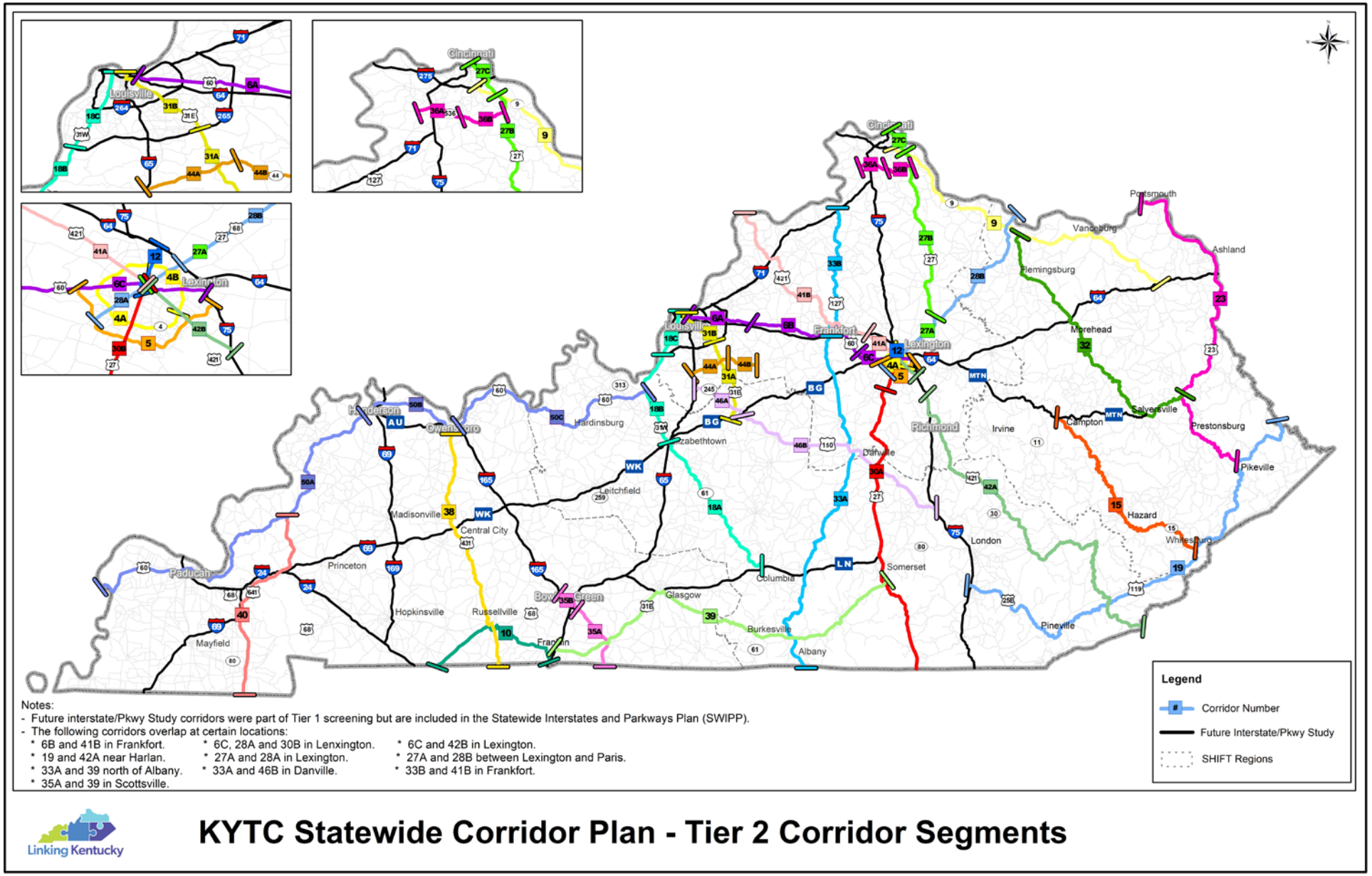
Figure ES.1 – Tier 2 Segments



Notes:
- Future interstate/Pkwy Study corridors were part of Tier 1 screening but are included in the Statewide Interstates and Parkways Plan (SWIPP).
- The following corridors overlap at certain locations:
  - 6B and 41B in Frankfort.
  - 6C, 28A and 30B in Lexington.
  - 6C and 42B in Lexington.
  - 19 and 42A near Harlan.
  - 27A and 28A in Lexington.
  - 27A and 28B between Lexington and Paris.
  - 33A and 39 north of Albany.
  - 33A and 46B in Danville.
  - 33B and 41B in Frankfort.
  - 35A and 39 in Scottsville.

KYTC Statewide Corridor Plan - Tier 2 Corridor Segments

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: KY 4 (New Circle Road – south freeway section)
Segment ID: 4A
From: US 25 (Richmond Road)
To: KY 922 (Newtown Pike)
Counties: Fayette
Highway Districts: 7

CORRIDOR SEGMENT OVERVIEW

The 4A segment on New Circle Road begins at the New Circle Road/US 27 interchange in Fayette County and circulates clockwise around Lexington until it reaches Newtown Pike, where it becomes segment 4B. Segment 4A begins again at the Richmond Road interchange, and ends at Nicholasville Road. The corridor segment length is approximately 13 miles and currently contains multiple interchanges.

The segment is considered limited access throughout, passing through major residential and commercial corridors such as Nicholasville Road, Harrodsburg Road, Newtown Pike, Versailles Road and Georgetown Road, considered city throughout. These areas would be considered city (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to, but not accessing, KY 4.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of New Circle Road by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
From US 421 (Richmond Road) to US 60	Principal Arterial / Other Freeway & Expressway	4, 12’	4’ – 10’	Depressed, 36’ with cable barrier	55 mph
US 60 to US 421 (Leestown Road)	Principal Arterial / Other Freeway & Expressway	4-6, 12’	10’	Concrete barrier, 23’	55 mph
US 421 (Leestown Road) to KY 922	Principal Arterial / Other Freeway & Expressway	4, 12’	0’ – 10’	Raised non-mountable, 20’ and concrete barrier, 20’	55 mph

Right of Way: The existing right of way is generally 200’ – 250’ wide.

Pavement: The average PDI (Pavement Distress Index) for this section of KY 4 is 0.29, which indicates an overall good pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The table below outlines the existing interchanges on the corridor. There are no at-grade intersections or railroad crossings along this segment.

Interchanges	Interchange Type
US 25 (Richmond Road)	Diamond
Alumni Drive	Diamond
KY 1974 (Tates Creek Road)	Diamond
US 27 (Nicholasville Road)	Diamond
US 68 (Harrodsburg Road)	Diverging Diamond
US 60 (Versailles Road)	Partial Cloverleaf w/ Spill-through Flyover
KY 1681 (Old Frankfort Pike)	Diamond
US 421 (Leestown Road)	Diamond
US 25 (Georgetown Road)	Diamond
KY 922 (Newtown Pike)	Partial Cloverleaf

Access Points: This segment is fully limited access, with access by permit between US 25 and KY 922.

Bridges: The tables below outline the detailed bridge information for existing bridges on or over this section of New Circle Road (KY 4).

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
034B00022L	US 60 - VERSAILLES RD	Fair	70.4	No	6	5	6	15.92	31.33	N
034B00022R	US 60 - VERSAILLES RD	Fair	81.9	No	5	5	7	17.58	42.33	N
034B00023L	PARKERS MILL ROAD	Fair	85.3	No	5	7	5	16.33	37.5	N
034B00023R	PARKERS MILL ROAD	Fair	97.5	No	6	6	6	15.25	37.5	N
034B00024L	US 68(HARRODS BURG ROAD)	Fair	65.7	No	6	6	5	17.08	30.25	N
034B00024R	US 68(HARRODS BURG ROAD)	Fair	65.7	No	6	6	5	15.7	30.25	N
034B00025L	CLAYS MILL ROAD	Fair	78.4	No	6	6	6	17.92	31.75	N
034B00025R	CLAYS MILL ROAD	Fair	78.4	No	6	6	6	16.17	31.75	N
034B00027L	LANSDOWNE DRIVE	Fair	95.3	No	6	7	6	16.75	39.58	N
034B00027R	LANSDOWNE DRIVE	Fair	94.3	No	6	7	7	15.33	38	N
034B00028L	TATES CRK ROAD KY 1974	Fair	73.9	No	6	6	5	15.33	31.92	N
034B00028R	TATES CRK ROAD KY 1974	Fair	73.9	No	6	6	5	15.33	31.92	N
034B00029L	GREEN TREE-CHINOE RD	Fair	87.3	No	6	6	5	15.13	38.25	N
034B00029R	GREEN TREE-CHINOE RD	Fair	87.3	No	6	6	5	15.13	38.25	N
034B00031L	US 25 RICHMOND RD.	Fair	70.5	No	6	6	5	16.75	31.58	N
034B00031R	US 25 RICHMOND RD.	Fair	69.5	No	5	6	5	14.7	31.58	N
034B00037L	US 421 (LEESTOWN RD.)	Fair	62.5	No	5	5	5	16.08	30.33	N
034B00037R	US 421 (LEESTOWN RD.)	Fair	62.1	No	5	5	5	16.1	30.33	N
034B00038L	NS (CNO&TP) SYSTEM	Fair	68.8	No	6	6	5	23.58	30.33	N
034B00038R	NS (CNO&TP) SYSTEM	Fair	68.8	No	6	6	5	23.6	30.33	N

Structures Crossing Over the Corridor			
Bridge ID	Facility Carried	Under Clearance (feet)	Horizontal Clearance (feet)
034B00026N	NICHOLASVILLE ROAD	16.92	91.00
034B00030R	ALUMNI DRIVE	17.08	28.00
034B00036N	GEORGETOWN ROAD	99.99	58.33
034B00134L	ALUMNI DR NC	17.08	52.00
034B00171N	KY 1681	99.99	64.00
034B00180N	KY 922	99.99	99.00
034B00033N	NS (CNO&TP) RR	16.50	44.00

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	**AADT**	**AADTT**	**Truck Percentage**
From US 25 (Richmond Rd) to US 421 (Leestown Rd)	53,700	3,400	6%
From US 421 (Leestown Rd) to KY 922 (Newtown Pike)	39,300	7,200	18%

Mobility: The entirety of this corridor segment is a major traffic bottleneck. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) Typical roadway attributes of the bottleneck area can be found above for the entire segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Entire corridor	Refer to the **Existing Facility** section above				65,408

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 14.7% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these links have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4 and potential safety improvements.

ITS Devices: Lexington-Fayette Urban County Government (LFUCG) has a fiber network surrounding the corridor with CCTV cameras throughout the corridor.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Location	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
Clockwise from US 25 (Richmond Road) to KY 922 (Newtown Pike)	Widen to a 6-lane typical section throughout the entire segment. This already exists between Versailles Road and Leestown Road	Match typical section of widened section of New Circle Road between US 60 and KY 421, would be 3-12' lanes in each direction with 10' shoulders and concrete median barrier	The links between US 25 (Richmond Road) and US 60 (Versailles Road) are bottlenecks and do not have acceptable 2045 v/c ratio

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.

Potential New Interchanges: None.

Interchanges for Potential Modification: Harrodsburg Road, Versailles Road, Old Frankfort Pike, Leestown were recently modified. Newtown Pike and Georgetown Road interchanges are currently under construction with expected completion in summer 2021, which are part of the KYTC project 7-366.00 (widen New Circle Road in Lexington from Georgetown Road to Boardwalk Avenue including interchange reconstruction at Newtown Pike).

Interchanges for Potential Modification		
Nicholasville Road	Tates Creek Road	Richmond Road

Major Intersections for Potential Modification: None.

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for a total of 21 bridges along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
034B00022L	US 60 -VERSAILLES RD
034B00022R	US 60 -VERSAILLES RD
034B00023L	PARKERS MILL ROAD
034B00024L	US 68(HARRODSBURG ROAD)
034B00023R	PARKERS MILL ROAD
034B00024R	US 68(HARRODSBURG ROAD)
034B00028L	TATES CRK ROAD KY 1974
034B00025L	CLAYS MILL ROAD
034B00025R	CLAYS MILL ROAD
034B00027L	LANSDOWNE DRIVE
034B00027R	LANSDOWNE DRIVE
034B00028R	TATES CRK ROAD KY 1974
034B00029L	GREEN TREE-CHINOE RD
034B00029R	GREEN TREE-CHINOE RD
034B00031L	US 25 RICHMOND RD.
034B00031R	US 25 RICHMOND RD.
034B00037L	US 421 (LEESTOWN RD.)
034B00037R	US 421 (LEESTOWN RD.)
034B00038L	NS (CNO&TP) SYSTEM
034B00038R	NS (CNO&TP) SYSTEM
034B00033N	NS (CNO&TP) RR

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is good (average PDI = 0.29). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes might be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS value = 4), as well as a cursory review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is

assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters of safety issues covered by proposed improvement concepts	KY 1974 (Tates Creek Road) to Clays Mill Road	Interchange spacing and congestion due to traffic entering and exiting at the interchanges	Widen to a 6-lane typical section throughout the entire segment. This already exists between Versailles and Leestown.
CAT 2: Other major clusters of safety issues	N/A	N/A	N/A

Proposed Phasing: Since all interchanges proposed for modification are located within the proposed corridor in Lexington, they will be completed at the same time the roadway is widened. Because the road has already been widened between Leestown Road and Versailles Road, and is currently being widened between Leestown Road and Newtown Pike, it is recommended that construction phasing begin at Versailles road and move counterclockwise to Harrodsburg Road, then Nicholasville Road, then Tates Creek Road then Alumni Drive, then Richmond Road.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns identified by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns	
Environmental Red Flag Features	**Clockwise from US 25 (Richmond Road) to KY 922 (Newtown Pike)**
Superfunds	N
Special Waters[1]	N
Forested Areas	N
NLEB Habitat Priority	Y
IB Habitat Priority Area	N
FAA Airport Runways	N
Public Hunting Areas	N
Wildlife Management Areas	N
Local Parks	Y
State/ National Parks	N
Kentucky Heritage Land Conservation Fund	N
Area Landmarks	Y
Point Landmarks	Y
National Register of Historic Places Location (Point)	N
National Register of Historic Places Location (Polygon)	Y

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
Clockwise from US 25 (Richmond Road) to KY 922 (Newtown Pike)	Widen to a 6-lane typical section throughout the entire segment.	Yes

COST ESTIMATION

Design:	34.3 ($M)
ROW:	99.4 ($M)
Utility:	24.2 ($M)
Construction:	223.8 ($M)
TOTAL =	**381.7 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".

4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
5. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
6. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: Man O' War Boulevard
Segment ID: 5
From: US 60 (West) in Lexington
To: I-75 in Lexington
Counties: Fayette
Highway Districts: 7

CORRIDOR SEGMENT OVERVIEW

Segment 5 on Man O' War Boulevard begins at the Man O' War Boulevard/US 60 intersection in Fayette County and extends south toward US 68 and US 27. This segment continues east along Man O' War Boulevard towards Tates Creek Road, Alumni Drive and US 25, ending at the I-75 interchange in Fayette County. The corridor segment length is approximately 16 miles and currently contains one interchange at I-75.

This segment passes through residential and commercial zones surrounding Lexington, Kentucky. These areas would be considered city (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to Man O' War Boulevard.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of Man O' War Boulevard by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
US 60 (LEX Airport) to Sir Barton Way	Principal Arterial - Other	4, 12'	Curbed (1-2'), None	Raised Non Mountable (21'), None	45-50 mph
Sir Barton Way to I-75	Principal Arterial - Other	4-6, 12'	Curbed (1-2'), Asphalt (10-13'), None	Raised Non Mountable (21'), Raised Mountable (14'), None	45 mph

Right of Way: The existing right of way is generally 120' – 140' wide.

Pavement: The average PDI (Pavement Distress Index) only exists for the KY 1425 section, between I-75 and US 60, of this segment and is 0.60, which indicates an overall fair pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges, major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Type
I-75	Diamond/Partial Cloverleaf

Major Intersections[1]			
US 60 (Versailles Rd)	KY 1968 (Parkers Mill Rd)	Beaumont Center Ln	Fort Harrods Dr
US 68 (Harrodsburg Rd)	Old Higbee Mill Rd	Clays Mill Rd	Boston Rd
Winthrop Dr	US 27 (Nicholasville Rd)	Habersham Dr	Belleau Wood Dr
Saron Dr	KY 1974 (Tates Creek Rd)	Crosby Dr	Rapid Run Dr
Trent Blvd	Armstrong Mill Rd	Bold Bidder Dr	Buckhorn Dr
Pimlico Pkwy	Alumni Dr	US 25 (Richmond Rd)	Palumbo Dr
Todds Rd/Liberty Rd	Pink Pigeon Pkwy	Sir Barton Way	

1) Only crossroads with functional classification of Minor Collector or above are included.

At-grade Railroad Crossings
None

Access Points: This segment is not access controlled. Throughout the corridor, there are intersecting roadways.

Bridges: The tables below outline the detailed bridge information for existing bridges on or over this section of Man O' War Boulevard.

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
034B00142N	I-75	Fair	97.90	No	6	7	6	16.92	33.00	N
034C00040L	SOUTH ELKHORN CR	Fair	80.40	No	6	7	6	0.00	28.00	N
034C00040R	SOUTH ELKHORN CREEK	Fair	80.40	No	6	6	6	0.00	28.00	N
034C00041N	HICKMAN CREEK	Fair	89.20	No	7	7	6	0.00	44.00	N
034C00042N	NS (CNO&TP) SYSTEM	Fair	77.10	No	6	6	7	28.08	27.42	N

Structures Crossing Over the Corridor
None

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	**AADT**	**AADTT**	**Truck Percentage**
From US 60 (Versailles Road) to US 68 (Harrodsburg Road)	11,100	600	6%
From US 68 (Harrodsburg Road) to Alumni Drive	20,700	700	4%
From Alumni Dr to I-75	34,600	3,900	11%

Mobility: The entirety of this corridor segment is a major traffic bottleneck. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) Typical roadway attributes of the bottleneck area can be found above for the entire segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Entire corridor	Refer to the **Existing Facility** section above				39,716

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 7.1% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these links have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Lexington Fayette Urban County Government (LFUCG) has a fiber network surrounding the corridor with CCTV cameras throughout the corridor.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Location	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
Entire Corridor	Alt 1: Widen to a 6-lane typical section throughout the entire segment. Alt 2: Right-In, Right-Out at non-signalized intersections	Alt 1: Urban typical section with 3-11' lanes in each direction. Raised concrete median, curb & gutter, and sidewalk	Alt 1: will address the bottleneck situation that exists throughout most of the corridor, additionally, 2045 v/c is unacceptable between Clays Mill Road and I-75 Alt 2: will improve safety and reduce congestion through access management

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.

Potential New Interchanges: None.

Interchanges for Potential Modification: Improvements are proposed for the existing interchange at I-75.

Interchanges for Potential Modification
I-75

Major Intersections for Potential Modification: Improvements, such as additional turn lanes, channelization, coordinated signal timing, and innovative design should be considered at 27 major intersections within this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
US 60 (Versailles Rd)	KY 1968 (Parkers Mill Rd)	Beaumont Center Ln	Fort Harrods Dr
US 68 (Harrodsburg Rd)	Old Higbee Mill Rd	Clays Mill Rd	Boston Rd
Winthrop Dr	US 27 (Nicholasville Rd)	Habersham Dr	Belleau Wood Dr
Saron Dr	KY 1974 (Tates Creek Rd)	Crosby Dr	Rapid Run Dr
Trent Blvd	Armstrong Mill Rd	Bold Bidder Dr	Buckhorn Dr
Pimlico Pkwy	Alumni Dr	US 25 (Richmond Rd)	Palumbo Dr
Todds Rd/Liberty Rd	Pink Pigeon Pkwy	Sir Barton Way	

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for a total of two bridges along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
034C00040L	SOUTH ELKHORN CR
034C00040R	SOUTH ELKHORN CREEK

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is fair (average PDI = 0.60). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes will be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS value = 4), as well as a cursory review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the

table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters of safety issues covered by proposed improvement concepts	US 25 (Richmond Road) to I-75 Interchange, US 27 and KY 1974	Intersection spacing and congestion	Intersection improvements and widening described above
CAT 2: Other major clusters of safety issues	N/A	N/A	N/A

Proposed Phasing: Since all intersections proposed for modification are located within the proposed corridor widening in Lexington, they will be improved at the same time the roadway is widened. Construction could be phased along the corridor: Richmond Road to I-75, another from Tates Creek Road to Richmond Road, another from Nicholasville Road to Tates Creek Road, another from Clays Mill Road to Nicholasville Road, and one phase for Versailles Road to Clays Mill Road.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns identified by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns	
Environmental Red Flag Features	**Full Corridor**
Superfunds	N
Special Waters[1]	N
Forested Areas	Y
NLEB Habitat Priority	Y
IB Habitat Priority Area	N
FAA Airport Runways	N
Public Hunting Areas	N
Wildlife Management Areas	N
Local Parks	Y
State/ National Parks	N
Kentucky Heritage Land Conservation Fund	N
Area Landmarks	Y
Point Landmarks	Y
National Register of Historic Places Location (Point)	N
National Register of Historic Places Location (Polygon)	Y

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
Entire Corridor	Alt 1: Widen to a 6-lane typical section throughout the entire segment.	Yes
	Alt 2: Right-In, Right-Out at non-signalized intersections.	No

COST ESTIMATION

Design:	49.2 ($M)
ROW:	176.1 ($M)
Utility:	40.7 ($M)
Construction:	327.5 ($M)
TOTAL =	**593.5 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: US 60
Segment ID: 6B
From: KY 1848 in Simpsonville
To: US 62 in Versailles
Counties: Shelby, Franklin, Woodford
Highway Districts: 5 and 7

CORRIDOR SEGMENT OVERVIEW

The 6B segment of US 60 begins at KY 1848 in Simpsonville in Shelby County. It runs parallel to I-64 through Shelbyville and Frankfort (in Franklin County) and ends at US 62 in Versailles (in Woodford County). The corridor is approximately 41 miles long and contains two interchanges at KY 676 and I-64.

US 60 runs through the center of the city in both Shelbyville and Frankfort, with numerous access points to homes and businesses, and signalized intersections. These areas would be considered towns (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to US 60. The remainder of this segment passes through rural agricultural areas with homes interspersed along US 60.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of US 60 by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
KY 1848 (Buck Creek Road) to US 460	Minor Arterial	2 – 4, 10’ – 12’	Asphalt Combination (4’), Curbed (0-2’), None	Flush (10’-18’), Raised Non-Mountable (12’-20’), None	25 – 55 mph
US 460 to Woodford County Line	Principal Arterial Other	4, 12’	Asphalt (10’), Curbed (0’-2’), None	None, Flush (12’), Raised Non-Mountable (12’)	40 – 55 mph
Franklin County Line to US 62	Principal Arterial Other	4, 12’	Asphalt (0-10’)	None, Raised Non-Mountable (16’), Depressed (16’)	55 mph

Right of Way: The table below outlines the general width of existing right of way within the corridor.

General Existing Right of Way Widths		
From	**To**	**General Ex. R/W Width**
KY 1848 in Simpsonville	One-Way Split in Shelbyville	100’ – 120’
One-Way Split in Shelbyville	KY 53/KY 55 in Shelby County	55’ – 65’
KY 53/KY 55 in Shelby County	KY 1211 in Franklin County	100’ – 130’
KY 1211 in Franklin County	US 421/KY 676 Interchange	60’ – 80’
US 421/KY 676 Interchange	US 62 in Versailles	140’ – 190’

Pavement: The average PDI (Pavement Distress Index) for this section of US 60 is 0.27, which indicates an overall good pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges, major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Type
I-64	Diamond
US 421/KY 676	SPUI

Major Intersections[1]			
KY 1848 (Buck Creek Rd)	KY 55	KY 2257	Mack Walters Rd
Smithfield Rd	10th St	7th St	KY 53
KY 1871	KY 714	KY 395	KY 1472
KY 151	KY 1665	Cardwell Ln	US 127
Collins Ln	Lafayette Dr	KY 1211	Bridge St
Shelby St	Main St	E Broadway St	KY 1659
Schenkel Ln/Rolling Acres Dr	US 421/US 460	Lyons Dr	KY 2821
KY 2267	KY 1681 (Duncan Rd)	KY 1681 (Old Frankfort Pike)	Steele Rd
US 62 (Midway Rd)			

1) Only crossroads with functional classification of Minor Collector or above are included.

At-grade Railroad Crossings
None

Access Points: This segment is not access controlled. Throughout the corridor, there are residential and commercial driveways and intersecting roadways.

Bridges: The tables below outline the detailed bridge information for existing bridges on or over this section of US 60.

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
037B00008N	CSX RAILROAD	Fair	72	No	5	5	5	22.5	94	N
037B00016N	LAFAYETTE DR	Fair	64.6	No	6	5	5	24.42	40.5	N
037B00019N (Culvert)	BR OF S BENSON CREEK	Fair	84.7	No	N	N	N	0	27.75	5
037B00063N	KENTUCKY RIVER	Fair	63.5	No	5	5	5	0	30	N
037B00078N	KY 676 (E-W CONN)	Fair	85	No	6	6	6	17	116	N
037B00097N	S BENSON CREEK	Fair	87.1	No	7	6	5	0	40	N
106B00007R	CLEAR CREEK	Poor	61.8	No	4	5	4	0	36	N
106B00024N (Culvert)	DRY RUN	Fair	40.5	No	N	N	N	0	77	5
106B00025N	BULLSKIN CREEK	Fair	60.6	No	7	7	5	0	26	N
106B00076L	CLEAR CREEK	Fair	96	No	5	7	7	0	34	N
106B00085N	GUIST CREEK	Fair	95.5	No	7	7	6	0	40	N
106B00086N	BENSON CREEK	Fair	97.8	No	7	7	6	0	40	N
106B00093N	LITTLE BULLSKIN CREEK	Fair	93	No	7	7	6	0	44	N

Structures Crossing Over the Corridor			
Bridge ID	Facility Carried	Under Clearance (feet)	Horizontal Clearance (feet)
037B00053L	I-64 WB	16.58	39.25
037B00053R	I-64 EB	16.08	39.25
037X00002N	PEDESTRIAN BRIDGE	22	48

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	AADT	AADTT	Truck Percentage
From KY 1848 (south) in Simpsonville to KY 55 (Freedoms Way) in Shelbyville	4,800	200	3%
From KY 55 (Freedoms Way) to KY 53(Mt Eden Rd) in Shelbyville	15,100	1,300	8%
From KY 53(Mt Eden Rd) in Shelbyville to US 127 (Lawrenceburg Rd) in Franklin	5,500	300	6%
From US 127 (Lawrenceburg Rd) in Franklin to US 62 in Versailles	13,700	1,200	9%

Mobility: There are three major traffic bottleneck sections along this corridor segment. See the table below for details. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) There is also one isolated traffic bottleneck at the intersection with US 62 in Versailles. Other than the noted traffic bottleneck sections/locations, traffic condition is acceptable along the remainder of this segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Major Bottleneck 1: From KY 1848 (south) to 1 mile east of KY 1848 (south) in Simpsonville	Minor Arterial	2, 11’	0 or 11’	10’	5,883
Major Bottleneck 2: From Taylorsville Road to 2 mile east of KY 53/KY 55 in Shelby County	Minor Arterial	2-4, 10’-12’	0’	10’	17,027
Major Bottleneck 3: From KY 2817 (Cardwell Ln) to KY 1681 (Shady Ln) in Frankfort (Franklin)	Minor Arterial / Principal Arterial	2-4, 10’-12’	0-20’	0-2’	28,497

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 5.8% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these links have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Approximately 1% of the corridor length will have direct access to fiber from the ongoing Kentucky Wired project.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Locations	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
Major Bottleneck 1: From KY 1848 (south) to 1 mile east of KY 1848 (south) in Simpsonville	None at this time	The bottleneck at this location is likely due to this being the only signalized intersection in the area	
Major Bottleneck 2: From Taylorsville Road to KY 53/KY 55 in Shelby County	Spot improvements to address safety, as well as coordinated signalization, improved signage and intersections.	This section is currently a 5-lane section which turns into a one-way pair with 2 lanes in each direction through Shelbyville. Due to limited right of way and acceptable 2045 v/c through much of the section, widening is not recommended	LOTTR exceeds the established thresholds
Major Bottleneck 2: From KY 53/KY 55 to 2 miles east of KY 53/KY 55 in Shelby County	Widen to 5-lane section	Urban typical section with 2-11' lanes in each direction, a 15' center two-way left turn lane, curb & gutter, and sidewalk	The expected v/c in 2045 exceeds the established thresholds
Major Bottleneck 3: From KY 2817 (Cardwell Ln) to KY 1681 (Shady Ln) in Frankfort (Franklin)	Spot improvements to address safety as well as coordinated signalization and access management	The majority of this section has an acceptable 2045 v/c, and right of way through this area is limited, therefore spot improvements are recommended	Address safety and bottlenecks due to high LOTTR

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.

Potential New Interchanges: None.

Interchanges for Potential Modification: Improvements are proposed for the existing interchange at I-64.

Interchanges for Potential Modification
I-64

Major Intersections for Potential Modification: Improvements, such as signalization and realignment should be considered at 25 major intersections within this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
KY 55	KY 2257	Mack Walters Rd	Smithfield Rd
10th St	7th St	KY 53	US 127
Collins Ln	Lafayette Dr	KY 1211	Bridge St
Shelby St	Main St	E Broadway St	KY 1659
Schenkel Ln/Rolling Acres Dr	US 421/US 460	Lyons Dr	KY 2821
Chenault Rd	KY 1681 (Duncan Rd)	US 62 (Midway Rd)	KY 1871
Capital Ave			

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for a total of seven bridges along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
037B00008N	CSX RAILROAD
037B00016N	LAFAYETTE DR
037B00019N	BR OF S BENSON CREEK
037B00063N	KENTUCKY RIVER
037B00097N	S BENSON CREEK
106B00025N	BULLSKIN CREEK
106B00076L	CLEAR CREEK

- **Bridges for Replacement:** Replacement is recommended for a total of one bridge along the entire corridor. Note that the bridge replacement is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge needs replacement and is within a bottleneck location with recommended widening, it will be widened during the replacement to accommodate the additional proposed lanes and the cost of bridge replacement is used for the planning-level cost estimation purpose.

Bridges for Replacement	
Bridge ID	**Feature Intersect**
106B00007R	CLEAR CREEK

Pavement Treatment: The overall pavement condition is good (average PDI = 0.27). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes might be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS value = 4), as well as a cursory review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters of safety issues covered by proposed improvement concepts	Taylorsville Road to KY 53; KY 2817 to KY 1681	Traffic pattern change and bottleneck conditions in downtown Shelbyville; bottleneck conditions in Frankfort	Spot improvements in Shelbyville described above; spot improvements and access management described above
CAT 2: Other major clusters of safety issues	N/A	N/A	N/A

Proposed Phasing: The proposed spot improvements at major intersections could be phased geographically: one phase each for Jefferson and Shelby counties (along with widening to 5 lanes from KY 53/KY 55 to 2 miles east of KY 53/KY 55 in Shelby County), and another phase for Franklin County. Because many of the Shelby County intersections are located in Shelbyville and many of the Franklin County intersections are all located in Frankfort, they have urban and complex settings, and grouping them in a separate phase is reasonable.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns identified by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns			
Environmental Red Flag Features	**Major Bottleneck 2: From Taylorsville Road to KY 53/KY 55 in Shelby County**	**Major Bottleneck 2: From KY 53/KY 55 to 2 miles east of KY 53/KY 55 in Shelby County**	**Major Bottleneck 3: From KY 2817 (Cardwell Ln) to KY 1681 (Shady Ln) in Frankfort (Franklin)**
Superfunds	N	N	N
Special Waters[1]	N	N	N
Forested Areas	N	N	N
NLEB Habitat Priority	N	N	N
IB Habitat Priority Area	N	N	N
FAA Airport Runways	N	N	Y
Public Hunting Areas	N	N	N
Wildlife Management Areas	N	N	N
Local Parks	Y	N	Y
State/ National Parks	N	N	N
Kentucky Heritage Land Conservation Fund	N	N	N
Area Landmarks	Y	N	Y
Point Landmarks	Y	Y	Y
National Register of Historic Places Location (Point)	Y	Y	Y
National Register of Historic Places Location (Polygon)	Y	N	Y

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
Major Bottleneck 2: From KY 53/KY 55 to 2 miles east of KY 53/KY 55 in Shelby County	Widen to 5-lane section	Yes
Interchange Modifications at I-64	Interchange Modifications	Potentially
Intersection Modifications at Collins Ln, Lafayette Dr, KY 1211, Schenkel Ln/Rolling Acres Dr, Lyons Dr, and US 62 (Midway Rd)	Improvements, such as signalization and realignment	Yes
Intersection Modifications at KY 2257, Mack Walters Rd, 10th St, 7th St, Bridge St, Shelby St, Main St, E Broadway St, KY 1659, US 421/US 460, KY 2267, and KY 1681 (Duncan Rd)	Improvements, such as signalization and realignment	No
Intersection Modifications at Smithfield Rd, US 127, and KY 2821	Improvements, such as signalization and realignment	Potentially

COST ESTIMATION

Design:	21.4 ($M)
ROW:	77.2 ($M)
Utility:	17.8 ($M)
Construction:	142.5 ($M)
TOTAL =	**258.9 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: US 60
Segment ID: 6C
From: US 62 in Versailles
To: I-75 in Lexington
Counties: Woodford, Scott, and Fayette
Highway Districts: 7

CORRIDOR SEGMENT OVERVIEW

Segment 6C on US 60 begins at US 62 in Woodford County and extends southeast through Scott County and ends at the I-75 interchange in Lexington in Fayette County. The corridor segment length is approximately 19 miles long and currently contains four interchanges at the Bluegrass Parkway, New Circle Road at Versailles Road, New Circle Road at Winchester Road, and I-75.

This segment passes through the residential and commercial areas in one city (Lexington in Fayette County). This area would be considered city (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to US 60. This segment also passes through the residential and commercial areas in one town (Versailles in Woodford County). This area would be considered town (according to KYSTMv19 data) with clusters of homes and commercial buildings adjacent to US 60. The remainder of this segment passes through rural agricultural areas with homes interspersed along US 60.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of US 60 by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
US 62 to US 922 (Oliver Lewis Way)	Principal Arterial - Other	4-6, 11-12’	Curbed (0-2’), Ashhalt (10’)	None, Raised Non-Mountable (16’), Raised Mountable (20’), Flush (4’)	35 - 55 mph
US 922 (Oliver Lewis Way) to US 25 (E Main Street)	Principal Arterial - Other	4, 11’	Curbed (0-2’)	Raised Non-Mountable (20’)	35 mph
US 25 (E Main Street) to I-75	Principal Arterial - Other	4-6, 10’ - 12’	Curbed (0-6’), Asphalt (10’), None	None, Flush (12’ – 18’), Raised Non-Mountable (14’ - 15’)	35 - 55 mph

Right of Way: The table below outlines the general width of existing right of way within the corridor.

General Existing Right of Way Widths		
From	**To**	**General Ex. R/W Width**
US 62 in Versailles	Versailles Road/New Circle Road Interchange	175' – 200'
Versailles Road/New Circle Road Interchange	Winchester Road/New Circle Road Interchange	80' – 100'
Winchester Road/New Circle Road Interchange	I-75 in Lexington	150' – 200'

Pavement: The average PDI (Pavement Distress Index) for this section of US 60 is 0.34, which indicates an overall good pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges, major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Type
I-64/I-75	Diamond
Winchester Road/New Circle Road	SPUI
Versailles Road/New Circle Road	Partial Cloverleaf w/ Spill-through Flyover
Bluegrass Parkway	Three Leg

Major Intersections[1]			
US 62 (Midway Rd)	US 62 (Frankfort St)	Yellow Jacket Dr	Big Sink Rd
US 60 (Lexington Rd)	Paynes Mill Rd	Huntertown Rd	KY 1967
KY 1968 (2)	KY 1969	Man O' War Blvd	Alexandria Dr
Village Dr	Mason Headley Rd	Oxford Circle (2)	Delmont Dr
Red Mile Road	Angliana Ave	Oliver Lewis Way	Jefferson Street
S Broadway / Maxwell St	High St	Vine St	W Main St
Upper St	Limestone	Martin Luther King Blvd	Rose Street
Midland Ave / E Main St	E Short St	E 3rd St	Walton Ave
E 7th St / Liberty Rd	E Loudon Ave	Industry Rd	Eastland Pkwy
Fortune Dr	Sir Barton Way		

1) Only crossroads with functional classification of Minor Collector or above are included.

At-grade Railroad Crossings
US 60 Mile Point 8.963 in Fayette County
US 60 Mile Point 8.544 in Woodford County
US 60 Mile Point 8.297 in Woodford County

Access Points: This segment has no limited access. Throughout the corridor, there are access points for commercial, residential, intersecting roadways.

Bridges: The tables below outline the detailed bridge information for existing bridges on or over this section of US 60.

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
034B00012N (Culvert)	VAUGHNS BRANCH	Fair	78.1	No	N	N	N	0	76.75	6
034B00013N (Culvert)	WOLFE RUN	Fair	77	No	N	N	N	0	69	6
034B00014N (Culvert)	HARRISON BRANCH	Fair	54.4	No	N	N	N	0	68.5	6
034B00120N (Culvert)	SHANNON RUN	Fair	50.5	No	N	N	N	0	88.75	6
034B00121N (Culvert)	SOUTH ELKHORN CREEK	Fair	85	No	N	N	N	0	88.5	6
034B00122N	CSX RR & DEROODE ST	Fair	86.4	No	6	7	5	37.25	68	N

Structures Crossing Over the Corridor			
Bridge ID	Facility Carried	Under Clearance (feet)	Horizontal Clearance (feet)
034B00022L	W NEW CIRCLE RD NC	15.92	31.33
034B00022R	NEW CIRCLE ROAD	17.58	42.33
034B00148L	S I-75 NC	16.17	61.5
034B00148R	N I-75	16.17	61.5
034B00157N	WINCHESTER ROAD	16.17	99.9
034B00168N	RAMP G NEW CIRCLE	16.5	25
034C00054N	S MARTIN LUTHER KI	16.85	38.17
120B00030N	BG PKWY - 9002	16.3	24
034X00001N	PEDWAY	22.92	58.67
034X00003N	RADISON PED.BRIDGE	17.5	49
034X00005N	PEDESTRIAN WALKWAY	16.33	48.3
120X00001N	PED. OVER PASS	17.50	84.00

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	**AADT**	**AADTT**	**Truck Percentage**
From US 62 in Versailles to Bluegrass Pkwy	18,800	1,500	8%[1]
From Bluegrass Pkwy to KY 4 (New Circle Rd) in Lexington	35,800	4,500	13%
From KY 4 (New Circle Rd) to I-75 in Lexington	26,100	2,400	9%

[1] Truck percentage obtained from KYTC Traffic Count Reporting System

Mobility: There are two major traffic bottleneck sections along this corridor segment. See the table below for details. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) Traffic condition is acceptable along the remainder of this segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Major Bottleneck 1: From US 62 in Versailles to 0.7 mile west of Bluegrass Pkwy	Principal Arterial	4, 12’	16’-20’	0’ or 10’	24,675
Major Bottleneck 2: From 0.7 mile east of Bluegrass Pkwy to I-75 in Lexington	Principal Arterial	4-6, 10’-12’	0’-24’	0’ or 10’	42,345

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 5.7% of the corridor has a Level of Safety of Service (LOSS) of 4, meaning these areas have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Lexington Fayette Urban County Government (LFUCG) has a fiber network surrounding the corridor with CCTV cameras throughout the corridor.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Location	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
Major Bottleneck 1: From US 62 in Versailles to 0.7 mile west of Bluegrass Pkwy	Widen to 6-lane divided section and improve the US 60/Lexington Road intersection	3-12' lanes in each direction with 8' useable shoulders with concrete barrier median	This section is a bottleneck for nearly the entire length and has an unacceptable 2045 v/c
Major Bottleneck 2: From 0.7 mile east of Bluegrass Pkwy to New Circle Road in Lexington	Widen to 6-lane divided section	3-12' lanes in each direction with 8' useable shoulders with concrete barrier median	This section is a bottleneck for nearly the entire length and has an unacceptable 2045 v/c
Major Bottleneck 2: From New Circle Road to I-75 in Lexington	Complete streets with enhanced transit/bike/ped and access management	Due to right of way constraints, widening is not recommended on this section	This section is a bottleneck for nearly the entire length and has an unacceptable 2045 v/c as well as spot safety issues

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.

Potential New Interchanges: None.

Interchanges for Potential Modification: Bluegrass Parkway interchange would need to be modified if the gap to I-64 is ever closed.

Interchanges for Potential Modification
Bluegrass Parkway

Major Intersections for Potential Modification: Improvements, such as additional turn lanes, channelization, coordinated signal timing and innovative design, should be considered at 37 major intersections within this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
US 62 (Midway Rd)	US 60 (Frankfort St)	Big Sink Rd	US 60 (Lexington Rd)
Paynes Mill Rd	Huntertown Rd	KY 1967	KY 1968 (Parkers Mill west of Man O' War Blvd)
KY 1969	Man O' War Blvd	Alexandria Dr	Village Dr
Mason Headley Rd	Oxford Circle (2)[1]	Delmont Dr	Red Mile Road
Angliana Ave	Oliver Lewis Way	Jefferson Street	S Broadway / Maxwell St
High St	Vine St	W Main St	Upper St
Limestone	Martin Luther King Blvd	Rose Street	Midland Ave / E Main St
E Short St	E 3rd St	Walton Ave	E 7th St / Liberty Rd
E Loudon Ave	Industry Rd	Eastland Pkwy	Fortune Dr
Sir Barton Way			

1) The (2) indicates the second of two intersections of US 60 with Oxford Circle.

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for two bridges along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
034B00122N	CSX RR; DEROODE ST
120X00001N	PED. OVER PASS

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is good (average PDI = 0.34). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes might be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS value = 4), as well as a cursory review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv19 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters of safety issues covered by proposed improvement concepts	S Broadway St to Short St	Bottlenecks and intersection spacing	Complete streets and access management described above
CAT 2: Other major clusters of safety issues	N/A	N/A	N/A

Proposed Phasing: The proposed new interchange at US 62 can be constructed separately and ahead of the proposed interchange modification at Bluegrass Parkway in Versailles. Intersections proposed for spot improvements outside New Circle Road are located within the proposed corridor widening in Versailles and Lexington, they will be improved at the same time the roadway is widened. The proposed spot improvements at the 28 major intersections inside New Circle Road and between New Circle Road and I-75 can be constructed at a later time.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns identified by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns			
Environmental Red Flag Features	**Major Bottleneck 1: From US 62 in Versailles to 0.7 mile west of Bluegrass Pkwy**	**Major Bottleneck 2: From 0.7 mile east of Bluegrass Pkwy to New Circle Road in Lexington**	**Major Bottleneck 2: From New Circle Road to I-75 in Lexington**
Superfunds	N	N	N
Special Waters[1]	N	N	N
Forested Areas	N	N	N
NLEB Habitat Priority	N	N	N
IB Habitat Priority Area	N	N	N
FAA Airport Runways	N	Y	N
Public Hunting Areas	N	N	N
Wildlife Management Areas	N	N	N
Local Parks	Y	N	Y
State/ National Parks	N	N	N
Kentucky Heritage Land Conservation Fund	N	N	N
Area Landmarks	Y	Y	Y
Point Landmarks	Y	Y	Y
National Register of Historic Places Location (Point)	N	Y	Y
National Register of Historic Places Location (Polygon)	N	Y	Y

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
Major Bottleneck 1: US 62 in Versailles to 0.7 mile west of Bluegrass Pkwy	Widen to 6-lane divided section and improve the US 60/Lexington Road Intersection	No
Major Bottleneck 2: 0.7 mile east of Bluegrass Pkwy to New Circle Road in Lexington	Widen to 6-lane divided section	No
Major Bottleneck 2: New Circle Road to I-75 in Lexington	Complete streets with enhanced transit/bike/ped and access management	No
New Interchange at US 62 (includes grade separated RR crossing)	New interchange	Yes

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
Interchange Modifications at Bluegrass Parkway Extension	Interchange modifications	No
Intersection Modifications at Delmont Dr, Oliver Lewis Way, S Broadway / Maxwell St, High St, Vine St, W Main St, Upper St, Limestone, Martin Luther King Blvd, Rose Street, E Short St, E 3rd St, Walton Ave, Industry Rd	Improvements, such as additional turn lanes, channelization, coordinated signal timing and innovative design	No
Intersection Modifications at KY 1968 (Parkers Mill west of Man O' War Blvd), Alexandria Dr, Village Dr, Mason Headley Rd, Oxford Circle, Red Mile Road, Angliana Ave, Jefferson Street, Midland Ave / E Main St, E 7th St / Liberty Rd, E Loudon Ave, Eastland Pkwy, Fortune Dr, Sir Barton Way	Improvements, such as additional turn lanes, channelization, coordinated signal timing and innovative design	Potentially

COST ESTIMATION

Design:	37.0 ($M)
ROW:	112.5 ($M)
Utility:	25.6 ($M)
Construction:	273.9 ($M)
TOTAL =	**448.9 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: KY 922/US 25
Segment ID: 12
From: US 68 in Lexington
To: I-64/I-75 in Lexington
Counties: Fayette
Highway Districts: 7

CORRIDOR SEGMENT OVERVIEW

Segment 12 on KY 922/US 25 begins at US 68 in Fayette County and extends north through Lexington to the I-64/I-75 Interchange. The corridor segment length is approximately 4 miles and currently contains two interchanges: I-64/I-75 and New Circle Road.

This segment passes through the residential and commercial area of Lexington in Fayette County. This area would be considered city (according to KYSTMv19 data) with clusters of homes and commercial buildings adjacent to KY 922/US 25.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of KY 922/ US 25 by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
From US 68 to US 25 (Georgetown Road)	Principal Arterial Other	4, 11-12’	Curbed (0-2’), None	Raised Non Mountable (16-20’), None	35 mph
From US 25 to I-64/I-75	Principal Arterial Other	2-6, 12’	Asphalt (3’), Curbed (0’), Asphalt Combination (7-10’)	Raised Non Mountable (20-34’), Flush (16-28’), Depressed (40’), None	45-55 mph

Right of Way: The existing right of way is generally 100’ – 140’ wide.

Pavement: The average PDI (Pavement Distress Index) for this section of KY 922/ US 25 is 0.56, which indicates an overall fair pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges, major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Types
I-64/I-75	Partial Cloverleaf
New Circle Road	Partial Cloverleaf

Major Intersections[1]			
US 27	W Short St	Charles Ave	Citation Blvd
US 60	W Second St	US 25	Manchester St
Maryland Ave	W Loudon Ave	US 25	W Third St
Nandino Blvd			

1) Only crossroads with function classification of Minor Collector or above are included.

At-grade Railroad Crossings
US 25 Mile Point 14.95 in Fayette County

Access Points: This segment is not access controlled. Throughout the corridor, there are residential and commercial driveways and intersecting roadways.

Bridges: The tables below outline the detailed bridge information for existing bridges on or over this section of KY 922/ US 25.

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
034B00047N (Culvert)	CANE RUN CREEK	Fair	50.5	No	N	N	N	0	84	6
034B00166N	PEDESTRIAN/ BIKE PATH	Good	78.4	No	7	7	7	14.25	29	N
034B00180N	NEW CIRCLE ROAD	Good	94.1	No	9	9	9	99.99	99	N

Structures Crossing Over the Corridor			
Bridge ID	Facility Carried	Under Clearance (feet)	Horizontal Clearance (feet)
034B00089L	S 75 NC	16	62
034B00089R	I-75	16	79

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	**AADT**	**AADTT**	**Truck Percentage**
From US 68 (Broadway) to London Ave in Lexington	20,600	1,200	6%
From London Ave to I-64/I-75 in Lexington	33,200	5,500	16%

Mobility: The entirety of this KY 922/US 25 section is a major traffic bottleneck. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) Typical roadway attributes of the bottleneck area can be found above for the entire segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Entire corridor	Refer to the **Existing Facility** section				47,410

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 3.1% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these links have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Lexington-Fayette Urban County Government (LFUCG) has a fiber network surrounding the corridor with CCTV cameras throughout the corridor.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks. The widening in the northbound direction between New Circle Road and I-75 is included as Item No. 7-252 in the KYTC Six-Year Plan.

Proposed Improvement Concepts			
Location	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
New Circle Road to I-75[3]	Widen to a 6-lane divided section with access management	3-12' lanes with 4' concrete barrier median and 8' useable shoulders from New Circle Road to I-75	This entire section is a bottleneck and operates at an unacceptable 2045 v/c. Additionally there are intermittent safety issues that the access management should help address.
Main Street to New Circle Road[3]	Spot intersection improvement, access management		

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.
3) This improvement concept was originally proposed to include the section from Main Street to New Circle Road, and its Tier 2 score reflects that. Upon further examination by the project team, it was decided that the final improvement concept to be proposed as part of Tier 2 will include widening only the section from New Circle Road to I-75, and spot intersection improvements and access management for the section from Main Street to New Circle Road.

Potential New Interchanges: None.

Interchanges for Potential Modification: KY 4 Interchange was rebuilt in 2020. I-75 Interchange may need improvements to accommodate future traffic volumes.

Interchanges for Potential Modification	
KY 4	I-75

Major Intersections for Potential Modification: Improvements, such as additional turn lanes, channelization, and coordinated signal timing, should be considered at 13 major intersections within this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
US 27	W Short St	Charles Ave	Citation Blvd
US 60	W Second St	US 25	Manchester St
Maryland Ave	W Loudon Ave	US 25	W Third St
Nandino Blvd			

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Widening is recommended for one bridge along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
034B00180N	KY 4

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is fair (average PDI = 0.56). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes will be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS value = 4), as well as a cursory review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural

designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters of safety issues covered by proposed improvement concepts	New Circle Road Interchange to I-64/I-75 Interchange, Georgetown Road to S Broadway Street	Interchange and intersection spacing and congestion due to traffic entering and exiting at the intersections, as well as higher speeds with multiple access points, odd angle intersection	Widening described above
CAT 2: Other major clusters of safety issues	N/A	N/A	N/A

Proposed Phasing: The intersections proposed for spot improvements within the proposed corridor widening in Lexington will be improved at the same time the roadway is widened. The other three proposed spot improvements at three major intersections can be constructed at the same time.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns approved by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns	
Environmental Red Flag Features	**Main Street to I-75**
Superfunds	N
Special Waters[1]	N
Forested Areas	N
NLEB Habitat Priority	N
IB Habitat Priority Area	N
FAA Airport Runways	N
Public Hunting Areas	N
Wildlife Management Areas	N
Local Parks	Y
State/ National Parks	N
Kentucky Heritage Land Conservation Fund	N
Area Landmarks	Y
Point Landmarks	Y
National Register of Historic Places Location (Point)	Y
National Register of Historic Places Location (Polygon)	Y

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
New Circle Road to I-75	Widen to a 6-lane divided section with access management	Yes
Interchange Modifications at KY 4 and I-75	Interchange Modifications	Potentially
Intersection Modifications at US 27, US 60	Improvements, such as additional turn lanes, channelization, and coordinated signal timing	No
Intersection Modifications at Manchester St	Improvements, such as additional turn lanes, channelization, and coordinated signal timing	Potentially

COST ESTIMATION

Design:	20.3 ($M)
ROW:	66.2 ($M)
Utility:	15.8 ($M)
Construction:	134.0 ($M)
TOTAL =	**236.3 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: US 68
Segment ID: 28A
From: Man O' War Blvd
To: I-64/I-75 Interchange
Counties: Fayette
Highway Districts: 7

CORRIDOR SEGMENT OVERVIEW

Segment 28A on US 68 begins at the US 68/Man O' War Blvd intersection and ends at the I-64/I-75 interchange in Fayette County. The corridor segment length is approximately 8 miles and currently contains two interchanges: New Circle Road and I-64/I-75.

This segment passes through the residential and commercial areas of the City of Lexington in Fayette County. The area would be considered urban (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to US 68.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of US 68 by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
Man O' War Blvd to Waller Ave	Principal Arterial Other	4-6, 12'	Asphalt (10'), Asphalt Combination (3-10'), Curbed (0-11'), None	Depressed (35-37'), Flush (11-24'), Raised Mountable (23-35'), Raised Non Mountable (35'), None	40-55 mph
Waller Ave to Main Street	Principal Arterial Other	4, 12'	Curbed (0-1'), None	Raised Non Mountable (23-48'), Flush (23'), Raised Mountable (23-35'), Depressed (35-37'), None	35-40 mph
Main Street to I-64/I-75	Principal Arterial Other	4, 10-12'	Asphalt Combination (3-6'), Curbed (0-3'), None	Raised Non Mountable (23'), None	35-45 mph

Right of Way: The existing right of way is generally 85' – 115' wide.

Pavement: The average PDI (Pavement Distress Index) for this section of US 68 is 0.44, which indicates an overall fair pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges and major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Type
New Circle Road	Diverging Diamond
I-64/I-75	Flopped Diamond

Major Intersections[1]			
Man O' War Blvd	Lane Allen Rd	W Maxwell St	W Third St
Wellington Way	Clays Mill Rd	W High St	W Seventh St
Ft Harrods Rd	Waller Ave	W Main St	W Loudon Ave
Arrowhead Dr	Virginia Ave	W Vine St	W Fourth St
Beaumont Centre Pkwy	Angliana Ave	W New Circle Road	Pasadena Dr
Oliver Lewis Way	W Short St		

1) Only crossroads with function classification of Minor Collector or above are included.

At-grade Railroad Crossings
None

Access Points: This segment is not access controlled. Throughout the corridor, there are residential and commercial driveways and intersecting roadways.

Bridges: The tables below outline the detailed bridge information for existing bridges on or over this section of US 68. There are no mainline bridges on this segment.

Structures Crossing Over the Corridor			
Bridge ID	**Facility Carried**	**Under Clearance (feet)**	**Horizontal Clearance (feet)**
034B00024L	W NEW CIRCLE RD OL	17.08	30.25
034B00024R	NEW CIRCLE ROAD-IL	15.7	30.25
034B00141N	NS (CN & TP)	69.92	16.08
034R00602N	RJ CORMAN	54	14.67
034R00603N	RJ CORMAN	44	13.33
034X00001N	PEDWAY	58.67	22.92
034X00002N	ST JOE PED BRIDGE	98.25	24.92
034X00004N	PEDWAY	53.67	23.67

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Segment	**AADT**	**AADTT**	**Truck Percentage**
From Man O' War Blvd to the I-64/I-75 interchange	30,700	1,800	6%

Mobility: The entirety of this corridor segment is a major traffic bottleneck. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) Typical roadway attributes of the bottleneck area can be found above for the entire segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Entire corridor	Refer to the **Existing Facility** section above				56,769

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 29.7% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these links have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Lexington Fayette Urban County Government (LFUCG) has a fiber network surrounding the corridor with CCTV cameras throughout the corridor.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Locations	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
Man O' War Boulevard to Waller Avenue	Widen to 6-lanes	Urban typical section with 3-11' lanes in each direction. Raised concrete median, curb & gutter, and sidewalk	The expected v/c in 2045 exceeds the established thresholds
Waller Avenue to Main Street	Improve Access management	Due to right of way constraints and the urban nature of this section, widening isn't feasible, therefore access management is recommended to improve traffic flow and safety	The expected v/c in 2045 exceeds the established thresholds and there are intermittent safety issues
Main Street to I-64/I-75 Interchange	Complete Streets; Access Management	See the **Major Intersections for Potential Modification** section below	LOTTR exceeds the established thresholds

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.

Potential New Interchanges: None.

Interchanges for Potential Modification: None.

Major Intersections for Potential Modification: Improvements, such as additional turn lanes, channelization, and coordinated signal timing, should be considered at 22 major intersections for this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
Man O' War Blvd	Lane Allen Rd	W Maxwell St	W Third St
Wellington Way	Clays Mill Rd	W High St	W Seventh St
Ft Harrods Rd	Waller Ave	W Main St	W Loudon Ave
Arrowhead Dr	Virginia Ave	W Vine St	W Fourth St
Beaumont Centre Pkwy	Angliana Ave	W New Circle Road	Pasadena Dr
Oliver Lewis Way	W Short St		

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for a total of one bridge along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
034X00002N	ST JOE PED BRIDGE

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is fair (average PDI = 0.44). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes will be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS value = 4), as well as a cursory review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters of safety issues covered by proposed improvement concepts	Man O' War Boulevard to I-64/I-75 Interchange	Interchange spacing and congestion due to traffic entering and existing at the interchanges	Intersection Improvements; access management
CAT 2: Other major clusters of safety issues	N/A	N/A	N/A

Proposed Phasing: The intersections proposed for spot improvements located within the proposed corridor widening between Man O' War Boulevard and Waller Avenue will be improved at the same time the roadway is widened. The proposed spot improvements at the other intersections can be constructed at the same time.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns approved by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns			
Environmental Red Flag Features	**Man O' War Boulevard to Waller Avenue**	**Waller Avenue to Main Street**	**Main Street to I-64/I-75 Interchange**
Superfunds	N	N	N
Special Waters[1]	N	N	N
Forested Areas	N	N	N
NLEB Habitat Priority	Y	Y	N
IB Habitat Priority Area	N	N	N
FAA Airport Runways	N	N	N
Public Hunting Areas	N	N	N
Wildlife Management Areas	N	N	N
Local Parks	N	Y	Y
State/ National Parks	N	N	N
Kentucky Heritage Land Conservation Fund	N	N	N
Area Landmarks	Y	Y	Y
Point Landmarks	Y	Y	Y
National Register of Historic Places Location (Point)	N	Y	Y
National Register of Historic Places Location (Polygon)	N	Y	Y

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
Man O' War Blvd to Waller Avenue	Widen to 6-lanes	Yes
Waller Avenue to Main Street	Improve Access management	No
Intersection Modifications at Virginia Ave, Angliana Ave, Oliver Lewis Way, W Maxwell St, W High St, W Vine St, W Main St, W Short St	Improvements, such as additional turn lanes, channelization, and coordinated signal timing	No
Intersection Modifications at W Third St, W Fourth St, W Seventh St, W Loudon Ave, W New Circle Road	Improvements, such as additional turn lanes, channelization, and coordinated signal timing	Potentially

COST ESTIMATION

Design:	19.4 ($M)
ROW:	70.5 ($M)
Utility:	16.1 ($M)
Construction:	129.2 ($M)
TOTAL =	**235.2 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: US 27
Segment ID: 30A
From: Tennessee State Line
To: US 27 Bypass near Nicholasville
Counties: McCreary, Pulaski, Lincoln, Garrard, Jessamine
Highway Districts: 7 and 8

CORRIDOR SEGMENT OVERVIEW

Segment 30A on US 27 begins at the Tennessee state line in McCreary County and extends north through Pulaski, Lincoln and Garrard Counties and ends at the US 27 Bypass in Jessamine County. The corridor segment length is approximately 103 miles and currently contains three interchanges.

This segment passes through the residential and commercial areas of the City of Somerset in Pulaski County, the City of Stanford in Lincoln County, the City of Lancaster in Garrard County and the City of Nicholasville in Jessamine County. These areas would be considered towns (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to US 27. The remainder of this segment passes through rural agricultural areas with homes interspersed along US 27.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of US 27 by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
US 27 in Jessamine County	Principal Arterial Other	4, 12’	Asphalt (6-10’), Asphalt Combination (5-10’), None	Concrete Barrier (15’), Depressed (40’), None	55 mph
US 27 in Garrard and Lincoln Counties	Principal Arterial Other	2-4, 11-15’	Asphalt (6-10’), Asphalt Combination (5-10’), Curbed (1-12’), None	Concrete Barrier (15’), Depressed (40’), Flush (12-20’), Raised Mountable (15’), Raised Non Mountable (22-27’), None	25-55 mph
US 27 in Pulaski and McCreary Counties	Principal Arterial Other	2-6, 12’	Asphalt (10’), Asphalt Combination (8’), Curbed (0-10’), None	Concrete Barrier (11’), Depressed (28-40’), Flush (12-20’), Raised Mountable (15’), Raised Non Mountable (28’), None	35-55 mph

Right of Way: The table below outlines the general width of existing right of way within the corridor.

General Existing Right of Way Widths		
From	**To**	**General Ex. R/W Width**
Tennessee State Line	KY 1247 Interchange	120' – 200'
KY 1247 Interchange	KY 70	190' – 250'
KY 70	KY 1247	115' – 155'
KY 1247	US 150	140' – 210'
US 150	KY 34	70' – 110'
KY 34	US 27 Bypass near Nicholasville	210' – 260'

Pavement: The average PDI (Pavement Distress Index) for this section of US 27 is 0.45, which indicates an overall fair pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges, major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Type
KY 29	Diamond
Louie B Nunn Cumberland Parkway	Three Leg Directional
KY 90/ KY 1247	Partial Cloverleaf

Major Intersections[1]			
Strunk - Silersville Rd	KY 1642	West Floyd Switch Estesburg Rd	Sugar Creek Rd
KY 92	KY 2292	KY 70	Kennedy Bridge Rd
KY 2792	Madison Dr	KY 501	Rogers Rd
Appletree Rd	KY 2299	KY 643	Sugar Creek Pike
KY 92	Oak Hill Rd	KY 698	Bethel Rd
Whitley City - Williamsburg Rd	KY 80X	E Main St	S Main St
KY 700	Hal Rogers Pkwy	US 150 Byp E	Shun Pike
KY 1651	KY 2227	KY 590	Edgewood Dr
Beulah Heights Rs	KY 1674	Industry Rd	Wichita Rd
The Day Ridge Rd	KY 1247	Richmond St	Etter Dr
Cumberland Falls Rd	KY 635	E Maple Ave	Keene Rd
Blue John Rd	W Todd Rd	Mt Hebron Rd	N Main St
Southeastern Byp	KY 452	KY 34	KY 1642
KY 1247	KY 753		

1) Only crossroads with functional classification of Minor Collector or above are included.

At-grade Railroad Crossings
None

Access Points: This segment is not access controlled. Throughout the corridor, there are residential and commercial driveways and intersecting roadways.

Bridges: The tables below outline the detailed Bridge information for existing bridges on or over this section of US 27.

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
040B00028L	KENTUCKY RIVER & CO RD	Fair	86.5	Yes	6	6	7	99.99	39.5	N
040B00028R	KENTUCKY RIVER & CO	Fair	86.5	Yes	6	6	7	99.99	39.5	N
057B00018N (Culvert)	OLD US 27	Fair	66	No	N	N	N	15.83	39.7	6
057B00025L	NS (CNO&TP) SYSTEM	Good	99.3	No	7	7	7	26	40	N
057B00025R	NS (CNO&TP) SYSTEM	Fair	99.3	No	6	7	7	25.67	40	N
057B00026R	TOWN FORK	Good	99.5	No	7	7	7	0	42	N
069B00047N	DIX RIVER	Fair	61.3	No	5	5	6	0	27.89	N
069B00048N (Culvert)	LOGAN CREEK	Fair	50.3	No	N	N	N	0	56	6
069B00049N (Culvert)	NEALS CREEK	Good	84.8	No	N	N	N	0	52	7
069B00057N (Culvert)	ST. ASAPH CREEK	Fair	63.7	No	N	N	N	0	68	6
100B00024N (Culvert)	PITMAN CREEK	Fair	83.3	No	N	N	N	0	50	6
100B00032R	PITMAN CREEK	Fair	83.4	No	7	5	5	0	32	N
100B00107L	PITTMAN CREEK @ CUMBERL	Fair	74.8	No	6	7	7	0	39	N
100B00108N	CUMBERLAND RIVER	Fair	80.6	No	7	7	6	14.75	39.33	N
100B00119L	NS (CNO & TP) RR	Good	100	No	7	8	7	23.01	42	N
100B00119R	NS (CNO & TP)RR	Good	100	No	7	8	7	26.03	42	N

Structures Crossing Over the Corridor			
Bridge ID	Facility Carried	Under Clearance (feet)	Horizontal Clearance (feet)
057B00024N	WILMORE ROAD	16.75	28
074B00033N	KY-3253	17.9	28
100B00115N	KY 90	20.08	94
100B00120R	LN 9008	18.02	60
057B00023N	NS (CNO&TP)SYS-NVIL	16.25	50.08
074B00017N	PEDESTRIAN OVERPASS	16.07	82
100R00600N	NS (CNO&TP) SYSTEM	16.83	36.00

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	**AADT**	**AADTT**	**Truck Percentage**
From the TN state line to 3.7 miles south of the KY 90/KY 1247 interchange near Burnside	5,900	600	10%
From 3.7 miles south of the KY 90/KY 1247 interchange near Burnside to KY 1247 north of Somerset	13,300	1,900	14%
From KY 1247 north of Somerset to KY 34 (Chenault Bridge Rd) east of Danville	5,500	900	16%
From KY 34 (Chenault Bridge Rd) east of Danville to US 27 BUS (north) in Nicholasville	11,800	1,400	12%

Mobility: There are two major traffic bottleneck sections along this corridor segment. See the table below for details. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) There are also a few additional isolated traffic bottlenecks along this corridor. Other than the noted traffic bottleneck sections/locations, traffic condition is acceptable along the remainder of this segment.

Existing Typical Roadway Attributes at major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Major Bottleneck 1: From the KY 90/KY 1247 interchange near Burnside to KY 2227/Clifty Rd in Somerset	Principal Arterial	4-6, 12’	20-40’	0-10’	24,020
Major Bottleneck 2: From US 27 BUS (south) to US 27 BUS (north) in Nicholasville	Principal Arterial	4, 12’	40’	6-10’	25,533

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 14.9% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these links have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Approximately 7% of the corridor length will have direct access to fiber from the KentuckyWired project.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Locations	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
Major Bottleneck 1: From the KY 90/KY 1247 interchange near Burnside to KY 2227/Clifty Rd in Somerset	Intersection improvements and improved signal timing	See the **Major Intersections for Potential Modification** section below	LOTTR exceeds the established thresholds
KY 70 (near Eubank) to KY 78 (in Stanford)	Improve shoulders	8' useable shoulders	This is a systemic safety issue
KY 590 (in Stanford) to KY 39 (in Lancaster)	Improve shoulders	8' useable shoulders	This is a systemic safety issue
Baker Street (in Lancaster) to Barker Way (in Lancaster)	Concept 1: Access management and add turn lanes Concept 2: Bypass around Lancaster	This section has safety and mobility issues, however there is not sufficient right of way for widening, therefore restricting turning movements and adding turning lanes should improve these conditions. A Lancaster bypass is a longer-term solution	Multiple safety and bottleneck locations
Hagan Court (in Lancaster) to KY 34	Improve shoulders and add turn lanes at intersections	8' useable shoulders, 12' wide turn lanes	This is a systemic safety issue
Major Bottleneck 2: Wichita Drive to US 27 BUS (north) in Nicholasville	Widening this section to a 6-lane divided arterial on its existing alignment with spot improvements at intersections and interchanges, and improve signal timing	3-12' lanes in each direction with 8' useable shoulders and concrete barrier median	The expected v/c in 2045 exceeds the established thresholds

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.

Potential New Interchanges: None.

Interchanges for Potential Modification: None.

Major Intersections for Potential Modification: Improvements, such as additional turn lanes, channelization, and coordinated signal timing, should be considered at 22 major intersections for this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
KY 2792	KY 1247	Southeastern Byp	KY 635
KY 1642	Richmond St	KY 1642	East Maple Ave
KY 2292	KY Hwy 34	Madison Dr	S Main St
KY 2299	Edgewood Dr	Oak Hill Rd	Wichita Dr
KY 80X	Etter Dr	Hal Rogers Pkwy	N Main St
KY 2227	US 150		

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for a total of three bridges along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
069B00047N	DIX RIVER
100B00032R	PITMAN CREEK
057B00023N	NS (CNO&TP)SYS-NVIL

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is fair (average PDI = 0.45). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes will be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS value = 4), as well as a cursory review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations, but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters of safety issues covered by proposed improvement concepts	Downtown Lancaster	Numerous access points	Access management.
CAT 2: Other major clusters of safety issues	<u>RURAL</u> Whitley City, Southfork Plaza and George Jones Road, Walmart in Stanford	<u>RURAL</u> Left turns from side streets and commercial areas	<u>RURAL</u> Access management and turn lanes

Proposed Phasing: The proposed spot improvements at major intersections could be phased geographically: one phase for McCreary and Pulaski Counties, and another phase for Lincoln, Garrard, and Jessamine Counties. Since all intersections proposed for spot improvements are located within the proposed corridor widening in Nicholasville, they will be improved at the same time the roadway is widened.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns identified by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns						
Environmental Red Flag Features	**Major Bottleneck 1: From the KY 90/KY 1247 interchange near Burnside to KY 2227/Clifty Rd in Somerset**	**KY 70 (near Eubank) to KY 78 (in Stanford)**	**KY 590 (in Stanford) to KY 39 (in Lancaster)**	**Baker Street (in Lancaster) to Barker Way (in Lancaster)**	**Hagan Court (in Lancaster) to KY 34**	**Major Bottleneck 2: Wichita Drive to US 27 BUS (north) in Nicholasville**
Superfunds	N	N	N	N	N	N
Special Waters[1]	N	N	N	N	N	N
Forested Areas	Y	Y	Y	N	Y	N
NLEB Habitat Priority	Y	Y	N	N	N	Y
IB Habitat Priority Area	N	N	N	N	N	N
FAA Airport Runways	Y	N	N	N	N	N
Public Hunting Areas	Y	N	N	N	N	N
Wildlife Management Areas	Y	N	N	N	N	N
Local Parks	N	N	Y	N	N	Y
State/ National Parks	N	N	N	N	N	N
Kentucky Heritage Land Conservation Fund	N	N	N	N	N	N
Area Landmarks	Y	N	Y	Y	N	N
Point Landmarks	Y	Y	Y	Y	Y	Y
National Register of Historic Places Location (Point)	N	N	Y	Y	Y	Y
National Register of Historic Places Location (Polygon)	N	Y	N	N	N	N

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Location	**Improvement Concepts**	**Potential Needs of Additional ROW**
Major Bottleneck 1: From the KY 90/KY 1247 interchange near Burnside to KY 2227/Clifty Rd in Somerset	Intersection improvements and improved signal timing	No
KY 70 (near Eubank) to KY 78 (in Stanford)	Improve shoulders	Yes
KY 590 (in Stanford) to KY 39 (in Lancaster)	Improve shoulders	Yes
Baker Street (in Lancaster) to Barker Way (in Lancaster)	Concept 1: Access management and add turn lanes Concept 2: Bypass around Lancaster	Yes
Hagan Court (in Lancaster) to KY 34	Improve shoulders and add turn lanes at intersections	Yes – at turn lane locations. Minimal for shoulder widening.
Major Bottleneck 2: Wichita Drive to US 27 BUS (north) in Nicholasville	Widening this section to a 6-lane divided arterial on its existing alignment with spot improvements at intersections and interchanges, and improve signal timing	Minimal
New Interchange at US 150	New Interchange	Yes
Intersection Modifications at KY 1642 (Slate Branch Road), KY 2299, KY 1247	Improvements, such as additional turn lanes, channelization, realignment, innovative design and coordinated signal timing.	Yes
Intersection Modifications at Southeastern Bypass, Madison Drive, Oak Hill Road, Richmond St, KY 34, Edgewood Dr	Improvements, such as additional turn lanes, channelization, realignment, innovative design and coordinated signal timing.	No
Intersection Modifications at KY 2792 KY 1642 (Parkers Mill Way), KY 2292, KY 80X, Hal Rogers Parkway, KY 2227, KY 635, East Maple Ave, S Main St	Improvements, such as additional turn lanes, channelization, realignment, innovative design and coordinated signal timing.	Potentially

COST ESTIMATION

Design:	13.0 ($M)
ROW:	40.6 ($M)
Utility:	13.0 ($M)
Construction:	132.4 ($M)
TOTAL =	**199.0 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: US 127
Segment ID: 33A
From: Tennessee State Line
To: I-64 near Frankfort
Counties: Clinton, Russell, Casey, Lincoln, Boyle, Mercer, Anderson, Franklin
Highway Districts: 5, 7, 8

CORRIDOR SEGMENT OVERVIEW

Segment 33A on US 127 begins at the Tennessee state line in Clinton County and extends north through multiple counties to I-64 in Franklin County. The corridor segment length is approximately 127.5 miles long and currently contains three interchanges at Cumberland Expressway, Bluegrass Parkway, and I-64. This segment includes two bypasses: Danville Bypass in the City of Danville and US 127 Bypass in the City of Harrodsburg.

This segment passes through the residential and commercial areas in multiple cities (Albany in Clinton County, Russell Springs in Russell County, Liberty in Casey County, Hustonville in Lincoln County, Junction City and Danville in Boyle County, Harrodsburg in Mercer County, and Lawrenceburg in Anderson County). These areas would be considered towns (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to US 127. The remainder of this segment passes through rural agricultural areas with homes interspersed along US 127.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of US 127 by sub-segment.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
From TN state line to S Danville Bypass (US 150 BYP) south of Danville	Principal Arterial	2, 11’	10’	None	55 mph
From S Danville Bypass (US 150 BYP) south of Danville to I-64 near Frankfort	Principal Arterial	4, 12’	10’	32’ depressed	55 mph

Right of Way: The existing right of way is generally 50’ – 200’ wide.

Pavement: The average PDI (Pavement Distress Index) for this section of US 127 is 0.33, which indicates an overall good pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges, major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Type
Cumberland Expressway	Diamond
Bluegrass Parkway	Partial Cloverleaf
I-64	Partial Cloverleaf

Major Intersections[1]			
KY 3066	KY 969	US 127 BUS	KY 738
KY 553	KY 1590	KY 558	KY 3156
KY 90	KY 639	KY 734	KY 3063
KY 1730	KY 55	KY 619	KY 92
N Main St	KY 3280	KY 430	Maple St
KY 80	Lakeway Dr	KY 1545	KY 76
KY 1640	KY 910	KY 70	KY 2341
KY 817	KY 1552 (Short Town Rd)	KY 1552 (Chelf Ridge Rd)	KY 906
KY 78	KY 1194	KY 300	US 150 BYP
KY 37	KY 34	US 150	US 127 (Harrodsburg Rd)
KY 2168	KY 1915	KY 1896	US 127 (Danville Rd)
E Office St	KY 152	US 68	KY 1989
KY 1160	KY 1988	KY 1987	KY 513
Harrodsburg Rd	KY 3359	US 62	KY 44
Frankfort Rd	KY 512	KY 2820	KY 1665
KY 420			

1) Only crossroads with function classification of Minor Collector or above are included.

At-grade Railroad Crossings
US 127 BYP Mile Point 1.3 in Boyle County

Access Points: This segment is not access controlled. Throughout the corridor, there are residential and commercial driveways and intersecting roadways.

Bridges: The tables below outline the detailed Bridge information for existing bridges on or over this section of US 127.

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
011B00051N (Culvert)	MOCKS BRANCH	Fair	83.3	No	N	N	N	0	50.08	6
023B00071N	GOOSE CREEK	Good	94.1	No	7	7	7	0	40	N
023B00017N (Culvert)	COMBEST BRANCH	Good	92	No	N	N	N	0	38	7
023B00016N	SOUTH FORK CREEK	Fair	59.7	No	5	5	5	0	26	N
023B00002N (Culvert)	CARPENTERS CREEK	Fair	91.7	No	N	N	N	0	44	6
069B00032N (Culvert)	BR OF CARPENTER CREEK	Fair	74.4	No	N	N	N	0	46	6
023B00019N (Culvert)	ALLENS CREEK	Good	88.4	No	N	N	N	0	37.7	7
023B00021N	GREEN RIVER IN LIBERTY	Fair	56	No	5	6	5	0	28	N
023B00001N	FREY CREEK	Fair	90.4	No	7	6	6	0	40	N
069B00076N	HANGING FORK @ HOUSTONVI	Fair	92	No	6	7	7	0	44	N
069B00077N	BAUGHMAN BRANCH	Good	89.7	No	7	7	7	0	44	N
069B00079N (Culvert)	BR.OF HARRIS CREEK	Fair	85	No	N	N	N	0	44	6
069B00080N	HARRIS CREEK	Fair	85	No	6	7	6	0	44	N
069B00081N (Culvert)	BR. OF KNOB LICK CK.	Fair	85	No	N	N	N	0	44	6
069B00082N	KNOB LICK CREEK	Fair	85	No	6	7	7	0	44	N
003B00060N	BG PARKWAY	Good	85	No	7	8	7	16.75	50.5	N
069B00078N	NS (CNO&TP SYSTEM)	Fair	93.9	No	6	7	7	0	44	N
104B00035N	GREASY CREEK	Good	99	No	7	8	8	0	48	N
011B00052R	NORFOLK SOUTHERN	Good	98.4	No	7	7	8	24.58	40	N
003B00054R	NS (CNO&TP) SYSTEM	Fair	97.5	No	6	7	6	22.92	42	N
003B00010L	NS (CNO&TP) SYSTEM	Fair	67.5	No	7	7	5	21.67	30.17	N
084B00041L	SOUTHERN RR	Good	99.8	No	7	8	7	23.25	41.5	N
084B00041R	SOUTHERN RAILROAD	Good	99.8	No	7	8	7	24.16	41.5	N
027B00039N (Culvert)	CHURNTOP BRANCH CREEK	Good	98.8	No	N	N	N	99.99	62	7
003B00053R	NS (CNO&TP) SYSTEM	Fair	97.6	No	6	7	7	22.92	42.5	N
003B00009L	NS (CNO&TP) SYSTEM	Fair	78.5	No	7	6	6	22.25	30.16	N
027B00040N	OLD BURKESVILLE ROAD	Good	96.8	No	8	8	8	17.17	48.5	N
011B00039N (Culvert)	CLARKS RUN CREEK	Fair	81	No	N	N	N	0	38	6
027B00036N	SPRING CREEK	Good	99.5	No	7	8	8	0	48	N
097B00138N	Jimmy Darrell & First cr	Good	81	No	9	9	9	22	90	N
027B00037N	US 127	Good	98.8	No	7	8	8	18.7	34	N
027B00038N	CLEAR FORK CREEK	Good	98.8	No	7	8	8	99.99	48	N
037B00096N	I-64	Fair	93.6	No	6	6	6	17.17	46	N

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Rating
084B00042N (Culvert)	PIONEER CREEK	Fair	84	No	N	N	N	0	0	6
069B00033N (Culvert)	UNNAMED STREAM &ACCESS R	Good	89.9	No	N	N	N	0	17	7
104B00022N	CUMBERLAND PARKWAY	Fair	96.7	No	7	6	6	16.75	47.9	N
011B00038L	NS (CNO&TP) SYSTEM	Fair	84.4	No	6	6	5	26.08	44.33	N
023B00020N	CALHOUN CREEK	Fair	70.4	No	5	6	6	0	26	N

Structures Crossing Over the Corridor
None

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	**AADT**	**AADTT**	**Truck Percentage**
From TN state line to KY 1194 south of Danville	3,600	400	11%
From KY 1194 south of Danville to I-64 near Frankfort	10,600	1,700	16%

Mobility: There are two major traffic bottleneck sections along this corridor segment. See the table below for details. (Note: traffic bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) There are also a few additional isolated traffic bottlenecks along this corridor. Other than the noted traffic bottleneck sections/locations, traffic condition is acceptable along the remainder of this segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
Major Bottleneck 1: From 0.3 mile south of S Danville BYP in Danville to 0.2 mile north of KY 390 (Industry Rd) north of Harrodsburg	Principal Arterial	4, 12’	28’ or 32’	0’ or 10’	15,186
Major Bottleneck 2: From 0.7 mile south of US 62 in Lawrenceburg to I-64 near Frankfort	Principal Arterial	4, 12’	32’	0’ or 10’	26,889

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 5.2% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these links have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Approximately 1% of the corridor length will have direct access to fiber from the KentuckyWired project.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Locations	**Improvement Concepts[1]**	**Notes[2]**	**Reason for Improvement**
Major Bottleneck 1: From 0.3 mile south of S Danville BYP in Danville to 0.2 mile north of KY 390 (Industry Rd) north of Harrodsburg	Spot improvement at major intersections	See the **Major Intersections for Potential Modification** section below	LOTTR exceeds the established thresholds
Major Bottleneck 2: From 0.7 mile south of US 62 to KY 44 in Lawrenceburg	Widening this section to a 6-lane divided arterial on its existing alignment	**Improved Typical Section:** 3, 12-foot lanes in each direction with 8-foot shoulders. 8-foot flush median.	The expected v/c in 2045 exceeds the established thresholds
Major Bottleneck 2: From KY 44 in Lawrenceburg to I-64 near Frankfort	Spot improvement at major intersections	See the **Major Intersections for Potential Modification** section below	LOTTR exceeds the established thresholds

1) The proposed roadway widening concept includes spot improvements at interchanges and major intersections as needed (see details in Interchanges for Potential Modification and Major Intersection for Potential Modification sections below).
2) Improved typical sections are based on KYTC Highway Design Manual.

Potential New Interchanges: None.

Interchanges for Potential Modification: None.

Major Intersections for Potential Modification: Improvements, such as additional turn lanes, channelization, and coordinated signal timing, should be considered at 19 major intersections for this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
KY 1590	KY 90	KY 619	KY 80
KY 300	S Danville BYP	KY 34	US 150
KY 2168	Danville Rd	KY 152	US 68
KY 390	US 62	KY 44	KY 151
KY 1665	KY 420	KY 3166 (Burlington Ln)	

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for a total of five bridges and seven culverts along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
011B00051N (Culvert)	MOCKS BRANCH
023B00016N	SOUTH FORK CREEK
023B00002N (Culvert)	CARPENTERS CREEK
069B00032N (Culvert)	BR OF CARPENTER CREEK
023B00021N	GREEN RIVER IN LIBERTY
069B00079N (Culvert)	BR. OF HARRIS CREEK
069B00081N (Culvert)	BR. OF KNOB LICK CK.
003B00010L	NS (CNO&TP) SYSTEM

011B00039N (Culvert)	CLARKS RUN CREEK
084B00042N (Culvert)	PIONEER CREEK
011B00038L	NS (CNO&TP) SYSTEM
023B00020N	CALHOUN CREEK

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is good (average PDI = 0.33). Proposed additional lanes will consist of full depth asphalt pavement construction. Spot reconstruction and rehabilitation of existing asphalt pavement lanes might be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS = 4) as well as review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters covered by proposed mobility improvement	From Danville to Harrodsburg and from Lawrenceburg to Frankfort	Intersection spacing and congestion, geometric deficiencies, sight distance challenges.	Spot improvement at major intersections described above.
CAT 2: Major clusters not covered by proposed mobility improvement	URBAN N/A RURAL From US 127 BUS to KY 1590 in Albany. From KY 1194 (McCormack Church Rd) to KY 300 (Shelby St) in Junction City. From KY 1160 (Talmage-Mayo Rd) to Bluegrass Pkwy Mixed URBAN/RURAL From KY 3280 (French Valley Rd) to KY 76 north of Russel Springs.	URBAN Signal deficiencies, capacity deficiencies, geometric deficiencies, queuing between intersections, excessive curb cuts. RURAL Sight distance challenges, geometric deficiencies, interchange/intersection spacing, lack of safety features/advance warnings, lane drop/merge, run off road, speeding.	URBAN Coordinated signal timing/signal modernization, intersection and signage improvements, improved geometrics, added capacity, access control. RURAL Improved geometrics/sight distance, increased spacing between interchange and adjacent intersections, roadside improvements, install/modernize signage, improved lighting/visibility.

Proposed Phasing: The proposed spot improvements at major intersections can be constructed separately and ahead of the proposed corridor widening in Lawrenceburg; however, since the proposed corridor widening in Lawrenceburg is relatively short (1.5 miles), it may be desirable to construct it at the same time as the spot improvements.

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns approved by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns			
Environmental Red Flag Features	**Major Bottleneck 1: From 0.3 mile south of S Danville BYP in Danville to 0.2 mile north of KY 390 (Industry Rd) north of Harrodsburg**	**Major Bottleneck 2: From 0.7 mile south of US 62 to KY 44 in Lawrenceburg**	**Major Bottleneck 2: From KY 44 in Lawrenceburg to I-64 near Frankfort**
Superfunds	N	N	N
Special Waters[1]	N	N	N
Forested Areas	N	N	N
NLEB Habitat Priority	N	Y	Y
IB Habitat Priority Area	N	N	N
FAA Airport Runways	N	N	N
Public Hunting Areas	N	N	N
Wildlife Management Areas	N	N	N
Local Parks	Y	Y	N
State/ National Parks	N	N	N
Kentucky Heritage Land Conservation Fund	N	N	N
Area Landmarks	Y	Y	N
Point Landmarks	Y	Y	Y
National Register of Historic Places Location (Point)	Y	N	N
National Register of Historic Places Location (Polygon)	N	N	N

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Locations	**Improvement Concepts**	**Potential ROW Needs**
Major Bottleneck 1: From 0.3 mile south of S Danville BYP in Danville to 0.2 mile north of KY 390 (Industry Rd) north of Harrodsburg	Spot improvement at major intersections	Potentially
Major Bottleneck 2: From 0.7 mile south of US 62 to KY 44 in Lawrenceburg	Widening this section to a 6-lane divided arterial on its existing alignment	Potentially, but much would fit within existing ROW
Major Bottleneck 2: From KY 44 in Lawrenceburg to I-64 near Frankfort	Spot improvement at major intersections	No
Intersection modifications at KY 90	Improvements such as additional turn lanes, channelization, and coordinated signal timing	No
Intersection modifications at KY 1590, KY 619, KY 80, KY 300	Improvements such as additional turn lanes, channelization, and coordinated signal timing	Potentially

COST ESTIMATION

Design:	10.9 ($M)
ROW:	36.4 ($M)
Utility:	8.5 ($M)
Construction:	83.0 ($M)
TOTAL =	**138.8 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.

Kentucky Statewide Corridor Plan (Linking Kentucky)

Route: US 150
Segment ID: 46B
From: Bluegrass Parkway
To: I-75
Counties: Nelson, Washington, Boyle, Lincoln, Rockcastle
Highway Districts: 4, 7, 8

CORRIDOR SEGMENT OVERVIEW

Segment 46B on US 150 begins at Bluegrass Parkway in Nelson County and extends southeast to I-75 in Rockcastle County. The corridor segment is approximately 77 miles long and currently contains two interchanges at Bluegrass Parkway and I-75. This segment includes one bypass: US 150 Bypass in the City of Danville.

This segment passes through the residential and commercial areas in multiple cities (Springfield in Washington County, Perryville in Boyle County, Danville in Boyle County, Stanford in Lincoln County, Crab Orchard in Lincoln County, Brodhead in Rockcastle County, and Mount Vernon in Rockcastle County). These areas would be considered towns (according to KYSTMv18 data) with clusters of homes and commercial buildings adjacent to KY US 150. The remainder of this segment passes through rural agricultural areas with homes interspersed along US 150.

EXISTING FACILITY

The table below outlines the typical roadway attributes for this section of US 150.

Typical Roadway Attributes					
Sub-segment	**Functional Classification**	**Number & Width of Lanes**	**Shoulder & Width**	**Median Type & Width**	**Posted Speed Limit**
From Bluegrass Pkwy to N Danville BYP west of Danville	Minor Arterial	2, 12’	10’	None	55 mph
From N Danville BYP west of Danville to US 27 in Stanford	Principal Arterial	4, 12’	4’ or 8’	32’ depressed	55 mph
From US 27 in Stanford to I-75	Minor Arterial	2, 12’	10’	None	55 mph

Right of Way: The existing right of way is generally 40’ – 200’ wide.

Pavement: The average PDI (Pavement Distress Index) for this corridor segment is 0.34, which indicates an overall good pavement condition according to KYTC criteria (Good: 0.00 – 0.35; Fair: 0.36 – 0.65; Poor: 0.66 – 0.99).

Intersections/Interchanges: The tables below outline the existing interchanges, major intersections, and railroad crossings on the corridor.

Interchanges	Interchange Type
Bluegrass Parkway	Diamond
I-75	Diamond

Major Intersections[1]			
Poplar Flats Rd	KY 605	US 150 BUS	KY 55
KY 528	KY 555	N Walnut St	KY 152
Perryville Rd	Short Line Rd	Deep Creek Rd	KY 1920
S Buell St	N Bragg St	KY 1822	Perryville Rd
Lebanon Rd	Stewarts Ln	Hustonville Rd	Gose Pike
Stanford Rd	KY 1273	Danville Ave	US 27
KY 78	KY 1770	KY 1369	KY 643
KY 39	Copper Creek Rd	W Main St	S Main St
KY 70	Spiro Rd	Lake Cumberland Rd	Richmond St

1) Only crossroads with function classification of Minor Collector or above are included.

At-grade Railroad Crossings
None

Access Points: This segment is not access controlled. Throughout the segment, there are residential and commercial driveways and intersecting roadways.

Bridges: The tables below outline the detailed Bridge information for existing bridges on or over this section of US 150.

Mainline Bridge Information										
Bridge ID	Feature Intersect	NBIS Classification	Sufficiency Rating	Substandard	Deck Rating	Superstructure Rating	Substructure Rating	Under Clearance (feet)	Horizontal Clearance (feet)	Culvert Raring
011B00043N	NS RR AND HARDING ST	Fair	74.6	No	7	7	6	23.83	30	N
011B00059N	DOCTOR'S FORK	Good	99.5	No	7	7	7	0	47.5	N
011B00042N	CHAPLIN RIVER	Fair	68.2	No	6	6	5	0	24	N
011B00015N	QUIRKS RUN	Fair	91.4	No	6	6	6	0	43.96	N
011B00016N	SALT RIVER	Fair	72.7	No	6	6	6	0	29.86	N
069B00083N	LOGAN BRANCH	Good	84.3	No	7	7	7	0	44	N
069B00093N	WALNUT FLAT CREEK	Good	92.8	No	7	7	7	0	44	N
069B00094N (Culvert)	TRIBUTARY OF DIX RIVER	Good	97.7	No	N	N	N	0	48	7
090B00122N	Bluegrass Parkway	Good	99	No	8	8	8	17.9	82	N
115B00063N	EAST FORK SALT RIVER	Good	94.9	No	8	8	7	0	47.2	N
115B00021N (Culvert)	PARKER RUN	Good	93.9	No	N	N	N	0	40.68	7
115B00023N	CARTWRIGHT CREEK	Fair	77.9	No	5	5	5	0	31.82	N
115B00058N	BEECH FORK	Good	92.3	No	7	8	8	0	48.56	N
115B00056N	MILL CREEK	Good	91.2	No	7	8	7	0	48.56	N
115B00057N	PLEASANT RUN	Good	85.6	No	7	8	7	0	48.56	N
011B00009N	CLARKS RUN	Fair	77.4	No	6	6	6	0	22.17	N
069B00096N (Culvert)	Tributary of Dix River	Fair	95.4	No	N	N	N	0	44.6	6
069B00097N	Flax Creek	Good	99.8	No	7	8	7	0	47	N
069B00098N	Turkey Creek	Good	98.4	No	7	8	7	0	42	N
102B00068N (Culvert)	Unnamed Creek	Good	81.5	No	N	N	N	0	99.9	7
102B00066N	NEGRO CREEK	Good	82.4	No	7	8	8	0	42	N
115B00068N (Culvert)	Shay Branch	Good	100	No	N	N	N	0	60	7
102B00067N	Negro Creek	Good	81.5	No	7	8	7	0	48	N
115B00067N	Road Run Creek	Good	100	No	7	8	7	99.99	60	N
090B00027N (Culvert)	SLOUGH BEECH FORK	Good	94.3	No	N	N	N	0	40	7
090B00117N	Beech Fork River	Good	99	No	8	8	8	0	40	N
115B00071N	Cartwright Creek	Good	99	No	8	8	8	0	41	N
011B00040L	BALLS FORK BRANCH	Fair	97.7	No	7	7	6	0	39.5	N
011B00040R	BALLS FORK BRANCH	Fair	97.7	No	7	7	6	0	39.58	N
069B00004N (Culvert)	HAWKINS BRANCH	Fair	70	No	N	N	N	0	70	6
069B00001N (Culvert)	RANKINS CREEK	Fair	69.8	No	N	N	N	0	70	6
069B00002N	HANGING FORK CREEK	Fair	78.3	No	6	6	6	0	29	N
069B00002R	HANGING FORK CREEK	Fair	80.3	No	6	6	6	0	29	N
069B00003N (Culvert)	SLOUGH OF HANGING FRK	Fair	50.5	No	N	N	N	0	70	6
090B00026N (Culvert)	MILL CREEK	Fair	77.7	No	N	N	N	0	26.9	5

Structures Crossing Over the Corridor			
Bridge ID	**Facility Carried**	**Under Clearance (feet)**	**Horizontal Clearance (feet)**
102B00038L	I-75 S NC	16.83	37.7
102B00038R	I-75	21.75	37.73

Other Noteworthy Conditions: None.

TRAFFIC & OPERATIONS

AADT & AADTT: The table below summarizes the 2015 AADT and daily truck volumes by sub-segment.

Traffic Volumes			
Sub-segment	**AADT**	**AADTT**	**Truck Percentage**
From Bluegrass Pkwy to N Danville BYP in Danville	5,100	700	14%
From N Danville BYP in Danville to US 27 in Stanford	9,600	1,600	16%
From US 27 in Stanford to I-75	4,700	500	10%

Mobility: There is one major traffic bottleneck along this corridor segment. See the table below for details. (Note: bottlenecks are identified by Level of Travel Time Reliability (LOTTR) > 1.5 or volume/capacity (v/c) > 0.6.) There are also a few additional isolated traffic bottlenecks along this corridor. Other than the noted traffic bottleneck sections/locations, traffic condition is acceptable along the remainder of this segment.

Existing Typical Roadway Attributes at Major Traffic Bottlenecks					
Locations	**Functional Classification**	**Number & Width of Lanes**	**Median Width**	**Shoulder Width**	**2015 AADT[1]**
From N Danville BYP/Perryville Rd to Gose Pike in Danville	Principal Arterial	4, 12’	28’	6-10’	12,592

1) The highest traffic volume within the bottleneck based on KYSTMv18 data.

Safety: 2.3% of the corridor mileage has a Level of Safety of Service (LOSS) of 4, meaning these areas have the highest potential to decrease crashes. (Note: LOSS indicates the potential for crash reduction and is broken up into four categories based on Safety Performance Functions (SPFs): LOSS 4 = high; LOSS 3 = moderate to high; LOSS 2 = low to moderate; LOSS 1 = low.) See the table under **Potential Safety Improvement** section for details of locations with LOSS =4, possible causes, and potential safety improvements.

ITS Devices: Approximately 1% of the corridor length will have direct access to fiber from the KentuckyWired project.

PROPOSED IMPROVEMENT CONCEPTS

The improvement options noted in this report are not intended to be all-encompassing. Other potential improvements are possible, including innovative solutions that could be cost-effective and address the reasons for improvement. Further study may be needed as part of the project development process.

Proposed Typical Section & Description of Modification: The table below describes the proposed improvement concepts for the identified bottlenecks. The proposed improvements expect to maintain an overall acceptable traffic condition through 2045 (v/c < 0.85 in urban areas and v/c < 0.7 in rural areas) and address safety issues at bottlenecks.

Proposed Improvement Concepts			
Locations	**Improvement Concepts**	**Notes**	**Reason for Improvement**
From N Danville BYP/Perryville Rd to Gose Pike in Danville	Spot improvement at major intersections	See the **Major Intersections for Potential Modification** section below	LOTTR exceeds the established thresholds

Potential New Interchanges: None.

Interchanges for Potential Modification: The interchange at I-75 Exit 59. The modification of this interchange is currently under construction as part of a KYTC I-75 widening project (Item No. 8-6.10).

Major Intersections for Potential Modification: Improvements, such as additional turn lanes, channelization, and coordinated signal timing, should be considered at eight major intersections for this corridor segment. The following is a list of these intersections.

Major Intersections for Potential Modification			
Bluegrass Pkwy (east ramp terminal)	KY 555	N Danville BYP /Perryville Rd	KY 34 (Lebanon Rd)
US 127 (Hustonville Rd)	US 27	KY 461	US 25

Bridges: Bridge recommendations are based on ratings of substructure, superstructure and deck using the following methodology.

Methodology for Replacement/Rehabilitation Recommendation					
Structures	Substructure Rating	Superstructure Rating	Deck Rating	Culvert Rating	Recommendations
Bridges	<=4	Any	Any	/	Replacement
	=5	Any	Any	/	Rehabilitation
	>=6	<=5	Any	/	Rehabilitation
	>=6	Any	<=5	/	Rehabilitation
	>=6	>=6	>=6	/	None[1]
Culverts	/	/	/	<=4	Replacement
	/	/	/	5 or 6	Rehabilitation
	/	/	/	>=7	None

1) If the bridge is on a corridor with a recommendation of widening, it will be widened (considered as rehabilitation) as necessary to accommodate the additional proposed lanes.

- **Bridges for Rehab/Widening:** Rehab/widening is recommended for a total of two bridges and five culverts. along the entire corridor. Note that the bridge rehab is determined based on the "Methodology for Replacement/Rehabilitation Recommendation" table above. If the bridge has a good condition but is within a bottleneck location with recommended widening, it will be widened as necessary to accommodate the additional proposed lanes and the cost of widening is assumed to be the same as bridge rehab for the planning-level cost estimation purpose.

Bridges for Rehab/Widening	
Bridge ID	**Feature Intersect**
011B00042N	CHAPLIN RIVER
115B00023N	CARTWRIGHT CREEK
069B00096N (Culvert)	Tributary of Dix River
069B00004N (Culvert)	HAWKINS BRANCH
069B00001N (Culvert)	RANKINS CREEK
069B00003N (Culvert)	SLOUGH OF HANGING FRK
090B00026N (Culvert)	MILL CREEK

- **Bridges for Replacement:** None.

Pavement Treatment: The overall pavement condition is good (average PDI = 0.34). Spot reconstruction and rehabilitation of existing asphalt pavement lanes might be needed based on more detailed evaluation of the corridor's pavement condition.

Potential Safety Improvement: The table below summarizes safety issues for the corridor and is based on KYTC safety data (LOSS = 4) as well as review of Google Aerial imagery. The table identifies clusters of links with a LOSS value of 4 based on two categories: 1) clusters located in areas where this study already recommends corridor improvements for mobility reasons and 2) clusters not located in areas previously recommended for corridor mobility improvements. For Category 1, it is assumed any corridor improvement based on mobility needs will be constructed to current KYTC standards and will include the necessary safety improvements. Category 2 is intended to identify corridor segments that may warrant improvement for safety reasons, even though improvement might not be needed for mobility. There may also be isolated links with LOSS value of 4 that are not included in the table. Spot improvements could be warranted for those locations but it is assumed these spot improvements do not rise to the level of a corridor improvement; therefore, these locations are not addressed in this planning study. The table further breaks the clusters down by urban and rural designation (based on KYSTMv18 data) because urban and rural roadways tend to have unique typical crash causes and countermeasures.

Potential Safety Improvements			
Category	**Locations**	**Possible Causes**	**Recommendations**
CAT 1: Major clusters covered by proposed mobility improvement	From N Danville BYP/Perryville Rd to Gose Pike in Danville	Intersection spacing and congestion, lack of safety features/advance warnings	Intersection improvements described above
CAT 2: Major clusters not covered by proposed mobility improvement	URBAN N/A RURAL From KY 55 to KY 555 near Springfield. From KY 3248 (Carmens Ln) west of Stanford to KY 78 east of Stanford. From Progress Dr west of Mt Vernon to Floyd St in Mt Vernon. Mixed URBAN/RURAL From Nancy Ave west of Danville to N Danville Bypass/ Perryville Rd in Danville.	URBAN Signal deficiencies, geometric deficiencies. RURAL Sight distance challenges, geometric deficiencies, lack of safety features/advance warnings, lane drop/merge, run off road, speeding.	URBAN Coordinated signal timing/signal modernization, intersection and signage improvements, improved geometrics. RURAL Improved geometrics/sight distance, roadside improvements, install/modernize signage, improved lighting/visibility.

Proposed Phasing: The proposed spot improvements at major intersections can be constructed at the same time. The interchange modification at I-75 Exit 59 is currently under construction as part of a KYTC I-75 widening project (Item No. 8-6.10).

PRELIMINARY ENVIRONMENTAL RED FLAG ANALYSIS

The table below summarizes the presence of critical environmental red flag concerns approved by KYTC within 1,000 ft of proposed improvement locations (Y=Yes; N=No).

Critical Red Flag Issues/Concerns	
Environmental Red Flag Features	**From N Danville BYP/Perryville Rd to Gose Pike in Danville**
Superfunds	N
Special Waters[1]	N
Forested Areas	N
NLEB Habitat Priority	N
IB Habitat Priority Area	N
FAA Airport Runways	N
Public Hunting Areas	N
Wildlife Management Areas	N
Local Parks	N
State/ National Parks	N
Kentucky Heritage Land Conservation Fund	N
Area Landmarks	Y
Point Landmarks	Y
National Register of Historic Places Location (Point)	Y
National Register of Historic Places Location (Polygon)	N

1) Special Waters are defined as Cold Water Aquatic Habitats, Outstanding State/National Resource Waters, Exceptional Waters, State Wild Rivers, and Federally Designated Wild / Scenic Rivers.

RIGHT OF WAY IMPACTS

The table below summarizes the potential right-of-way (ROW) needs for proposed improvement concepts.

Potential Needs of Additional Right of Way		
Locations	**Improvement Concepts**	**Potential ROW Needs**
From N Danville BYP/Perryville Rd to Gose Pike in Danville	Spot improvement at major intersections	Potentially
Interchange modifications at I-75 Exit 59 ((under construction-2020) Item No. 8-6.10)	Interchange modifications	Potentially
Intersection modifications at east ramp terminal at Bluegrass Parkway, KY 555, KY 461	Improvements such as additional turn lanes, channelization, and coordinated signal timing	Potentially
Intersection modifications at US 27, US 25	Improvements such as additional turn lanes, channelization, and coordinated signal timing	No

COST ESTIMATION

Design:	2.3 ($M)
ROW:	7.2 ($M)
Utility:	2.2 ($M)
Construction:	24.0 ($M)
TOTAL =	**35.7 ($M)**

Note:

1. The cost estimation may not include additional costs to address the potential impacts of major utilities (e.g., gas line, major water supplier, transmission line) within the proximity of the corridor, due to the lack of data when the report was prepared. Further investigation is recommended in future studies.
2. Cost estimation was based on 2020 dollars. There is a 1-3% inflation rate. Estimated cost could vary -50% to +250% of the actual number (as a rule of thumb).
3. The widening of a 2-lane facility to a 3-lane facility (with TWLTL or alternating passing lane) is considered as "Minor Widening (Undivided Road) - 2 Lane to 4 Lane".
4. The cost estimation does not include bridges outside of the bottleneck locations, as they are not assumed to rise to the level of a corridor improvement. The cost estimation only includes necessary bridge replacement/rehab/widening costs within the bottleneck locations with proposed widening improvement.
5. Cost estimation does not account for KYTC projects that are included in the proposed improvement concepts and are already under construction.
6. Shoulder widening is not included in the cost estimation, as it is a relatively minor cost.
7. If multiple improvement concepts are recommended for the corridor, only the cost of the larger-scale improvement concept is estimated.