
Making the Grade

- Common recommendation has been better earthwork balancing.
 - Example project savings (400,000 CY/\$1.3 M)



Making the Grade

- Other benefits include:
 - Cost control by avoiding borrow or waste sites
 - Helps blend into existing topography
 - Less R/W and environmental footprint

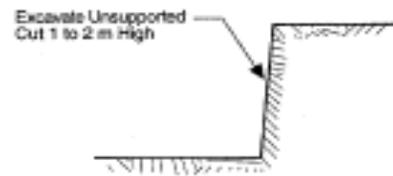


Structures: Top Down Excavation Techniques

Soil Nail Walls



Soil Nail Walls



STEP 1. Excavate Small Cut



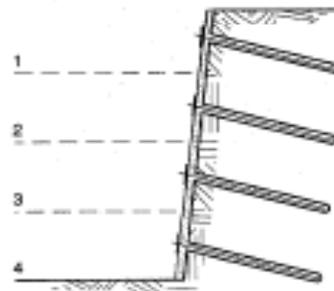
STEP 2. Drill Hole for Nail



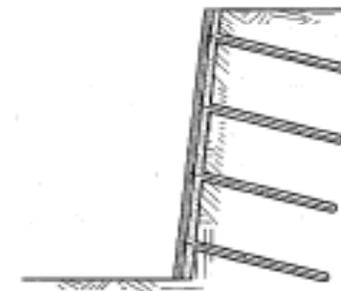
STEP 3. Install and Grout Nail



STEP 4. Place Drainage Strips, Initial Shotcrete Layer & Install Bearing Plates/Nuts



STEP 5. Repeat Process to Final Grade



STEP 6. Place Final Facing (on Permanent Walls)

Figure 2.1 Typical Nail Wall Construction Sequence

Structures: Top Down Excavation Techniques

Soldier Piles and Lagging



MOT Plans: building around rush hour

Full Closures

- RESTORE 64 (I-64 Downtown)
- Full Closure - 30 days
- Completed 2008



I-64 Weekend Project The Faster Way To Go

Completed 2001

Project Description
Interstate 64 will be closed between the Watterson Expressway (I-264) and Spaghetti Junction. The project will consist of pavement rehabilitation, repairs within the Cochran Hill Tunnel, new guardrails and signage, and an improved aesthetic relationship with Cherokee and Sevens Parks. Costing \$71 million, this is the first significant repair project along this portion of I-64 since the road was built in 1970.

Description of Detour
Travelers are encouraged to use I-71 as an alternate route. Detour signs and local law enforcement will be along the detour route to assist motorists. For detour and closure information call the I-64 hotline (502) 267-6411 or visit www.kyc.state.ky.us

Duration of Project
The closures will be every weekend beginning August 19th and lasting through November 19th. Interstate 64 will be closed in both directions each weekend from 9:00 p.m. Friday to 6:00 a.m. Monday morning.

MOT Plans: building around rush hour

Accelerated Bridge Construction

Accelerated
Bridge
Construction



Utility Avoidance: treat it like a 4f resource

Treat the utilities like 4f –

- Avoid, Minimize, Mitigate (relocate)



Utility Avoidance: treat it like a 4f resource

Treat the utilities like 4f –

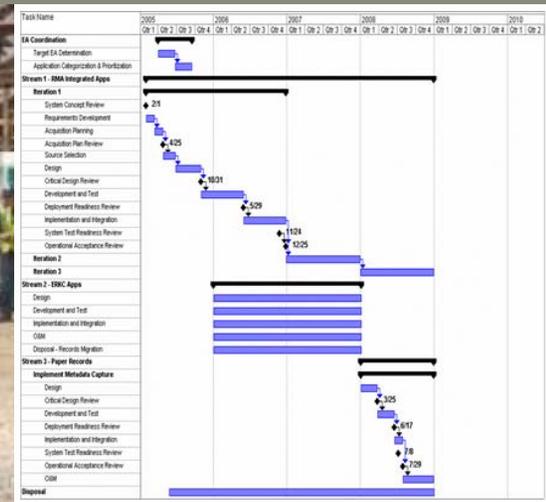
- Locate utilities early in Project Development



Utility Avoidance: Why Stand Around Waiting?

Considerations

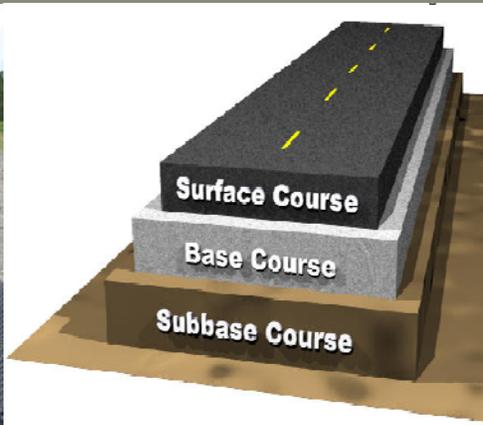
- Understand the impacts to utilities are critical to staying on schedule & budget
- Think through the relocation time and costs for **both** public and private utilities.



Utility Avoidance: VE Study Recommendations

● Cost control items:

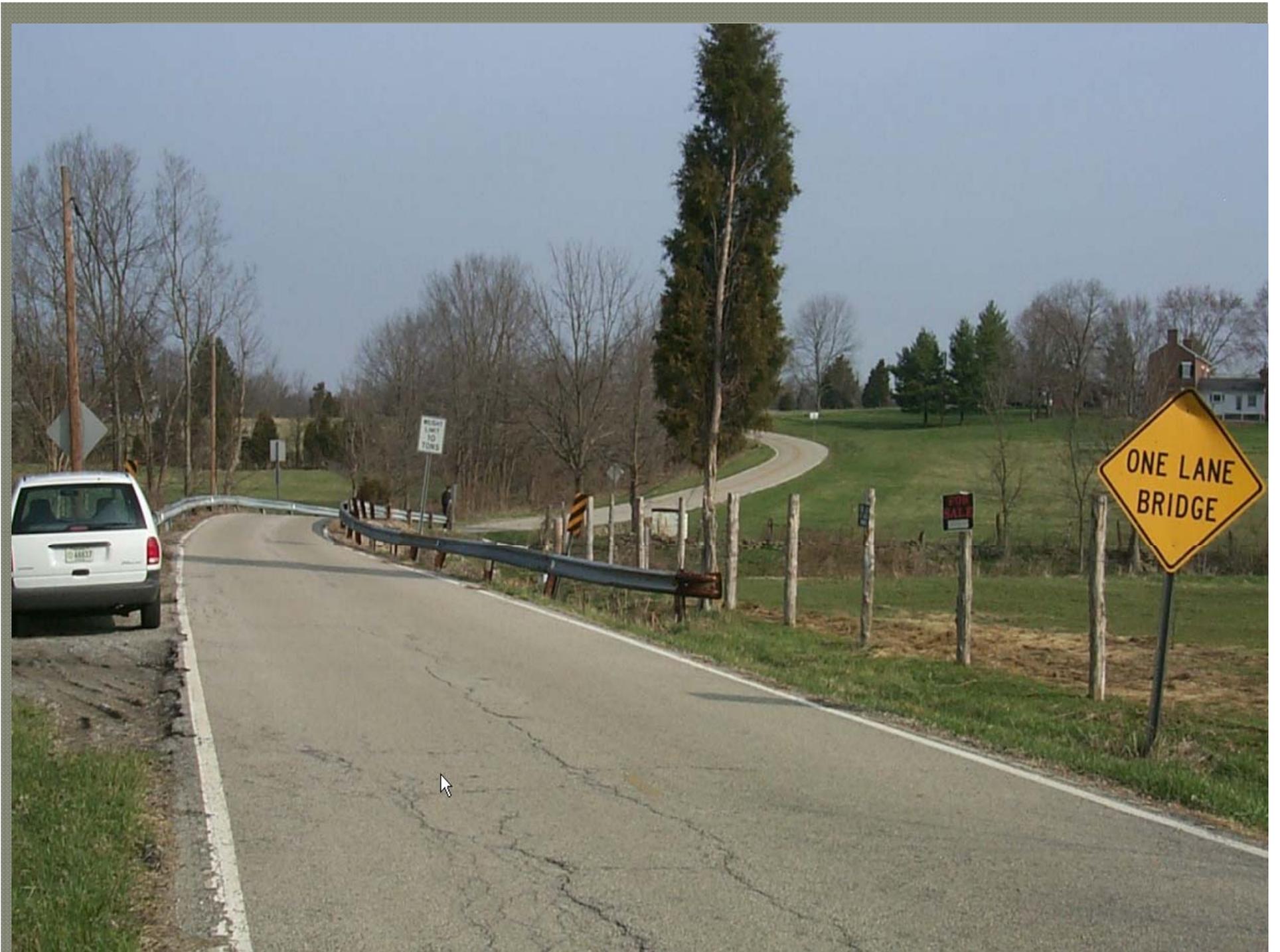
- Consider pavement depths when determining underground utility impacts. (Geogrid may help in some cases)
- Set proposed profile grade above existing profile (MOT and utilities benefits)
- Develop preliminary traffic signal layouts early
- Weigh how the pavement depths (subbase level) will effect the ability to maintain property access during construction.



Wrapping it up

Keeping Perspective: Be Open Minded









- Outside perspective had an idea the Project Team had not considered.
- VE process has the same intent. The result can be innovation that may improve the design or reduce the cost of the project.

Thank You!

Questions?