

DRAFT

AECOM

I-65 Corridor Planning Study Bridge Cost Opinion Summary

Kentucky Transportation Cabinet

KYTC Item No. 5-569

September 10, 2021

Kentucky Transportation Cabinet
Division of Planning
200 Mero Street
Frankfort, KY 40622

DRAFT

Delivering a better world

1. Overview

- 1.1. **Original Scope:** The Kentucky Transportation Cabinet (KYTC) requested the AECOM consultant team to provide cost opinions for the replacement of three bridges with the study area of the KYTC Item No. 5-569, I-65 Corridor Planning Study. In April 2021, KYTC issued a contract modification to AECOM for this bridge cost opinion evaluation.
- 1.2. **Bridge Cost Opinion Context:** As this study was initiated, KYTC introduced KYTC 5-20061 to the Transportation Improvement Program (TIP) of the Kentuckiana Regional Planning and Development Agency (KIPDA). The scope of KYTC 5-20061 is to replace the three bridges described in Paragraph 1.5. KYTC 5-20061 has \$2 million programmed in design funding and \$54 million in construction funding. The construction funds were programmed for 2023. During the study, KYTC 5-20061 was amended into KIPDA's TIP and subsequently into Kentucky's Statewide Transportation Improvement Program. The intent of this evaluation is to provide a more "intentional" cost opinion, with consideration of maintenance of traffic and accelerated bridge construction techniques, that would position KYTC to seek additional funding if needed for this project.
- 1.3. **Consultant Team:** AECOM is partnered with Qk4 on the 5-569 Planning Study. The consultant team is referenced as the AECOM/Qk4 team throughout this report.
- 1.4. **Additional Bridge Considered:** As the AECOM/Qk4 examined the three bridges, it was apparent that a fourth bridge should also be considered. Of the original three bridges, the northern most bridge, 056B00191N, shares a pier with 056B00192N which was not one of the three bridges identified for replacement. KYTC agreed that the AECOM/Qk4 team should also provide a cost opinion for the replacement of this fourth bridge. It was understood that this fourth bridge was not in the current scope of KYTC 5-20061.
- 1.5. **Bridges Under Consideration:** Three primary and one additional:
 - 1.5.1. Bridge 056B00179N – I-65 Bridge over E Hill Street, CSX Railroad, and E Burnett Avenue at MP 133.873
 - 1.5.2. Bridge 056B00183N – I-65 Bridge over E Kentucky Street and S Brook Street at MP 134.753 and I-65 southbound ramp bridge to St. Catherine over E Kentucky Street.
 - 1.5.3. Bridge 056B00191N – I-65 Bridge over E Jacob Street, E Broadway, and E Gray Street at MP 135.273
 - 1.5.4. Bridge 056B00192N – I-65 Bridge over E Chestnut Street at MP 135.43 (this is the fourth bridge that was added to the original scope)
- 1.6. **Air-Space Considerations:** During the preliminary stages of this effort, KYTC clarified, that as part of the cost opinion evaluation, the AECOM/Qk4 should investigate the Air-Space Agreements associated with these bridges.
- 1.7. **ABC Considerations:** The consultant team reviewed Accelerated Bridge Construction (ABC) strategies and evaluated the potential use of ABC on the reconstruction of these I-65 Bridges.

2. Background

Bridge Locations: The bridges considered are in Jefferson County, Kentucky along the I-65 corridor between I-264 and downtown Louisville. The bridges are spread over an approximate 3 mile stretch of I-65 between Mile Point 133 and Mile Point 136. Figure 1 provides a project map showing the location of the bridges.

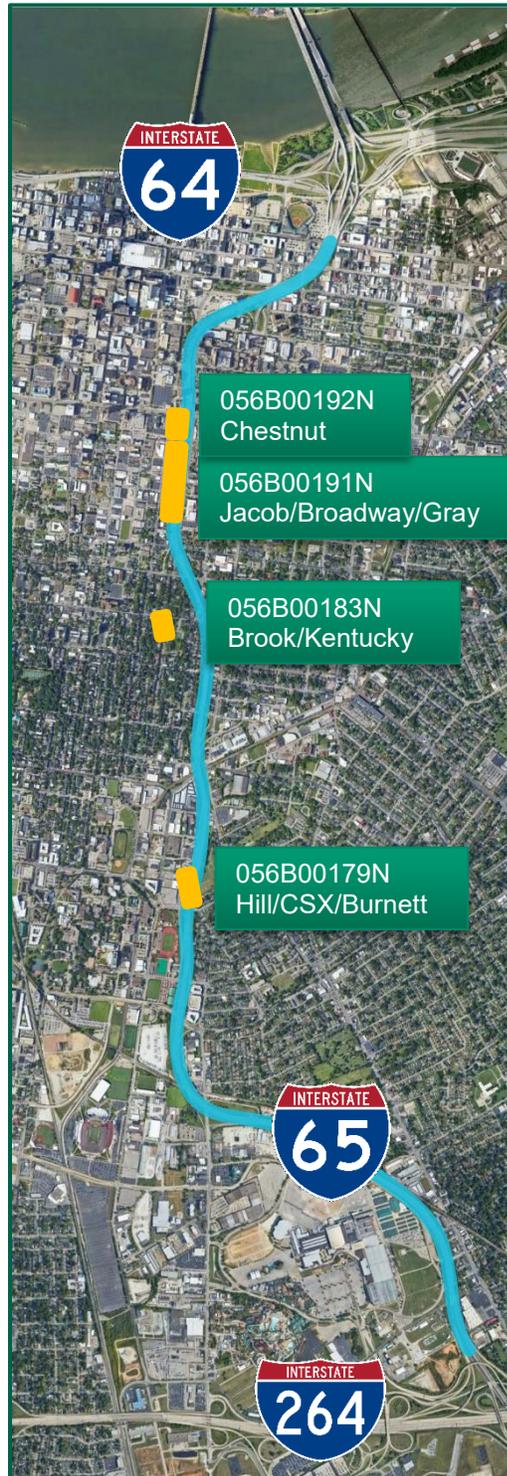


Figure 1: Project Map – Louisville, Kentucky

2.1. Table 1 provides a brief overview of the four bridges included in the study. The bridge condition shown is the lowest condition rating from either the deck, superstructure, or substructure as provided in the recent inspection report.

Reconstruction of the bridge over Brook and Kentucky Streets provides the greatest challenge due to the intersection directly below the elevated structure. This geometry, in combination with vertical clearance requirements, necessitates the use of integral bents to support the elevated structure. Integral bents are transverse elements, typically constructed of steel or post-tensioned concrete, that are at the same depth and height of the girders or beams.

Table 1: Bridge summary

BRIDGE	SUPERSTRUCTURE	LENGTH	SPANS	CONDITION
Hill/CSX/Burnett 056B00179N	Steel girders	338-ft	5	Poor
Brook/Kentucky 056B00183N	Steel girders on integral steel bent caps	461-ft	3	Poor
Jacob/Broadway 056B00191N	Steel, prestressed, and reinforced concrete girders	1,208-ft	21	Fair
Chestnut 056B00192N	Prestressed concrete girders	435-ft	9	Fair



Figure 2: Photographs of each bridge

3. Cost Opinions

3.1. Major Item Unit Cost: The AECOM/Qk4 team considered the following major items and researched appropriate unit costs. The team utilized their professional experience to develop conceptual designs to determine approximate quantities for significant bid items. These conceptual quantities are provided in Appendix A. The team reviewed average unit bridge prices from construction lettings in Kentucky in 2019 and 2020 and exercised professional judgment to determine the estimated unit bid prices shown in Table 2.

Table 2: Unit price estimates for significant bid items

ITEM DESCRIPTION	UNIT	UNIT PRICE
BRIDGE DEMOLITION	SF	\$30.00
CONCRETE-CLASS A	CY	\$800.00
CONCRETE-CLASS AA	CY	\$1,000.00
STEEL REINFORCEMENT – EPOXY COATED	LBS	\$1.35
STEEL REINFORCEMENT	LBS	\$1.30
MSE WALL	SF	\$100.00
MSE GRANULAR EMBANKMENT	CY	\$35.00
PILES-STEEL HP12X53	LF	\$100.00
RAILING	LF	\$125.00
RAILING ON MOMENT SLAB	LF	\$250.00
MEDIAN BARRIER	LF	\$110.00
PRECAST PC BOX BEAM	LF	\$300.00
PPC I-Beam TYPE HN60-48	LF	\$480.00
PRECAST PC I BEAM TYPE 3	LF	\$335.00
STRUCTURAL STEEL	LBS	\$275.00

3.2. Cost Opinion General Discussion: The cost opinions or estimates provided are on a basis of experience and judgment. Market conditions, inflation, bidding procedures, etc. could result in great variability of the bids. Bridge construction will be challenging due to the dense urban setting which includes commercial and residential developments directly adjacent to the project, limited staging areas, utility and railroad considerations, and the high traffic volume carried by I-65. Various cost adjustments were applied to compensate for these conditions including mobilization, demobilization, railroad coordination, and a general contingency. The contingency is included to account for incidental items and uncertainties and risks involved with this complex project.

3.3. Cost Opinion. Table 3 presents the summary of the cost opinions for bridge reconstruction. A number of variations to the cost estimates were considered as discussed below depending on the scope of the project and desired maintenance of traffic scheme.

3.3.1. **Lower Range (Base):** The base cost opinion considers the most economical structures and construction schedule. Reconstructed bridges are assumed to be smaller than existing bridges by placing currently elevated structure on new embankments supported by retaining walls such as mechanical stabilized earth (MSE). Span lengths would be limited as much as feasible to cross only travel lanes, railroads, shoulders, and sidewalks. A normal construction schedule is assumed that does not require the contractor to utilize unique or innovative construction methods.

- 3.3.2. **Match Existing Footprints:** In order to maintain existing air space agreements, KYTC may look to re-build the existing bridges with a similar footprint to the existing bridges. These larger bridges may be also benefit viewshed considerations and any local commitments.
- 3.3.3. **Accelerated Bridge Construction (ABC):** The impact on the traveling public during construction is a major consideration and the chose scheme will have a significant impact on the construction cost. Accelerated bridge construction will add project costs due to innovative construction techniques and added contractor risk. Maintenance of traffic cost is a separate consideration discussed below.
- 3.3.4. **Upper Range:** The upper range estimate combines the base, existing footprint, and accelerated bridge construction cost estimate opinions. KYTC may elect to incorporate any combination or portions thereof, thus the actual project cost could fall anywhere between the lower and upper limits.
- 3.3.5. **Maintenance of Traffic (MOT):** These costs (signage, channelization devices, police officers, etc.) were estimated by calculating a mobilization cost and a daily rate. Those estimates were cross-checked against other recently completely regional interstate construction projects and adjusted as needed. For this evaluation, it was assumed that construction would be completed on each directional bridge at a time (phased construction). The open bridge could carry one or two-directional traffic.
- 3.3.5.1. MOT for Conventional Construction (Base): It was assumed that conventional construction could be completed in approximately 90 closure days in each direction.
- 3.3.5.2. MOT for ABC: It was assumed that ABC could be completed with 30 closure days in each direction. The 30-day closure would not have to be continuous.

Note that in Table 3, ABC shows an estimated savings of \$5,700,000 in maintenance of traffic costs over conventional construction. This provides an apples-to-apples comparison of utilizing ABC vs convention construction; however, it does not consider user costs, which was outside the scope of this evaluation.

Table 3: Cost Opinion for Bridge Reconstruction



	Lower Range (Base)	+	Match Existing Footprint	+	ABC	=	Upper Range
Hill/CSX/Burnett 056B00179N	\$12,500,000	+	\$400,000	+	\$2,800,000	=	\$15,700,000
Brook/Kentucky 056B00183N	\$19,900,000	+	\$3,400,000	+	\$5,100,000	=	\$28,400,000
Jacob/Broadway 056B00191N	\$32,500,000	+	\$11,300,000	+	\$9,700,000	=	\$53,500,000
MOT	\$9,400,000	+	\$0	-	(\$5,700,000)	=	\$3,700,000
Sub Total – 3 Bridges	\$74,300,000	+	\$15,100,000	+	\$11,900,000	=	\$101,300,000
Chestnut 056B00192N	\$10,500,000	+	\$900,000	+	\$2,500,000	=	\$13,900,000
Grand Total – 4 Bridges	\$84,800,000	+	\$16,000,000	+	\$14,400,000	=	\$115,200,000

3.4. Discussion: Excluding the fourth bridge and with a focus on the primary three included in KYTC 5-20061, cost opinions to replace all three bridges range from \$74 million to \$102 million. The lower cost option is based on minimizing bridge footprints, utilizing conventional construction techniques, and a disruptive and long-term MOT plan. The highest cost option, assumes similar bridge footprints, preserving parking areas and space underneath the structures, utilizing ABC techniques, and implementing a MOT plan that minimizes the traffic impact to the extent practical.

Cost Opinion Recommendation for Programming Funding: Based on discussions with KYTC, the consensus was to use \$100 million as a planning cost for funding requests and/or programming.

4. ABC Strategies

4.1. General: The consultant team reviewed Accelerated Bridge Construction (ABC) strategies and evaluated the potential use of ABC on the reconstruction of these I-65 Bridges. These strategies and applicability to the project were discussed with KYTC.

4.2. Potential ABC Strategies

4.2.1. Prefabricated Bridge Elements

- 4.2.1.1. Precast footers
- 4.2.1.2. Precast concrete pier caps and columns
- 4.2.1.3. Precast concrete deck panels with Ultra High-Performance Concrete joints
- 4.2.1.4. Precast concrete abutment with cast-in-place concrete backwall
- 4.2.1.5. Super structure girder slab units

4.2.2. Bridge Movement & Installation Methods (I-65 corridor constraints may not be conducive to these options)

- 4.2.2.1. Self-Propelled Modular Transporter (SPMT)
- 4.2.2.2. Bridge Slide

4.2.3. Rapid Embankment & Retaining Wall Construction

- 4.2.3.1. Lightweight fill for MSE retaining walls
- 4.2.3.2. Expanded Polystyrene (EPS) Geofoam for MSE retaining wall
- 4.2.3.3. Ground modification
- 4.2.3.4. Wick Drains
- 4.2.3.5. Precast moment slabs for MSE retaining walls/barrier walls
- 4.2.3.6. Stone Columns
- 4.2.3.7. Micropiles

4.2.4. Contracts & Bidding

- 4.2.4.1. Construction Manager / General Contractor (CM/GC)
- 4.2.4.2. Design-Build
- 4.2.4.3. Advanced beam procurement
- 4.2.4.4. Advanced MSE wall procurement
- 4.2.4.5. A + B
- 4.2.4.6. Dis-incentives
- 4.2.4.7. Lane Rental

5. CM/GC Discussion

- 5.1. General: During discussions of ABC strategies, KYTC expressed interest in utilizing the Construction Manager / General Contractor (CM/GC) project delivery method. In the CM/GC process, KYTC would hire a contractor during the design phase to provide feedback prior to the start of construction. This contractor will be given the opportunity to provide a non-competitive bid to the owner on the project and carry out negotiations on the price. If all parties are agreeable to the terms, the construction phase with the contractor can begin.
- 5.2. CM/GC Viability: The consultant team studied CM/GC and had dialogue with an AECOM professional knowledgeable and experienced with CM/GC contracting. We examined the applicability as it pertains to the project and determined that KYTC 5-20061 met the criteria to be a good candidate for CM/GC consideration. The team provided an overview of CM/GC contracting to KYTC.
- 5.3. CM/GC is recommended when:
 - 5.3.1.1. High levels of project risk need to be mitigated
 - 5.3.1.2. Traditional means and methods may not apply
 - 5.3.1.3. Schedules are challenging
 - 5.3.1.4. Projects are technically complex
 - 5.3.1.5. A high level of construction staging/phasing may be appropriate
 - 5.3.1.6. Input is needed on constructability, means & methods, and non-standard costs
 - 5.3.1.7. Public Involvement is significant
- 5.4. CM/GC Benefits:
 - 5.4.1.Promotes Innovation
 - 5.4.2.Integrated Design Process
 - 5.4.3.Risk Mitigation
 - 5.4.4.Improved Constructability
 - 5.4.5.Efficient Construction
 - 5.4.6.Staging/Maintenance of Traffic
 - 5.4.7.Expedited Construction
 - 5.4.8.Public Coordination Certainty
- 5.5. CM/GC Challenges
 - 5.5.1.New Time Frames and Needs
 - 5.5.2.Determination of Cost
 - 5.5.3.New Contracting Method for Cabinet, Design and Construction Industries
 - 5.5.4.Potential pushback from local contracting industry

6. Air-Space Considerations

- 6.1. Previous Air-Space Investigations: The *I-65 Bridges Study*, dated August 2019, examined bridges along I-65 in Jefferson County between I-264 and the Kennedy Interchange. Air-Space Agreements were included in that study's report as *Appendix C: Under-Bridge Parking Agreements*.
- 6.2. Further Air-Space Investigations: The AECOM/Qk4 team further investigated the areas underneath the bridges related to this Bridge Cost Opinion Report to provide KYTC with additional information to assist in decision making. Details are provided in Appendix B.

7. Other Considerations

- 7.1. Additional considerations and decisions may be needed to refine the cost estimates. These considerations are highlighted below:
 - 7.1.1. Closure and construction time – what can KYTC and the community tolerate?
 - 7.1.2. Is bridge rehabilitation a feasible alternate? Could the existing substructure be used?
 - 7.1.3. Will KYTC be agreeable to certain accelerated bridge construction methods, such as rapid setting concrete?
 - 7.1.4. Would KYTC consider reducing or eliminating parking under the bridges? This would require revoking Air-Space Agreements discussed in Section 6.
- 7.2. Construction cost is only one component of a cost analysis. Additional considerations could include:
 - 7.2.1. User cost
 - 7.2.2. Life cycle cost
 - 7.2.3. Potential loss of toll revenue

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Appendix A

Conceptual Quantities

I-65 Corridor Planning Study

Bridge Cost Opinion Study

Kentucky Transportation Cabinet

Project number: KYTC Item No. 5-569

September 13, 2021

ESTIMATE A: BASE

ITEM DESCRIPTION	UNIT
DEMOLITION	SF
CONCRETE-CLASS A	CY
CONCRETE-CLASS AA	CY
STEEL REINFORCEMENT-EPOXY COATED	LB
STEEL REINFORCEMENT	LB
MSE WALL	SF
MSE FOR PHASED CONSTRUCTION	SF
MSE GRANULAR EMBANKMENT	CY
FOUNDATION PREP.	LS
PILES-STEEL HP12X53	LF
RAILING	LF
RAILING ON MOMENT SLAB	LF
MEDIAN BARRIER	LF
APPROACH PAVEMENT	LS
PRECAST PC BOX BEAM CB27X48	LF
PPC I-BEAM TYPE HN 60-48	LF
PRECAST PC I BEAM TYPE 3	LF
STRUCTURAL STEEL	LB

CONCEPTUAL QUANTITIES			
056B00179N	056B00183N	056B00191N	056B00192N
39200	54100	156000	43400
730	860	350	150
770	1200	1340	630
183000	288000	303000	141000
100000	128000	52000	23000
10800	26100	67400	21600
4500	7000	26700	7200
1000	2200	51300	14500
1	1	1	1
4400	7300	12800	5500
470	740	530	140
230	710	2130	600
360	530	1250	500
1	1	1	1
0	0	2400	0
0	0	1710	0
0	0	0	1490
970000	1370000	0	0

ESTIMATE B: MATCH EXISTING FOOTPRINT

ITEM DESCRIPTION	UNIT
DEMOLITION	SF
CONCRETE-CLASS A	CY
CONCRETE-CLASS AA	CY
STEEL REINFORCEMENT-EPOXY COATED	LB
STEEL REINFORCEMENT	LB
MSE WALL	SF
MSE GRANULAR EMBANKMENT	CY
FOUNDATION PREP.	LS
PILES-STEEL HP12X53	LF
RAILING	LF
MEDIAN BARRIER	LF
APPROACH PAVEMENT	LS
PRECAST PC BOX BEAM CB27X48	LF
PPC I-BEAM TYPE HN 60-48	LF
PRECAST PC I BEAM TYPE 3	LF
STRUCTURAL STEEL	LB

CONCEPTUAL QUANTITIES			
056B00179N	056B00183N	056B00191N	056B00192N
39200	54100	156000	43400
980	1330	2990	1500
1050	1640	5250	1320
250000	393000	1180000	297000
135000	201000	561000	225000
0	14600	0	0
0	6400	0	0
1	1	1	1
5700	10000	50300	16300
700	1500	5400	1600
330	350	1250	500
1	1	1	1
0	0	9300	0
0	0	12500	0
0	0	0	3900
1370000	2360000	0	0

Appendix B

Air-Space Investigations

I-65 Corridor Planning Study Bridge Cost Opinion Study

Kentucky Transportation Cabinet

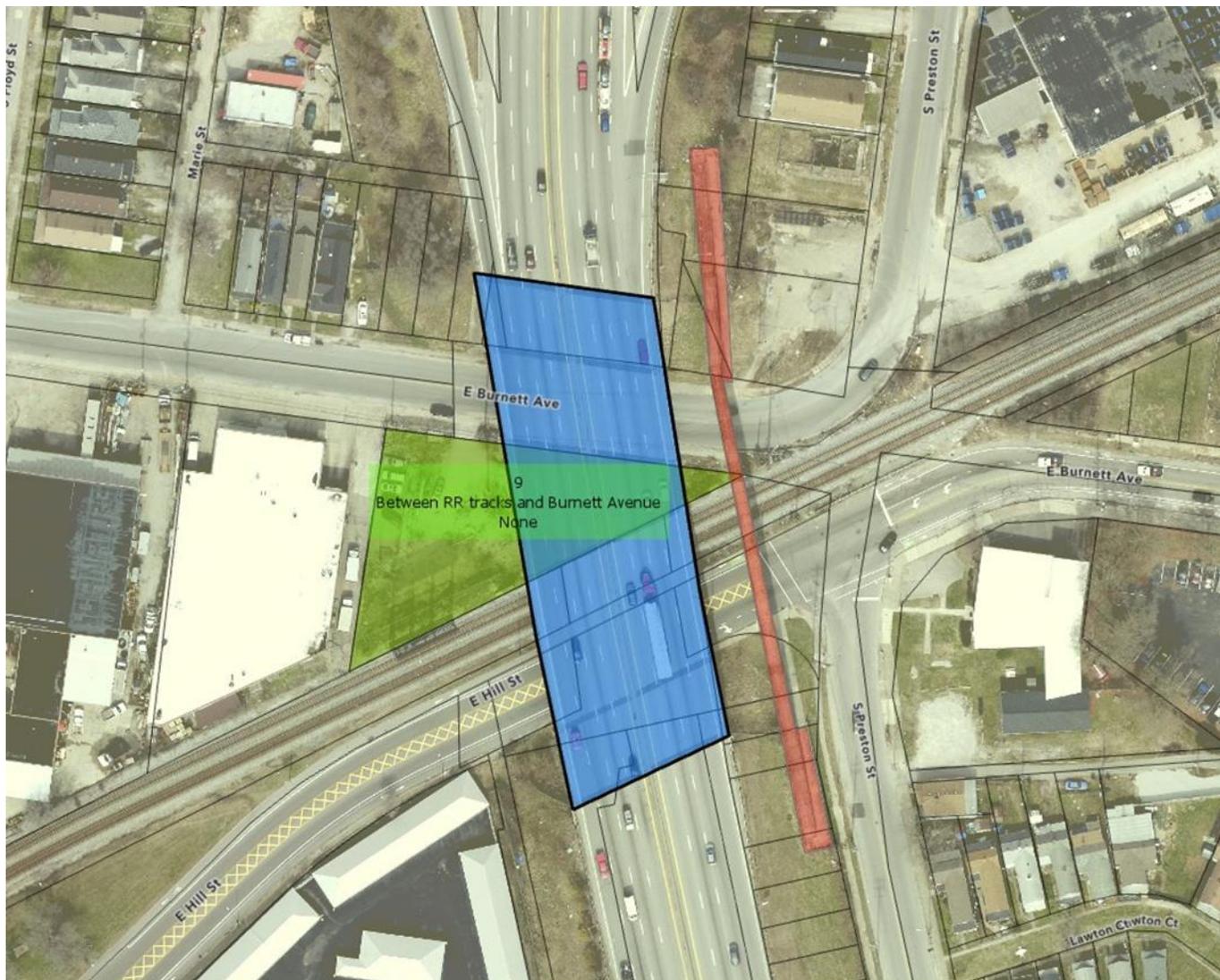
Project number: KYTC Item No. 5-569

September 13, 2021

I-65 Air-Space Agreements

Bridge 056B00179N

Bridge over Hill/CSX/Burnett at MP 133.873



9 in the graphic above

Pages N/A – not included in I-65 Bridge Improvement Study (2019) Appendix C

KYTC property – No Air-Space Agreement

Between RR tracks and Burnett Avenue

Former location of KYTC Traffic Maintenance Facility. Lou-Metro Traffic Engineering also used the lot at one time. Currently, KYTC has not permitted anyone to use the lot per Tom Wright. Tom indicated no issue if the lot were “filled-in”.

Discussion with adjacent property owner – John F. Trompeter Company follow.

Callihan, John

From: Callihan, John
Sent: Monday, June 21, 2021 3:41 PM
To: Niemann, Elizabeth A (KYTC); 'Bullock, Matt (KYTC-D05)'
Cc: Hall, Tom B (KYTC-D05); Andy.Rush@kipda.org; Royce Meredith (Royce.Meredith@ky.gov); Wright, Tom J (KYTC-D05); Ryan Holmes; brian.meade@aecom.com; Thompson, Rebecca; daven@johntrumpeter.com
Subject: KYTC 5-569 - I-65 Corridor Study - Bridge Estimates - John F. Trompeter Company - Surplus Property Inquiry
Attachments: John F Trompeter Property and Surplus Property Request with labels.jpg

Beth and Matt,
On Friday, June 18, 2021, I met with Dave Nash, VP of the John F. Trompeter Company.

Dave Nash
314 E. Burnett Street
Louisville, KY 40208
(502) 585-5852
daven@johntrumpeter.com
<https://www.trompeters.com/>

Mr. Nash and I discussed the I-65 Corridor Planning Study and the potential replacement of the three bridges along the corridor currently associated with KYTC 5-20061.00.

We examined the ROW under I-65 at the Burnett/CSW/Hill Bridge that is adjacent to the John F. Trompeter Company property at 314 E. Burnett Street.

Mr. Nash explained that he and some other locals try to weed-eat and clean trash from the triangle shaped KYTC lot under I-65 between Burnett and the CSX RR tracks.

He mentioned his company's desire to obtain a strip of property that appears surplus to the needs of KYTC.

I have attached a map showing this strip of land.

Though design of a new replacement bridge has not been initiated, my initial opinion is that this strip of land would very likely be and will remain surplus to KYTC's needs.

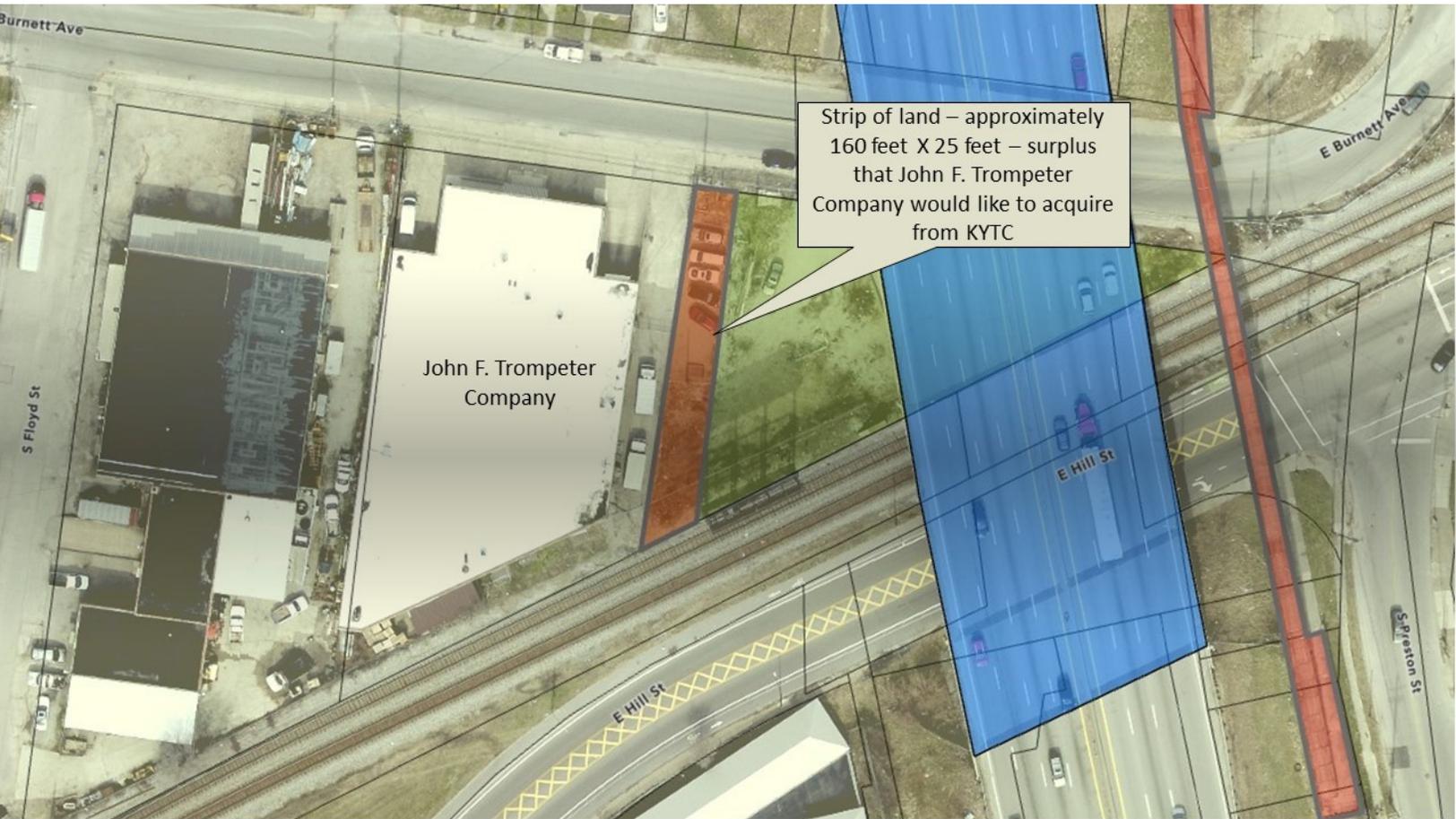
I recommend that, upon initiation of design for the replacement of the bridge at Burnett/CSW/Hill (056B00179N), KYTC and/or KYTC's design consultant, give consideration of a formal request from John F. Trompeter Company for this strip of land.

Mr. Nash indicated that his company would like to construct secure parking, perhaps a small garage on the strip of land. He also indicated that they would like to help maintain any right of way under I-65 at this location upon completion of the potential project.

With your concurrence (or with your comments), I will include this e-mail and attachment as part of the stakeholder/public engagement record for KYTC 5-569 - I-65 Corridor Study Report.

Respectfully,

John Callihan, PE, PMP, LEED AP
Senior Project Engineer, Transportation
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Strip of land – approximately 160 feet X 25 feet – surplus that John F. Trompeter Company would like to acquire from KYTC

John F. Trompeter Company

E Hill St

S Preston St

S Floyd St

Burnett Ave

E Burnett Ave

E Hill St

I-65 Air-Space Agreements

Bridge 056B00183N

Bridge over Kentucky/Brook at MP 134.753



I-65 Air-Space Agreements

Bridge 056B00183N

Bridge over Kentucky/Brook at MP 134.753

7 in the graphic on the previous page

Pages N/A – not included in I-65 Bridge Improvement Study (2019) Appendix C

Heuser Hearing Institute

Brook and Kentucky (Northwest quadrant)

Brett Bachmann J.D. LL.M

Chief Executive Officer

Heuser Hearing Institute

Heuser Hearing & Language Academy

111 E. Kentucky Street • Louisville, KY 40203 • www.thehearinginstitute.org

p: 502-515-3320 • f: 502-515-3325 • bbachmann@thehearinginstitute.org

Mr. Bachmann believes they have had an airspace agreement for 22+ years. He is doubtful they will be able to find a copy. He very much wants to keep the parking.

8 in the graphic on the previous page

Pages N/A – not included in I-65 Bridge Improvement Study (2019) Appendix C

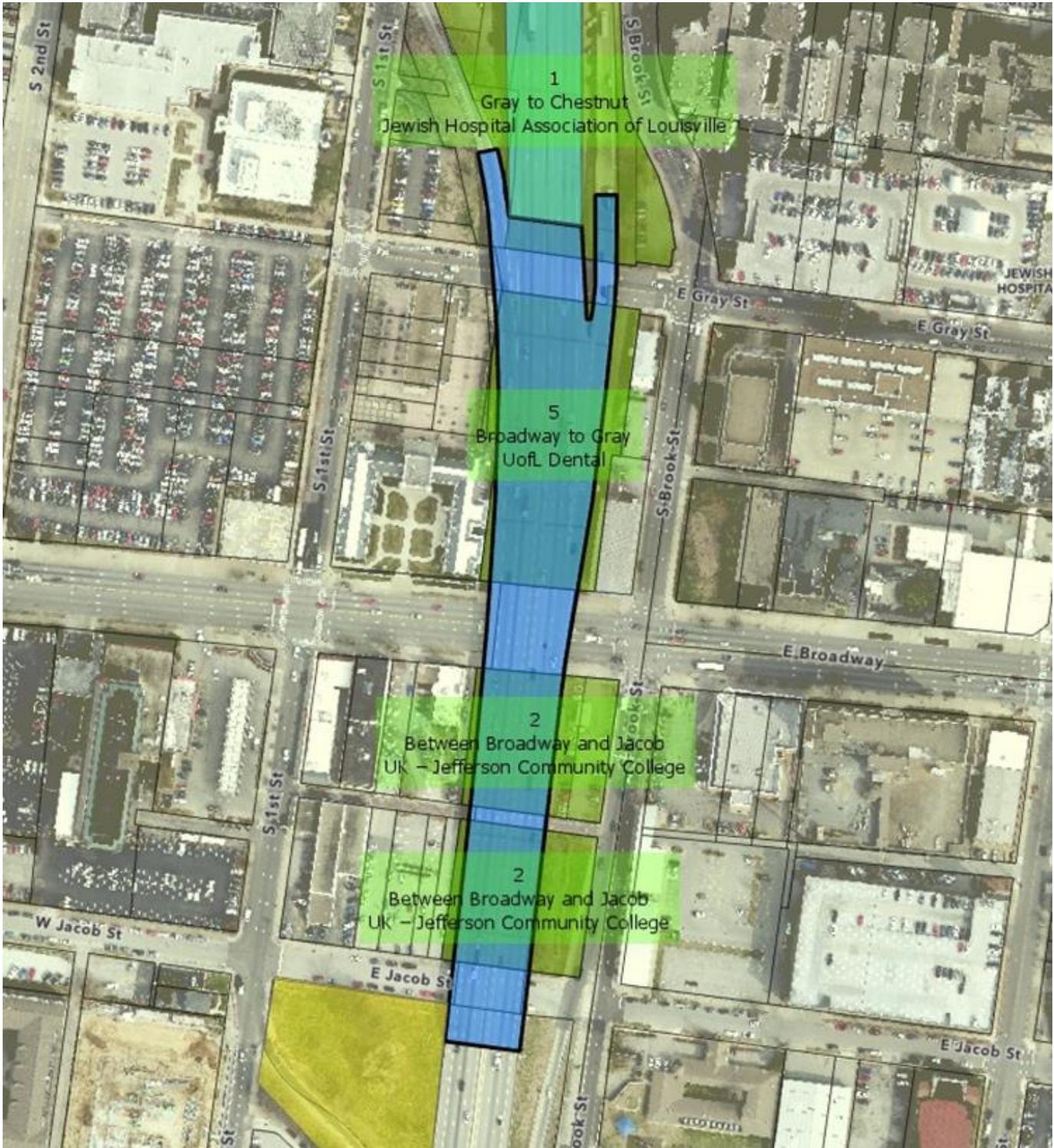
KYTC – No Air-Space Agreement

Adjacent to I-65 SB ramp to St. Catherine (between St. Catherine and Kentucky Street)

I-65 Air-Space Agreements

Bridge 056B00191N

Bridge over Jacob/Broadway/Gray at MP 135.273



I-65 Air-Space Agreements

Bridge 056B00191N

Bridge over Jacob/Broadway/Gray at MP 135.273

1 in the graphic on the previous page

Pages 1-8 in I-65 Bridge Improvement Study (2019) Appendix C

Between Gray and Chestnut and the southeast corner of Brook and Walnut Streets

Jewish Hospital Association of Louisville

Charging no fee in excess of that necessary to pay the cost of operation

State can revoke - 30-day notice

May 6, 1965

2 in the graphic on the previous page

Pages 9 – 26 in the I-65 Bridge Improvement Study (2019) Appendix C

Between Broadway and Jacob Street

UK – Jefferson Community College

Pavement design is included as part of the encroachment permit

FHWA Management of Airspace policy is included – dated Oct 4, 1974

Airspace Requirements dated April 20, 1967 also included

Parking only – no other use

State can revoke - 30-day notice

Does this go all the way from Jacob to Broadway or just from the alley to Broadway?

1989 – expansion of parking approved

1967 original

5 in the graphic on the previous page

Page 40 in the I-65 Bridge Improvement Study (2019) Appendix C

UofL Dental

Broadway to Gray

Mentioned in a memo dated September 13, 1968, but no actual copy of agreement

Parking

I-65 Air-Space Agreements

Bridge 056B00192N

Bridge over Chestnut at MP 135.43



I-65 Air-Space Agreements

Bridge 056B00192N

Bridge over Chestnut at MP 135.43

1 in the graphic on the previous page

Pages 1-8 in I-65 Bridge Improvement Study (2019) Appendix C

Between Gray and Chestnut and the southeast corner of Brook and Walnut Streets

Jewish Hospital Association of Louisville

Charging no fee in excess of that necessary to pay the cost of operation

State can revoke - 30-day notice

May 6, 1965

4 – same as # 1 in the graphic on the previous page

Pages 39 - 44 in I-65 Bridge Improvement Study (2019) Appendix C

Brook and Walnut (now Muhammad Ali)

Jewish Hospital

Parking with no charge beyond cost to operate

30-days revoke

May 6, 1965