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TRANSPORTATION CABINET

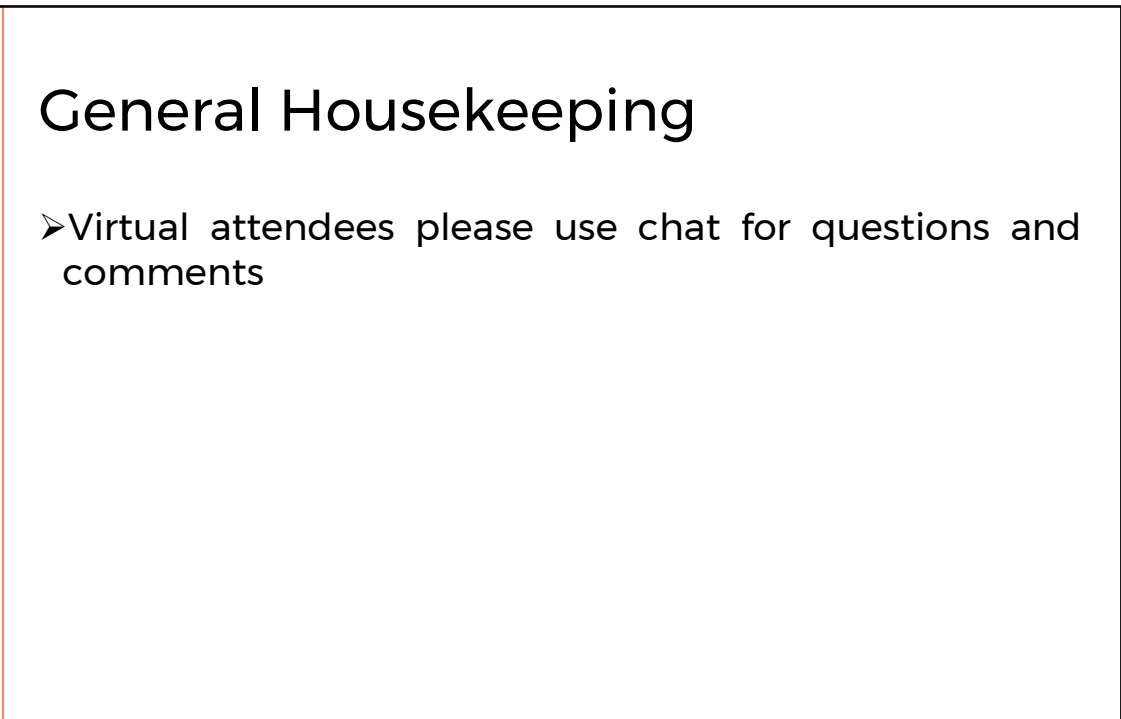
5-150.50 - Bullitt County - KY 44  
Stakeholders Meeting

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# Bullitt County - 5-150.50 KY 44 Stakeholders Meeting

June 27, 2024

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## General Housekeeping

- Virtual attendees please use chat for questions and comments

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# Project Purpose and Need

The purpose of this project is to improve the reliability and reduce congestion of KY 44 between Water Street and US 31E in Mt. Washington including the intersections at US 31E and Old Bardstown Road.

This section of KY 44 is classified as an Urban Minor Arterial with 10'-12' lanes and curb and gutter. A recent programming study noted 20,200 AADT with 6.8% trucks in 2022. The forecast traffic from this study for a design year of 2045 is 31,850 with 10.7% trucks. The intersection of KY 44 and US 31E currently operates at a LOS D in the AM peak and LOS E in the PM peak, per the programming study. This intersection has an anticipated year of failure (LOS E or F) of 2025. Collision data used for the programming study was pulled for 2017-2021. This collision data shows there were 229 total collisions in the project area, 129 (56%) of which were rear end collisions and another 59 (26%) were angle collisions. Rear end collisions are generally indicative of congestion along a roadway.

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# Median U-Turn (MUT) Intersection

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# MUT Alternate - North of KY 44

OAKBROOKE DR  
US 31E  
PARK COMMUNITY  
SPENCER FAMILY DENTISTRY  
KY 44

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Detailed description: This aerial photograph shows a section of US 31E north of KY 44. A green line highlights a proposed MUT alternate on the left side of the road, which then transitions into a red line. The road is flanked by commercial and residential buildings, including 'PARK COMMUNITY' and 'SPENCER FAMILY DENTISTRY'. The intersection with KY 44 is visible on the right side of the image.

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# MUT Alternate - South of KY 44

US 31E  
TWELVE OAKS DR  
SPRING PLAVE DR  
KY 44

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Detailed description: This aerial photograph shows a section of US 31E south of KY 44. A green line highlights a proposed MUT alternate on the left side of the road, which then transitions into a red line. The road is flanked by commercial and residential buildings, including 'WALGREEN'S' and 'TWELVE OAKS DR'. The intersection with KY 44 is visible on the left side of the image.

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## MUT Alternate

### Pros

- Improved intersection efficiency
- Improved safety
- May be used as interim solution
- Can be combined with other improvements

### Cons

- Unique intersection configuration
- Does not address congestion on KY 44

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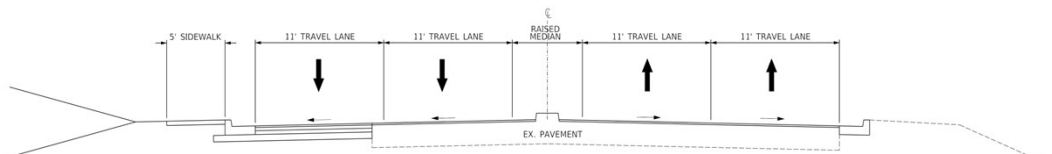
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## 4 Lane Alternate

- 11' Lanes
- Widen with Curb and Gutter
- 5' Sidewalk (10' Shared Use Path)
- Raised Median (Between signals on KY 44)
- Extension of West Street



4-Lane C&G Typical Section

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# 4 Lane Alternate



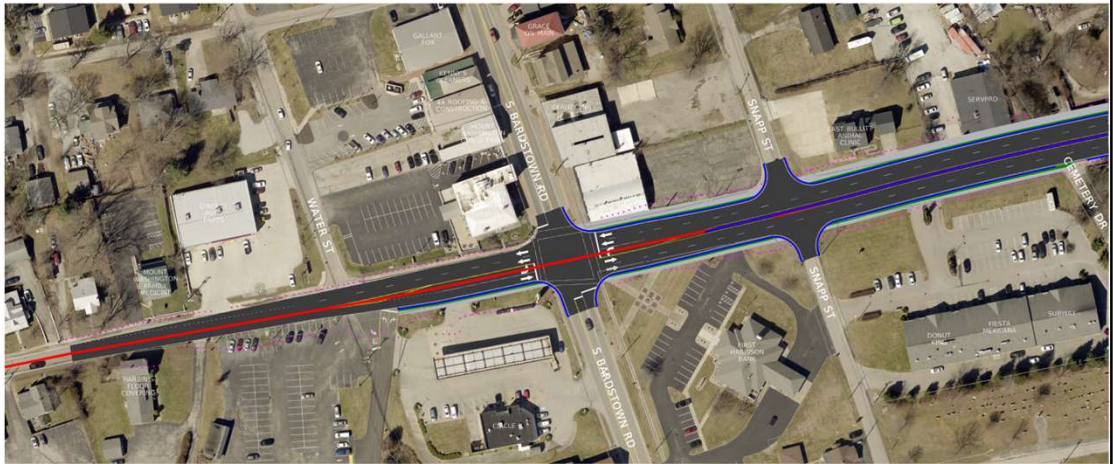
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# 4 Lane Alternate



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# 4 Lane Alternate

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# 4 Lane Alternate - West St

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## 4 Lane Alternate



**Pros**

- Reduces conflict points
  - Angle & Head-On Crashes
  - Reduced congestion
- Added capacity on KY 44
- Improved efficiency at Old Bardstown Rd signal

**Cons**

- Reduces accessibility
- Addition of West St extension to address accessibility
- Property impacts

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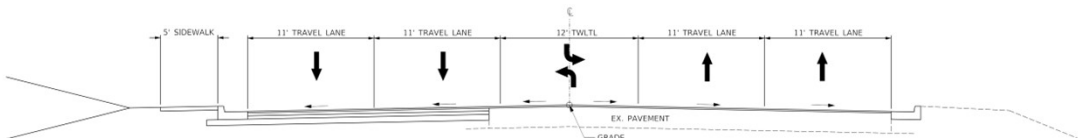



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## 5 Lane Alternate

- 11' Lanes
- 12'-14' Two Way Left Turn Lane
- Widen with Curb and Gutter
- 5' Sidewalk



5-Lane C&G Typical Section

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# 5 Lane Alternate



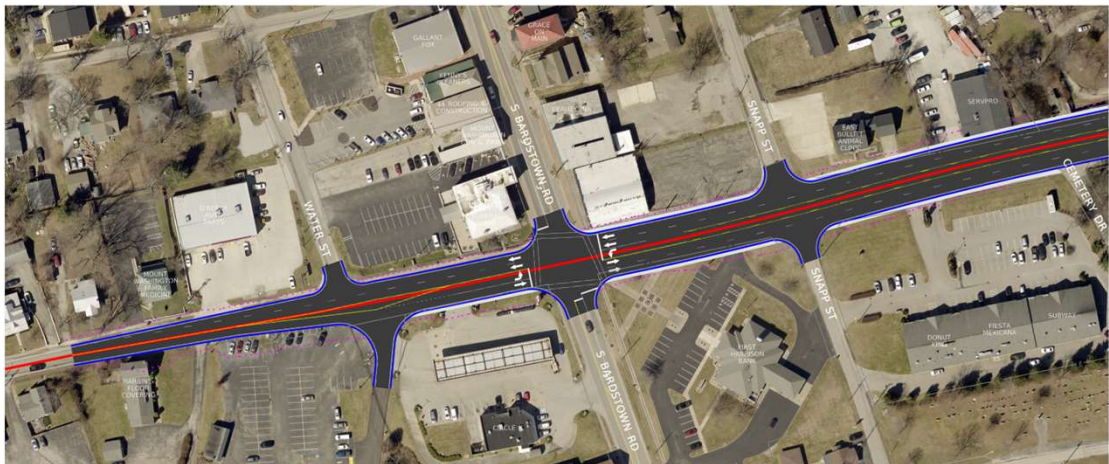
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# 5 Lane Alternate



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# 5 Lane Alternate



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# 5 Lane Alternate

## Pros

- Fewer rear-end collisions
- Added capacity on KY 44
- Improved efficiency at Old Bardstown Rd signal



## Cons

- Increases angle collisions
- Property impacts
- Encourages increased speed

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# Cost Comparison



  
  

	Highway Plan	4 Lane	5 Lane	MUT
Right of Way	\$1,630,000	\$2,500,000	\$1,644,000	\$90,000
Utility	\$580,000	\$580,000	\$580,000	\$100,000
Construction	\$1,883,000	\$4,390,000‡	\$2,480,000	\$1,050,000
TOTAL	\$4,093,000	\$7,470,000	\$4,704,000	\$1,240,000

‡ West Street - \$1,750,000 included


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# Traffic Analysis




  
  

➤ Analyzed network

- US 31E Oakbrooke Dr to Twelve Oaks Dr
- KY 44 - Water Street to US 31E

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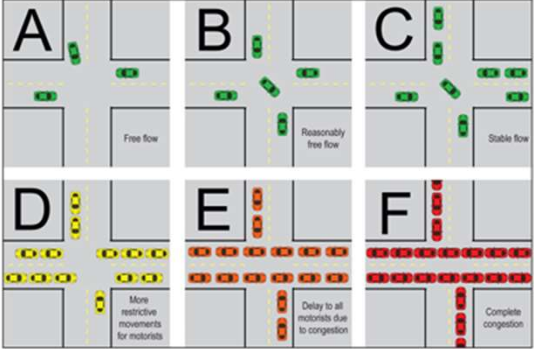


# Traffic Analysis

➤ Level of Service (LOS)

- Presents traffic performance as a “grade”
- Intersection LOS is determined based on delay


Level of Service (Signalized Intersection)	Average Vehicle Delay at Intersection (seconds)
<b>A</b>	≤ 10
<b>B</b>	> 10 and ≤ 20
<b>C</b>	> 20 and ≤ 35
<b>D</b>	> 35 and ≤ 55
<b>E</b>	> 55 and ≤ 80
<b>F</b>	> 80



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# Traffic Data (AM Peak)

	Existing	2045 No Build	2045 3 Lane MUT	2045 4 Lane	2045 4 Lane MUT	2045 5 Lane	2045 5 Lane MUT
Network							
Travel Time/Vehicle (min)	1.92	3.06	2.44	2.29	2.30	2.30	2.28
Delay/Vehicle (min)	0.74	1.65	1.20	1.08	1.10	1.09	1.07
Vehicles Entered	2922	4505	4450	4406	4595	4370	4501
Intersection LOS							
KY 44 @ US 31E	D (37.5s)	D (50.5s)	C (33.9s)	D (46.1s)	C (34.7s)	D (46.6s)	C (33.7s)
KY 44 @ Old Bardstown Rd	C (33.8s)	D (47.5s)	D (49.0s)	C (34.3s)	D (36.2s)	C (34.0s)	D (36.4s)

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## Traffic Data (PM Peak)

	Existing	2045 No Build	2045 3 Lane MUT	2045 4 Lane	2045 4 Lane MUT	2045 5 Lane	2045 5 Lane MUT
Network							
Travel Time/Vehicle (min)	9.59	22.70	19.36	13.22	10.59	14.21	11.09
Delay/Vehicle (min)	2.83	4.55	4.34	3.19	2.87	3.84	3.08
Vehicles Entered	4270	5099	5080	5694	6073	5749	6231
Intersection LOS							
KY 44 @ US 31E	F (83.9s)	F (139.2s)	F (80.1s)	F (130.8s)	F (97.8s)	F (121.2s)	F (87.5s)
KY 44 @ Old Bardstown Rd	F (83.6s)	F (208.9s)	F (236.3s)	D (47.6s)	E (69.2s)	E (59.8s)	E (69.2s)

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## Safety Analysis



- Crash Modification Factors (CMFs) used to estimate crashes associated with each improvement
- CMFs research based
- 35% reduction in total intersection crashes when MUT is installed
- 29% reduction in access management crashes when raised median is installed

KSP Crash Data 2018-2022	
Total Crashes	380
US 31E @ KY 44	186
Old Bardstown Rd @ KY 44	93

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## Safety Analysis

	2045 No Build	2045 3 Lane MUT	2045 4 Lane	2045 4 Lane MUT	2045 5 Lane	2045 5 Lane MUT
20-Year Crashes (No Build)	8093					
Change in Crashes	-	-1386	-1293	-1555	-211	-1597
Fatal/Serious Injury Crash Change	-	-35%	-43%	-54%	+56%	+27%

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## Alternate Impact Matrix

Alternative	20-Year Benefit/Cost
2045 No Build	-
2045 3 Lane with MUT	49.99‡
2045 4 Lane Traditional	12.49
2045 4 Lane with MUT	11.65
2045 5 Lane Traditional	14.11
2045 5 Lane with MUT	15.59

‡ 3-Lane MUT only addresses US 31E intersection

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# Project Schedule

- Design
  - Select Preferred Alignment - Late 2024
- R/W
  - Begin process - Summer 2025
  - 18-24 month duration
- Utility Relocation
  - Begin process - Summer 2025
  - 18-24 month duration
- Construction
  - Potential letting - Spring 2027

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# Additional Comments

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