



I-71 Widening

Oldham Co - KY 329 to KY 393 (Scroll Down For More Information)

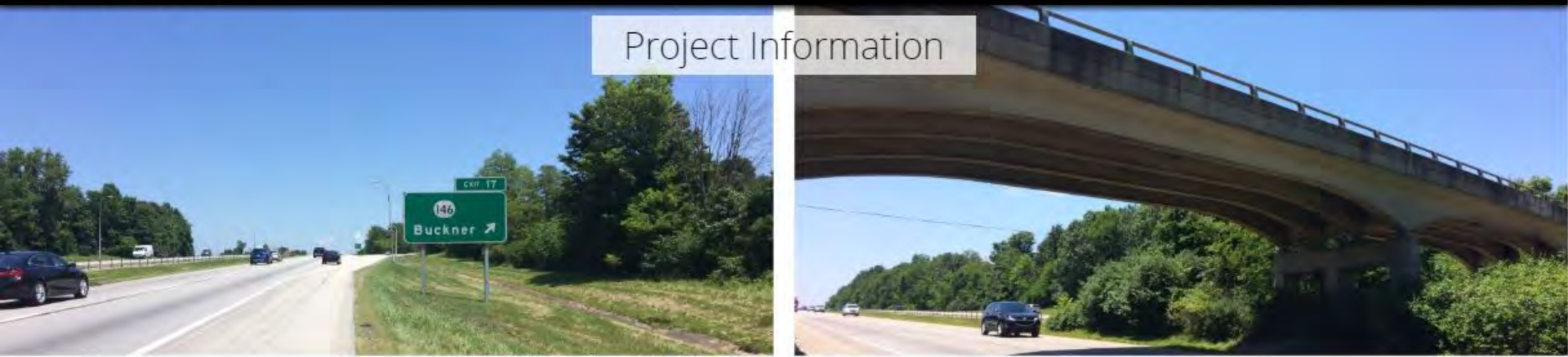
I-71 Widening

A Story Map

- Project Information
- Alternatives
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I-71 Widening

Project Information



I-71 Widening



Project Information

Welcome!

Thank you for visiting the I-71 Online Public Meeting

Typically, this meeting would be held in person, however, due to the COVID-19 pandemic and to insure the safety of everyone involved, we've opted to bring you the information in this online format.

[Click here for a welcome video](#) that will help guide you through the information.

Most Maps are interactive and can be zoomed into and out of like Google Maps. If text is underlined, it is a link that can be clicked. We welcome you to click, zoom, and investigate any page or map in this presentation.

The last tab includes a brief Participant Information Survey to gather your input about the project. Please take a moment to fill it out. Surveys should be completed and submitted by XXXX.

For project related questions and comments or to schedule an in-person by-appointment meeting, please contact:

Chuck Berger

Chuck.Berger@ky.gov

(502) 210-5400

Andre Johannes

Andre.Johannes@ky.gov

(502) 564-3280

A Story Map

Survey

Project Information

Construction - \$34,000,000 (2024)



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I-71 Widening

Project Information

Traffic

I-71 - over 66,000 Average Daily vehicles and projected to grow to 100,000 vehicles by 2045

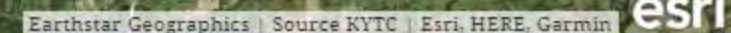


A Story Map

Survey

Project Information

This I-71 widening project begins near KY 329, where the I-move project ends.



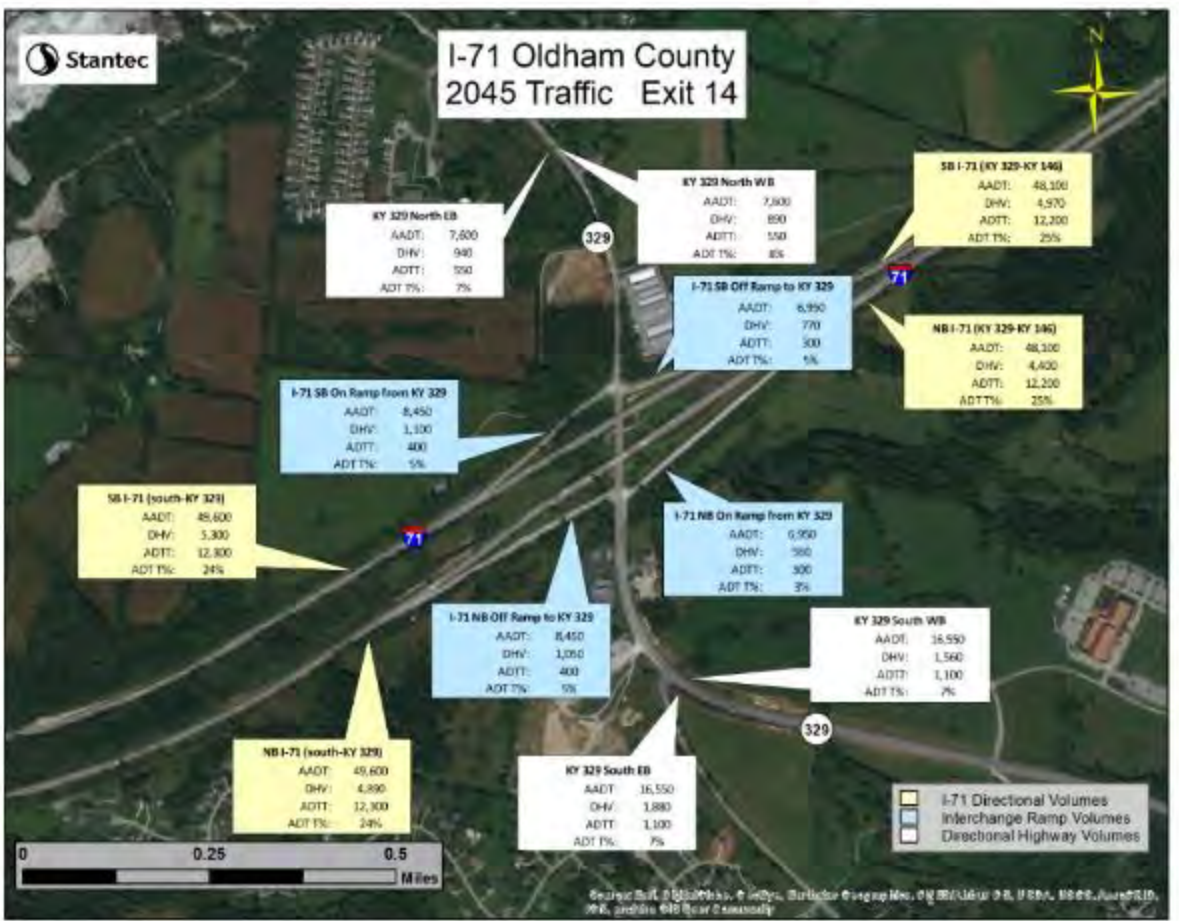
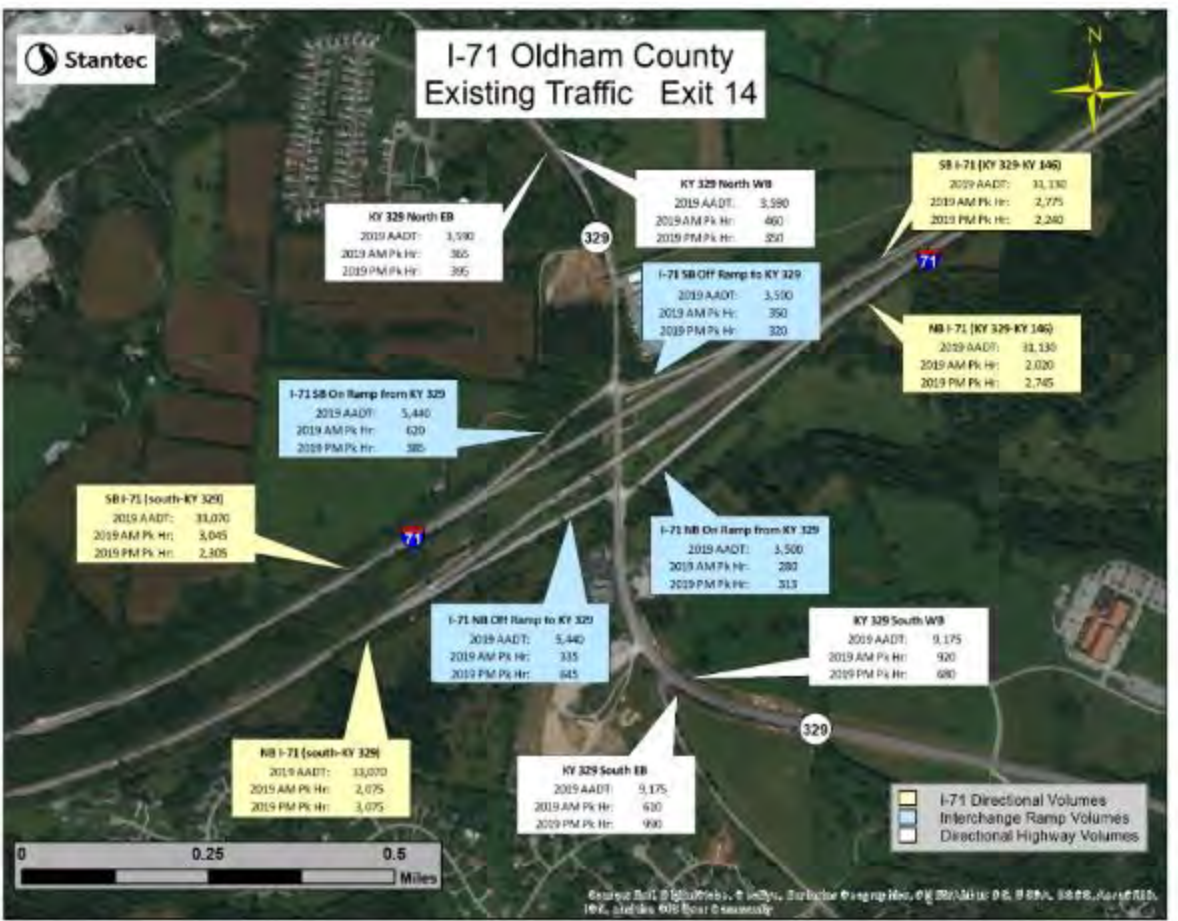
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Project Information



Traffic
KY 329 (Exit 14) has over 18,000 vehicles

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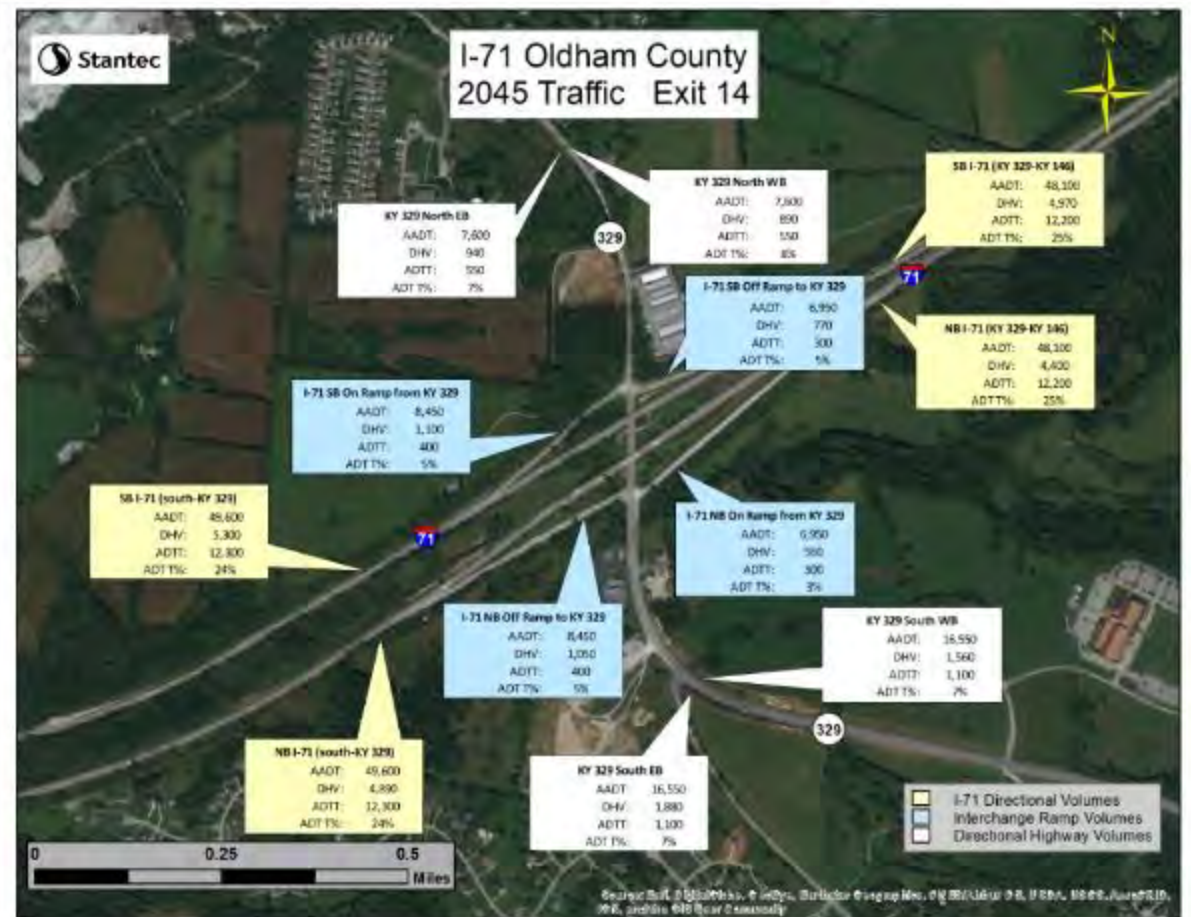
I-71 Widening

Project Information

Traffic

KY 329 (Exit 14) has over 18,000 vehicles daily which will grow to over 33,000 by 2045

- AADT - Average Annual Daily Traffic
- DHV - Design Hourly Volume
- ADTT - Average Daily Truck Traffic
- ADT T% - Average Daily Traffic - Truck %



I-71 Widening

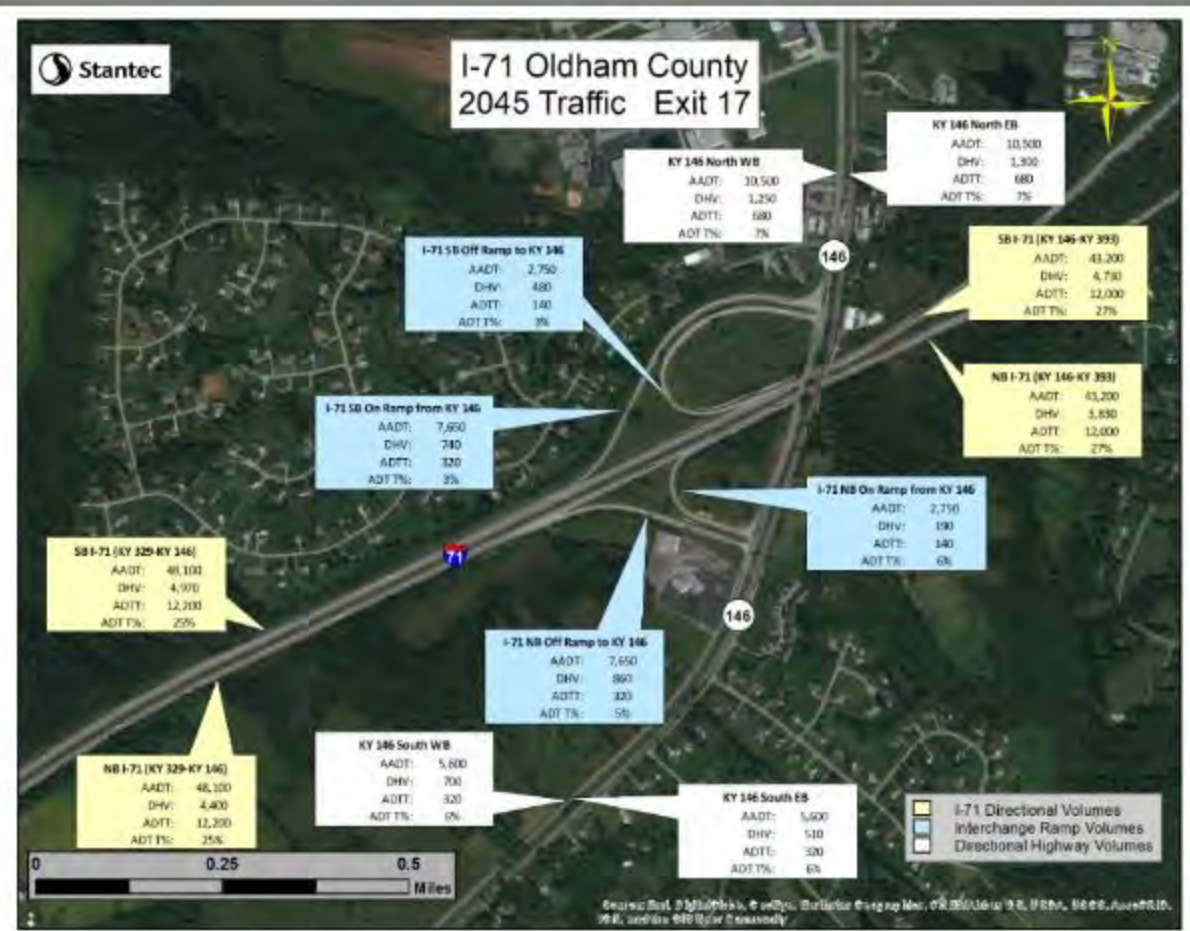
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AADT - Average Annual Daily Traffic
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ADT T% - Average Daily Traffic - Truck %

Project Information



Traffic

KY 146 (Exit 17) has over 13,500 vehicles daily which will grow to over 21,000 by 2045

I-71 Widening

Crash History (2015 - 2019)

829 Total Crashes

Crash Types by Manner of Collision

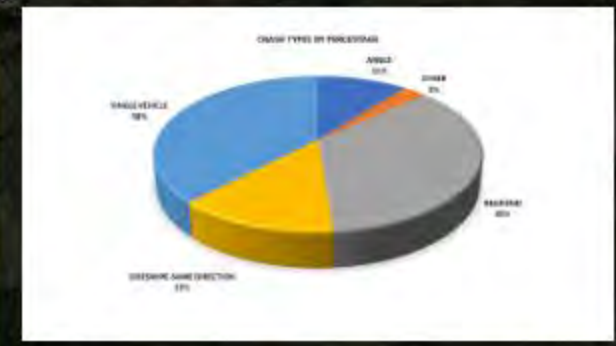
314 Single Vehicle

294 Rear End

111 Sideswipe - Same Direction

87 Angle

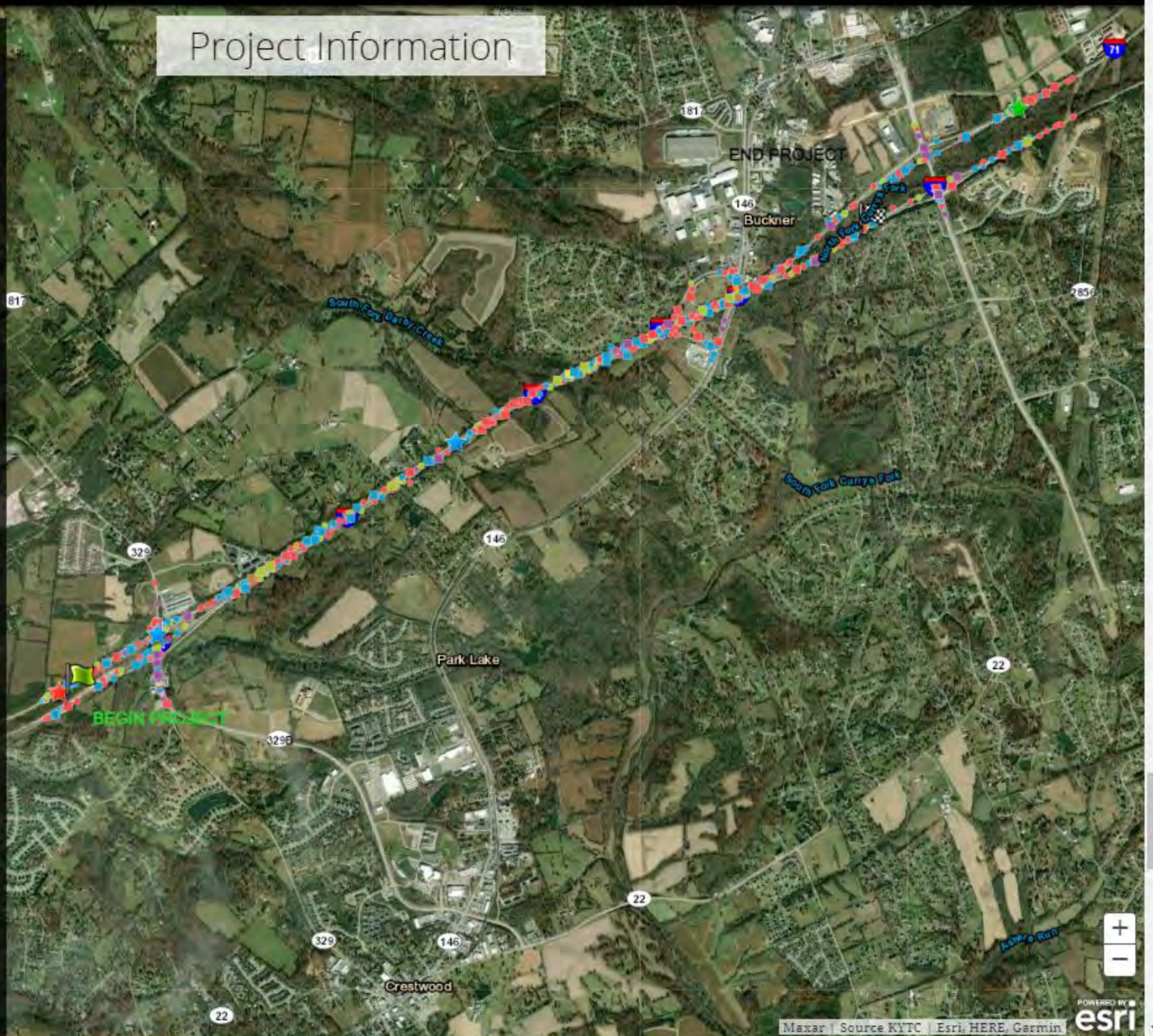
23 Other



- Collision Types (Color)
- SINGLE VEHICLE
 - REAR END
 - SIDESWIPE-SAME DIRECTION
 - ANGLE
 - BACKING
 - HEAD ON
 - SIDESWIPE-OPPOSITE DIRECTION
 - REAR TO REAR
 - OPPOSING LEFT TURN

Collision Severity (Shape)

Project Information



I-71 Widening

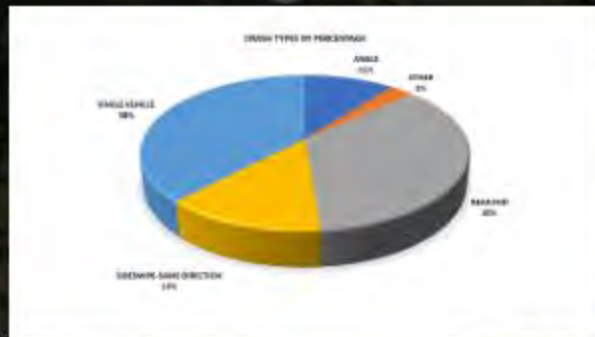
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87 Angle

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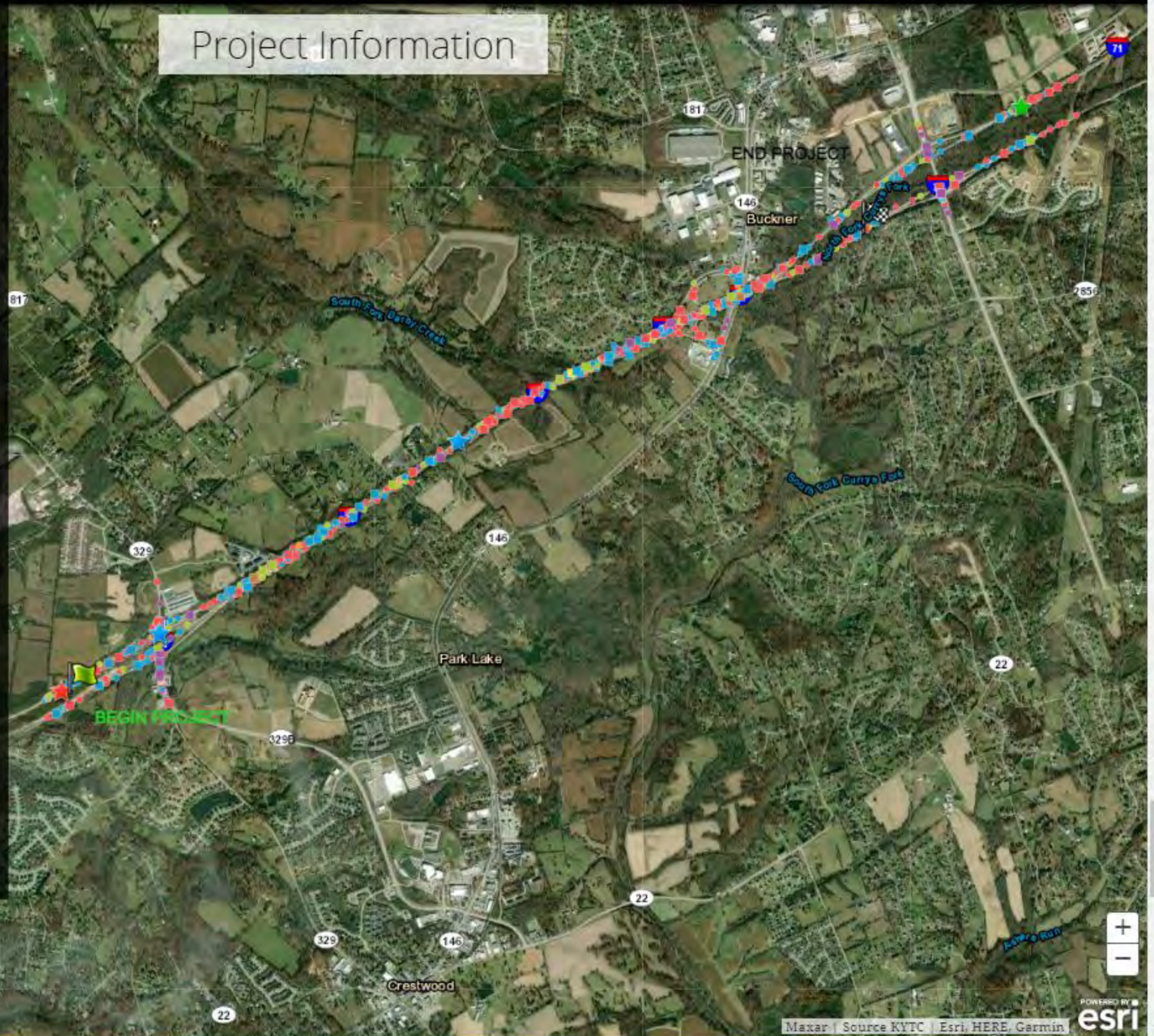


Collision Types (Color)

- SINGLE VEHICLE
- REAR END
- SIDESWIPE-SAME DIRECTION
- ANGLE
- BACKING
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- REAR TO REAR
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Collision Severity (Shape)

- Property Damage Only
- Injury Collision
- Fatality



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Crash History (2015 - 2019)

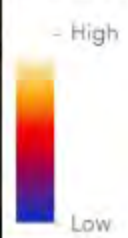
829 Total Crashes

Crash Severity

- 4 Fatal
- 128 Injury
- 697 Property Damage Only Collisions

All Crashes Heat Map

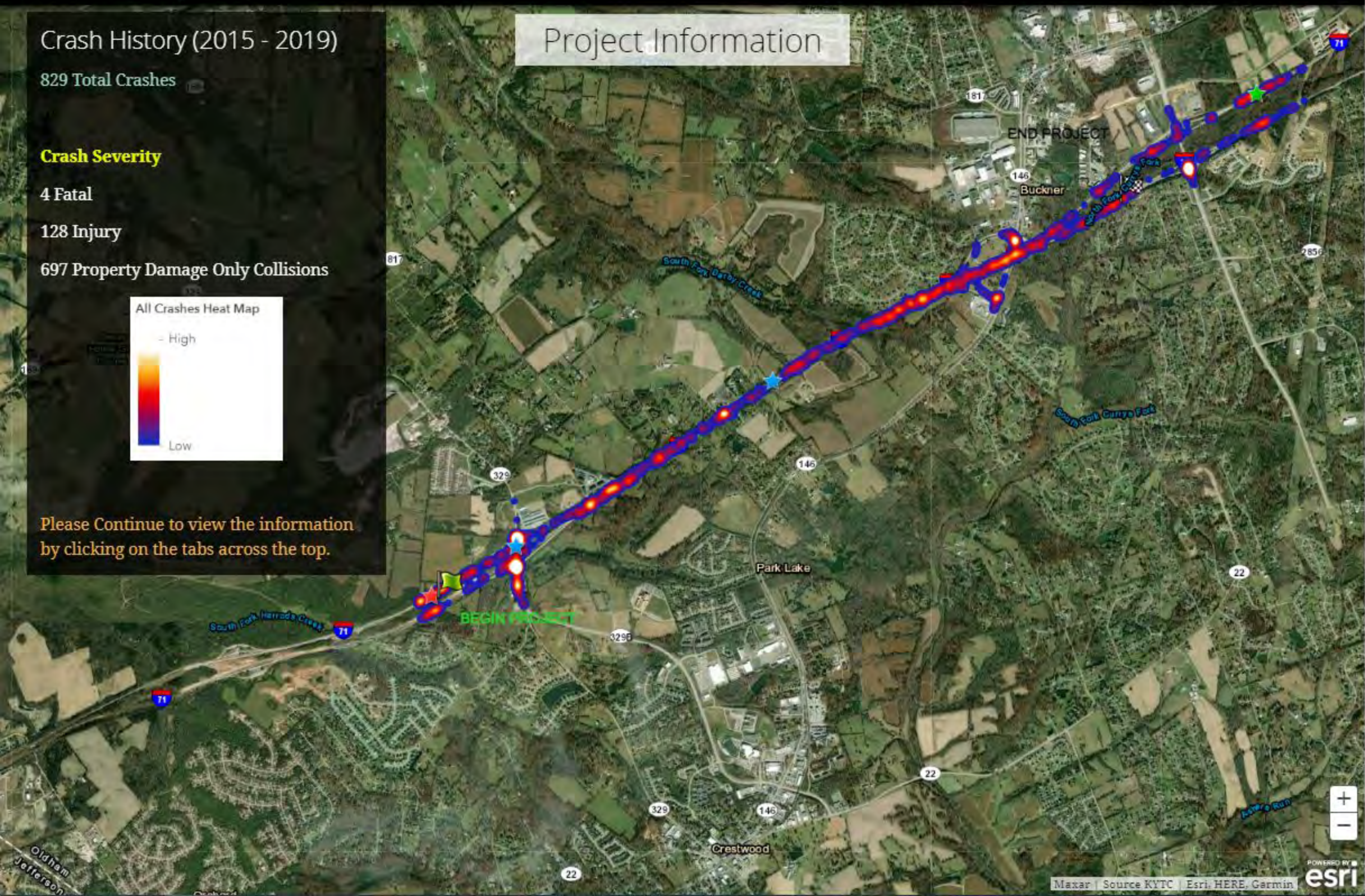
- High



Low

Please Continue to view the information by clicking on the tabs across the top.

Project Information



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- Alternative Overview
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- KY 329
- KY 146
- Glenarm Rd

Project Overview

The Project Team analyzed I-71 and the surrounding roads to determine the functionality of the roadways as they currently are. The project team then explored improvement options to I-71, and the KY 329 and KY 146 interchanges. Due to the widening of I-71, the Glenarm Rd Overpass needed to be reconstructed to achieve vertical clearance. It was no surprise that the roadways do not function well during peak traffic and it will only get worse by 2045.

After evaluating many improvement options within the project area (shown in purple), two alternatives for I-71, KY 329, KY 146, and Glenarm Rd are being considered and can be found in more detail on the following tabs. Each piece is independent and can be mixed and matched to form the preferred alternative. Please click through the tabs at your convenience.

Evaluation Criteria

The design team developed the alternatives and an associated cost estimate for each. To compare the options, the design team used a Benefit-Cost Analysis and Level of Service (comparisons can be found on the following tabs).

Benefit-Cost Analysis

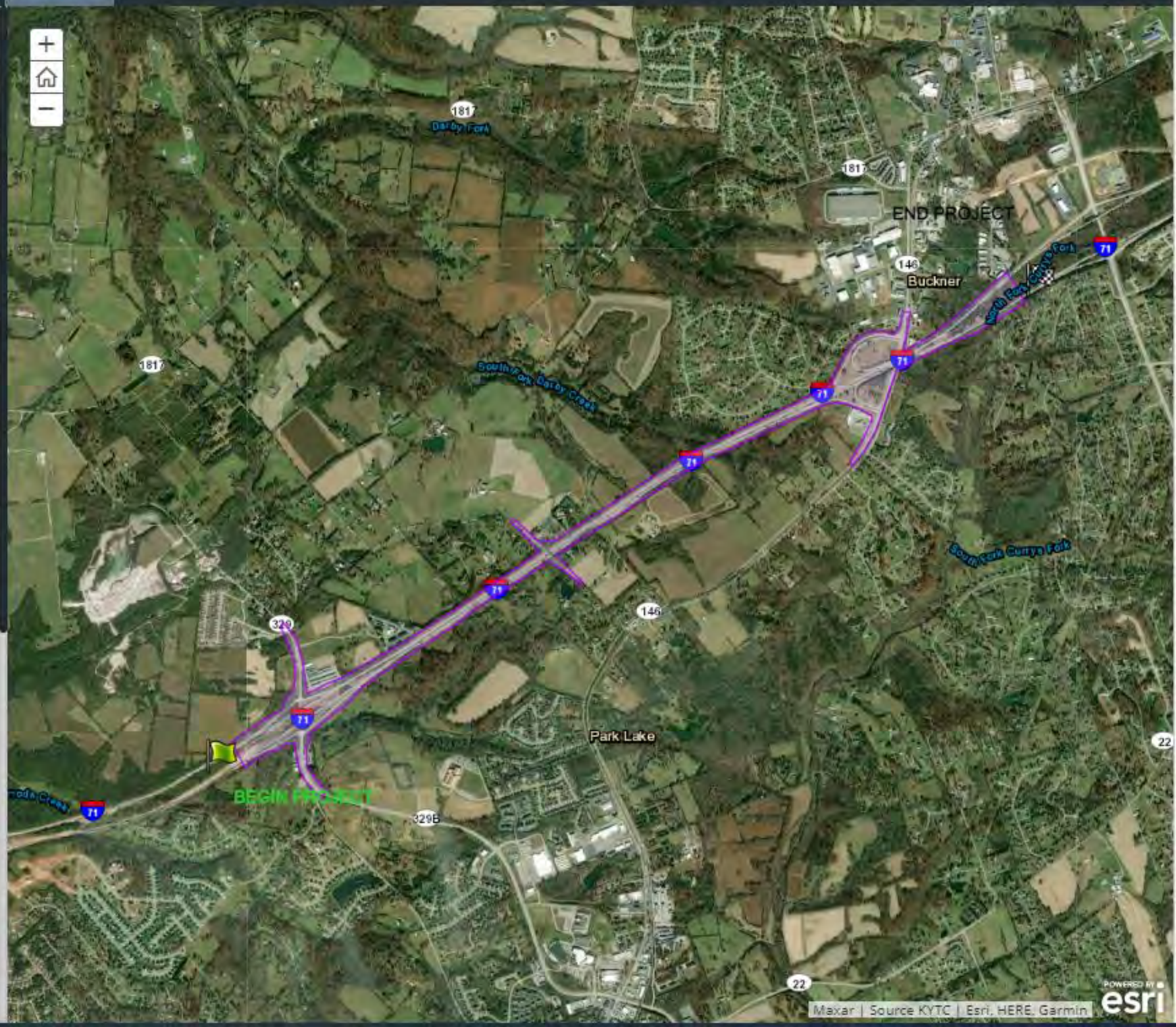
The Benefit-Cost Analysis consisted of two pieces: A Safety Benefit and a Travel Time Benefit compared to the Construction Cost.

- Safety Benefit - Cost savings due to reduction in crashes from potential roadway improvements.
- Travel Time Benefit - Hourly cost savings per person based on reductions in travel time.

The higher the number, the more "bang for your buck" you are expected to get with the improvement.

Level of Service

Level of Service is a qualitative measure to determine the operational characteristics of a roadway. It is used to define the quality of traffic operations based on measures such as vehicle speed, travel time, comfort and convenience, maneuverability, congestion and delay. There are six levels of service for each type of facility. The levels are designated by letters, from A to F with



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Benefit and a Travel Time Benefit compared to the Construction Cost.

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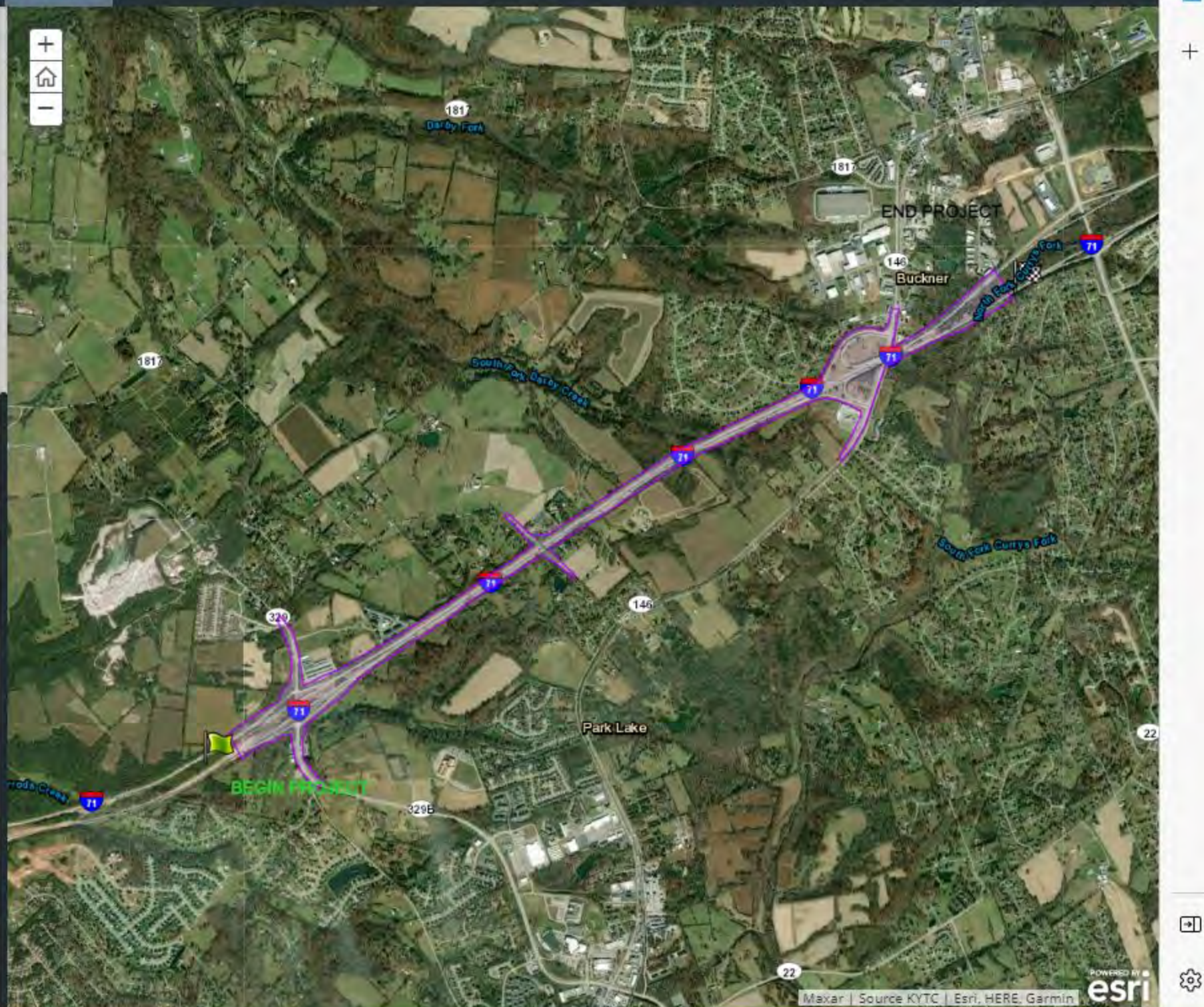
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LOS Diagram



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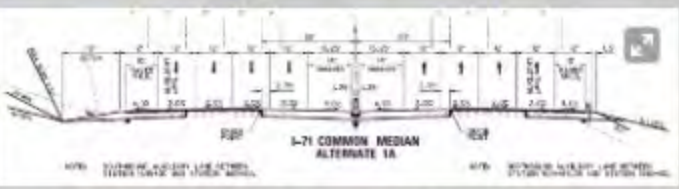
I-71 Widening Alternatives

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I-71 Alternatives

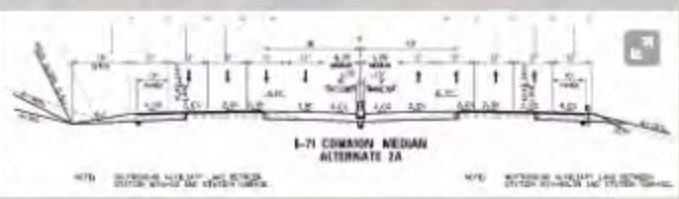
The traffic analysis determined that I-71 should be widened to 3 lanes. The two Alternatives considered have different inside shoulder width. Additionally, an auxiliary lane from KY 329 to KY 146 was explored (indicated as alternate "1A" and "2A").

Alternative 1 (and 1A) - 14' Inside Shoulders



Alternative 1 (and 1A) has a 14' inside shoulder. This is standard practice at the Transportation Cabinet. It allows for future growth if necessary.

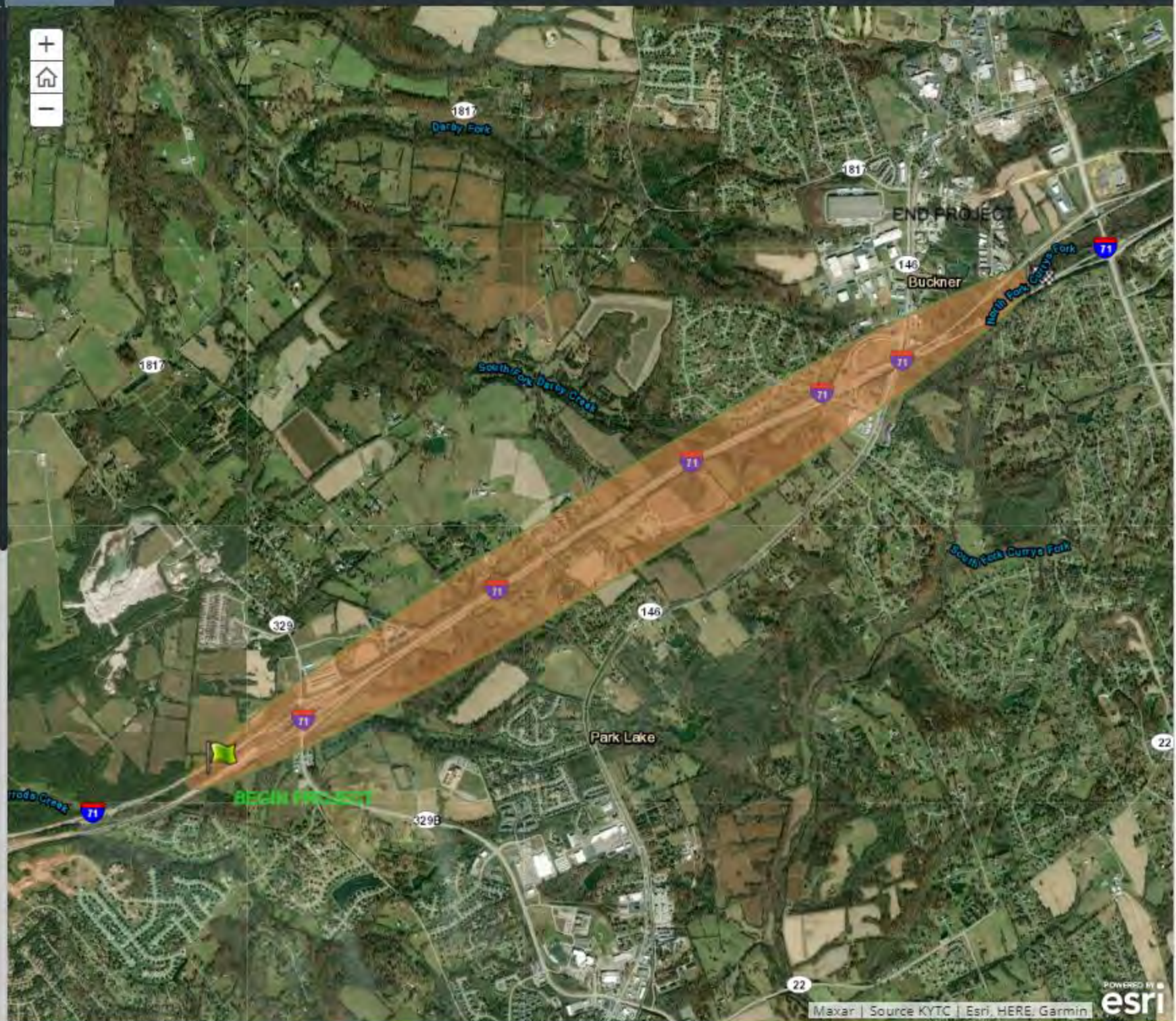
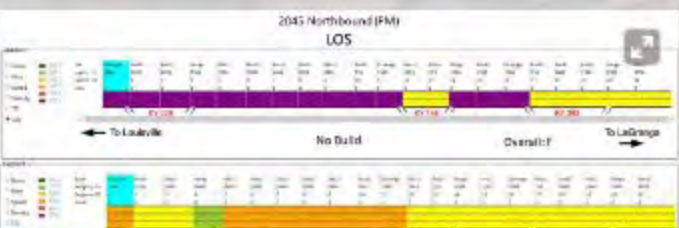
Alternative 2 (and 2A) - 10' Inside Shoulders



In an effort to minimize impacts, Alternative 2 (and 2A) has a 10' inside shoulder. This is minimum as required by federal regulations.

Level of Service

The inside shoulder width does not affect Level of Service, therefore the LOS for all alternatives are shown below (for a description on what LOS is, see [Alternative Overview](#)):



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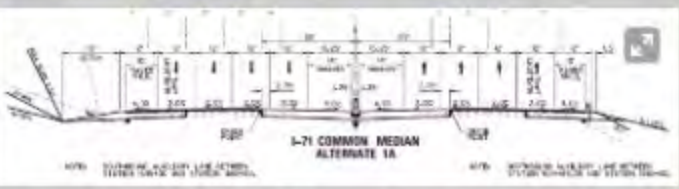
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I-71 Alternatives

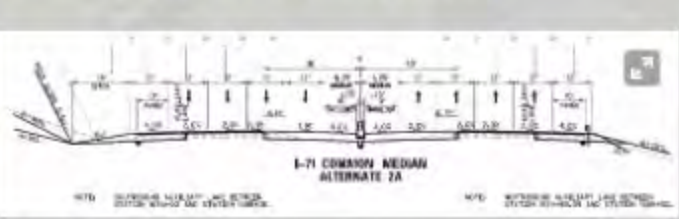
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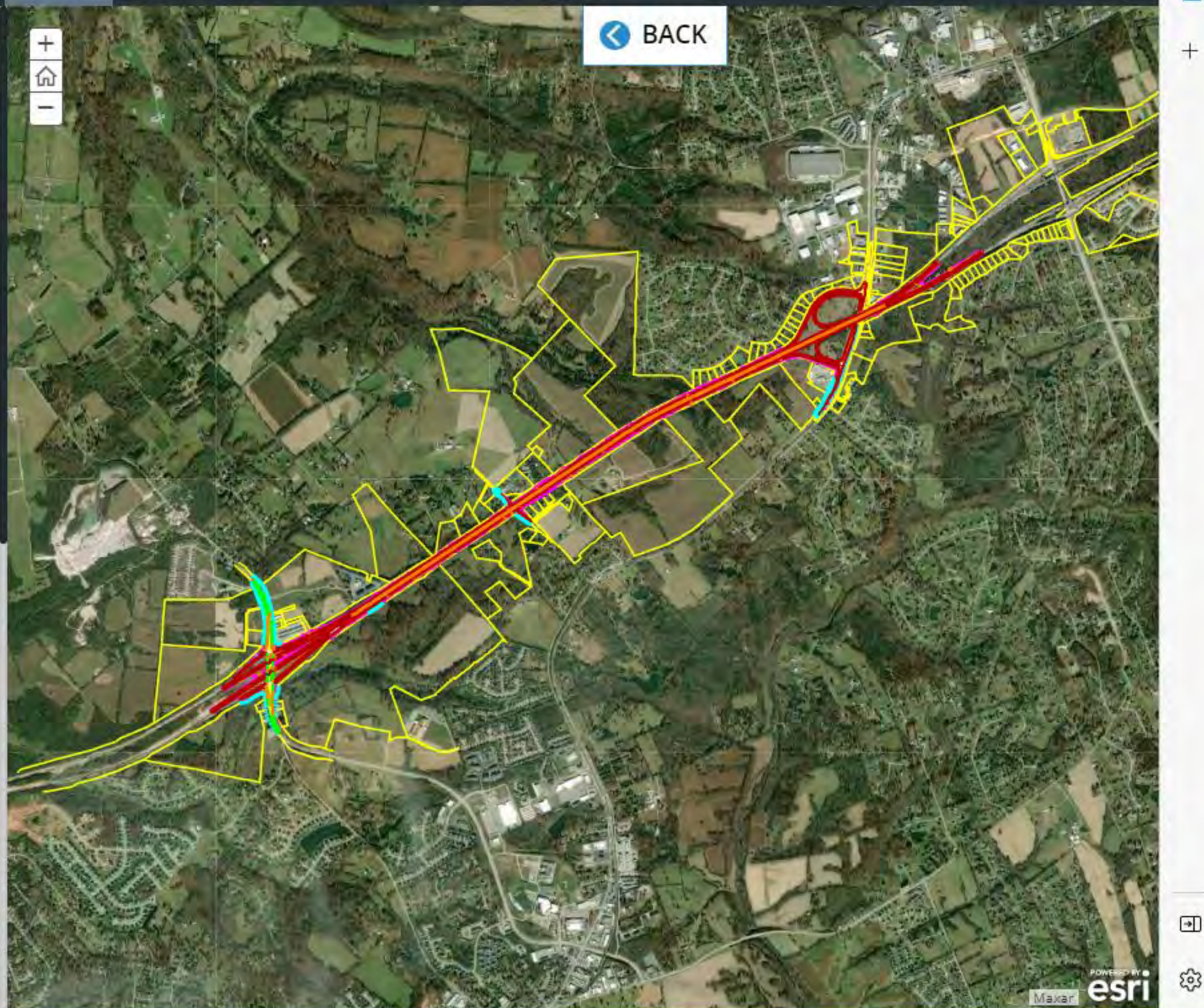
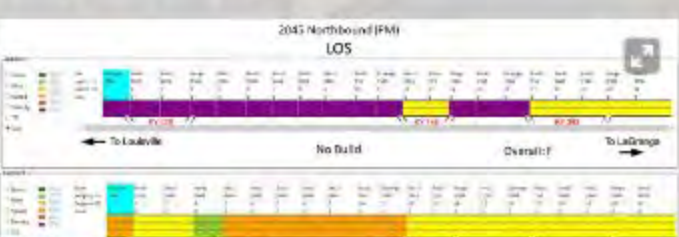
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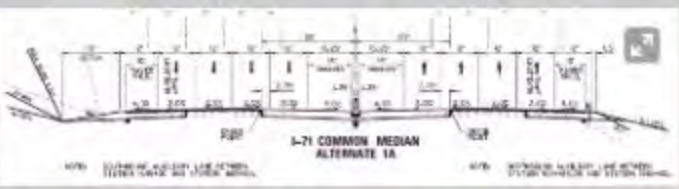
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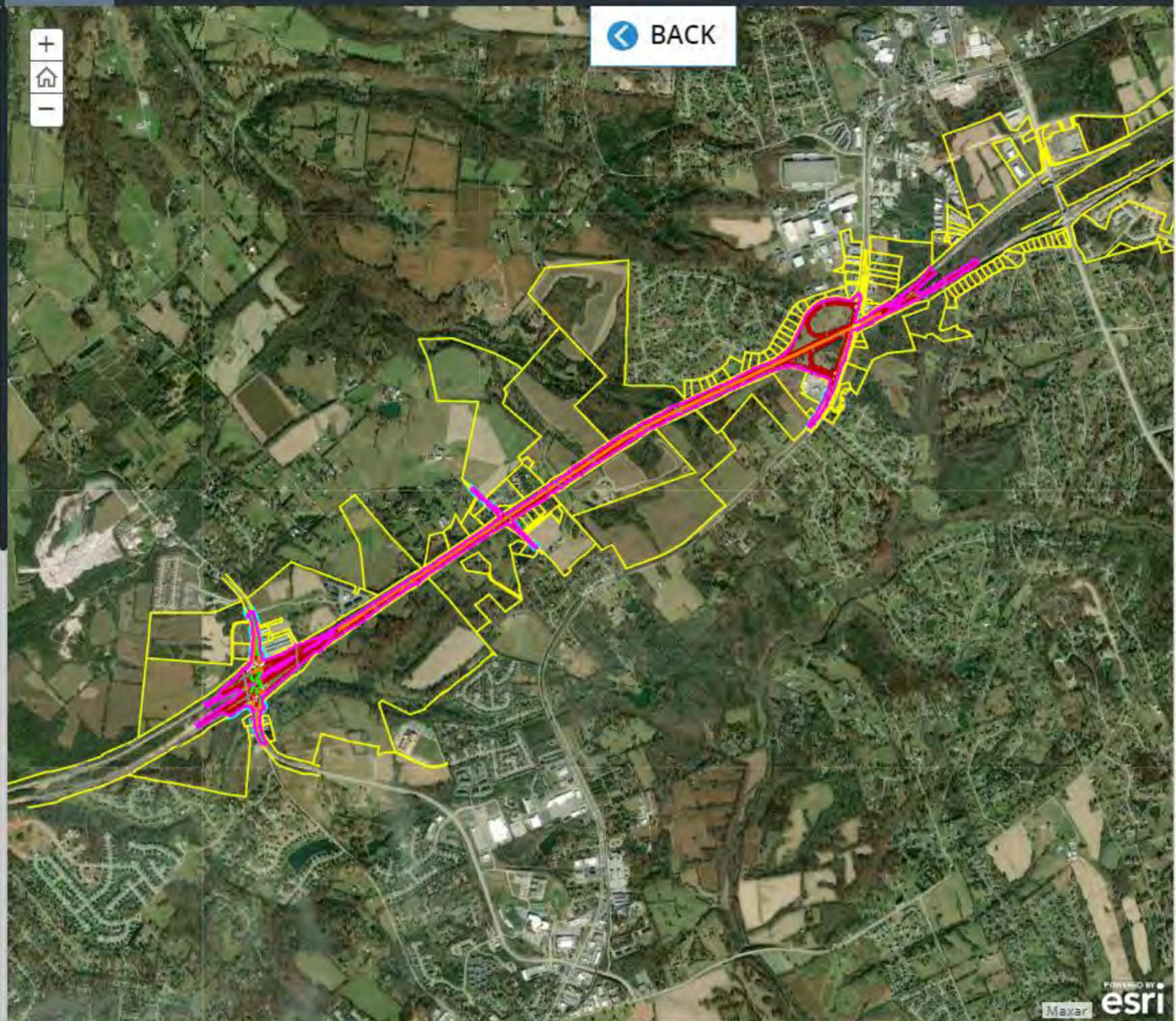
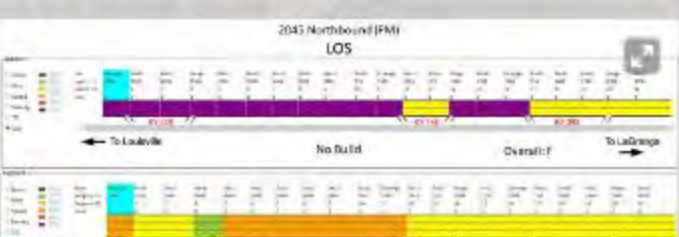
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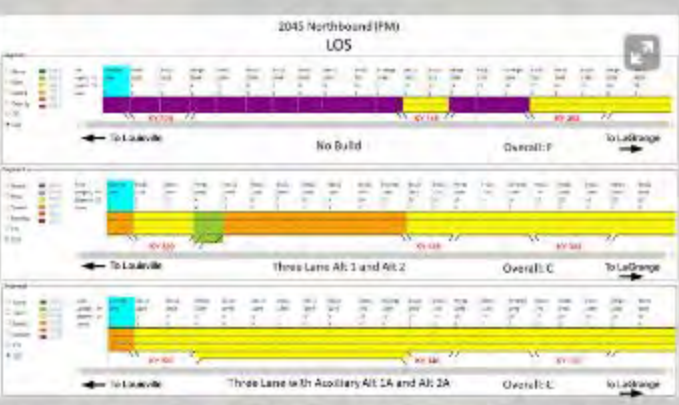
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Level of Service
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Both Alternatives provide an overall Northbound Level of Service of C - Acceptable. In order to improve all segments in the project area to a C, the auxiliary lane from KY 329 to KY 146 would be necessary.



Both Alternatives provide an overall Southbound Level of Service of D - Moderately Congested. In order to elevate this LOS to a C, the auxiliary lane should be extended from KY 146 to KY KY 329.



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The Cost Summary, Benefit Analysis and Decision Matrix used by the Project team can be found below. A more detailed discussion of these can be found in the Preferred Alignment Tab.

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

BACK

I-71 OLDHAM COUNTY ITEM NO. 5-483.10 PRELIMINARY LINE AND GRADE				
	MAINLINE ALT 1	MAINLINE ALT 1A	MAINLINE ALT 2	MAINLINE ALT 2A
TOTAL COST	\$ 50,960,000.00	\$ 56,102,000.00	\$ 50,595,000.00	\$ 55,805,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)				
ROADWAY EXCAVATION	\$ 2,200,000.00	\$ 2,500,000.00	\$ 2,400,000.00	\$ 2,600,000.00
PAVEMENT	\$ 20,600,000.00	\$ 23,900,000.00	\$ 20,500,000.00	\$ 23,500,000.00
BRIDGES	\$ 6,100,000.00	\$ 6,100,000.00	\$ 6,100,000.00	\$ 6,100,000.00
TOTAL CONSTRUCTION	\$ 48,600,000.00	\$ 53,500,000.00	\$ 48,300,000.00	\$ 53,300,000.00
RIGHT OF WAY				
PARCELS		1		
ACRES (RIGHT OF WAY)		0.1		
ACRES (EASEMENT)		0		
RELOCATIONS	0	0	0	0
TOTAL R/W COST	\$ -	\$ 2,000.00	\$ -	\$ -
UTILITIES				
RELOCATION COST	\$ -	\$ -	\$ -	\$ -
ENVIRONMENTAL				
TREE CLEARING	\$ 735,000.00	\$ 735,000.00	\$ 725,000.00	\$ 725,000.00
STREAMS	\$ 1,625,000.00	\$ 1,865,000.00	\$ 1,570,000.00	\$ 1,780,000.00
TOTAL PERMITTING FEES	\$ 2,360,000.00	\$ 2,600,000.00	\$ 2,295,000.00	\$ 2,505,000.00
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS				
PAVING ALT. DEDUCTION	(\$ 1,676,904.61)	(\$ 2,054,575.61)	(\$ 1,653,656.73)	(\$ 1,959,390.40)

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I - 71 OLDHAM COUNTY ITEM 5-483.10 BENEFIT-COST ANALYSIS SUMMARY					
ALTERNATIVE DESCRIPTION	20 YEAR TRAVEL TIME SAVINGS	20 YEAR CRASH REDUCTION SAVINGS	20 YEAR TOTAL TRAVEL TIME AND CRASH REDUCTION SAVINGS	COST	BENEFIT/COST RATIO
MAINLINE ALT 1	\$75,752,053	\$123,573,400	\$199,325,453	\$50,960,000	3.9
MAINLINE ALT 2	\$75,752,053	\$123,573,400	\$199,325,453	\$50,595,000	3.9
MAINLINE ALT 1A	\$80,730,147	\$162,747,200	\$243,477,347	\$56,102,000	4.3
MAINLINE ALT 2A	\$80,730,147	\$162,747,200	\$243,477,347	\$55,805,000	4.4

	COST	Year of Failure	2045 LOS	Travel Speed	B/C Ratio
Mainline			NB/SB		
No Build	\$ -	2020-2025	F/F	34.9	NA
Alt 1	\$ 50,960,000.00	>2045	C/D	62.9	3.9
Alt 1A	\$ 56,102,000.00	>2045	C/D	65.1	4.3
Alt 2	\$ 50,595,000.00	>2045	C/D	62.9	3.9
Alt 2A	\$ 55,805,000.00	>2045	C/D	65.1	4.4

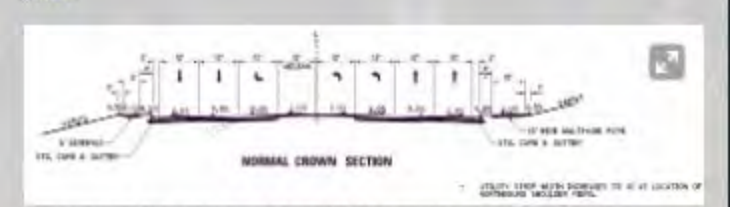
KY 329 Alternatives

Analysis showed that several traditional interchange alternatives would still not be enough to accommodate future traffic until a 7-lane widening on KY 329 was built.

This led to evaluating the use of innovative intersections. Multiple types were analyzed including Diverging Diamond, Displaced Left-Turn, and a loop ramp alternative.

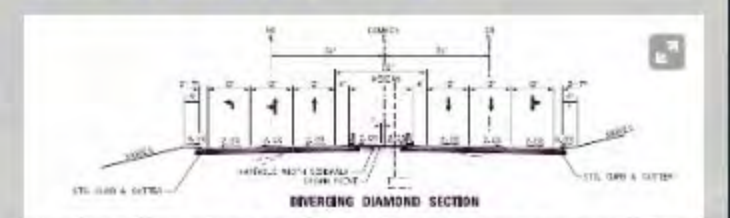
A six lane Diverging Diamond was the only innovative intersection analyzed that showed comparable results to the conventional widening.

Alternative 1 - 7-lane section + 12' Median for Bridge Pier



Because of the width of the KY 329 section, the I-71 bridge requires a pier in the middle of the road. A 12' Median is built into the typical to allow for this. The width is then tapered back to the existing roadway to the north and south of the interchange.

Alternative 2 - Diverging Diamond



Diverging Diamonds are being used much more regularly in the last 5-10 yrs. A diverging diamond is designed so the traffic will "crossover" to the other side of the roadway in the interchange area. This allows for a shorter traffic signal and significantly improves safety.

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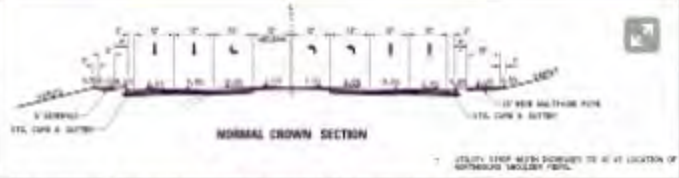
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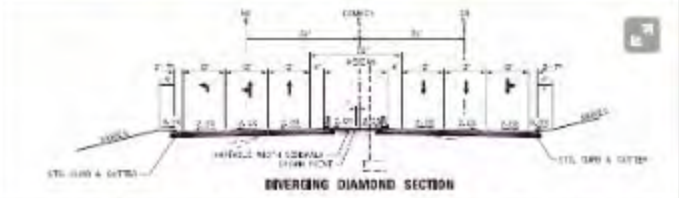
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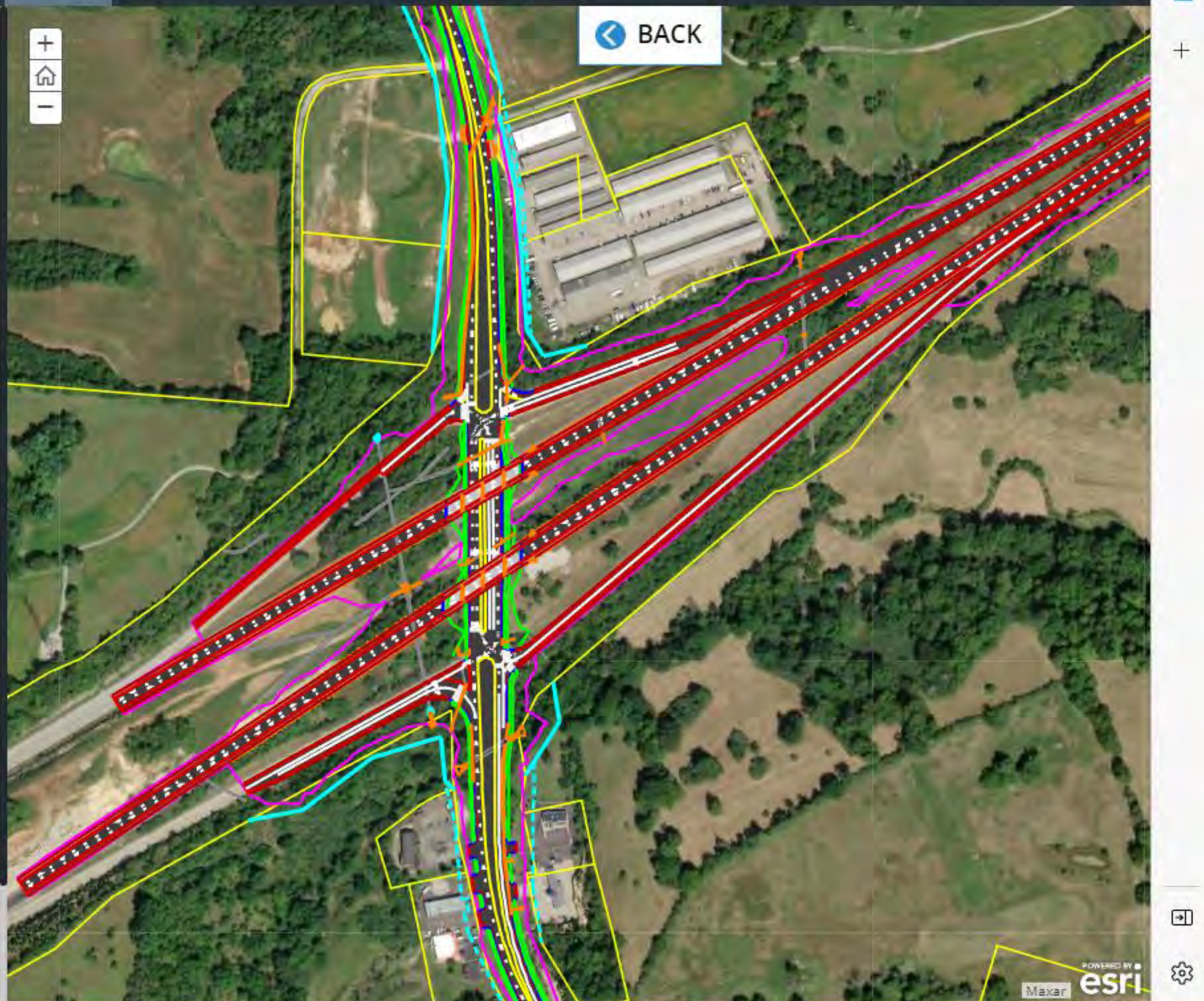
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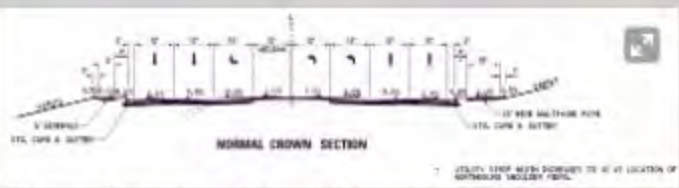
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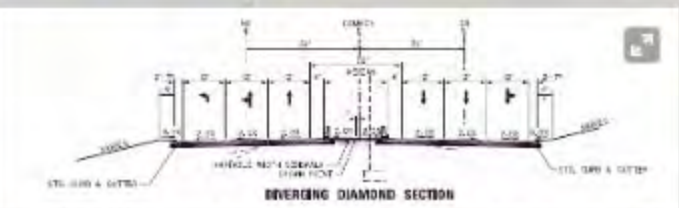
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Alternative 1 - 7-lane section + 12' Median for Bridge Pier



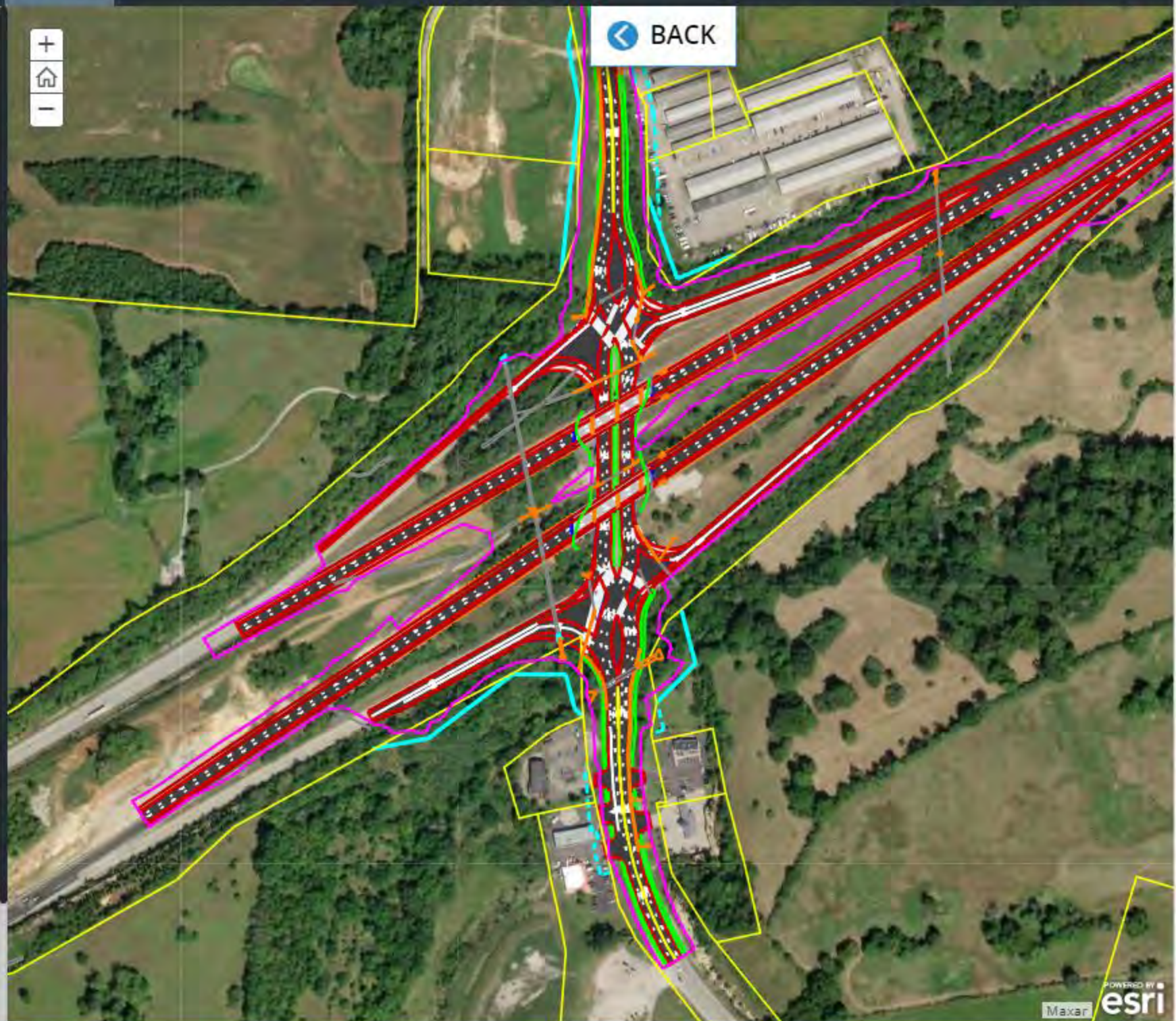
Because of the width of the KY 329 section, the I-71 bridge requires a pier in the middle of the road. A 12' Median is built into the typical to allow for this. The width is then tapered back to the existing roadway to the north and south of the interchange.

Alternative 2 - Diverging Diamond



Diverging Diamonds are being used much more regularly in the last 5-10 yrs. A diverging diamond is designed so the traffic will "crossover" to the other side of the roadway in the interchange area. This allows for a shorter traffic signal and significantly improves safety.

The Cost Summary, Benefit Analysis and Decision Matrix used by the Project team can be found below. A more detailed discussion of these can be found in the Preferred Alignment Tab.



I-71 Widening

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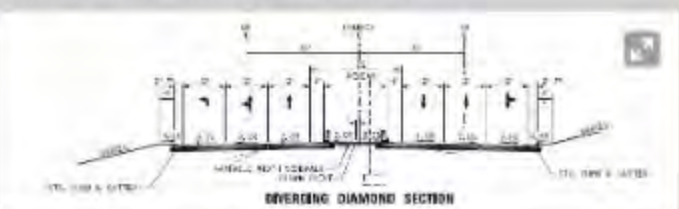
This led to evaluating the use of innovative intersections. Multiple types were analyzed including Diverging Diamond, Displaced Left-Turn, and a loop ramp alternative. A six lane Diverging Diamond was the only innovative intersection analyzed that showed comparable results to the conventional widening.

Alternative 1 - 7-lane section + 12' Median for Bridge Pier



Because of the width of the KY 329 section, the I-71 bridge requires a pier in the middle of the road. A 12' Median is built into the typical to allow for this. The width is then tapered back to the existing roadway to the north and south of the interchange.

Alternative 2 - Diverging Diamond



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- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

BACK

I-71 OLDHAM COUNTY ITEM NO. S-483.10 PRELIMINARY LINE AND GRADE		
	KY 329 ALT 1	KY 329 ALT 2
TOTAL COST	\$ 10,060,000.00	\$ 11,070,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)		
ROADWAY EXCAVATION	\$ 1,300,000.00	\$ 1,800,000.00
PAVEMENT	\$ 2,000,000.00	\$ 2,000,000.00
BRIDGES	\$ -	\$ -
TOTAL CONSTRUCTION	\$ 8,200,000.00	\$ 9,300,000.00
RIGHT OF WAY		
PARCELS	13	10
ACRES (RIGHT OF WAY)	2.598	2.029
ACRES (EASEMENT)	0.693	0.432
RELOCATIONS	0	0
TOTAL R/W COST	\$ 960,000.00	\$ 870,000.00
UTILITIES		
RELOCATION COST	\$ 900,000.00	\$ 900,000.00
ENVIRONMENTAL		
TREE CLEARING		
STREAMS		
TOTAL PERMITTING FEES	\$ -	\$ -
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS		
PAVING ALT. DEDUCTION		

I-71 Widening

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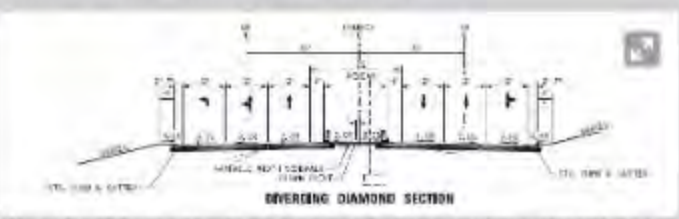
This led to evaluating the use of innovative intersections. Multiple types were analyzed including Diverging Diamond, Displaced Left-Turn, and a loop ramp alternative. A six lane Diverging Diamond was the only innovative intersection analyzed that showed comparable results to the conventional widening.

Alternative 1 - 7-lane section + 12' Median for Bridge Pier



Because of the width of the KY 329 section, the I-71 bridge requires a pier in the middle of the road. A 12' Median is built into the typical to allow for this. The width is then tapered back to the existing roadway to the north and south of the interchange.

Alternative 2 - Diverging Diamond



Diverging Diamonds are being used much more regularly in the last 5-10 yrs. A diverging diamond is designed so the traffic will "crossover" to the other side of the roadway in the interchange area. This allows for a shorter traffic signal and significantly improves safety.

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- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

BACK

I - 71 OLDHAM COUNTY ITEM 5-483.10 BENEFIT-COST ANALYSIS SUMMARY					
ALTERNATIVE DESCRIPTION	20 YEAR TRAVEL TIME SAVINGS	20 YEAR CRASH REDUCTION SAVINGS	20 YEAR TOTAL TRAVEL TIME AND CRASH REDUCTION SAVINGS	COST	BENEFIT/COST RATIO
KY 329 NO BUILD - INSTALL SIGNALS AT RAMP TERMINI	\$28,100,000	\$10,860,000	\$38,960,000	\$1,100,000	35.4
KY 329 ALT 1 - WIDEN KY 329 TO 7 LANES	\$323,840,000	\$31,520,000	\$355,360,000	\$10,060,000	35.3
KY 329 ALT 2 - WIDEN KY 329 AND RECONFIGURE TO DIVERGING DIAMOND	\$322,080,000	\$50,040,000	\$372,120,000	\$11,070,000	33.6

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I-71 Widening Alternatives

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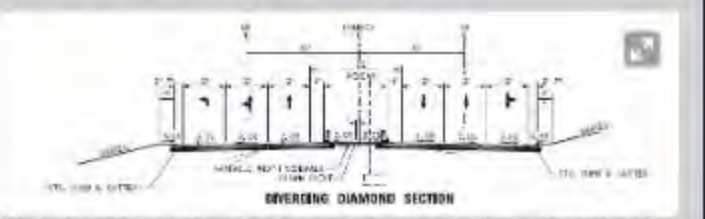
This led to evaluating the use of innovative intersections. Multiple types were analyzed including Diverging Diamond, Displaced Left-Turn, and a loop ramp alternative. A six lane Diverging Diamond was the only innovative intersection analyzed that showed comparable results to the conventional widening.

Alternative 1 - 7-lane section + 12' Median for Bridge Pier



Because of the width of the KY 329 section, the I-71 bridge requires a pier in the middle of the road. A 12' Median is built into the typical to allow for this. The width is then tapered back to the existing roadway to the north and south of the interchange.

Alternative 2 - Diverging Diamond



Diverging Diamonds are being used much more regularly in the last 5-10 yrs. A diverging diamond is designed so the traffic will "crossover" to the other side of the roadway in the interchange area. This allows for a shorter traffic signal and significantly improves safety.

The Cost Summary, Benefit Analysis and Decision Matrix used by the Project team can be found below. A more detailed discussion of these can be found in the Preferred Alignment Tab.

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

BACK

	COST	Year of Failure	2045 LOS	Delay	B/C Ratio
KY 329			NB/SB		
No Build (INST SIGNALS)	\$ 1,100,000.00	2020-2025	F/F	2650	35.4
Alt 1	\$ 10,060,000.00	>2045	B/C	245	35.3
Alt 2	\$ 11,070,000.00	>2045	B/A	123	33.6

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KY 146 Alternatives

Preliminary analysis showed that widening of KY 146 would be required to accommodate 2045 traffic. Without widening, traffic will backup onto the interstate and cause the entire system to back up. The project team explored reconfiguring the interchange. However, because of the growth in the area, rolling terrain, and the proximity of the railroad overpass, a complete reconstruction was ruled out quickly.

Instead, the analysis showed KY 146 would need to be 4 lanes to have a chance to work. The project team explored options including widening the I-71 ramps, widening KY 146 in the project area, and widening the existing bridge.

Alternative 1 - Widen KY 146 to the south

Alternative 1 is intended to provide a minimal cost alternative. It maintained the existing 2 lane bridge. The I-71 southern ramps are widened and KY 146 is widened to accept the additional lanes.

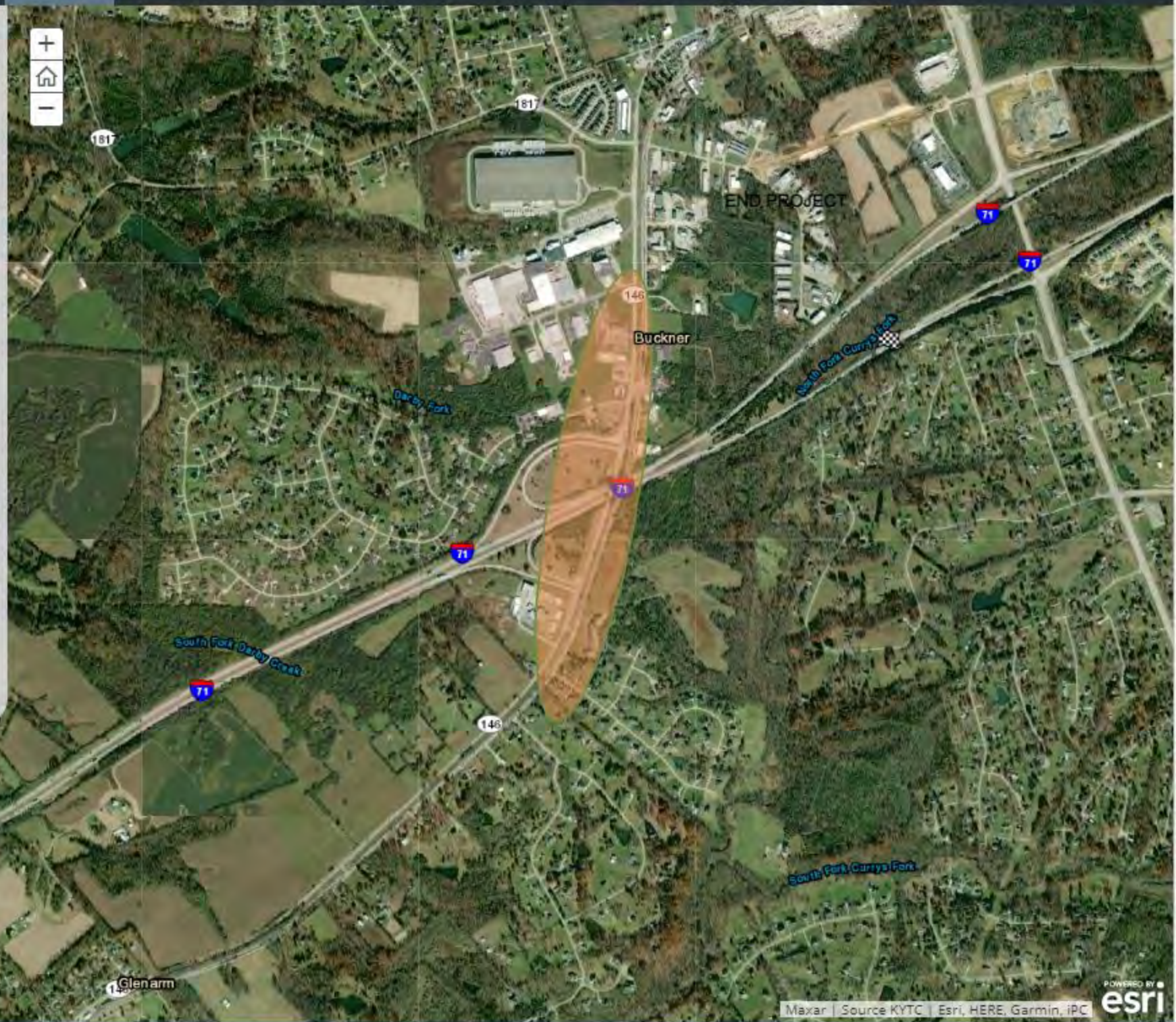
Alternative 2 - Widen KY 146 through entire interchange

Alternative 2 looked to improve KY 146 further, widening the bridge to 4 lanes and allowing more improvements to KY 146.

Cost Summary

Benefit Cost Analysis

Decision Matrix



I-71 Widening

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KY 146 Alternatives

Preliminary analysis showed that widening of KY 146 would be required to accommodate 2045 traffic. Without widening, traffic will backup onto the interstate and cause the entire system to back up. The project team explored reconfiguring the interchange. However, because of the growth in the area, rolling terrain, and the proximity of the railroad overpass, a complete reconstruction was ruled out quickly.

Instead, the analysis showed KY 146 would need to be 4 lanes to have a chance to work. The project team explored options including widening the I-71 ramps, widening KY 146 in the project area, and widening the existing bridge.

Alternative 1 - Widen KY 146 to the south

Alternative 1 is intended to provide a minimal cost alternative. It maintained the existing 2 lane bridge. The I-71 southern ramps are widened and KY 146 is widened to accept the additional lanes.

Alternative 2 - Widen KY 146 through entire interchange

Alternative 2 looked to improve KY 146 further, widening the bridge to 4 lanes and allowing more improvements to KY 146.

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix



I-71 Widening

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I-71 Widening Alternatives

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KY 146 Alternatives

Preliminary analysis showed that widening of KY 146 would be required to accommodate 2045 traffic. Without widening, traffic will backup onto the interstate and cause the entire system to back up. The project team explored reconfiguring the interchange. However, because of the growth in the area, rolling terrain, and the proximity of the railroad overpass, a complete reconstruction was ruled out quickly.

Instead, the analysis showed KY 146 would need to be 4 lanes to have a chance to work. The project team explored options including widening the I-71 ramps, widening KY 146 in the project area, and widening the existing bridge.

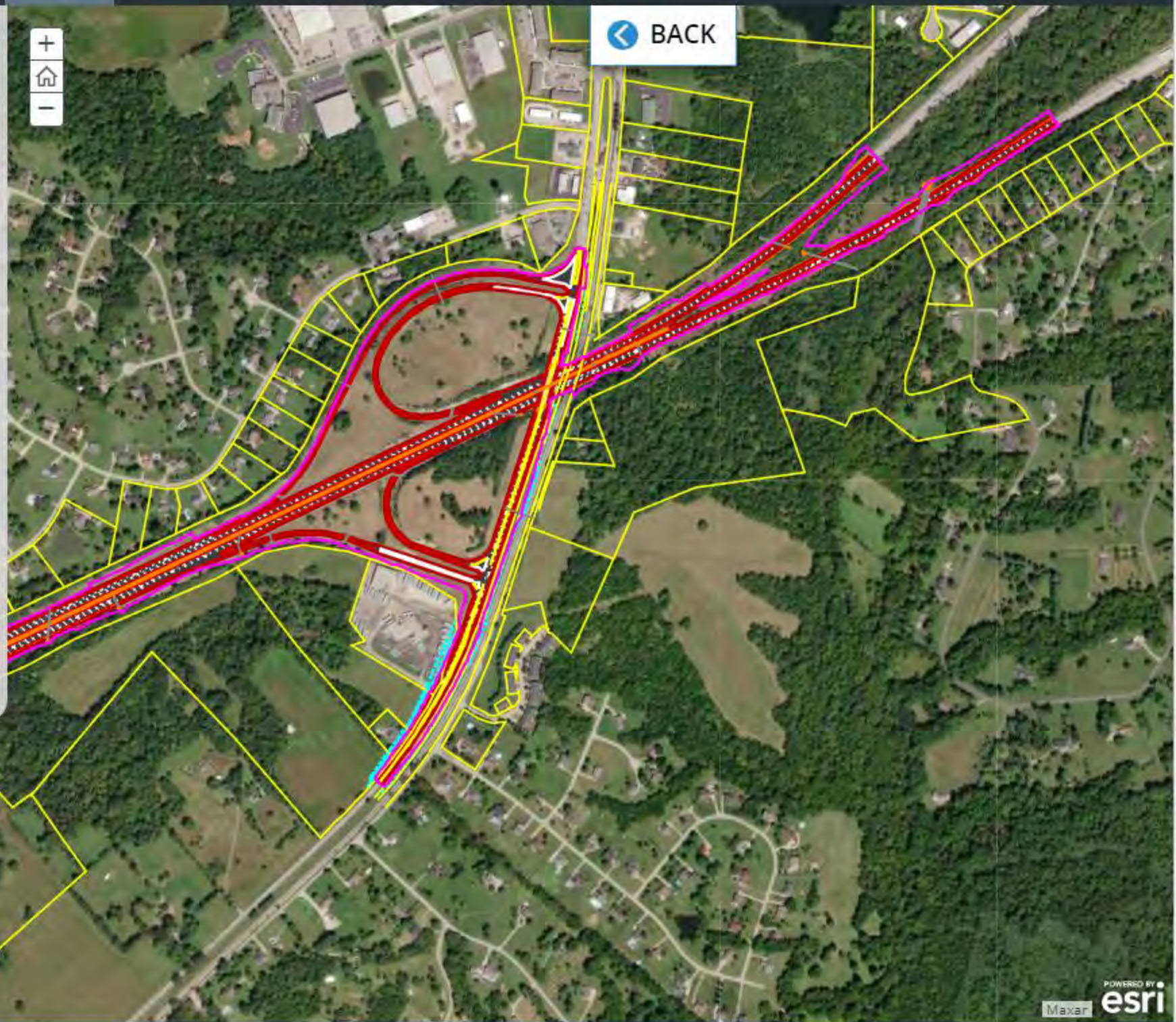
Alternative 1 - Widen KY 146 to the south

Alternative 1 is intended to provide a minimal cost alternative. It maintained the existing 2 lane bridge. The I-71 southern ramps are widened and KY 146 is widened to accept the additional lanes.

Alternative 2 - Widen KY 146 through entire interchange

Alternative 2 looked to improve KY 146 further, widening the bridge to 4 lanes and allowing more improvements to KY 146.

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix



KY 146 Alternatives

Preliminary analysis showed that widening of KY 146 would be required to accommodate 2045 traffic. Without widening, traffic will backup onto the interstate and cause the entire system to back up. The project team explored reconfiguring the interchange. However, because of the growth in the area, rolling terrain, and the proximity of the railroad overpass, a complete reconstruction was ruled out quickly.

Instead, the analysis showed KY 146 would need to be 4 lanes to have a chance to work. The project team explored options including widening the I-71 ramps, widening KY 146 in the project area, and widening the existing bridge.

Alternative 1 - Widen KY 146 to the south

Alternative 1 is intended to provide a minimal cost alternative. It maintained the existing 2 lane bridge. The I-71 southern ramps are widened and KY 146 is widened to accept the additional lanes.

Alternative 2 - Widen KY 146 through entire interchange

Alternative 2 looked to improve KY 146 further, widening the bridge to 4 lanes and allowing more improvements to KY 146.

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

BACK

I-71 OLDHAM COUNTY ITEM NO. 5-483.10 PRELIMINARY LINE AND GRADE		
	KY 146 ALT 1	KY 146 ALT 2
TOTAL COST	\$ 4,920,000.00	\$ 11,850,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)		
ROADWAY EXCAVATION	\$ 200,000.00	\$ 300,000.00
PAVEMENT	\$ 2,000,000.00	\$ 2,100,000.00
BRIDGES	\$ -	\$ 5,000,000.00
TOTAL CONSTRUCTION	\$ 4,100,000.00	\$ 11,000,000.00
RIGHT OF WAY		
PARCELS	6	7
ACRES (RIGHT OF WAY)	0.407	0.540
ACRES (EASEMENT)	2.378	2.138
RELOCATIONS	0	0
TOTAL R/W COST	\$ 520,000.00	\$ 550,000.00
UTILITIES		
RELOCATION COST	\$ 300,000.00	\$ 300,000.00
ENVIRONMENTAL		
TREE CLEARING		
STREAMS		
TOTAL PERMITTING FEES	\$ -	\$ -
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS		
PAVING ALT. DEDUCTION		

KY 146 Alternatives

Preliminary analysis showed that widening of KY 146 would be required to accommodate 2045 traffic. Without widening, traffic will backup onto the interstate and cause the entire system to back up. The project team explored reconfiguring the interchange. However, because of the growth in the area, rolling terrain, and the proximity of the railroad overpass, a complete reconstruction was ruled out quickly.

Instead, the analysis showed KY 146 would need to be 4 lanes to have a chance to work. The project team explored options including widening the I-71 ramps, widening KY 146 in the project area, and widening the existing bridge.

Alternative 1 - Widen KY 146 to the south

Alternative 1 is intended to provide a minimal cost alternative. It maintained the existing 2 lane bridge. The I-71 southern ramps are widened and KY 146 is widened to accept the additional lanes.

Alternative 2 - Widen KY 146 through entire interchange

Alternative 2 looked to improve KY 146 further, widening the bridge to 4 lanes and allowing more improvements to KY 146.

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

BACK

I - 71 OLDHAM COUNTY ITEM 5-483.10 BENEFIT-COST ANALYSIS SUMMARY					
ALTERNATIVE DESCRIPTION	20 YEAR TRAVEL TIME SAVINGS	20 YEAR CRASH REDUCTION SAVINGS	20 YEAR TOTAL TRAVEL TIME AND CRASH REDUCTION SAVINGS	COST	BENEFIT/COST RATIO
KY 146 NO BUILD - INSTALL SIGNAL AT SOUTHBOUND RAMP TERMINAL	\$87,693,981	\$6,571,200	\$44,265,181	\$100,000	442.7
KY 146 ALT 1 - WIDEN TO 4 LANES SOUTH OF BRIDGE OVER I -71	\$68,885,670	\$14,999,600	\$83,885,270	\$4,920,000	17.0
KY 146 ALT 2 - WIDEN TO 4 LANES ENTIRE LENGTH BETWEEN RAMP TERMINALS	\$75,180,829	\$19,084,800	\$94,265,629	\$11,850,000	8.0

A Story Map

Survey

A Story Map

Glenarm Rd

 BACK

Instead, the analysis showed KY 146 would need to be 4 lanes to have a chance to work. The project team explored options including widening the I-71 ramps, widening KY 146 in the project area, and widening the existing bridge.

Alternative 1 is intended to provide a minimal cost alternative. It maintained the existing 2 lane bridge. The I-71 southern ramps are widened and KY 146 is widened to accept the additional lanes.

Alternative 2 looked to improve KY 146 further, widening the bridge to 4 lanes and allowing more improvements to KY 146.

Decision Matrix

	COST	Year of Failure	2045 LOS	Delay	B/C Ratio
KY 146			NB/SB		
No Build (INST SIGNALS)	\$ 60,000.00	2035-2040 (2030-2035)	E/C	1086	443
Alt 1	\$ 4,920,000.00	>2045	D/C	837	17
Alt 2	\$ 11,850,000.00	>2045	D/C	699	8

I-71 Widening

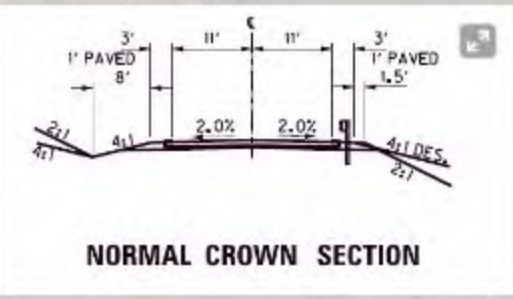
- Project Information
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I-71 Widening Alternatives

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- Glenarm Rd

Glenarm Rd

When widening I-71, the Glenarm Rd will not meet minimum federal regulations on vertical clearance. Since there is no access to I-71 at this point, the typical section will remain roughly the same at the existing road.



The design team began by investigating minimal cost options. However, none were feasible while preserving the existing bridge. As such, 2 options to construct a new bridge were brought forward.

Alternative 1 - Construct new bridge in current location

This alternative will require the closure of Glenarm Road for the demolition and reconstruction of the bridge requiring an **8 mile long detour**.

Alternative 2 - Construct new bridge on new alignment

Alternative 2 consists of construction of a new bridge approximately parallel to the existing bridge. When the new bridge is ready for traffic, Glenarm Road will then be connected to it requiring only short-term closures.

Cost Summary

Each Alternate offers no difference in traffic, therefore a Benefit/Cost Analysis was not conducted.



I-71 Widening

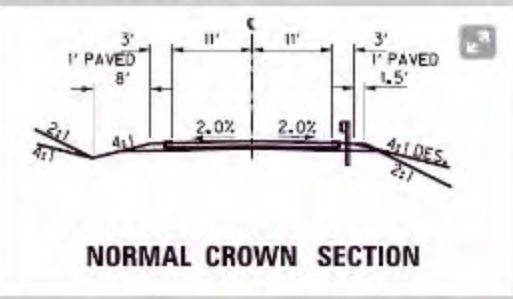
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I-71 Widening Alternatives

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Alternative 2 - Construct new bridge on new alignment

Alternative 2 consists of construction of a new bridge approximately parallel to the existing bridge. When the new bridge is ready for traffic, Glenarm Road will then be connected to it requiring only short-term closures.

Cost Summary

Each Alternate offers no difference in traffic, therefore a Benefit/Cost Analysis was not conducted.



I-71 Widening

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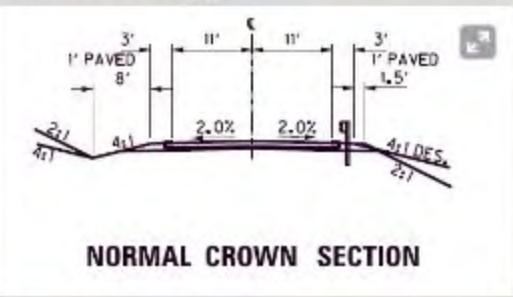
I-71 Widening Alternatives

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- Glenarm Rd

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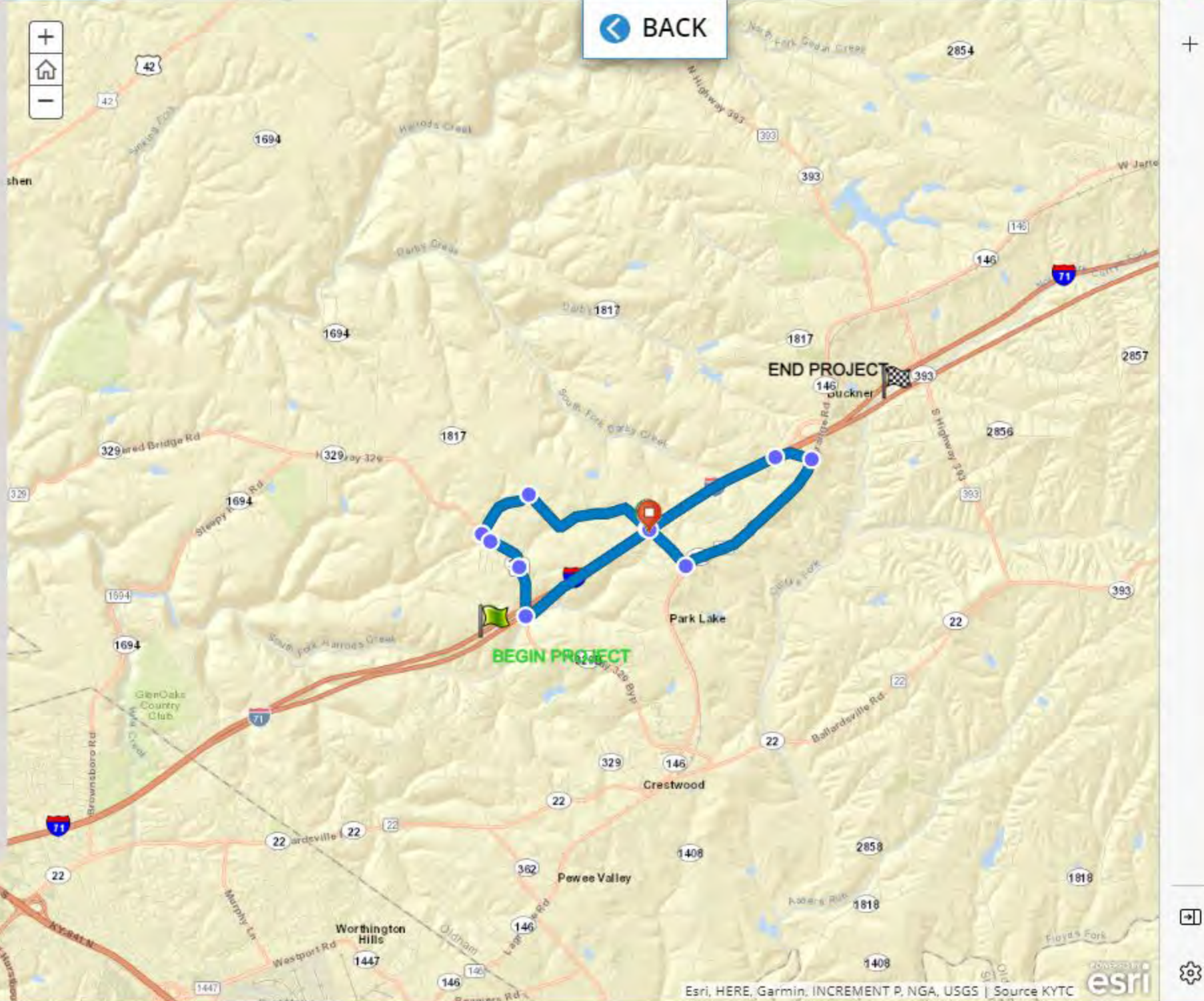
This alternative will require the closure of Glenarm Road for the demolition and reconstruction of the bridge requiring an **8 mile long detour**.

Alternative 2 - Construct new bridge on new alignment

Alternative 2 consists of construction of a new bridge approximately parallel to the existing bridge. When the new bridge is ready for traffic, Glenarm Road will then be connected to it requiring only short-term closures.

Cost Summary

Each Alternate offers no difference in traffic, therefore a Benefit/Cost Analysis was not conducted.



I-71 Widening

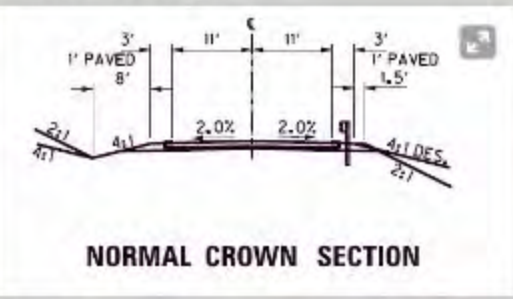
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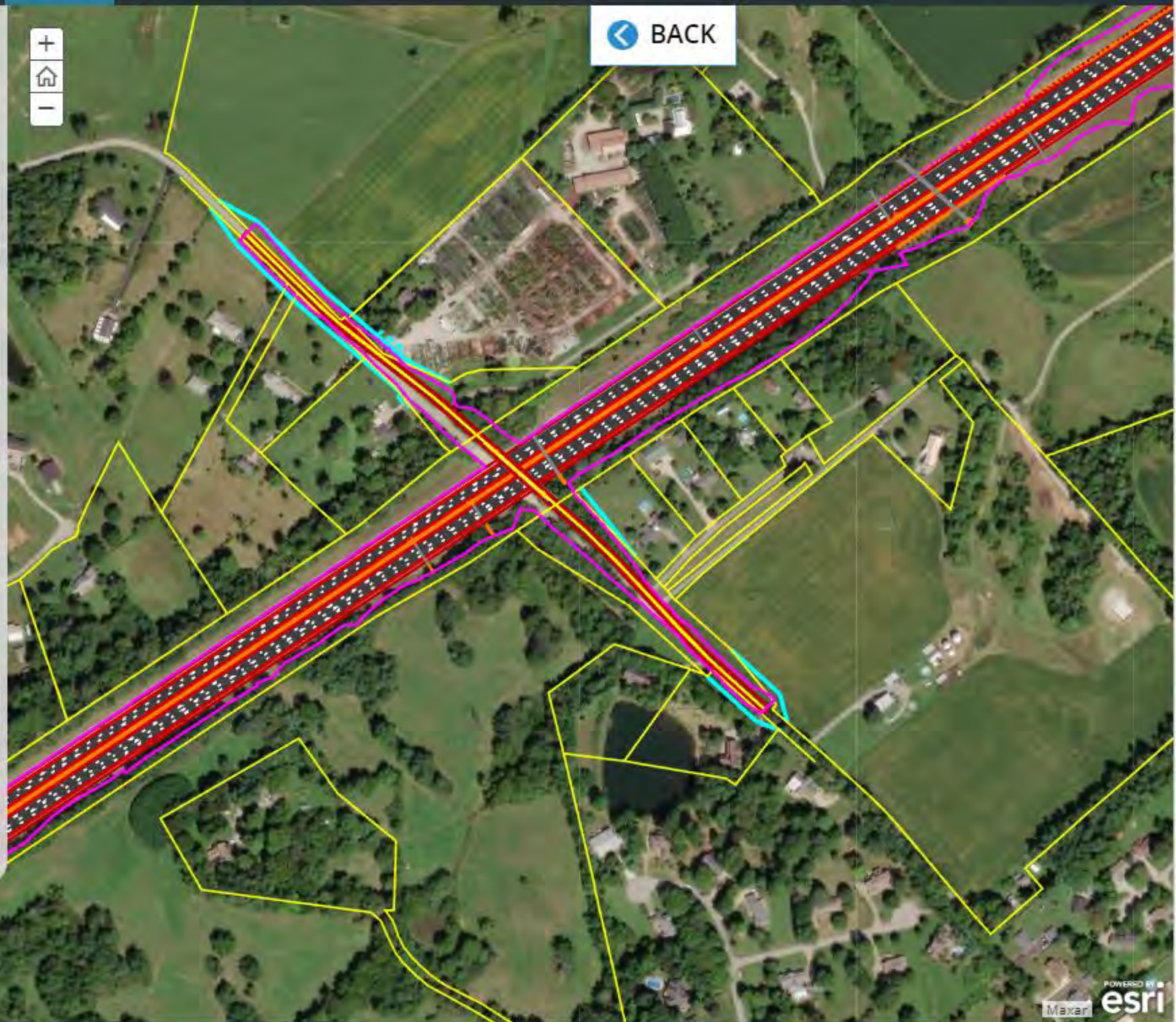
This alternative will require the closure of Glenarm Road for the demolition and reconstruction of the bridge requiring an **8 mile long detour**.

Alternative 2 - Construct new bridge on new alignment

Alternative 2 consists of construction of a new bridge approximately parallel to the existing bridge. When the new bridge is ready for traffic, Glenarm Road will then be connected to it requiring only short-term closures.

Cost Summary

Each Alternate offers no difference in traffic, therefore a Benefit/Cost Analysis was not conducted.



I-71 Widening

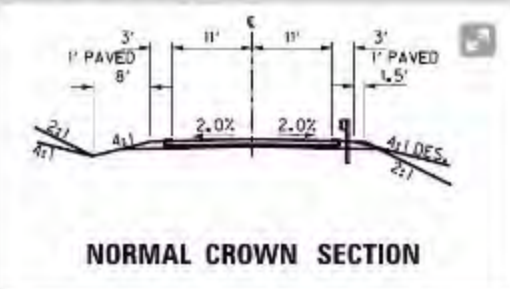
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I-71 Widening Alternatives

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The design team began by investigating minimal cost options. However, none were feasible while preserving the existing bridge. As such, 2 options to construct a new bridge were brought forward.

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Alternative 2 - Construct new bridge on new alignment

Alternative 2 consists of construction of a new bridge approximately parallel to the existing bridge. When the new bridge is ready for traffic, Glenarm Road will then be connected to it requiring only short-term closures.

Cost Summary

Each Alternate offers no difference in traffic, therefore a Benefit/Cost Analysis was not conducted.

BACK

I-71 OLDHAM COUNTY ITEM NO. 5-483.10 PRELIMINARY LINE AND GRADE		
	GLENARM RD ALT 1	GLENARM RD ALT 2
TOTAL COST	\$ 2,220,000.00	\$ 2,750,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)		
ROADWAY EXCAVATION	\$ 100,000.00	\$ 300,000.00
PAVEMENT	\$ 100,000.00	\$ 200,000.00
BRIDGES	\$ 1,400,000.00	\$ 1,400,000.00
TOTAL CONSTRUCTION	\$ 2,200,000.00	\$ 2,600,000.00
RIGHT OF WAY		
PARCELS	4	9
ACRES (RIGHT OF WAY)	0.448	0.995
ACRES (EASEMENT)	0.117	0.042
RELOCATIONS	0	0
TOTAL R/W COST	\$ 20,000.00	\$ 50,000.00
UTILITIES		
RELOCATION COST	\$ -	\$ 100,000.00
ENVIRONMENTAL		
TREE CLEARING		
STREAMS		
TOTAL PERMITTING FEES	\$ -	\$ -
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS		
PAVING ALT. DEDUCTION		

Preferred Alignments

The project team met, discussed, and came to a conclusion on each piece of the project individually. The preferred Alternatives were:

- I-71 - ALTERNATIVE 1A (14' Shoulders)
- KY 329 - ALTERNATIVE 1 (7 Lanes)
- KY 146 - NO BUILD (INSTALL SIGNALS ONLY)
- Glenarm Rd - ALTERNATIVE 2 (Construct Parallel Bridge)

For further explanation on each alternative decision, please continue scrolling down.

I-71

Alternative 1 (14' shoulders) vs. Alternative 2 (10' shoulders)

Cost Summary

Benefit Cost Analysis

Decision Matrix

There was no discernible different in either option. The costs and right of way impacts were equivalent, therefore the project team felt there was no reason not to follow common practices and use a 14' inside shoulder (Alternate 1). The auxiliary lane provides a better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected ALTERNATIVE 1A for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

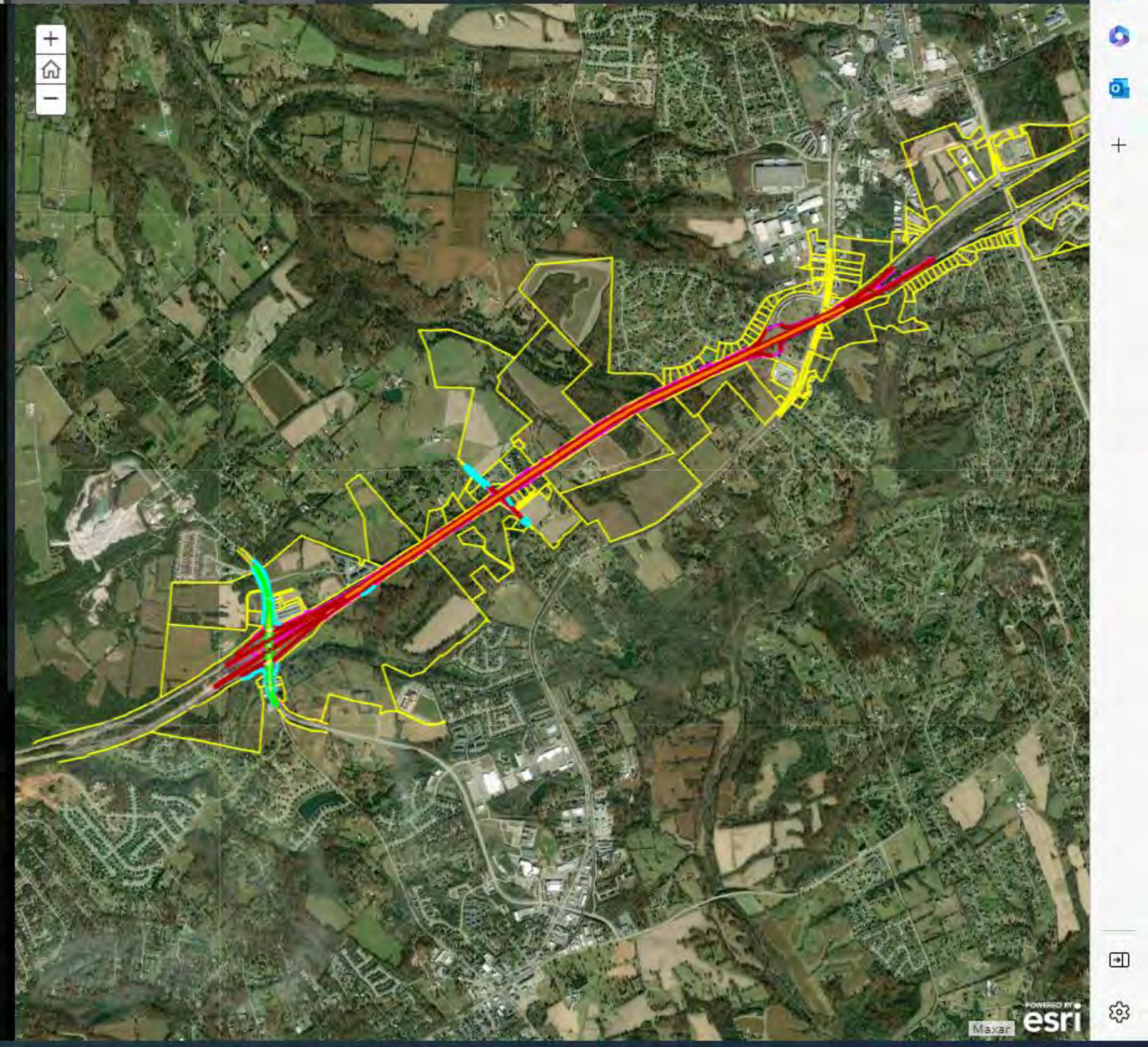
Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost ALTERNATIVE 1 is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary



I-71 Widening

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better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

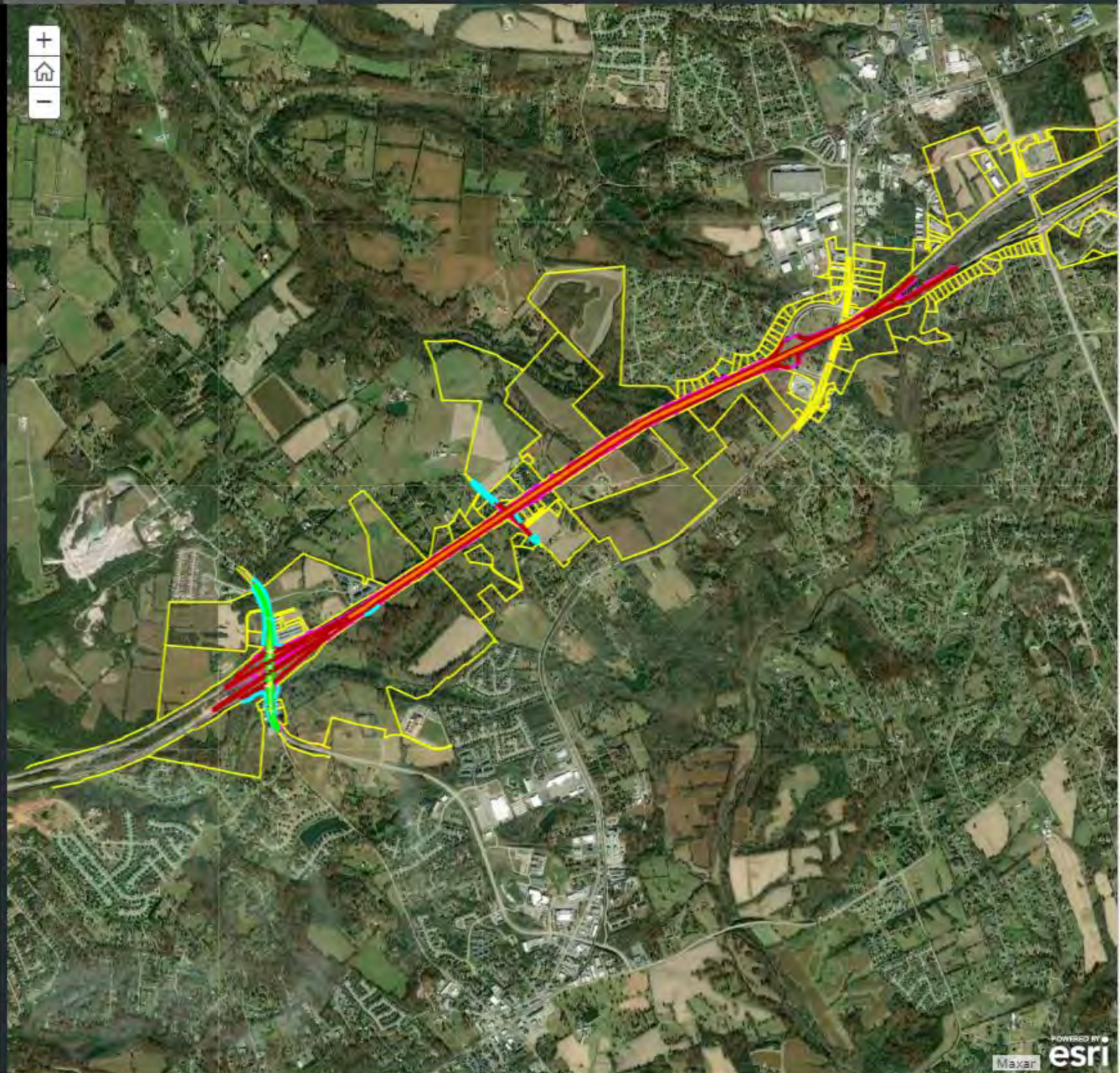
Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.



Map navigation and sharing tools: Search, Layers, Full Screen, Print, etc.

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Preferred Alignments

The project team met, discussed, and came to a conclusion on each piece of the project individually. The preferred Alternatives were:

- I-71 - ALTERNATIVE 1A (14' Shoulders)
- KY 329 - ALTERNATIVE 1 (7 Lanes)
- KY 146 - NO BUILD (INSTALL SIGNALS ONLY)
- Glenarm Rd - ALTERNATIVE 2 (Construct Parallel Bridge)

For further explanation on each alternative decision, please continue scrolling down.

I-71

Alternative 1 (14' shoulders) vs. Alternative 2 (10' shoulders)

Cost Summary

Benefit Cost Analysis

Decision Matrix

There was no discernible different in either option. The costs and right of way impacts were equivalent, therefore the project team felt there was no reason not to follow common practices and use a 14' inside shoulder (Alternate 1). The auxiliary lane provides a better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected ALTERNATIVE 1A for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost ALTERNATIVE 1 is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

BACK

I-71 OLDHAM COUNTY ITEM NO. 5-483.10 PRELIMINARY LINE AND GRADE				
	MAINLINE ALT 1	MAINLINE ALT 1A	MAINLINE ALT 2	MAINLINE ALT 2A
TOTAL COST	\$ 50,960,000.00	\$ 56,102,000.00	\$ 50,595,000.00	\$ 55,805,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)				
ROADWAY EXCAVATION	\$ 2,200,000.00	\$ 2,500,000.00	\$ 2,400,000.00	\$ 2,600,000.00
PAVEMENT	\$ 20,600,000.00	\$ 23,900,000.00	\$ 20,500,000.00	\$ 23,500,000.00
BRIDGES	\$ 6,100,000.00	\$ 6,100,000.00	\$ 6,100,000.00	\$ 6,100,000.00
TOTAL CONSTRUCTION	\$ 48,600,000.00	\$ 53,500,000.00	\$ 48,300,000.00	\$ 53,300,000.00
RIGHT OF WAY				
PARCELS		1		
ACRES (RIGHT OF WAY)		0.1		
ACRES (EASEMENT)		0		
RELOCATIONS	0	0	0	0
TOTAL R/W COST	\$ -	\$ 2,000.00	\$ -	\$ -
UTILITIES				
RELOCATION COST	\$ -	\$ -	\$ -	\$ -
ENVIRONMENTAL				
TREE CLEARING	\$ 735,000.00	\$ 735,000.00	\$ 725,000.00	\$ 725,000.00
STREAMS	\$ 1,625,000.00	\$ 1,865,000.00	\$ 1,570,000.00	\$ 1,780,000.00
TOTAL PERMITTING FEES	\$ 2,360,000.00	\$ 2,600,000.00	\$ 2,295,000.00	\$ 2,505,000.00
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS				
PAVING ALT. DEDUCTION	(\$ 1,676,904.61)	(\$ 2,054,575.61)	(\$ 1,653,656.73)	(\$ 1,959,390.40)

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Preferred Alignments

The project team met, discussed, and came to a conclusion on each piece of the project individually. The preferred Alternatives were:

- I-71 - ALTERNATIVE 1A (14' Shoulders)
- KY 329 - ALTERNATIVE 1 (7 Lanes)
- KY 146 - NO BUILD (INSTALL SIGNALS ONLY)
- Glenarm Rd - ALTERNATIVE 2 (Construct Parallel Bridge)

For further explanation on each alternative decision, please continue scrolling down.

I-71
Alternative 1 (14' shoulders) vs. Alternative 2 (10' shoulders)

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

There was no discernible different in either option. The costs and right of way impacts were equivalent, therefore the project team felt there was no reason not to follow common practices and use a 14' inside shoulder (Alternate 1). The auxiliary lane provides a better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329
Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

- Cost Summary
- Benefit Cost Analysis
- Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146
Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

- Cost Summary

BACK

I - 71 OLDHAM COUNTY ITEM 5-483.10 BENEFIT-COST ANALYSIS SUMMARY					
ALTERNATIVE DESCRIPTION	20 YEAR TRAVEL TIME SAVINGS	20 YEAR CRASH REDUCTION SAVINGS	20 YEAR TOTAL TRAVEL TIME AND CRASH REDUCTION SAVINGS	COST	BENEFIT/COST RATIO
MAINLINE ALT 1	\$75,752,053	\$123,573,400	\$199,325,453	\$50,960,000	3.9
MAINLINE ALT 2	\$75,752,053	\$123,573,400	\$199,325,453	\$50,595,000	3.9
MAINLINE ALT 1A	\$80,730,147	\$162,747,200	\$243,477,347	\$56,102,000	4.3
MAINLINE ALT 2A	\$80,730,147	\$162,747,200	\$243,477,347	\$55,805,000	4.4

I-71 Widening

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better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

BACK

I-71 OLDHAM COUNTY ITEM NO. 5-483.10 PRELIMINARY LINE AND GRADE		
	KY 329 ALT 1	KY 329 ALT 2
TOTAL COST	\$ 10,060,000.00	\$ 11,070,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)		
ROADWAY EXCAVATION	\$ 1,300,000.00	\$ 1,800,000.00
PAVEMENT	\$ 2,000,000.00	\$ 2,000,000.00
BRIDGES	\$ -	\$ -
TOTAL CONSTRUCTION	\$ 8,200,000.00	\$ 9,300,000.00
RIGHT OF WAY		
PARCELS	13	10
ACRES (RIGHT OF WAY)	2.598	2.029
ACRES (EASEMENT)	0.693	0.432
RELOCATIONS	0	0
TOTAL R/W COST	\$ 960,000.00	\$ 870,000.00
UTILITIES		
RELOCATION COST	\$ 900,000.00	\$ 900,000.00
ENVIRONMENTAL		
TREE CLEARING		
STREAMS		
TOTAL PERMITTING FEES	\$ -	\$ -
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS		
PAVING ALT. DEDUCTION		

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better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

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I - 71 OLDHAM COUNTY ITEM 5-483.10 BENEFIT-COST ANALYSIS SUMMARY					
ALTERNATIVE DESCRIPTION	20 YEAR TRAVEL TIME SAVINGS	20 YEAR CRASH REDUCTION SAVINGS	20 YEAR TOTAL TRAVEL TIME AND CRASH REDUCTION SAVINGS	COST	BENEFIT/COST RATIO
KY 329 NO BUILD - INSTALL SIGNALS AT RAMP TERMINI	\$28,100,000	\$10,850,000	\$38,960,000	\$1,100,000	35.4
KY 329 ALT 1 - WIDEN KY 329 TO 7 LANES	\$323,840,000	\$31,520,000	\$355,360,000	\$10,060,000	35.3
KY 329 ALT 2 - WIDEN KY 329 AND RECONFIGURE TO DIVERGING DIAMOND	\$322,080,000	\$50,040,000	\$372,120,000	\$11,070,000	33.6

I-71 Widening

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better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

←

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	COST	Year of Failure	2045 LOS	Delay	B/C Ratio
KY 329			NB/SB		
No Build (INST SIGNALS)	\$ 1,100,000.00	2020-2025	F/F	2650	35.4
Alt 1	\$ 10,060,000.00	>2045	B/C	245	35.3
Alt 2	\$ 11,070,000.00	>2045	B/A	123	33.6

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better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

BACK

I-71 OLDHAM COUNTY ITEM NO. 5-483.10		
PRELIMINARY LINE AND GRADE		
	KY 146 ALT 1	KY 146 ALT 2
TOTAL COST	\$ 4,920,000.00	\$ 11,850,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)		
ROADWAY EXCAVATION	\$ 200,000.00	\$ 300,000.00
PAVEMENT	\$ 2,000,000.00	\$ 2,100,000.00
BRIDGES	\$	\$ 5,000,000.00
TOTAL CONSTRUCTION	\$ 4,100,000.00	\$ 11,000,000.00
RIGHT OF WAY		
PARCELS	6	7
ACRES (RIGHT OF WAY)	0.407	0.540
ACRES (EASEMENT)	2.378	2.138
RELOCATIONS	0	0
TOTAL R/W COST	\$ 520,000.00	\$ 550,000.00
UTILITIES		
RELOCATION COST	\$ 300,000.00	\$ 300,000.00
ENVIRONMENTAL		
TREE CLEARING		
STREAMS		
TOTAL PERMITTING FEES	\$ -	\$ -
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS		
PAVING ALT. DEDUCTION		

better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329
Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary
Benefit Cost Analysis
Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146
Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary
Benefit Cost Analysis
Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd
Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary
Benefit Cost Analysis - NA
Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

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I - 71 OLDHAM COUNTY ITEM 5-483.10 BENEFIT-COST ANALYSIS SUMMARY					
ALTERNATIVE DESCRIPTION	20 YEAR TRAVEL TIME SAVINGS	20 YEAR CRASH REDUCTION SAVINGS	20 YEAR TOTAL TRAVEL TIME AND CRASH REDUCTION SAVINGS	COST	BENEFIT/COST RATIO
KY 146 NO BUILD - INSTALL SIGNAL AT SOUTHBOUND RAMP TERMINAL	\$37,690,000	\$6,580,000	\$44,270,000	\$100,000	442.7
KY 146 ALT 1 - WIDEN TO 4 LANES SOUTH OF BRIDGE OVER I - 71	\$68,890,000	\$15,000,000	\$83,890,000	\$4,920,000	17.1
KY 146 ALT 2 - WIDEN TO 4 LANES ENTIRE LENGTH BETWEEN RAMP TERMINALS	\$75,180,000	\$19,080,000	\$94,260,000	\$11,850,000	8.0

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better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

BACK

	COST	Year of Failure	2045 LOS	Delay	B/C Ratio
KY 146			NB/SB		
No Build (INST SIGNALS)	\$ 60,000.00	2035-2040 (2030-2035)	E/C	1086	443
Alt 1	\$ 4,920,000.00	>2045	D/C	837	17
Alt 2	\$ 11,850,000.00	>2045	D/C	699	8

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better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

BACK

I-71 OLDHAM COUNTY ITEM NO. 5-483.10 PRELIMINARY LINE AND GRADE		
	GLENARM RD ALT 1	GLENARM RD ALT 2
TOTAL COST	\$ 2,220,000.00	\$ 2,750,000.00
CONSTRUCTION ITEMS KEY ITEMS AND TOTAL (15% Contingency Included)		
ROADWAY EXCAVATION	\$ 100,000.00	\$ 300,000.00
PAVEMENT	\$ 100,000.00	\$ 200,000.00
BRIDGES	\$ 1,400,000.00	\$ 1,400,000.00
TOTAL CONSTRUCTION	\$ 2,200,000.00	\$ 2,600,000.00
RIGHT OF WAY		
PARCELS	4	9
ACRES (RIGHT OF WAY)	0.448	0.995
ACRES (EASEMENT)	0.117	0.042
RELOCATIONS	0	0
TOTAL R/W COST	\$ 20,000.00	\$ 50,000.00
UTILITIES		
RELOCATION COST	\$ -	\$ 100,000.00
ENVIRONMENTAL		
TREE CLEARING		
STREAMS		
TOTAL PERMITTING FEES	\$ -	\$ -
PAVING ALTERNATE2 POTENTIAL DEDUCTIONS		
PAVING ALT. DEDUCTION		

I-71 Widening

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BACK

better Level of Service, higher Travel Speed, and a higher Benefit Cost Analysis, which indicated that the safety and time benefits more than offset the additional costs. Therefore, the project team selected **ALTERNATIVE 1A** for mainline I-71.

KY 329

Alternative 1 (7 lanes) vs. Alternative 2 (diverging diamond)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Once again, the cost nor right of way impacts provided much of a differentiator. The diverging diamond allows vehicles to get through the interchange quicker and has less delay. However, any additional changes to a diverging diamond are difficult and costly. The 7-lane template provides better flexibility moving into the next phase. Due to this flexibility, similar Level of Service, and slightly lower cost **ALTERNATIVE 1** is the preferred alignment.

KY 146

Alternative 1 (Widen to the south) vs. Alternative 2 (Widen entire 146)

Cost Summary

Benefit Cost Analysis

Decision Matrix

Traffic analysis indicates an expected breakdown in operations for the KY 146 corridor caused by KY 146 traffic. Both Alternates help. However, without an independent project that includes widening the KY 146 corridor outside the limits and scope of this project, the interchange will still be problematic in the future. Adding a signal to the existing intersection will improve the interchange in the interim and buy time until a larger KY 146 project can be realized. As such, the project teams recommendation is **NO BUILD (INSTALL SIGNALS ONLY)**.

Glenarm Rd

Alternative 1 (Close Ex Bridge / Detour) vs. Alternative 2 (Construct Parallel Bridge)

Cost Summary

Benefit Cost Analysis - NA

Decision Matrix

Because of the large detour necessary for Alternative 1, and minimal additional right of way impacts and construction costs, the preferred alignment is **ALTERNATIVE 2**.

	COST	Year of Failure	2045 LOS	Delay	B/C Ratio
Glenarm Rd					
Alt 1	\$ 2,220,000.00	NA	NA	NA	NA
Alt 2	\$ 2,750,000.00	NA	NA	NA	NA

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Environmental

in accordance with the National Environmental Policy Act (NEPA), the project team has studied the project area for potential impacts to the human and natural environment. An environmental document summarizing the potential environmental impacts is being prepared and will be finalized later this year. Below is a summary of the resources identified to date. (Click on underlined text for more information on each impact)

Human Impacts

Noise: A highway traffic noise analysis was completed for each proposed build alternative to determine the existing and future traffic noise levels at residential and other noise-sensitive land uses adjacent to I-71. The analysis was performed using the projected traffic volumes for the design year of 2045. Results of the analysis showed that most of the homes adjacent to I-71 would experience noise levels higher than 66 decibels and therefore would be considered a traffic noise impact, in accordance with the Noise Abatement Criteria (see the map). Structural noise barriers were then evaluated at each impacted location, where there were three or more impacts, and included the evaluation of various wall locations, lengths, and heights, to attenuate the projected highway traffic noise. None of the structural noise barriers evaluated met the feasibility, reasonableness, and design goal criteria required by the KYTC's noise policy. Therefore, **structural noise barriers are not likely to be incorporated** as a part of the project, at any location, for the proposed alternatives.

Other: No other environmental impacts have been identified (such as 6(f), 4(f), PACE easement, or EJ concerns).

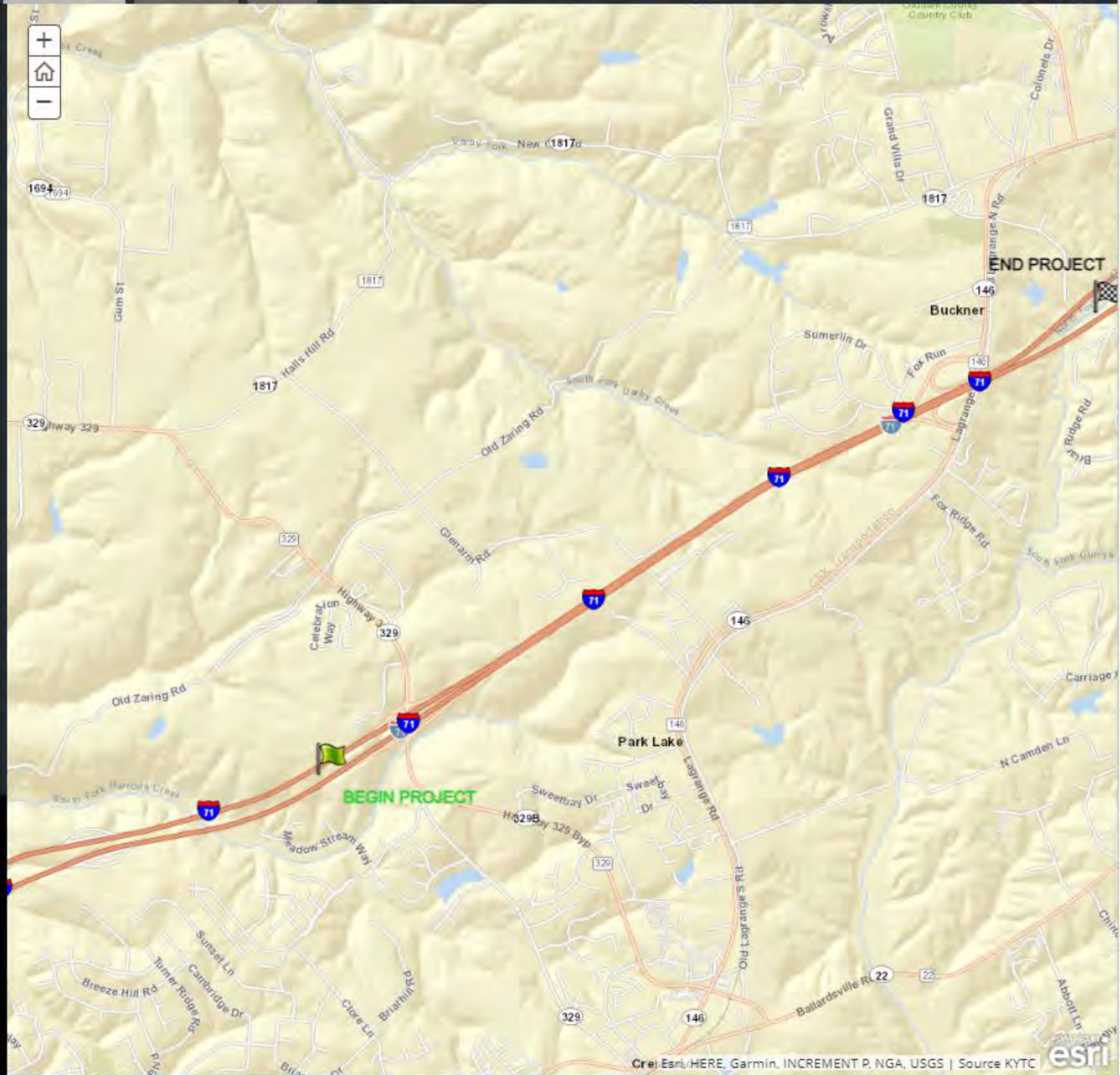
Natural Impacts

Hazmat: 2 sites with potential hazardous materials were identified along the project area. These sites will be further evaluated as the project moves into final design.

Cultural Historic: A log house adjacent to I-71 is eligible for the National Register of Historic Places (NRHP). Since the property is outside of the impacts of the project, it is recommended that the project will have No Adverse Effect to the site.

Ecology: Each alternative impacts 8 streams (3 perennial, 3 intermittent, and 2 ephemerals). Length of impacts range from 2,200 (Alt 2) to 2,820 linear feet (Alt 1A). Differences are in mostly along I-71 and not the interchanges. No Wetlands were identified within the four alternatives. Click on the table below for impacts by alternative.

	PERENNIAL ALT 1	PERENNIAL ALT 2	PERENNIAL ALT 3	PERENNIAL ALT 4
STREAM IMPACTS SUMMARY				
WETLANDS (AC)	0	0	0	0
PERENNIAL (AC)	179.95	303.00	258.04	323.00
INTERMITTENT (AC)	1,000.00	1,000.00	1,000.00	1,000.00
EPHEMERAL (AC)	0.00	0.00	0.00	0.00



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accordance with the Noise Abatement Criteria (see the map). Structural noise barriers were then evaluated at each impacted location, where there were three or more impacts, and included the evaluation of various wall locations, lengths, and heights, to attenuate the projected highway traffic noise. None of the structural noise barriers evaluated met the feasibility, reasonableness, and design goal criteria required by the KYTC's noise policy. Therefore, **structural noise barriers are not likely to be incorporated** as a part of the project, at any location, for the proposed alternatives.

Other: No other environmental impacts have been identified (such as 6(f), 4(f), PACE easement, or EJ concerns).

Natural Impacts

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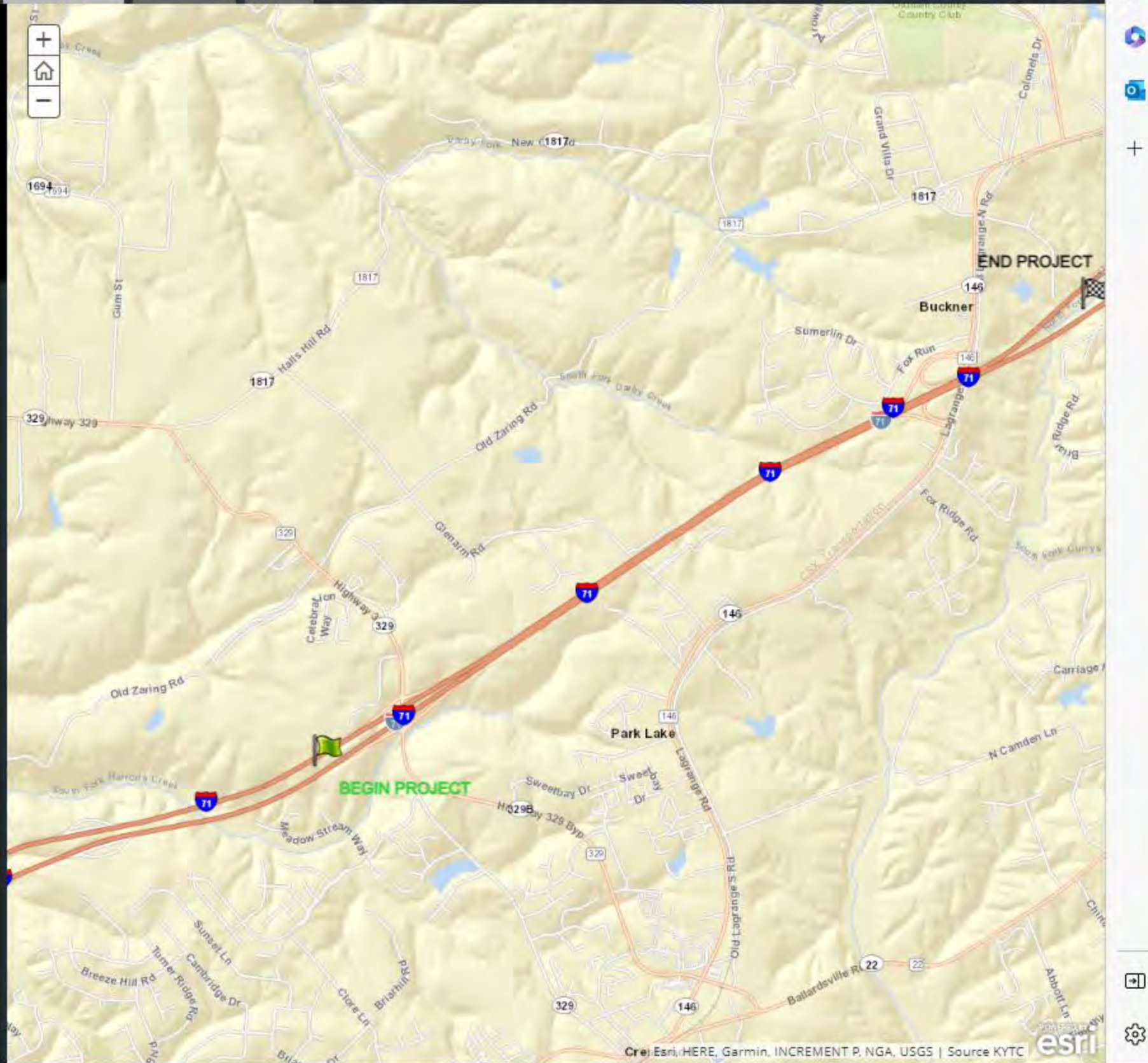
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	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
STREAM IMPACT SUMMARY				
PERMANENT IMPACT (FEET)	0	0	0	0
TEMPORARY IMPACT (FEET)	275.00	301.00	250.00	225.00
PERMANENT IMPACT (%)	1.00	1.00	1.00	1.00
TEMPORARY IMPACT (%)	10.00	10.00	10.00	10.00
TOTAL STREAM IMPACTS	2,215.00	2,820.00	2,200.00	2,400.00

Threatened and Endangered Species: 1 plant and 3 bat species are listed by US Fish and Wildlife Service as potentially located within the project area. Field surveys completed in 2020, however, did not locate the plant within any of the alternative's disturbance limits. For the listed bats, no caves or other openings were found in the surrounding area. Impacts to bat habitat is due to the estimated clearing of 80 acres of forested habitat with each alternative. Additional field surveys to determine the presence or absence of the listed bats are planned for the spring of 2021.

Archaeology: Field investigations have been completed on the preferred alignment. The findings are currently being documented and will be included in the final environmental document.

No legend



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Environmental

in accordance with the National Environmental Policy Act (NEPA), the project team has studied the project area for potential impacts to the human and natural environment. An environmental document summarizing the potential environmental impacts is being prepared and will be finalized later this year. Below is a summary of the resources identified to date. (Click on underlined text for more information on each impact)

Human Impacts

Noise: A highway traffic noise analysis was completed for each proposed build alternative to determine the existing and future traffic noise levels at residential and other noise-sensitive land uses adjacent to I-71. The analysis was performed using the projected traffic volumes for the design year of 2045. Results of the analysis showed that most of the homes adjacent to I-71 would experience noise levels higher than 66 decibels and therefore would be considered a traffic noise impact, in accordance with the Noise Abatement Criteria (see the map). Structural noise barriers were then evaluated at each impacted location, where there were three or more impacts, and included the evaluation of various wall locations, lengths, and heights, to attenuate the projected highway traffic noise. None of the structural noise barriers evaluated met the feasibility, reasonableness, and design goal criteria required by the KYTC's noise policy. Therefore, **structural noise barriers are not likely to be incorporated** as a part of the project, at any location, for the proposed alternatives.

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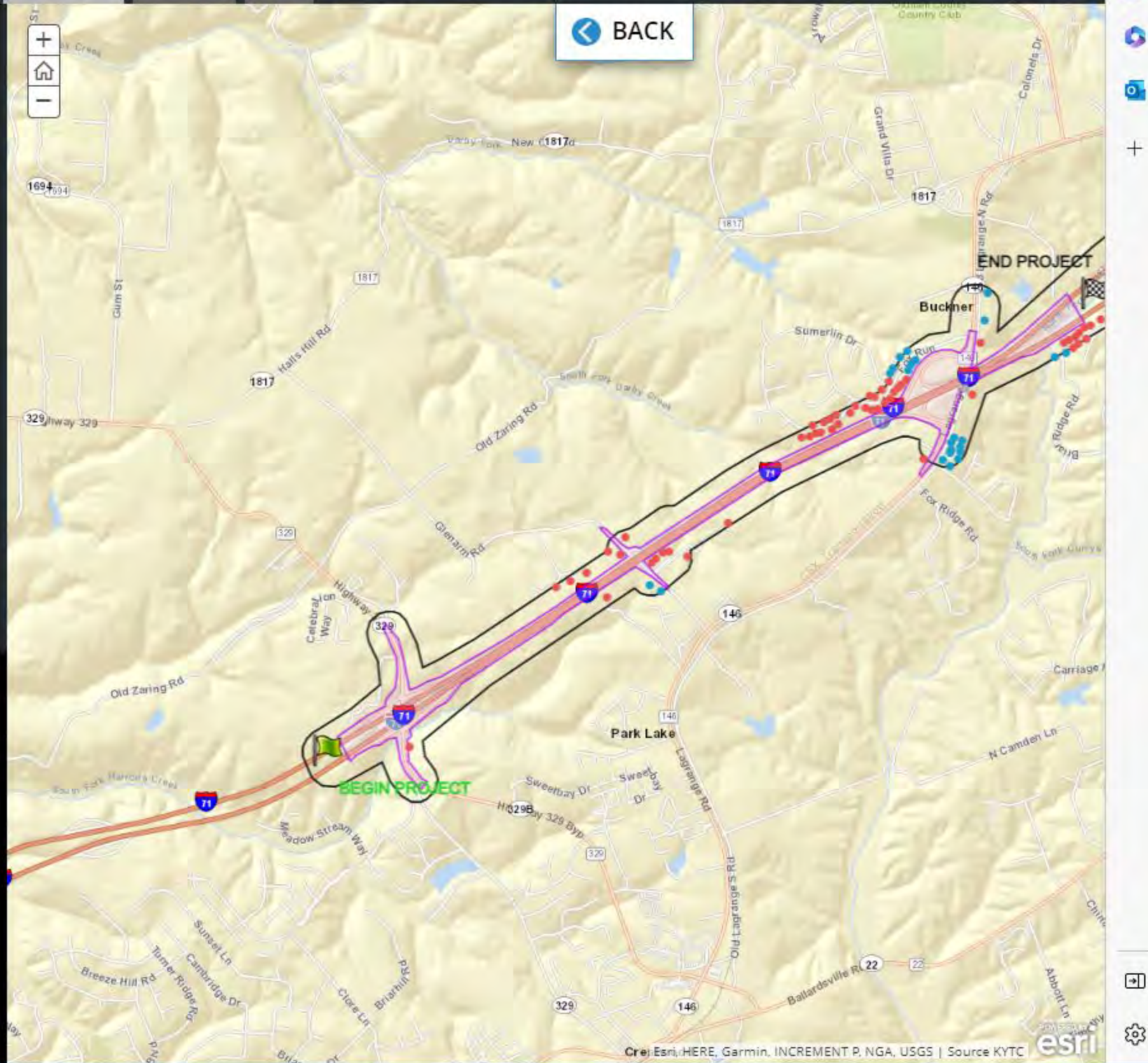
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	BASELINE ALT 1	BASELINE ALT 2	PERMANENT ALT 2	PERMANENT ALT 1A
STREAM IMPACT SUMMARY				
WETLANDS (AC)	0	0	0	0
PERMANENT (AC)	179.95	383.00	258.04	323.00
INTERMITTENT (AC)	1,000.00	1,000.00	1,000.00	1,000.00
EPHEMERAL (AC)	0.00	0.00	0.00	0.00



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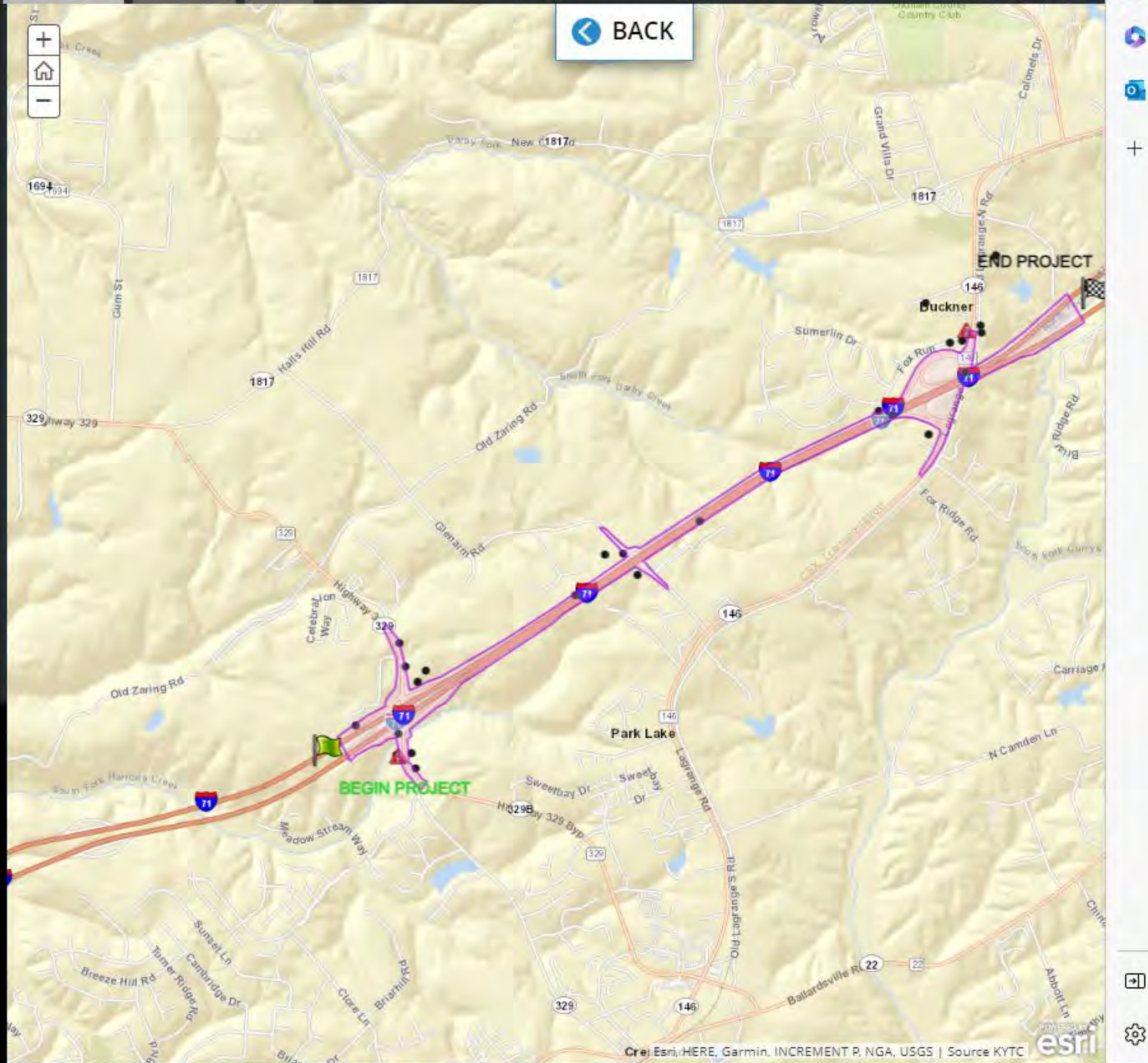
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	Alt 1A	Alt 1B	Alt 2	Alt 3
Stream Impacts Summary				
Perennial (ft)	1,750	300	250	225
Intermittent (ft)	1,000	1,000	1,000	1,000
Ephemeral (ft)	200	200	200	200



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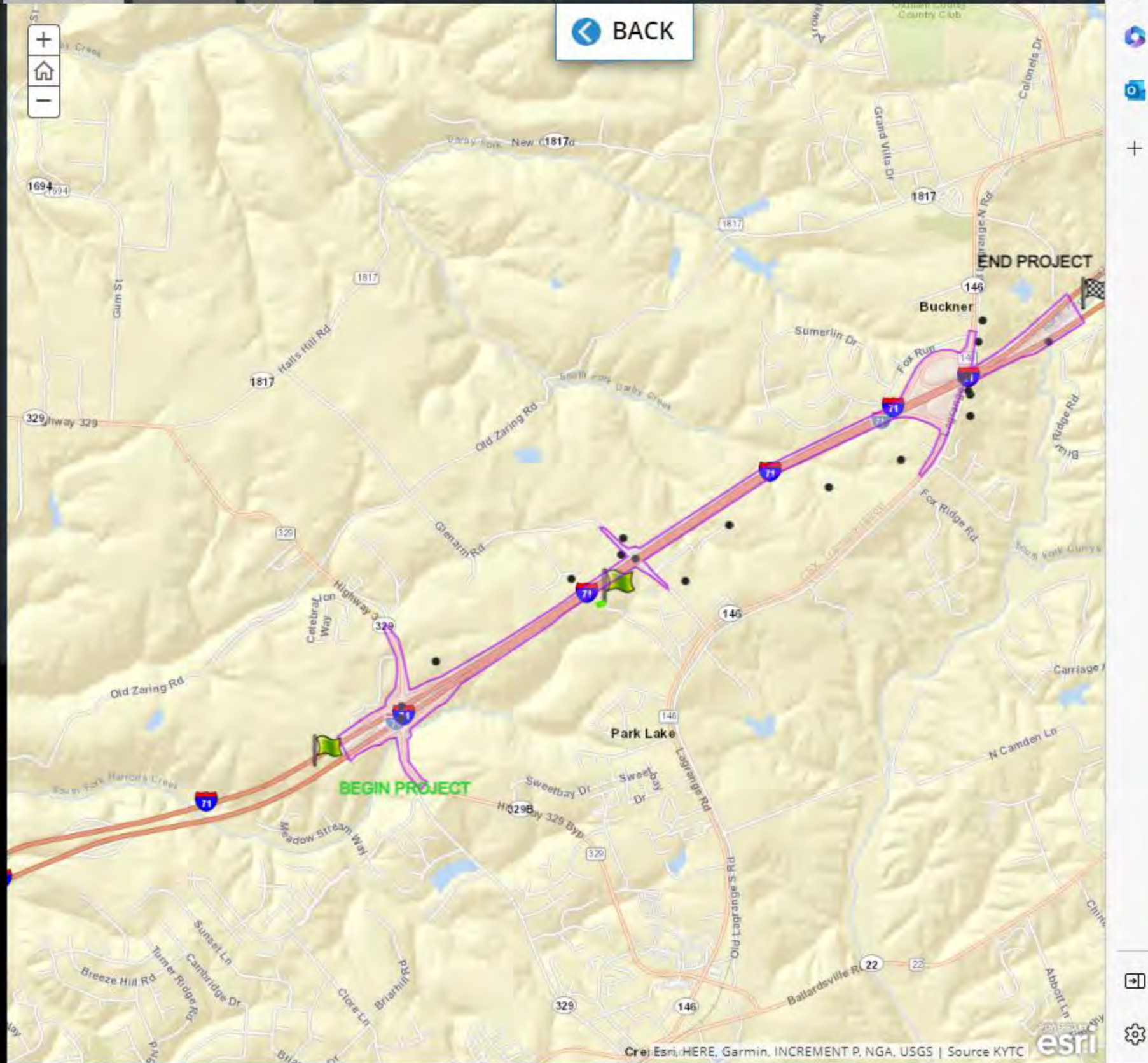
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	MAINLINE ALT 1	MAINLINE ALT 2	MAINLINE ALT 3	MAINLINE ALT 4
STREAM IMPACT SUMMARY				
PERENNIAL (ft)	0	0	0	0
INTERMITTENT (ft)	175.00	305.00	250.00	225.00
EPHEMERAL (ft)	1,000.00	1,400.00	1,000.00	1,000.00
TOTAL (ft)	1,175.00	1,705.00	1,250.00	1,225.00



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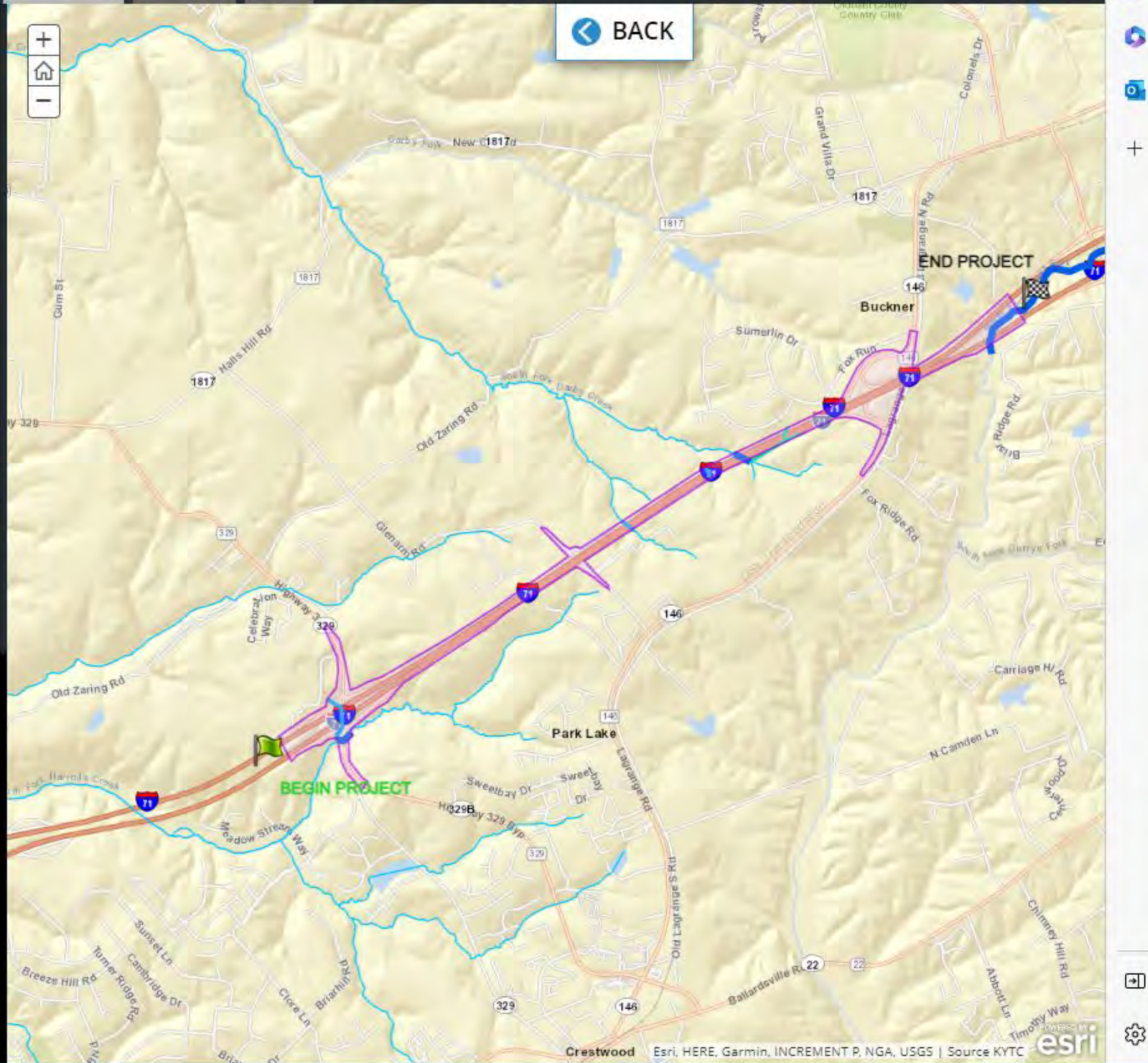
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	BASELINE ALT 1	BASELINE ALT 2	PERMANENT ALT 2	PERMANENT ALT 1A
STREAM IMPACT SUMMARY				
WETLAND IMPACT (L)	0	0	0	0
PERMANENT (L)	179.95	383.00	258.04	323.00
INTERMITTENT (L)	1,000.00	1,000.00	1,000.00	1,000.00
EPHEMERAL (L)	0.00	0.00	0.00	0.00



BACK

BEGIN PROJECT

END PROJECT



	MAINLINE ALT 1	MAINLINE ALT 1A	MAINLINE ALT 2	MAINLINE ALT 2A
STREAM IMPACTS SUMMARY				
STREAMS IMPACTED (#)	8	8	8	8
EPHEMERAL (LF)	178.99	383.08	158.14	223.00
INTERMITTENT (LF)	1,384.93	1,609.80	1,394.61	1,527.04
PERENNIAL (LF)	709.37	825.53	643.93	791.20
TOTAL STREAM IMPACTS	2,273.29	2,818.41	2,196.68	2,541.24

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	IMPACTED ALT 1A	IMPACTED ALT 1B	IMPACTED ALT 2	IMPACTED ALT 1A
STREAM IMPACTS SUMMARY				
PERENNIAL (FT)	1,750.00	300.00	500.00	325.00
INTERMITTENT (FT)	1,000.00	1,000.00	1,000.00	1,000.00
EPHEMERAL (FT)	650.00	650.00	650.00	650.00
TOTAL STREAM IMPACTS	3,400.00	1,950.00	1,150.00	1,975.00

Threatened and Endangered Species: 1 plant and 3 bat species are listed by US Fish and Wildlife Service as potentially located within the project area. Field surveys completed in 2020, however, did not locate the plant within any of the alternative's disturbance limits. For the listed bats, no caves or other openings were found in the surrounding area. Impacts to bat habitat is due to the estimated clearing of 80 acres of forested habitat with each alternative. Additional field surveys to determine the presence or absence of the listed bats are planned for the spring of 2021.

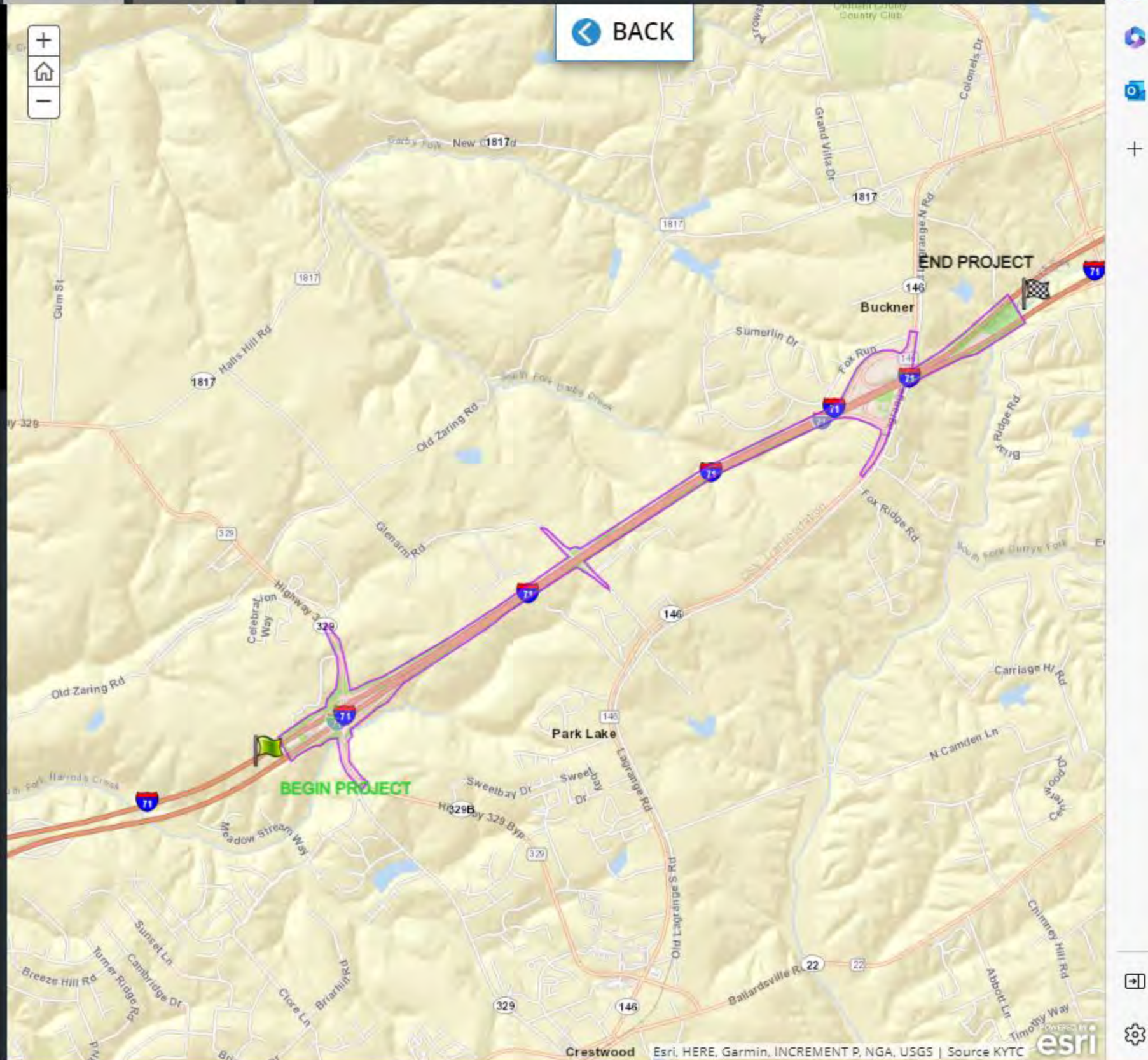
Archaeology: Field investigations have been completed on the preferred alignment. The findings are currently being documented and will be included in the final environmental document.

Buffer of All Alts ROW for PL&G

Combined ROW for All Alts

Forest Alt 2 ROW

Forest Alt 1 ROW



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The Process

We are currently at the end of the Preliminary Engineering and Environmental Analysis portion of the project. Public input is being gathered and environmental impacts are being documented. Once the environmental document is finalized, it will be submitted to the Federal Highway Administration (FHWA) to ensure that there is no significant effect on the human or natural environment. FHWA's approval on the environmental document will signify the end of the Preliminary Engineering phase.

Phase II - Final Design

The Design team will immediately move into Phase II - Final Design. Below is a rough timeline of the events to come:

Early 2022

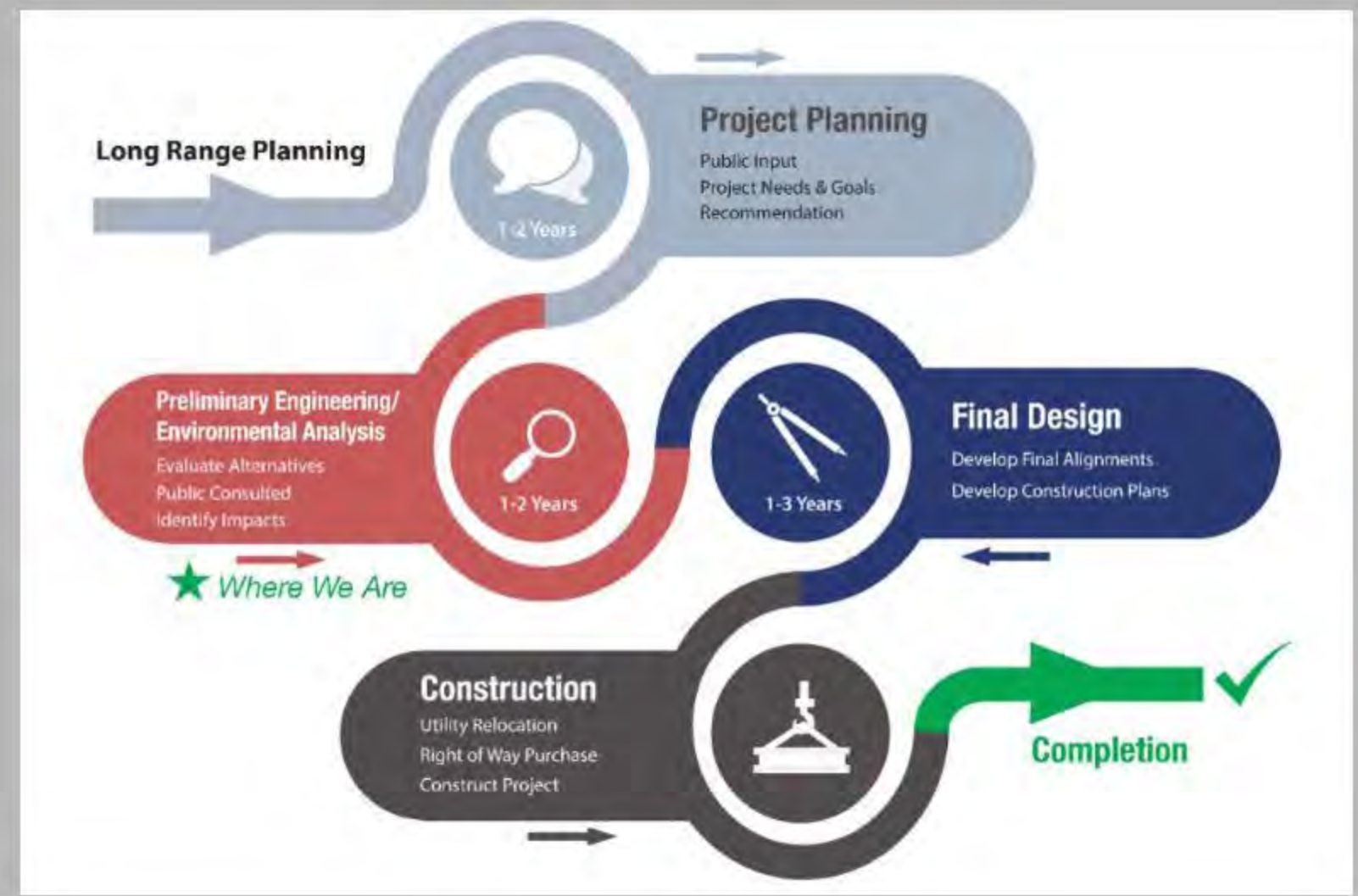
Begin a more detailed roadway design

2022

Begin Purchasing Right of Way

2024

Begin Construction (subject to funding)



Oldham County: I-71 Widening

I-71 Widening

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https://hmbpe.maps.arcgis.com/apps/MapSeries/index.html?appid=7a6d04013c684dc898e4b159e9e0c4c4#

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Survey

Oldham Co. I-71 Widening Public Meeting Survey

Thank you for participating in this survey!

Your feedback is important. The following questions give you an opportunity to provide input to help the project team as the project moves forward. Thanks again for providing your input!

If you need assistance completing this survey, please call XXXXXXXXXXXX.

Contact Information

Full Name

Phone Number

123

Email

✉️

Parcel Address

1000

Mailing Address (If different than Parcel Address)

Which category represents your main interest in the Project?

Choose the answer that best applies

☐ Residential (Property Owner)

☐ Commercial/ Business

☐ Agricultural

☐ Industrial

☐ Commuter

☐ Other (Please Specify)

How often do you travel I-71 within the Project corridor?

Choose the answer that best applies

☐ Daily

☐ Weekly

☐ Monthly

☐ Annually

☐ Never

For what purposes do you travel on I-71 within the Project corridor?

Select all that apply

☐ Employment

☐ Education

☐ Shopping

☐ Personal

☐ Medical

☐ Business/Commercial

☐ Shipping

☐ Agricultural

☐ Other (please specify)

Are you in favor of the project?

Are you in favor of the project?

☐ Yes

☐ No

Are there any issues or resources not identified on the exhibits within this presentation that could be shared with KYTC? (For example: family cemeteries, old landfills/dumps, underground storage tanks, etc.)

1000

Please note below any information depicted on the Preferred exhibit within this presentation that has changed or is incorrect relative to your property.

1000

Do you have any additional information or comments concerning this project?

1000

Was the information presented in this online presentation helpful and informative?

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1000

Please note below any information depicted on the Preferred exhibit within this presentation that has changed or is incorrect relative to your property.

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Do you have any additional information or comments concerning this project?

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Was the information presented in this online presentation helpful and informative?

☐ Yes

☐ No

Submit