



K I P D A

Kentuckiana Regional Planning
& Development Agency

Amendment 4

Connecting Kentuckiana 2050
Metropolitan Transportation Plan (MTP)
&
Fiscal Year 2023- 2026 Transportation
Improvement Program (TIP)

TPC Approved on *October 26, 2023*





U.S. Department
of Transportation
**Federal Highway
Administration**

Kentucky Division

November 28, 2023

330 West Broadway
Frankfort, KY 40601
PH (502) 223-6720
FAX (502) 223-6735
<http://www.fhwa.dot.gov/kydiv>

In Reply Refer To:
HDA-KY

Mr. Jarrett Haley, Executive Director
Louisville Area Metropolitan Planning Organization
c/o Kentuckiana Regional Planning and Development Agency
11520 Commonwealth Drive
Louisville, KY 40299

Dear Mr. Haley:

The Kentucky Division of the Federal Highway Administration (FHWA) and Region 4 of the Federal Transit Administration (FTA), in consultation with the Indiana Division Office of the Federal Highway Administration and Regions 4 and 5 of the United States Environmental Protection Agency (EPA), have reviewed the following document(s):

Amendment 4 to the 2023-2026 Transportation Improvement Program (TIP) and
2050 Metropolitan Transportation Plan (MTP) for the
Louisville Area Metropolitan Planning Organization (MPO)
(MPO approval resolution signed on October 26, 2023)

The Kentucky Environmental and Public Protection Cabinet's Division for Air Quality, the Kentucky Transportation Cabinet's Division of Planning, the Kentucky Transportation Cabinet's Office of Transportation Delivery, the Louisville Metro Air Pollution Control District, and the Transit Authority of River City also had an opportunity to review and comment on the aforementioned documents.

We found that this document meets the five primary criteria of the Transportation Conformity Rule (40 CFR Part 93):

- use of the latest planning assumptions
- use of the latest emissions model
- use of appropriate consultation procedures
- consistency with the mobile vehicle emission budgets in the State Implementation Plan (SIP)
- provisions for the timely implementation of transportation control measures in the SIP.

We found that these documents met the criteria outlined in the July 1, 2004 Transportation Conformity Rule Amendments for New 8-hr Ozone and PM_{2.5} National Ambient Air Quality

Standards (NAAQS), Response to March 1999 Court Decision and Additional Rule Changes (69 FR 40004). We therefore find that these documents conform to the 2015 8-hour Ozone NAAQS.

Sincerely,

TODD A JETER

Digitally signed by TODD A
JETER
Date: 2023.11.28 10:17:30
-05'00'

Todd Jeter
Division Administrator

CC: Aviance Webb, FTA-R4
Erica Tait, FHWA-IN
Tonya Higdon, FHWA-KY
Jane Spann, EPA-R4
Dianna Myers, EPA-R4
Simone Jarvis, EPA-R4
Michael Kennedy, KEEC-DAQ
Rachael Hamilton, APCD
Carrie Butler, TARC
Ron Rigney, KYTC-Program Management
Mikael Pelfrey, KYTC-Planning
Andy Rush, Louisville Area MPO



Area Agency on Aging and Independent Living
Area Development District
Metropolitan Planning Organization



**FY 2023-2026 Transportation Improvement Program
&
Connecting Kentuckiana 2050 Metropolitan Transportation Plan**

The Kentuckiana Regional Planning and Development Agency (KIPDA) is the Metropolitan Planning Organization (MPO) for the five-county region covering Jefferson, Bullitt and Oldham Counties in Kentucky and Clark and Floyd Counties in Indiana. The MPO's responsibilities include producing a long-range transportation document, known as *Connecting Kentuckiana 2050* Metropolitan Transportation Plan (MTP) and a short-range planning document, the Fiscal Year (FY) 2023-2026 Transportation Improvement Program (TIP)

Changes have been proposed to the TIP and MTP. The TIP, with the proposed changes, remains fiscally constrained. This packet includes the following document:

- Schedule for Amendment 4
- A listing of all projects being added, removed and/or modified
- Air Quality conformity documentation
- Meeting minutes from the Interagency Consultation (IAC) conference call

Providing comments for the proposed changes can be submitted by any of the following methods:

- Visiting <https://kipdatransportation.org/amendment4/> and click on the *Amendment 4 Map* link
- Emailing kipda.trans@kipda.org
- Mail to the following address
- Call with your comments at 502-266-6144 ext 123, 1-800-648-6056 (KY TDD) or 1-800-962-8408 (IN TDD)

TIP and MTP Amendment, KIPDA

11520 Commonwealth Drive, Louisville, KY 40299

- Attend the virtual open house on October 2nd from 5:00 to 6:00 pm via Zoom. Members of the public are encouraged to ask questions and leave comments. A link to the virtual public meeting can be found at: <https://kipdatransportation.org/amendment4/>

Please contact Community and Committee Engagement Specialist Greg Burress at 502-562-6144 ext. 123 or via email at greg.burress@kipda.org for additional questions or information.

11520 Commonwealth Drive
Louisville, KY 40299
www.kipda.org

Phone: 502.266.6084
Fax: 502.266.5074
TDD: 800.648.6056





AMENDMENT 4 SCHEDULE

Connecting Kentuckiana (CK) 2050 Metropolitan Transportation Plan (MTP) Fiscal Year (FY) 2023 - 2026 Transportation Improvement Program (TIP)

WHY ARE THERE AMENDMENTS TO THE MTP & TIP?

New projects that are not regionally significant and qualify as Group Projects, as well as many minor changes to existing projects, can be added through an administrative modification. Administrative modifications can be processed within 30 days.

New projects and project changes that do not fit the criteria above must be added to the MTP and/or TIP through an amendment. There are many reasons why a project must be amended. Adding a regionally significant project that does not fit KIPDA's Group Projects policy or changing the scope of a roadway project to add a travel lane are both examples of projects that must be amended. While every effort is made to expedite amendments, the process can take up to 6 months.

KEY STEPS & TIMING

Project applications (new or modified) are due from sponsors	August 24, 2023
KIPDA staff completes project review	September 1, 2023
Air quality conformity activities	September 5 - 22, 2023
Interagency Consultation Group (IAC) Coordination	September 15, 2023
Public comment period	September 27- October 11, 2023
Transportation Technical Coordinating Committee (TTCC) Recommendation	October 11, 2023
Comments sent to the Transportation Policy Committee (TPC)	October 12, 2023
TPC Action	October 26, 2023

ADDITIONAL INFORMATION

The MTP & TIP amendment process is NOT an opportunity to request MPO dedicated funds.

All new projects and changes to existing projects must be submitted through the Project Application form found on KIPDA's Transportation Planning Portal.

The Portal can be accessed at the following address:
<https://kipdatransportation.org/forms/>



MTP Action:	Update project name and description, update total project cost				
TIP Action:	Update project name and description, update total project cost, update TIP funding				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Floyd County Board of Commissioners	KIPDA ID:	2128	State ID:	140050 & 1800900
County:	Floyd	Parent ID:	N/A	Group ID:	N/A
Project Name:	Charlestown Road Corridor Complete Street - Multi-Use Trail - Phase I	Funding Source:	CMAQ-MPO	Open to Public Date:	2024
Total Estimated Project Cost:	\$2,847,547 \$3,331,239		Total Cost Programmed in TIP to date:	\$2,847,547 \$3,331,239	
Description:	<p>Multi-use trail to connect County Line Road to Lewis Endres Parkway. Project is an approximately 1.5 mile pedestrian-bike trail that connects several large neighborhoods to commercial and recreational nodes along Charlestown Road. Also, the facility provides a safe mode of transportation for bike and pedestrian travel.</p> <p>Construction of a multi-use path on Charlestown Rd. from Sunset Drive to Chapel Lane and include pedestrian bridge.</p>				
Justification:	<p>Anticipated outcome will be the creation of a facility that would increase pedestrian and biking trips along the Charlestown Road Corridor which is a minor arterial. It has been designed to increase these modes of transportation to reduce emissions and increase safety.</p> <p>This project has already been approved. This request is to split the project into Phases. Phase one will construct a section of trail from Sunset Drive to Chapel Lane and include the construction of a pedestrian bridge. Phase two which will be constructed in the future will connect Chapel Lane to County Line Road.</p>				
FY 23-26 TIP Funding:	<p>FY2023 ROW with CMAQ-MPO funds: \$150,000 (Federal) + \$37,500 (Other) = \$187,500 (Total)</p> <p>FY2024 Construction with CMAQ-MPO funds: \$702,942 (Federal) + \$691,058 (Other) = \$1,394,000 (Total)</p> <p>FY2024 Construction with CMAQ-MPO funds: \$1,095,942 (Federal) + \$781,750 (Other) = \$1,877,692 (Total)</p>				

MTP Action:	Add to MTP				
TIP Action:	Update project name and description, remove TIP funding, update total project cost				
Exempt/Non Exempt:	Exempt		Model Impact:		
Project Sponsor:	Floyd County Board of Commissioners	KIPDA ID:	3047	State ID:	140050 TBD
County:	Floyd	Parent ID:	N/A	Group ID:	2674
Project Name:	Charlestown Road Complete Street - Multi-Use Trail Phase 2	Funding Source:	CMAQ-MPO	Open to Public Date:	2024 2026
Total Estimated Project Cost:	\$492,000 \$1,842,692		Total Cost Programmed in TIP to date:	\$492,000 \$0	
Description:	<p>Approximate 1.5 mile multi-use trail to connect several large subdivisions along Charlestown Road Corridor between County Line Road and Lewis Endres Parkway. The trail will provide pedestrian and bike access to commercial and recreational nodes along corridor.</p> <p>Construction of a multi-use path on Charlestown Rd to connect Chapel Lane to County Line Road.</p>				
Justification:	<p>Improvement for safe travel for multi-modes of transportation and will reduce automobile traffic by providing alternative safe modes of transport.</p> <p>This project has already been approved. This request is to split the project into Phases. Phase one will construct a section of trail from Sunset Drive to Chapel Lane and include the construction of a pedestrian bridge. Phase two which will be constructed in the future will connect Chapel Lane to County Line Road.</p>				
FY 23-26 TIP Funding:	<p>FY2024 Construction with CMAQ-MPO funds: \$393,000 (Federal) + \$99,000 (Other) = \$492,000 (Total)</p>				

MTP Action:	Correct total project cost				
TIP Action:	Correct total project cost				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Indiana Department of Transportation (INDOT)	KIPDA ID:	3215	State ID:	2300274
County:	Clark, Floyd	Parent ID:	N/A	Group ID:	N/A
Project Name:	National Electric Vehicle Infrastructure (NEVI)	Funding Source:	National Highway Performance Program (NHPP)	Open to Public Date:	2027
Total Estimated Project Cost:	\$63,647,090 \$74,326,210		Total Cost Programmed in TIP to date:	\$63,647,090 \$74,326,210	
Description:	Electric vehicle charging infrastructure at various locations along Indiana Interstates. Locations TBD				
Justification:	The National Electric Vehicle Infrastructure Formula Program strategically deploys electric vehicle charging infrastructure and supports an interconnected network to facilitate data collection, access, and reliability. Eligible funding uses include acquisition and installation of electric vehicle charging infrastructure to serve as a catalyst for the deployment of such infrastructure and to connect it to a network to facilitate data collection, access, and reliability; proper operation and maintenance of electric vehicle charging infrastructure; data sharing about electric vehicle charging infrastructure to ensure the long-term success of investments.				
FY 23-26 TIP Funding:	FY 2024 Preliminary Engineering phase with NHPP funds: \$4,271,649 (Federal) + \$1,067,912 (Other) = \$5,339,562 (Total) FY 2024 Construction phase with NHPP funds: \$16,972,536 (Federal) + \$4,243,134 (Other) = \$21,215,670 (Total) FY 2025 Preliminary Engineering phase with NHPP funds: \$4,271,649 (Federal) + \$1,067,912 (Other) = \$5,339,562 (Total) FY 2025 Construction phase with NHPP funds: \$16,972,550(Federal) + \$4,243,137 (Other) = \$21,215,687 (Total) FY 2026 Construction phase with NHPP funds: \$16,972,585(Federal) + \$4,243,146 (Other) = \$21,215,731 (Total)				

MTP Action:	Restructure related projects and create parent, update project name and Open to Public (OTP) year				
TIP Action:	Remove from TIP, cancel TIP funding				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Louisville Metro	KIPDA ID:	384	State ID:	5-479.00
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	North Hubbards Lane	Funding Source:	STBG-MPO	Open to Public Date:	2024 2028
Total Estimated Project Cost:	\$7,389,736 \$8,674,736		Total Cost Programmed in TIP to date:	\$7,389,736 \$1,862,749	
Description:	<p>Widen Hubbards Lane from 2 to 3 lanes (3rd lane will be a center turn lane) including bicycle and pedestrian facilities from US 60 (Shelbyville Road) to KY 1447 (Westport Road).</p> <p>Widen Hubbards Lane from 2 to 3 lanes (3rd lane will be a center turn lane) from US 60 (Shelbyville Road) to KY 1447 (Westport Road). Add bike lanes to Hubbards Lane from Kresge Way to KY 1447. Project length is 1.4 mi.</p>				
Justification:	Hubbards Lane is a heavily traveled collector which passes through residential development between US 60 and US 42.				
FY 23-26 TIP Funding:	<p>*FY2022 Utilities phase with STBG-MPO funds: \$749,589 (Federal) + \$187,398 (Other) = \$936,987 (Total)</p> <p>FY 2023 Construction phase with STBG-MPO funds: \$3,740,000 (Federal) + \$850,000 (Other) = \$4,590,000 (Total)</p>				

MTP Action:	None				
TIP Action:	Create child project from KIPDA ID 384 parent, create new KIPDA ID, update TIP funding				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Louisville Metro	KIPDA ID:	NEW	State ID:	05-479.10
County:	Jefferson	Parent ID:	384	Group ID:	N/A
Project Name:	North Hubbards Lane	Funding Source:	STBG-MPO	Open to Public Date:	2025
Total Estimated Project Cost:	\$5,611,987		Total Cost Programmed in TIP to date:	\$5,611,987	
Description:	Widen Hubbards Lane from 2 to 3 lanes (3rd lane will be a center turn lane) including bicycle and pedestrian facilities from US 60 (Shelbyville Road) to KY 1447 (Westport Road).				
Justification:	Hubbards Lane is a heavily traveled collector which passes through residential development between US 60 and US 42.				
FY 23-26 TIP Funding:	<p>FY2023 Design phase with Local funds: \$0 (Federal) + \$110,000 (Other) = \$110,000 (Total)</p> <p>FY2024 Utilities phase with STBG-MPO funds: \$749,589 (Federal) + \$187,398 (Other) = \$936,987 (Total)</p> <p>FY 2025 Construction phase with STBG-MPO funds: \$3,740,000(Federal) + \$825,000 (Other) = \$4,565,000 (Total)</p>				

MTP Action:	Remove new child project from MTP				
TIP Action:	Create new child/parent relationship, correct State ID, update TIP funding and OTP date.				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Louisville Metro	KIPDA ID:	3024	State ID:	05-279.01 05-479.20
County:	Jefferson	Parent ID:	384	Group ID:	N/A
Project Name:	South Hubbards Lane	Funding Source:	Transportation Alternatives MPO (TA-MPO)	Open to Public Date:	2030 2028
Total Estimated Project Cost:	\$1,200,000		Total Cost Programmed in TIP to date:	\$675,000 \$640,000	
Description:	Add bicycle and pedestrian facilities to South Hubbards Lane from Kresge Way to US 60 (Shelbyville Road).				
Justification:	The purpose and need of this project is to increase safety and to improve bicycle and pedestrian accessibility to South Hubbards Lane between US 60 (Shelbyville Road) to Kresge Way/Bowling Boulevard.				
FY 23-26 TIP Funding:	<p>*FY 2020 Design phase with Local funds: \$40,000 (Federal) + \$10,000 (Other) = \$50,000 (Total)</p> <p>FY 2024 Design phase with Local funds: \$0 (Federal) + \$140,000 (Other) = \$140,000 (Total)</p> <p>*FY 2027 Construction phase with TA-MPO funds: \$500,000 (Federal) + \$0 (Other) = \$500,000 (Total)</p>				
MTP Action:	Update project description				
TIP Action:	Update project description				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Louisville Metro	KIPDA ID:	1634	State ID:	
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	LaGrange Road Bicycle & Pedestrian Improvements	Funding Source:	Congestion Mitigation and Air-Quality (CMAQ)	Open to Public Date:	2024
Total Estimated Project Cost:	\$3,346,250		Total Cost Programmed in TIP to date:	\$3,346,250	
Description:	<p>Increase the pavement width along LaGrange Road by 8 feet to provide two 4' on-street bicycle lanes from Lakeland Road to Whippis Mill Road and add bicycle facilities on New La Grange Road from Lyndon Lane to Whippis Mill Road.</p> <p>Create sidewalk along Old Whippis Mill Road between La Grange Rd and Hurstbourne Pkwy, make intersection improvements at Hurstbourne & Old Whippis Mill intersection, widen shoulder along La Grange Rd from UPS Drive to Old Whippis Mill Rd., and create shared use path from Old Whippis Mill Rd. to Lakeland Rd.</p>				
Justification:	Addition of bicycle and pedestrian facilities.				
FY 23-26 TIP Funding:	FY 2023 Construction phase with CMAQ-ST funds: \$1,849,000 (Federal) + \$462,250 (Other) = \$2,311,250 (Total)				

MTP Action:	None				
TIP Action:	Update Project Name and Description				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	3125	State ID:	5-10057.00
County:	Jefferson	Parent ID:	N/A	Group ID:	2675
Project Name:	I-64 WB Bridge at Tucker Station Road I-64 Bridges at Tucker Station Road	Funding Source:	Bridge Replacement - On System (BRO)	Open to Public Date:	2026
Total Estimated Project Cost:	\$6,974,000		Total Cost Programmed in TIP to date:	\$6,974,000	
Description:	Bridge project in Jefferson County on (056B00039L) I-64 WB at Tucker Station Road. Bridge project in Jefferson County on (056B00039R) I-64 EB and (056B00039L) I-64 WB at Tucker Station Road.				
Justification:	Increase safety for all users. Maintain the existing transportation network in a state of good repair.				
FY 23-26 TIP Funding:	FY 2024 Design phase with BRO funds: \$507,200 (Federal) + \$126,800 (Other) = \$634,000 (Total) FY 2024 Construction phase with BRO funds: \$5,072,000 (Federal) + \$1,268,000 (Other) = \$6,340,000 (Total)				

MTP Action:	Add new project				
TIP Action:	Add new project				
Exempt/Non Exempt:	Non-exempt		Model Impact:	Add 2030, 2035,2040,& 2050 Model Scenerios	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	NEW	State ID:	5-8102.20
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	I-65 on and off ramps on Arthur Street	Funding Source:	Bridge Investment Program (BIP)	Open to Public Date:	2026
Total Estimated Project Cost:	\$3,600,000		Total Cost Programmed in TIP to date:	\$3,600,000	
Description:	Reconfigure Arthur Street ramps on and off I-65 BMP 133.3 EMP 133.8				
Justification:	To increase safety by reducing conflict points by separating local and ramp traffic, and by increasing merge lengths from Magnolia and University on-ramps.				
FY 23-26 TIP Funding:	FY 2024 Design phase with BIP funds: \$280,000 (Federal) + \$70,000 (Other) = \$350,000 (Total) FY 2024 Utilities phase with BIP funds: \$320,000 (Federal) + \$80,000 (Other) = \$400,000 (Total) FY2024 ROW with BIP funds: \$120,000 (Federal) + \$30,000 (Other) = \$150,000 (Total) FY2024 Construction with BIP funds: \$2,160,000 (Federal) + \$540,000 (Other) = \$2,700,000 (Total)				

MTP Action:	Add new project				
TIP Action:	Add new project				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	NEW	State ID:	5-8102.3
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	I-65 Crittenden Dr On-Ramp	Funding Source:	Bridge Investment Program (BIP)	Open to Public Date:	2026
Total Estimated Project Cost:	\$475,000		Total Cost Programmed in TIP to date:	\$475,000	
Description:	Lengthen/widen ramp from Crittenden Dr to I-65 northbound BMP 132.3 To EMP 132.5				
Justification:	To improve safety and traffic flow with longer acceleration lane				
FY 23-26 TIP Funding:	FY 2024 Design phase with BIP funds: \$80,000 (Federal) + \$20,000 (Other) = \$100,000 (Total) FY 2024 Construction phase with BIP funds: \$300,000 (Federal) + \$75,000 (Other) = \$375,000 (Total)				
MTP Action:	Add new project				
TIP Action:	Add new project				
Exempt/Non Exempt:	Non-exempt		Model Impact:	Add 2030, 2035,2040,& 2050 Model Scenerios	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	NEW	State ID:	
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	I-65 Northbound Brook Off-ramp	Funding Source:	Bridge Investment Program (BIP)	Open to Public Date:	2026
Total Estimated Project Cost:	\$1,805,000		Total Cost Programmed in TIP to date:	\$1,805,000	
Description:	Widen northbound I-65 off-ramp to S Brook St/Broadway to accommodate two lanes. Close access to E Jacob St				
Justification:	To increase ramp capacity and to increase safety by reducing conflict points and driver confusion. It also increases pedestrian safety by relocating pedestrian crossings				
FY 23-26 TIP Funding:	FY 2024 Design phase with BIP funds: \$112,000 (Federal) + \$28,000 (Other) = \$140,000 (Total) FY 2024 Utilities phase with BIP funds: \$312,000 (Federal) + \$78,000 (Other) = \$390,000 (Total) FY2024 Construction with BIP funds: \$1,020,000 (Federal) + \$255,000 (Other) = \$1,275,000 (Total)				

MTP Action:	Add new project				
TIP Action:	Add new project				
Exempt/Non Exempt:	Non-exempt		Model Impact:	Add 2030, 2035,2040,& 2050 Model Scenerios	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	NEW	State ID:	5-8102.50
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	I-65 Reconfigure Woodbine/Preston Interchange	Funding Source:	Bridge Investment Program (BIP)	Open to Public Date:	2026
Total Estimated Project Cost:	\$1,775,000		Total Cost Programmed in TIP to date:	\$1,775,000	
Description:	Remove Woodbine off-ramp northbound and Preston on-ramp southbound on I-65 BMP 133.9 EMP 134.1 and replace bridge with fill.				
Justification:	Improve traffic operations and safety by removing substandard consecutive off-ramps to lessens driver confusion. Improve safety associated with multiple merging locations				
FY 23-26 TIP Funding:	FY 2024 Design phase with BIP funds: \$140,000 (Federal) + \$35,000 (Other) = \$175,000 (Total) FY2024 Construction with BIP funds: \$1,280,000 (Federal) + \$320,000 (Other) = \$1,600,000 (Total)				
MTP Action:	Add new project				
TIP Action:	Add new project				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	NEW	State ID:	5-8102.3
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	I-65 St. Catherine St On-Ramp	Funding Source:	Bridge Investment Program (BIP)	Open to Public Date:	2026
Total Estimated Project Cost:	\$1,540,000		Total Cost Programmed in TIP to date:	\$1,540,000	
Description:	Extend I-65 northbound on-ramp from St Catherine Street to have longer acceleration/merge area. BMP 134.7 to EMP 134.9				
Justification:	To improve safety				
FY 23-26 TIP Funding:	FY 2024 Design phase with BIP funds: \$112,000 (Federal) + \$28,000 (Other) = \$140,000 (Total) FY 2024 Construction phase with BIP funds: \$1,120,000 (Federal) + \$280,000 (Other) = \$1,400,000 (Total)				

MTP Action:	None				
TIP Action:	Add to TIP				
Exempt/Non Exempt:	Non-exempt		Model Impact:	No impact to model	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	446	State ID:	5-80204.00
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	KY 1931	Funding Source:	State Construction Funds (SPP)	Open to Public Date:	2029
Total Estimated Project Cost:	\$29,712,000		Total Cost Programmed in TIP to date:	\$29,712,000	
Description:	Improve safety and reduce congestion on KY 1931 (Manslick Road) from KY 1931 (St. Andrews Church Road) to I-264 (Henry Watterson Expressway). Project will evaluate 3-lane widening and consider accommodations for bicyclists and pedestrians. CHAF IP20080221.				
Justification:	<p>The purpose of the proposed KY 1931 project is to improve safety and local traffic operations along this route between Dixie Highway and I-264. Other project goals include accommodating bicyclists and pedestrians, improving emergency response time, minimizing impacts to the environment, and ensuring any improvement can handle traffic from other planned improvements. The need is expressed through above average crash rates, substandard geometric features, and congested traffic operations. Existing traffic volumes range from 11,100 to 18,200 vehicles per day, with the heavier volumes in the middle section between Palatka Road and Hazelwood Avenue. Existing volume-to-capacity ranges from 0.60 to 0.96, largely controlled by signalized intersections. Three intersections (Blanton Lane, Palatka Road, and Hazelwood Avenue) operate at an unacceptable LOS (E or F) during the AM or PM peak hour. The segment of the corridor between Arnoldtown Road and Blanton Lane has the highest crash frequencies; in four years, 65 total reported crashes occurred. This equates to a Critical Rate Factor of 1.92, indicating crashes are happening more often than can be attributed to random occurrence. The entire corridor south of Hazelwood Avenue exhibit CRFs over 1.00. A review of existing plans and where necessary, field observations, identified a deficient horizontal curve, several deficient vertical curves that limit headlight sight distance, and several sections where the cross-section does not meet current standards.</p>				
FY 23-26 TIP Funding:	<p>FY2024 Design with STPF funds: \$1,246,000 (Federal) + \$311,500 (Other) = \$1,557,500 (Total)</p> <p>FY2025 ROW with SPP funds: \$0 (Federal) + \$6,325,500 (Other) = \$6,325,500 (Total)</p> <p>FY2025 Utilities with SPP funds: \$0 (Federal) + \$11,559,000 (Other) = \$11,559,000 (Total)</p> <p>FY2026 Construction with SPP funds: \$0 (Federal) + \$10,270,000 (Other) = \$10,270,000 (Total)</p>				

MTP Action:	Add new project				
TIP Action:	Add new project				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to the model	
Project Sponsor:	Kentucky Transportation Cabinet (KYTC)	KIPDA ID:	NEW	State ID:	
County:	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	KY 61 Preston St	Funding Source:	Bridge Investment Program (BIP)	Open to Public Date:	2026
Total Estimated Project Cost:	\$42,000		Total Cost Programmed in TIP to date:	\$42,000	
Description:	Re-stripe Preston Street (BMP 10.895 to EMP 10.955) at I-65 northbound on-ramp				
Justification:	To reduce driver confusion by visually defining movements and to improve pedestrian safety				
FY 23-26 TIP Funding:	FY 2024 Design phase with BIP funds: \$9,600 (Federal) + \$2,400 (Other) = \$12,000 (Total) FY 2024 Construction phase with BIP funds: \$24,000(Federal) + \$6,000 (Other) = \$30,000 (Total)				
MTP Action:	Add new project				
TIP Action:	Add new project				
Exempt/Non Exempt:	Exempt		Model Impact:	No impact to model	
Project Sponsor:	Transit Authority of River City (TARC)	KIPDA ID:	NEW	State ID:	
County	Jefferson	Parent ID:	N/A	Group ID:	N/A
Project Name:	FFY 2023 Bus & Bus Facilities Discretionary Award - Electric Buses	Funding Source:	Section 5339	Open to Public Date:	2024
Total Estimated Project Cost:	\$8,746,802		Total Cost Programmed in TIP to date:	\$8,746,802	
Description:	TARC will buy as many as six battery electric buses and add charging infrastructure to replace older diesel vehicles that have exceeded their useful life. The project will fully electrify a corridor that connects multiple minority and low-income neighborhoods with job centers.				
Justification:	The project will reduce hazardous pollutants from diesel emissions, provide modifications to TARC's Union Station Bus depot that will help enable TARC's transition to a zero-emission fleet, and provide needed training and development for TARC's workforce so that it is better able to utilize and maintain a zero-emission fleet.				
FY 23-26 TIP Funding:	FY2023 Transit Capital phase with Section 5339 funds: \$7,411,032 (Federal) + \$1,335,770 (Other) = \$8,746,802 (Total)				

AIR QUALITY CONFORMITY

At this time, the Louisville, KY-IN transportation planning study area consists of Clark and Floyd counties and 0.1 square miles of Harrison County in Indiana, and Bullitt, Jefferson, and Oldham counties and approximately 4 square miles of Shelby County in Kentucky. (However, this description of the planning area is subject to changes due to the results of the 2020 Census, which have been released recently. The effect on the Louisville, KY-IN transportation planning study area has not been determined at this time.) Much of the existing planning area coincides with the local ozone nonattainment area. In the past, a portion of the planning study area also coincided with a local fine particulate matter (PM 2.5) nonattainment area, but that standard was revoked in April, 2015. The Louisville, KY-IN maintenance area for the 1997 8-hour ozone standard consisted of Clark and Floyd counties, IN, and Bullitt, Jefferson, and Oldham counties, KY. It was designated as a basic non-attainment area in June, 2004 and redesignated as an attainment area with a maintenance status in July, 2007. The 1997 8-hour ozone standard was revoked for the local area in April, 2015, and at that time, it was not necessary for the local area to determine conformity. (However, the local area was still eligible to receive Congestion Mitigation/Air Quality funding).

In June 2018, the former Louisville, KY-IN 1997 ozone maintenance area was designated as a marginal nonattainment area for the 2015 8-hour ozone standard. Since that time, the monitoring data has indicated that the design value is sufficiently low that the local area can be redesignated as attainment of the 2015 8-hour ozone standard, and the air quality agencies with responsibility for the local area have undertaken steps to do so. The redesignation State Implementation Plan has been submitted to Regions 4 and 5 of US EPA, and the Motor Vehicle Emission Budgets (MVEBs) have been found adequate by Region 5. They are still under review by Region 4. Meanwhile, in January 2023, the Kentucky portion of the local ozone nonattainment area was “bumped up” to a moderate ozone nonattainment area. Subsequently, EPA has proposed redesignation of the area to attainment based on recent air quality data incorporated into the prior SIP submittal.

KIPDA is amending *Connecting Kentuckiana 2050*, the metropolitan transportation plan (MTP), and the FY 2023 – FY 2026 Transportation Improvement Program (TIP). This conformity analysis will support conformity determinations by the metropolitan planning organization and the U. S. Department of Transportation agencies for both documents. This analysis is intended to support determinations of conformity under the 2015 8-hour ozone standards.

CONFORMITY UNDER THE 2015 8-HOUR OZONE STANDARD

When an area such as the Louisville area becomes nonattainment, the area must undertake a process known as conformity. This process provides a linkage between transportation planning and air quality planning. One of the key activities of conformity is to quantify the level of emissions of the air pollutant(s) and/or precursor(s) for certain analysis years and compare those levels to the motor vehicle emission budgets (MVEBs)—if they exist. The MVEBs limit the amount of a pollutant or precursor that can be emitted. If MVEBs do not exist, the area must rely on interim tests, such as comparing the emissions to the level of emissions in a baseyear, to determine conformity. The baseyear would be set by US EPA when the standard is promulgated.

When the local area was designated as nonattainment of the 2015 8-hour ozone standard, the air quality agencies with responsibility for the local area were charged with the additional responsibility to develop a set of actions that could be taken to reduce pollutant/precursor emissions. These actions were to be included in air quality plans known as State Implementation Plans (SIPs). Since the Louisville nonattainment area is a bi-state area, these sets of actions to reduce precursor emissions were to be incorporated into both the Indiana and Kentucky SIPs. It was during this process that MVEBs were established. Subsequent to the local area being designated as a nonattainment area but before the SIPs were completed, the data from the air quality monitors in the area indicated that the 2015 8-hour ozone standard had been met. With this data in hand, the air quality agencies were each able to submit a SIP known as a redesignation request. The establishment of the MVEBs was one of the components of the redesignation request. Since the SIPs were redesignation requests for ozone, the MVEBs were established for the precursors of ozone -- volatile organic compounds and oxides of Nitrogen.

CONSULTATION FOR *CONNECTING KENTUCKIANA 2050*

The first step in determining conformity of *Connecting Kentuckiana 2050* was to consult with the interagency consultation (IAC) group concerning matters not explicitly determined by the conformity rule. Conformity under the 2015 8-hour ozone standard has been previously determined. Therefore, many of the issues normally arising in conformity had undergone consultation previously when the local area was a nonattainment or maintenance area under the 1997 8-hour ozone standard or during the previous conformity process for *Connecting Kentuckiana 2050*.

Consultation for this amendment occurred during a video conference on September 15, 2023. A total of 17 participants, representing six federal, state, regional, and

local agencies participated in the IAC Conference Call. The following items were reviewed and discussed.

- (a) important dates in the schedule for the amendment;
 - August 24 -- Project applications due from sponsors
 - September 1 -- Project review by KIPDA staff completed
 - September 15 -- IAC consultation video conference
 - September 26 -- Public Involvement begins for Amendment 4 begins, (ends on October 10)
 - October 11 -- Action by the Transportation Technical Coordinating Committee
 - October 12 -- Public comments sent to Transportation Policy Committee
 - October 26 -- Action by the Transportation Policy Committee

- (b) a draft list of projects—sent to the IAC with consultation notice;

Project Discussion:

KIPDA staff offered an overview of the updates to the 4 non-exempt projects and the 12 exempt projects included in Amendment 4. Some recent alterations to the proposed project changes were clarified. EPA staff requested clarification regarding the proposed changes for Hubbards Lane (KIPDA ID 384), South Hubbards Lane (KIPDA ID 3024), & North Hubbards Lane projects (NEW KIPDA ID TBD). KIPDA staff and KYTC staff explained why KIPDA ID 384 has been re-established as a parent project with two associated child projects. He also explained the need for the description changes to KIPDA ID 3125.

KIPDA staff detailed the other exempt project changes that will not have an effect on the model. KYTC staff noted that one of the project names had a typo and should be updated to “I-65 on and off ramps on Arthur Street”.

KIPDA ID 446 was discussed in detail. The project is a non-exempt project and was modeled with the development of the latest Metropolitan Transportation Plan (MTP). It was in the previous MTP and TIP and is in the newly adopted MTP. It was omitted from the new TIP (adopted concurrently with the MTP) in error, and the funding for this project now needs to be included in the TIP. KIPDA staff reminded the IAC that KIPDA maintains the TIP as a subset of the MTP. Therefore, because the project was modeled in the development of the MTP, adding that the TIP funding update will not have an effect on the travel model. Since the Open to Public year is 2029, the project was modeled in the 2030 and later scenarios when it was incorporated into the MTP. These clarifications were made in response to inquiries made by EPA staff.

(c) Air Quality Conformity Tests, Analysis Years, and Budgets

KIPDA staff stated that the same analysis years and budgets used in the past would be used for this analysis. In response to an inquiry from EPA staff, KIPDA staff explained that conformity this time will not be relying on a previous analysis. KIPDA staff also provided an update on new regional analysis factors and processes including improvements to I-65. LMAPCD staff stated that preliminary data of the data shows a reduction in NOx emissions, which was likely due to MOVES model changes accounting for an increase in electric vehicle use.

Addendum: The following information was discussed during this meeting, but not explicitly displayed during the meeting:

2015 8-hour Ozone Standard	
Analysis Year	Conformity Test(s)
2023	Less than the 2019 SIP Base Year Emissions
2025	Less than the 2019 SIP Base Year Emissions
2030	Less than the 2019 SIP Base Year Emissions
2035	Budget test using the 2035 MVEBs for the 2015 8-hour standard
2040	Budget test using the 2035 MVEBs for the 2015 8-hour standard
2050	Budget test using the 2035 MVEBs for the 2015 8-hour standard

Pollutants/Precursors of concern and related budgets

SIP base year (2019 Base Year) emissions

- i. VOCs: 13.65 tons/day or 12,383 kg/day
- ii. NOx: 33.03 tons/day or 29,964 kg/day

SIP regional budget (2035 MVEB) emissions

- iii. VOCs: 5.51 tons/day or 4,999 kg/day
- iv. NOx: 17.18 tons/day or 15,585 kg/day

Horizon year of *Connecting Kentuckiana 2050* Metropolitan Transportation Plan — 2050

(d) Upcoming Air Quality Considerations

- i. Promulgation of new NAAQS for Particulate Matter
- ii. Release of MOVES4 (and transition from MOVES3)
- iii. Development and Promulgation of new NAAQS for Ozone

- (e) Upcoming Air Quality Event
State-wide IAC call on October 12, 2023, at 2:00pm ET
scheduled by Nick Vail.

Other Issue affecting the amendment

- (1) a listing of any transportation control measures (TCMs) in SIPs, if applicable—there are none.

ESTABLISHED PRACTICE

In addition to the issues discussed during consultation, there were several issues which were not explicitly discussed or received little discussion during the video conference consultation, but which had impacts on the analysis. Many of these issues had been discussed during previous consultations. These issues were handled in a manner consistent with the previous established practice. The more prominent issues are discussed below.

Relationship of MTP and TIP for Conformity Purposes

The Transportation Improvement Program (TIP) is maintained as a subset of the Metropolitan Transportation Plan (MTP). Therefore, the conformity determination for the MTP will serve as the conformity determination for the TIP. This issue was mentioned during the video conference, but it was not discussed in detail.

Conclusion: The IAC members are informed of this from time to time in order to clarify the conformity determination for the MTP also serves as the conformity determination for the TIP.

Vehicle Registration (Fleet Mix) Data

At various times in the past, new vehicle registration data has been provided for use in developing pollutant emissions. This vehicle registration data has been reviewed and accepted by the IAC. The data being used for the Indiana counties has been updated to 2017, and the data being used for the Kentucky counties is for 2018. These data represent the most recent information available for this issue.

Conclusion: Based on a consensus of the IAC members, vehicle registration data for 2017 for the Indiana counties and for 2018 for the Kentucky counties is now being used in developing emission estimates.



Area Agency on Aging and Independent Living
Area Development District
Metropolitan Planning Organization



**Connecting Kentuckiana 2050 Metropolitan Transportation Plan- Amendment 4
FY 2023-2026 Transportation Improvement Program- Amendment 4
Interagency Consultation Group Conference Call Meeting Minutes
September 15, 2023
10:00 AM EDT**

Participants:

EPA – Dianna Myers, Anthony Maietta, Weston Freund, & Simone Jarvis
FHWA – Erica Tait
KYTC – Tom Hall & Isidro Delgado Herrera
LMAPCD – Craig Butler
KYDAQ- Lauren Hedge, Anna Bowman
KIPDA – Andy Rush, Randy Simon, Jeremeih Shaw, Chris Nicolas, Brady Hill, Spencer Williams, & Kyle Thorne

Welcome/Roll Call:

A total of 17 participants, representing six local, state, regional, and federal agencies participated in the IAC Conference Call for Amendment 4 of KIPDA's *Connecting Kentuckiana 2050* Metropolitan Transportation Plan (MTP) and the *FY 2023-2026 Transportation Improvement Program* (TIP). The meeting began shortly after 10:00 AM EDT on September 15, 2023. Mr. Andy Rush and Ms. Chris Nicolas conducted roll call and introduced KIPDA staff in attendance.

Project Discussion:

KIPDA staff offered an overview of the updates to the 4 non-exempt projects and the 12 exempt projects included in Amendment 4 and clarified some recent alterations to the proposed project changes. Ms. Myers asked for clarification regarding the proposed changes for Hubbards Lane (KIPDA ID 384), South Hubbards Lane (KIPDA ID 3024), & North Hubbards Lane projects (NEW KIPDA ID TBD). KIPDA staff and Mr. Hall explained why KIPDA ID 384 has been re-established as a parent project with two associated child projects. Mr. Hall explained the need for the description changes to KIPDA ID 3125. KIPDA staff detailed the other exempt project

11520 Commonwealth Drive
Louisville, KY 40299
www.kipda.org

Phone: 502.266.6084
Fax: 502.266.5047
TDD: 800.648.6056





Area Agency on Aging and Independent Living
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changes that will not have an effect on the model. Mr. Delgado notes that one of the project names had a typo and should be updated to “I-65 on and off ramps on Arthur Street”.

KIPDA ID 446 was discussed in detail. The project is a non-exempt project and was modelled with the development of the latest MTP. It was in the previous MTP and TIP and is in the newly adopted MTP. It was omitted from the new TIP in error (adopted concurrently with the MTP) and the TIP funding needs to be included. Mr. Simon brings up the point that the TIP is a subset of the MTP and therefore because the project was modelled in the development of the MTP, adding that the TIP funding update will not have an effect on the model. Since OTP is 2029, the project will be modelled in the 2030 and later scenarios —these clarifications provided for Ms. Myers by KIPDA staff.

Mr. Rush states that the same analysis years (2023, 2025, 2030, 2035, 2040, and 2050) and budgets (the ozone precursors NO_x (oxides of nitrogen) and VOCs (volatile organic compounds)) that were used in the past would be used for this analysis—the last time for 2023.

In response to EPA staff, KIPDA staff clarify that they will not be relying on a previous analysis. Mr. Rush and Mr. Simon provide an update on new regional analysis factors and processes including improvements to I-65. Mr. Butler states that preliminary data shows a reduction in NO_x emissions—likely due to model changes accounting for an increase in electric vehicle use.

Mr. Rush and Mr. Simon again explain that KIPDA ID 446 will be added to the TIP and will officially receive TIP funding. The amendment change is a funding update.

Schedule Discussion:

KIPDA staff discussed key dates (shown below) of the anticipated schedule for the amendment:

Key Dates for the schedule for Amendment 4

Project applications due from sponsors	August 24, 2023
KIPDA Staff Reviews projects	September 1, 2023
Air Quality Conformity Activities	September 5, 2023- September 22, 2023
Interagency Consultation Group (IAC) Coordination	September 15, 2023
Public Comment Period	September 26, 2023- October 10, 2023



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Transportation Technical Coordinating Committee Recommendation	October 11, 2023
Comments sent to the Transportation Policy Committee (TPC)	October 12, 2023
TPC Action	October 26, 2023

Other Discussion:

Mr. Rush reminds the group of a state-wide IAC call on October 12, 2023, at 2:00pm ET scheduled by Nick Vail.

Ms. Myers shares updates related to transitioning from the MOVES 3 model to the MOVES 4 model. The grace period for using the MOVES 3 model ends September 12, 2025. Ms. Hedge confirms that they are making significant progress on their SIPs in progress. Ms. Myers shares that the EPA has decided to perform a full review of their ozone map. EPA plans to review PM2.5 standards to be announced hopefully by the end of the year.

The meeting adjourned around 10:40am.

Addendum: Information related to Analysis Years and AQ Conformity Tests for Amendment 4

The following information was discussed during this meeting, but not explicitly displayed during the meeting:

(1) Analysis Years and AQ Conformity Tests – see table below

2015 8-hour Ozone Standard	
Analysis Year	Conformity Test(s)
2023	Less than the 2019 SIP Base Year Emissions
2025	Less than the 2019 SIP Base Year Emissions
2030	Less than the 2019 SIP Base Year Emissions
2035	Budget test using the 2035 MVEBs for the 2015 8-hour standard
2040	Budget test using the 2035 MVEBs for the 2015 8-hour standard



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2050	Budget test using the 2035 MVEBs for the 2015 8-hour standard
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(2) Pollutants/Precursors of concern and related budgets

SIP base year (2019) emissions

- i. VOCs: 13.65 tons/day or 12,383 kg/day
- ii. NOx: 33.03 tons/day or 29,964 kg/day

SIP regional budget (2035) emissions

- iii. VOCs: 5.51 tons/day or 4,999 kg/day
- iv. NOx: 17.18 tons/day or 15,585 kg/day

CONFORMITY OF *CONNECTING KENTUCKIANA 2050*

The MTP, *Connecting Kentuckiana 2050*, was examined to determine if it met the requirements of the conformity rule under the 2015 8-hour ozone standards. In general, the process leading to a conformity determination has two major components:

- (1) a regional emissions (air quality) analysis to determine that air pollutant emissions do not exceed the budgets set in the SIPs, if applicable, or the emission levels for a given base year; and
- (2) a monitoring of the progress in implementation of the Transportation Control Measures (TCMs) contained in the SIPs.

In the past, consultation with the state and local air quality agencies and EPA had determined that there are no approved TCMs in the SIPs of Indiana and Kentucky. Therefore, it is possible to show conformity of *Connecting Kentuckiana 2050* simply by determining that the air pollutant emissions do not exceed the budgets in the SIPs or the base year emissions.

ANALYSIS PROCESS

The process of calculating the regional emissions for *Connecting Kentuckiana 2050* involved three main procedures. The first procedure was a review of the projects to determine which projects needed to be included in the regional emissions analysis. The second procedure was to perform the calculations necessary to quantify certain measures of travel behavior. The third procedure was to calculate the pollutant / precursor emissions. These activities are discussed below in greater detail.

Project Review

The first procedure was to review the projects to determine which projects were exempt or non-exempt and which projects were “regionally significant.” The combination of these two considerations was the basis for determining which projects were recommended for inclusion in the regional emissions analysis. During Amendment 4 of the MTP, *Connecting Kentuckiana 2050*, a group of projects had been proposed for the amendment of the plan. These projects were reviewed by KIPDA staff, who prepared a list of the projects with information about the projects and a staff recommendation concerning the project’s status relative to its being included in the regional emissions analysis. There is usually a straightforward explanation for why projects are included in or excluded from the analysis and why they are analyzed as they are. Most of the projects which were excluded were exempt projects as defined in the Code of Federal Regulations in 40 CFR 93.126 and 40 CFR 93.127.

During consultation, this list was reviewed and accepted by the IAC as described under the section entitled “CONSULTATION FOR *CONNECTING KENTUCKIANA 2050*.” (Please see above.) The projects in *Connecting Kentuckiana 2050* were analyzed as indicated on the list provided to IAC.

In the past, there were several projects which could not be analyzed using the travel model but were not explicitly exempt. Most of these projects had been evaluated using spreadsheet methods using emission factors (rates). Since the MOVES emissions model was being used in the inventory mode, emission factors were not available for this analysis. However, experience had shown that the emission impacts for these projects were always small and positive (i.e., emission reducing). Therefore, it is reasonable to predict that the emission impacts of these projects—if they could be quantified—would decrease the emissions shown in the tables at the end of this document.

In the past, there was one particular project affecting Bullitt County that could not be included in the travel model but had the potential to increase emissions. Therefore, a special effort had previously been made to include its impacts in the analysis of travel behavior impacts and, consequently, in the regional emissions analysis. This project was the relocated (southern) section of US 31E. This project, which had been discussed during consultation in the past, involved the relocation of a small (approximately 0.2 mile) section of US 31E from Nelson County (outside of the nonattainment area) to Bullitt County (inside the ozone nonattainment area) during the reconstruction of that road. Estimates of the VMT for this project had been developed using a spreadsheet approach. The VMT estimates were calculated (off-model) as the product of the estimated traffic volumes for each of the analysis years and the length of the relocated section in Bullitt County and had been added to the other Bullitt County VMT estimates of the same functional class. This effort was no longer necessary for Amendment 4. Additional roadway sections including the relocated section of US 31E have recently been added to the travel model. Therefore, the estimated VMT for that section is now calculated (along with the VMT from other projects) in the post-processing process of the travel model data and added to the Bullitt County VMT resulting from that process.

Calculation of Travel-Related Information

The analysis of the travel behavior impacts for the nonattainment area primarily involved using the KIPDA travel demand forecasting model to determine measures of travel such as vehicle-miles-traveled (VMT) and speed. The method for determining these measures was to input the appropriate roadway and transit information into the model and to run the model using the appropriate socioeconomic information for a given analysis year. This analysis is explained below in further detail in the sections

concerning the KIPDA travel demand forecasting model and adjustment factors for travel model output.

KIPDA Travel Demand Forecasting Model

The KIPDA travel demand forecasting model is a mathematical model which relates travel to the transportation system and basic socioeconomic information. The domain of the model is a study area which includes the Louisville (KY-IN) Metropolitan Planning Area. The Louisville (KY-IN) Metropolitan Planning Area presently consists of Clark and Floyd counties, and 0.1 square miles in Harrison County in Indiana, and Bullitt, Jefferson, and Oldham counties and approximately 4 square miles in Shelby County in Kentucky. This area is divided into 984 smaller units called traffic analysis zones.

As previously mentioned, the KIPDA regional travel demand forecasting model was updated and calibrated in 2022. This update established 2019 as the new base year for the model. The model update utilized the information incorporated into the travel model during previous updates. In addition, a significant amount of data from Streetlight Data, Inc. was incorporated into the updated model, particularly for trips which crossed the external boundary of the model. During the update, the model parameters were adjusted such that the model output matched—within reason—two main calibration criteria based on measured data. These criteria were: (1) the total daily VMT for all highway facilities except local roads for the region; and (2) highway traffic volumes crossing the Ohio River screenline. The result of the update was a travel model which generally replicated travel in the Louisville area for 2019. The updated travel model was used in the regional emissions analysis.

The KIPDA travel demand forecasting model uses the standard four steps of modeling: trip generation, trip distribution, mode choice, and trip assignment. In addition, it considers travel by vehicles entering, leaving, and crossing the study area. These types of trips are known as external-internal, internal-external, and external-external, respectively. The internal ends of these trips are determined by the methods described below for internal-internal travel. The external ends are determined from the volume of traffic crossing the study area boundary at any of the 46 external stations.

Trip generation is the process of determining the number of unlinked trip ends--called productions and attractions--and their spatial distribution based on socioeconomic variables such as households and employment. The trip rates used to define these relationships were derived from the travel data collection efforts described above. This information was supplemented by use of the *National Cooperative Highway Research Program Report #365* and the Institute of Transportation Engineers' *Trip Generation Report*. The KIPDA travel demand model uses three internal-internal trip purposes. Internal-internal trips are those which have both ends inside the modeling

domain. The three purposes are home-based work, home-based other, and non-home-based. The set of trip rates is one of the calibration parameters of the model.

Trip distribution is the process of linking the trip ends thereby creating trips which traverse the area. The KIPDA travel model uses a gravity model to link all trips except the external-external ones. The gravity model is based on the principle that productions are linked to attractions as a direct function of the number of attractions of a zone and as an inverse function of the travel time between zones. This inverse function of travel time is used to generate parameters called friction factors which, in turn, direct the gravity model. In addition, information from a study which investigated the behavior of travelers crossing the Ohio River and traffic count information from years near 2019 were utilized to develop additional parameters called K-factors. The K-factors are used by the model to ensure that it is predicting the correct volume of traffic crossing the Ohio River. Friction factors and K-factors are two of the calibration parameters of the model.

Mode choice is the process used to separate the trips which use transit from those which use automobiles. It is also used to separate the auto drive-alone trips from auto shared-ride trips. In some previous KIPDA travel demand models, mode choice was based primarily on information provided by the *TARC Travel Forecasting Study* from some time ago. In that model, the user's benefit or utility was calculated for each mode based on zonal socioeconomic characteristics and the cost and time of the trip using the various modes. A nested logit model was used to determine the probability of the trip being made by each of the modes. This probability was then multiplied by the number of trips between zones to determine the number of trips by each mode.

As previously stated, the conformity analysis for *Connecting Kentuckiana 2050* utilizes transit information from previous travel demand models. The results of the 2004 TARC on-board survey had been used to factor the data in the previous transit files. This was deemed acceptable for several reasons. The primary reason was that the transit network envisioned by *Connecting Kentuckiana 2050* is essentially the same as the existing one. In addition, the number of total trips from the two models was similar. Therefore, the use of the factored transit trip information from previous travel models did not significantly change the proportion of trips allocated to transit. Finally, the proportion of trips utilizing transit is less than 2% of the total trips. So small differences in the number of transit trips should provide a negligible effect on overall travel.

Trip assignment is the process used to determine which links of the network a given trip will use. There are several assignment schemes which may be used. Two of the more common schemes are All-or-Nothing (AON)--in which all trips between two zones follow the shortest time path--and Stochastic--in which trips between two zones may be assigned to several paths based on their relative impedances or travel times.

It is not uncommon for travel models to use several assignment schemes in sequence to converge to a better assignment. A sequence commonly used involves using several AONs with the traffic volumes reported at the end of each scheme being a weighted average of the volumes from the most recent scheme and the volumes from the previous schemes. A capacity restraint provision is used to adjust travel times between assignment schemes. This sequence is called an equilibrium assignment. The KIPDA travel model uses an equilibrium assignment which converges when the change in system-wide travel time over successive iterations is estimated to be within 0.0001 or less.

Tolls are being used as a means of providing for a portion of the cost of the Louisville Southern Indiana Ohio River Bridges project. To reflect the effect of the tolls in the KIPDA travel model, time penalties have been used in the model on the bridges where tolls are being collected. As mentioned above, the toll structure was recently changed. To reflect this in the travel model update, the time penalties used in the KIPDA travel model were likewise changed to reflect the effect of the new toll structure. The time penalties also reflect some travel effects which could not otherwise be quantified.

The output from the KIPDA travel model is in the form of a series of links with each link having certain associated data such as number of lanes, capacity, facility type, area type, functional class, and volume. This data allows for the calculation of other link information such as vehicle-miles-traveled (VMT). The VMT can be calculated as the product of the volume of traffic using a link times the distance (length) of the link.

Adjustment Factors for Travel Model Output

The VMT and speeds from the travel demand model were adjusted before being used in the calculation of regional emissions. The purpose of these adjustments was to reconcile the model output with travel estimates from other sources, such as the Highway Performance Monitoring System (HPMS) estimates of VMT. To perform this adjustment, factors were developed for the baseyear of the model using HPMS or other estimates and applied to model output for other years.

The development of the VMT adjustment factors involved comparing the VMT outputs of the travel demand model to the HPMS VMT estimates for 2019. Factors were developed to adjust the model output to account for variation between the model and HPMS within each of the counties. To do this, the VMT from the 2019 model run was tabulated by county and functional classification. The VMT estimates derived from the model were then compared to the HPMS VMT estimates for 2019 to develop adjustment factors to be applied to the model output for subsequent years. The 8-hour ozone analysis is based on a level of traffic and the accompanying emissions expected on a typical summer weekday. For that analysis, the adjustment factors were increased by 2.9% to reflect the higher volume of traffic that can be

expected on a typical summer weekday relative to the annual average daily traffic. The adjustment factors for VMT were developed on a functional classification basis for each county.

The development of the speed adjustment factors involved a similar process. The outputs of the travel demand model were compared to estimates of speed based on the equations of the Highway Economic Reporting System (HERS).

In general, the HERS equations were used to estimate speeds for five functional classifications of urban roadways and for five functional classifications of rural roadways. The speeds from these roadway sections were used to determine the average speed for each of five rural and urban functional classes. The speeds used in the travel model were also averaged for each of the five rural and urban functional classes for which HERS estimates had been developed. The speed adjustment factor for each of these functional classes was calculated as the ratio of the average speed using the HERS equations to the average speed using the travel model data. In some cases, the adjustment factors for some functional classes for some counties had to be based on the combined effects of the functional classes due to the sparseness of data for one or more of the functional classes.

The procedures described above produced speed adjustment factors for all functional classes except rural and urban local roads and ramps. (Ramps are not officially a separate functional class, but the speed behavior of traffic on ramps is not expected to be like that of any other functional class. Therefore, the ramps were treated as a separate "functional class".) There was not sufficient data to estimate speeds for the roadways of these classes. For rural and urban local roads and ramps, the speeds in the travel model were used without adjustment (i.e., the speed adjustment factor for rural and urban local roads and for ramps = 1).

Calculation of Pollutant/Precursor Emissions

The calculation of the pollutant/precursor emissions for the nonattainment area involved using the adjusted output data from the KIPDA travel demand forecasting model as input to the MOVES model. KIPDA staff provided adjusted travel model output data to the staff of the Louisville Metro Air Pollution Control District (LMAPCD) in the form of vehicle-miles-traveled (VMT) in three formats: (1) VMT by speed bin by MOBILE 6 facility type (road type) for each county, (2) VMT fractions by speed bin by county by MOBILE 6 facility type (road type) for each county, and (3) VMT and average speed by functional class for each county. LMAPCD staff utilized this data along with other necessary inputs to run the MOVES model and develop emission estimates for volatile organic compounds (VOCs) and oxides of Nitrogen (NOx). They then provided these estimates to KIPDA staff. This analysis is explained below in further detail in the section below.

MOVES Emissions Model

As previously mentioned, the Louisville region is a nonattainment/maintenance area for the pollutant ozone and must therefore control the precursors of ozone, VOCs and NOx. The emission estimates for VOCs and NOx were determined using the MOVES 3.1 emissions model. The staff of the Louisville Metro Air Pollution Control District (LMAPCD) produced the emissions for all of the counties in the nonattainment/maintenance area. The methodology used in calculating these emission estimates is discussed below.

There are a number of factors affecting the emission estimates developed from the MOVES model. In the past, these factors included the presence of inspection/maintenance (I/M) programs in some of the counties. During that time period, the VMT generated in Clark, Floyd, and Jefferson (KY) counties came from some vehicles subject to an I/M program and from some vehicles not subject to an I/M program. The I/M program in Clark and Floyd counties was discontinued at the end of 2006. The I/M program in Jefferson County (KY) was discontinued in 2003. Therefore, these programs are no longer a factor in estimating emissions.

One of the other factors is the fuel used by the vehicles in the various counties. The fuels which are used in Clark, Floyd, and Jefferson counties include reduced Reid vapor pressure gasoline (RVP) and reformulated gasoline (RFG). While RFG is used in some portions of Bullitt and Oldham counties, unregulated gasoline is used in the other portions of those counties as well as the areas adjacent to the nonattainment area. Vehicles from these other areas can be expected to travel in the Clark, Floyd, and Jefferson (KY) counties also. In the past, the emission factors (from the MOBILE 6 model) for Clark, Floyd, and Jefferson (KY) counties used in the air quality analysis varied by county because they represent a VMT-weighted composite based on an estimate of travel in each county by vehicles from the various portions of the region. For this analysis, the MOVES model was used in what is known as the inventory mode. Using the inventory mode, it is possible to define the fuel characteristics and the presence of an I/M program for each county, but it is not possible to represent the effect of travel in a county by vehicles from other counties. Therefore, the use of composite emission factors was not possible. Other than that, the assumptions used in the analysis were consistent with those of the appropriate air quality agency for each of the counties. For Clark and Floyd counties, the assumptions of the Indiana Department of Environmental Management (IDEM) were used. Some assumptions of LMAPCD were also used for Clark and Floyd counties. For Jefferson County (KY), the assumptions of the LMAPCD were used. These assumptions had been previously reviewed and accepted by the IAC partners.

The assumptions used in developing the emissions for Clark, Floyd, and Jefferson (KY) counties were the same as those used in developing the ozone budgets update (for VOCs and NOx) for the recent redesignation request in 2022. These assumptions

included some changes which were incorporated in recent years prior to 2022. The changes which affected the VOC and NO_x emissions included:

- (1) improved consistency and completeness of gasoline data provided with the new MOVES model,
- (2) the incorporation of newer vehicle registration data (for 2017) for Clark and Floyd counties (provided by INDOT),
- (3) the development and use of newer vehicle registration data (for 2018) for Jefferson County (KY), and
- (4) improvements in internal model calculations to account for emission controls, driving profiles and engine characteristics.

The emissions for Bullitt and Oldham counties were also developed by LMAPCD. As with the other counties, the assumptions for these counties were consistent with those used in the redesignation request developed in 2022. Most of the inputs to the MOVES model were defaults and/or data used that was consistent with previous SIPs or data updated for the redesignation request. As mentioned above, RFG is used in some portions (the “original” portions) of Bullitt and Oldham counties, and unregulated gasoline is used in the other portions (the “new” portions) of those counties as well as the areas adjacent to the nonattainment area. The “original” portions and “new” portions refer to whether a portion of these counties had originally designated as a nonattainment/maintenance status for the 1-hour ozone standard (used in the 1990’s) or had only been designated under the 1997 8-hour ozone standard. Neither portion of either county had an I/M program. So, it was not necessary to have I/M input information for MOVES. However, it was possible that the gasoline formulation in the different portions of these counties could be different.

It was determined—based on data provided by US EPA for the MOVES model—that the gasoline formulation for Bullitt and Oldham counties is essentially the same as that for Jefferson County with respect to the use of RFG. Since the use of the MOVES model in the inventory mode does not allow for the characteristics of different blends of gasoline within the same county, the gasoline formulations of Bullitt and Oldham counties were modeled the same as for Jefferson County.

The assumptions used for Bullitt and Oldham counties were consistent with those for the ozone budgets update for the recent redesignation request in 2022. The changes which affected the VOC and NO_x emissions included:

- (1) improved consistency and completeness of gasoline data provided with the new MOVES model,
- (2) the characterization of gasolines described in the previous paragraph,
- (3) new 2018 vehicle registration data for Bullitt and Oldham counties, and
- (4) improvements in internal model calculations to account for emission controls, driving profiles and engine characteristics.

LMAPCD developed emission estimates of VOCs and NO_x using the MOVES model. To review, the following steps were undertaken.

- (1) LMAPCD staff received (from KIPDA staff) the adjusted travel model output in the forms of VMT and average speed, VMT by speed bin, and VMT fractions by speed bin, all by county and by MOBILE facility type by analysis year.
- (2) LMAPCD reformatted the data from KIPDA to prepare it as input to the MOVES model. Other necessary data was also prepared.
- (3) The MOVES model was run in inventory mode to determine emission estimates of each precursor for each county for each analysis year.
- (4) LMAPCD staff provided the emission estimates to KIPDA staff.

RESULTS OF THE ANALYSIS

The transportation plan, *Connecting Kentuckiana 2050*, has been examined to determine if it is in conformity with the SIPs of Indiana and Kentucky and fulfills the criteria in the federal conformity rule (found in 40 CFR 93). The examination has been based on an air quality analysis to determine that air pollutant emissions of the appropriate areas did not exceed the VOC and NO_x motor vehicle emission budgets.

As previously mentioned, the other criterion for determining conformity would have been the progress in implementation of the Transportation Control Measures (TCMs) contained in the SIPs. However, since previous consultation had determined that there were no approved TCMs, that criterion did not affect the determination of conformity. The results of the regional emissions analyses for ozone precursors are discussed below.

8-hour Ozone Analysis

The eight-hour ozone redesignation SIPs of Indiana and Kentucky contain emission budgets for the precursors of ozone, volatile organic compounds (VOCs) and oxides of Nitrogen (NO_x). The regional emissions analysis was conducted to provide estimates of the levels of emissions of VOCs and NO_x for the various analysis years. These emission levels were then compared to the budgets in the SIPs to determine if the conformity tests were passed.

The results of the regional emissions analysis are summarized in Tables 1 and 2. Table 1 shows the summer weekday vehicle-miles-traveled from the analysis. Table 2 shows that for 2023, 2025, and 2030, the summer weekday VOC and NO_x emission levels for the 2015 8-hour nonattainment area are less than the 2019 base year emissions in the 2015 8-hour ozone redesignation SIP. Table 2 also shows that for 2035, 2040, and 2050, the summer weekday VOC and NO_x emission levels for the 2015 8-hour nonattainment area are less than the motor vehicle emission budgets established in the 2015 8-hour ozone redesignation SIP.

Conclusions – 8-hour Ozone

The regional emissions analysis of *Connecting Kentuckiana 2050* indicates that the Metropolitan Transportation Plan is consistent with the goals and emission budgets established in the State Implementation Plans of Indiana and Kentucky. The cumulative effect of the results shown in Table 2 indicates that *Connecting Kentuckiana 2050* has met the requirements of conformity under the 2015 8-hour ozone standards. In summary, it can be concluded that *Connecting Kentuckiana 2050* conforms to the SIPs and meets the requirements of the federal conformity rule.

TABLE 1

SUMMER WEEKDAY VEHICLE-MILES-TRAVELED (VMT) ESTIMATED FOR THE 8-HOUR OZONE NONATTAINMENT AREA (in 1000's of vmt/day)			
YEAR	INDIANA	KENTUCKY	TOTAL
2023	7865	25974	33829
2025	8076	26507	34583
2030	8484	27938	36422
2035	8908	29258	38166
2040	9347	30466	39813
2050	10219	32844	43063

TABLE 2

SUMMER WEEKDAY EMISSIONS FOR THE 8-HOUR NONATTAINMENT AREA (kg/day)				
EMISSION LEVELS FOR VARIOUS YEARS				
YEAR	Area	VOCs	NOx	PASS
2023	Regional	8071	21233	YES
2025		6994	18824	YES
2030		4933	14512	YES
2035		4320	13403	YES
2040		4154	13387	YES
2050		4154	13902	YES

NOTE: The criteria for conformity are as follows:

2023, 2025, and 2030 Regional emission levels for VOCs must be below the redesignation SIP base year emissions of 13.65 tons/day or 12,383 kg/day.

2023, 2025, and 2030 Regional emission levels for NOx must be below the redesignation SIP base year emissions of 33.03 tons/day or 29,964 kg/day.

2035, 2040, and 2050 Regional emission levels for VOCs must be below the redesignation SIP emission budget of 5.51 tons/day or 4,999 kg/day.

2035, 2040, and 2050 Regional emission levels for NOx must be below the redesignation SIP emission budget of 17.18 tons/day or 15,585 kg/day.