Kentuckiana Regional Planning & Development Agency

2025 Congestion Management Process

Adopted May 2025

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Chapter 1

Introduction to the CMP: Findings & Analysis Report

Congestion management is the application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods where possible and desired. A congestion management process (CMP) is a systematic and regionally accepted approach for identifying and managing congestion to provide accurate, up-to-date information on system performance and to assess alternative strategies for congestion management that meet state and local needs. By leveraging data-driven methodologies, the CMP identifies areas of significant congestion, assesses their underlying causes, and evaluates potential solutions to enhance the efficiency of the transportation network. This process supports regional planning efforts by providing a clearer understanding of traffic patterns, roadway performance, and travel conditions. CMP is an essential tool in promoting a more resilient and responsive transportation system, aligning with broader goals such as safety, system reliability, sustainability, and economic vitality.

A CMP is federally required under 23 CFR 450.322 of the Fixing America's Surface Transportation (FAST) Act in metropolitan areas with a population exceeding 200,000, known as Transportation Management Areas (TMAs). The Louisville/Jefferson County KY-IN Metropolitan Planning Area (MPA) qualifies as a TMA. Federal requirements also state that, in all TMAs, the CMP shall be developed and implemented as an integrated part of the metropolitan transportation planning process. In TMAs designated as ozone or carbon monoxide non-attainment areas, the CMP takes on a greater significance. Federal law prohibits some projects resulting in a significant increase in carrying capacity for single occupant vehicles (SOVs) from being programmed in these areas unless the project is addressed through the region 's CMP.

The CMP is an on-going process, continuously progressing and adjusting over time as goals and objectives change, new congestion issues arise, new information sources become available, and new strategies are identified and evaluated.

The Purpose of the CMP

Efforts to mitigate congestion in urban areas place significant demands on transportation planning and funding availability. A Congestion Management Process (CMP) plays a crucial role in enhancing the regional transportation system by integrating congestion concerns with broader community objectives, such as transit use, livability, and land use planning.

The CMP serves as a centralized planning tool that consolidates congestion data, facilitating the identification of effective congestion management strategies and the evaluation of their impacts. To ensure a comprehensive and efficient approach, congestion management goals should be aligned with other regional planning objectives. Rather than functioning as an independent process, the CMP is designed to be an integral component of the overall transportation planning framework.

The CMP establishes a systematic method for incorporating congestion issues into metropolitan transportation planning. It provides a consistent and coordinated framework for addressing congestion while both informing and drawing insights from other planning processes.

By identifying short-, medium-, and long-term congestion management strategies, the CMP ensures a targeted approach to congestion relief at the system-wide, corridor, and site-specific levels. It helps prioritize solutions that align with community needs and support the broader regional vision.

Federal Requirements

The requirement for a Congestion Management Process (CMP) in Transportation Management Areas (TMAs) (urbanized areas with populations over 200,000) has evolved through key federal transportation laws. The Intermodal Surface Transportation Efficiency Act (ISTEA) (1991) first established CMP requirements, with SAFETEA-LU (2005) strengthening regulations and emphasizing performance-based strategies. The Moving Ahead for Progress in the 21st Century Act (MAP-21) (2012) introduced a broader performance-based planning framework, encouraging systematic data collection and integration of CMP into transportation performance measurement. The Fixing America's Surface Transportation Act (FAST Act) (2015) reinforced multimodal congestion solutions such as transit, biking, and walking. Most recently, the Infrastructure Investment and Jobs Act (IIJA) (2021) continued CMP mandates while significantly expanding federal funding for multimodal and sustainable transportation projects, incorporating priorities such as equity, climate resilience, and emissions reduction.

Metropolitan Planning Organizations, or MPOs, such as the KIPDA MPO, are charged with carrying out a comprehensive, continuing, and cooperative (3-C) process to support the identified needs, vision, and goals for the region. The Metropolitan Transportation Plan (MTP) and the Transportation Improvement Program (TIP) are the primary tools the Transportation Policy Committee uses to implement their adopted vision and goals, and integration of the CMP into these products is key to the comprehensive planning process. Both CMP and MTP are data driven planning efforts that rely on an understanding of existing conditions in order to make forecasts of future conditions. The CMP provides an opportunity to consider detailed data concerning the operation of transportation facilities in the region.

As part of the CMP, congestion management strategies are identified, assessed, programmed, implemented, and evaluated for effectiveness. The process through which this is accomplished consists of the activities listed below. Inherent in this process is the ability to update the CMP in conjunction with other elements of the overall metropolitan transportation planning process.

- Establishing Regional Objectives
- Defining the CMP Network
- Establishing Performance Measures
- Identifying sources and methodology for Data Collection
- Identifying Congestion
- Developing Congestion Mitigation Strategies
- Reviewing Strategy Effectiveness

KIPDA staff selected key spots across the region to study traffic volume trends. These locations were chosen from various counties within the region and include the five Ohio River crossings. The KIPDA MPO region includes five crossings of the Ohio River between Kentucky and Indiana: the I-65 Kennedy-Lincoln Bridge, the I-64 Sherman Minton Bridge, the US 31 Clark Bridge, the KY 841/IN 265 Lewis & Clark Bridge, and the US 421 Milton-Madison Bridge.

Traffic Volume Trend on the Ohio River Crossings

Figure 1-3 below shows the trend of traffic volumes on the Ohio river crossing during the morning, mid-day and evening time of day respectively. From the figures, we see that traffic volumes on the I-65 Kennedy-Lincoln Bridge and I-64 Sherman Minton Bridge declined starting in late 2020. Although traffic on the I-65 Kennedy-Lincoln Bridge has slightly increased in 2024, the trend remains generally lower. The US 31 Clark Bridge and KY 841/IN 265 Lewis & Clark Bridge saw a slight drop in traffic volumes in 2021 but have consistently increased since then. Meanwhile, traffic volumes on the US 421 Milton-Madison Bridge have remained stable. This trend is consistent at different times of the day.

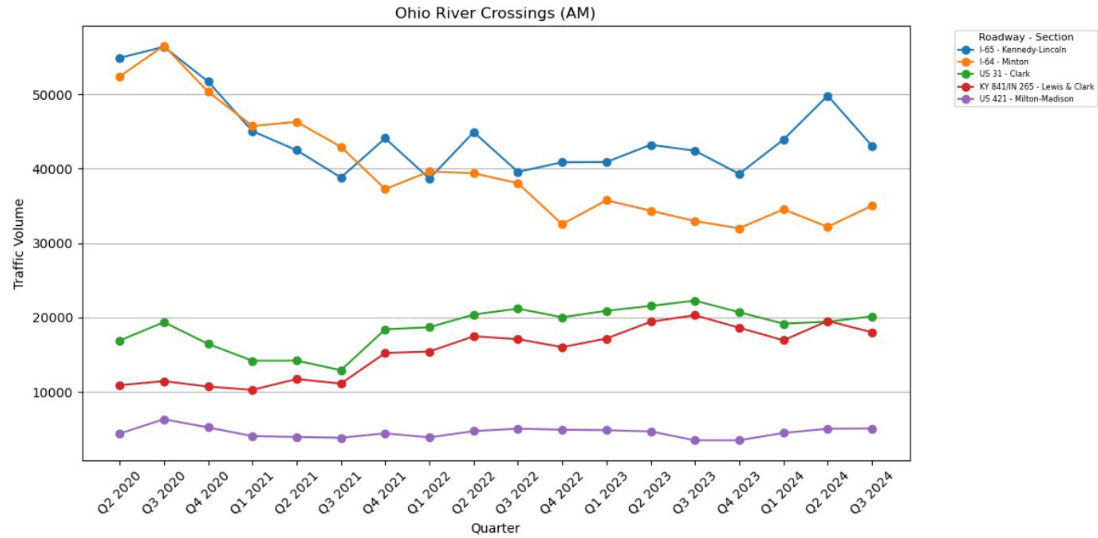


Figure 1: Ohio River Crossing (Morning)

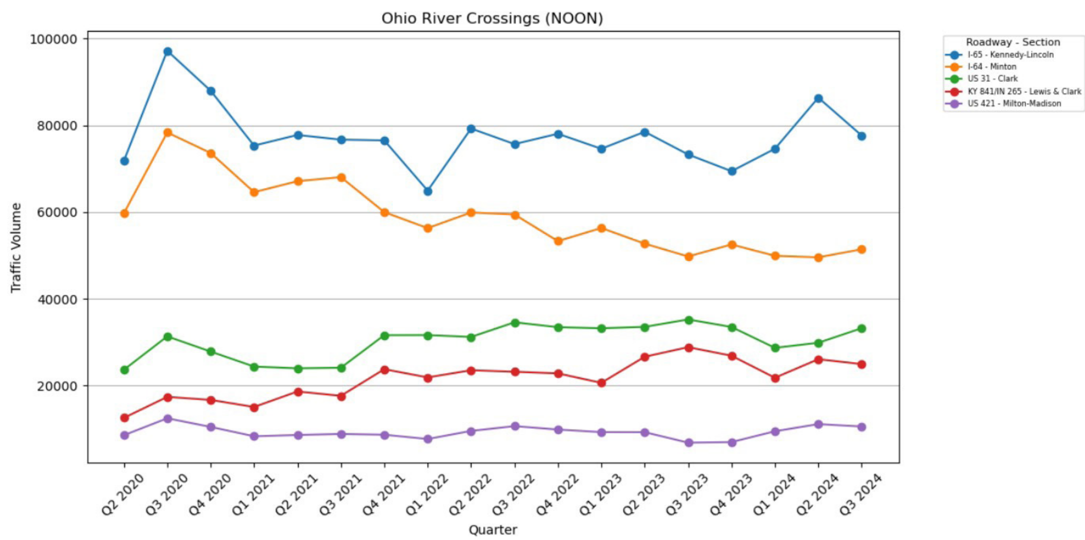


Figure 2: Ohio River Crossing (Midday)

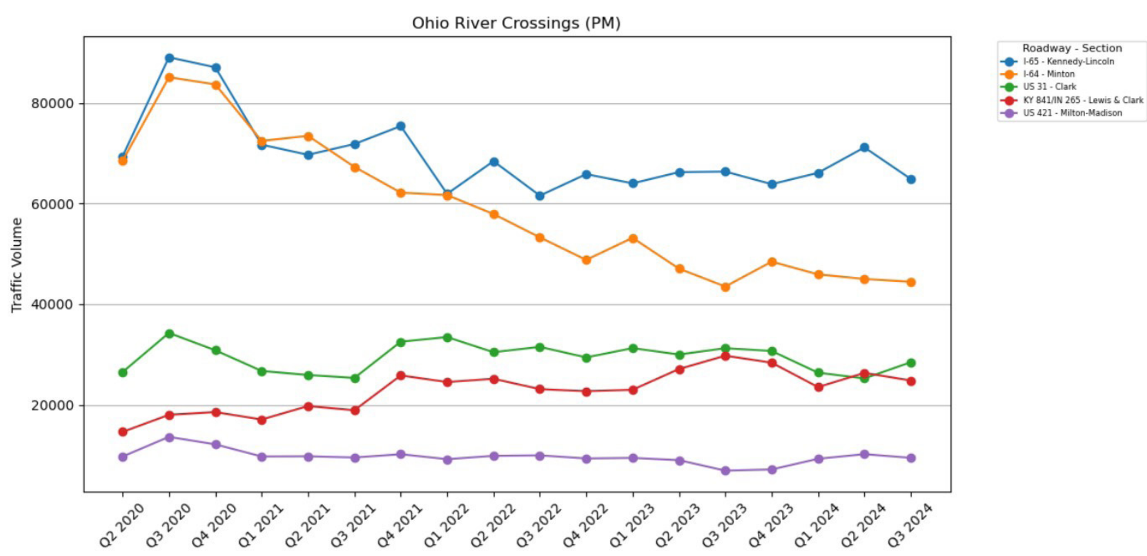


Figure 3: Ohio River Crossing (Late Afternoon/Evening)

Traffic Volume Trend on Selected Location

Traffic volume trends indicate a slight decline in the early months of 2021, followed by a gradual increase in the mornings. During midday hours, traffic has been steadily rising since 2020 at the selected locations. In the evenings, traffic volumes experienced a sharp drop but have been gradually recovering since early 2021.

Bullitt County:

Figure 4 shows the morning traffic trend in selected roadways in Bullitt County, figure 5 shows the midday trend and figure 6 shows the late-afternoon traffic trend.

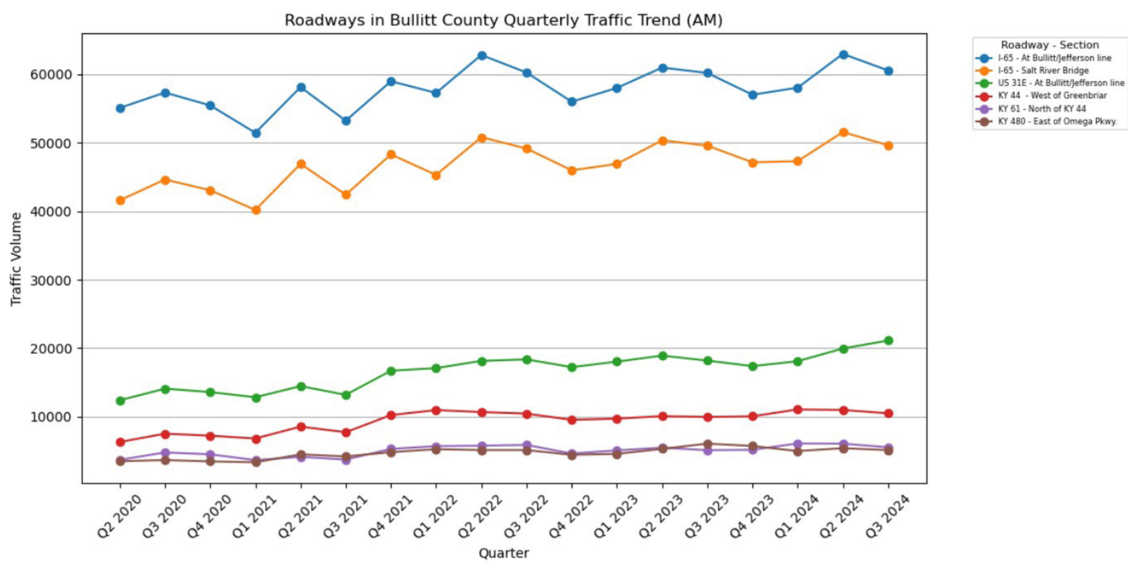


Figure 4: Roadways in Bullitt County (Morning)

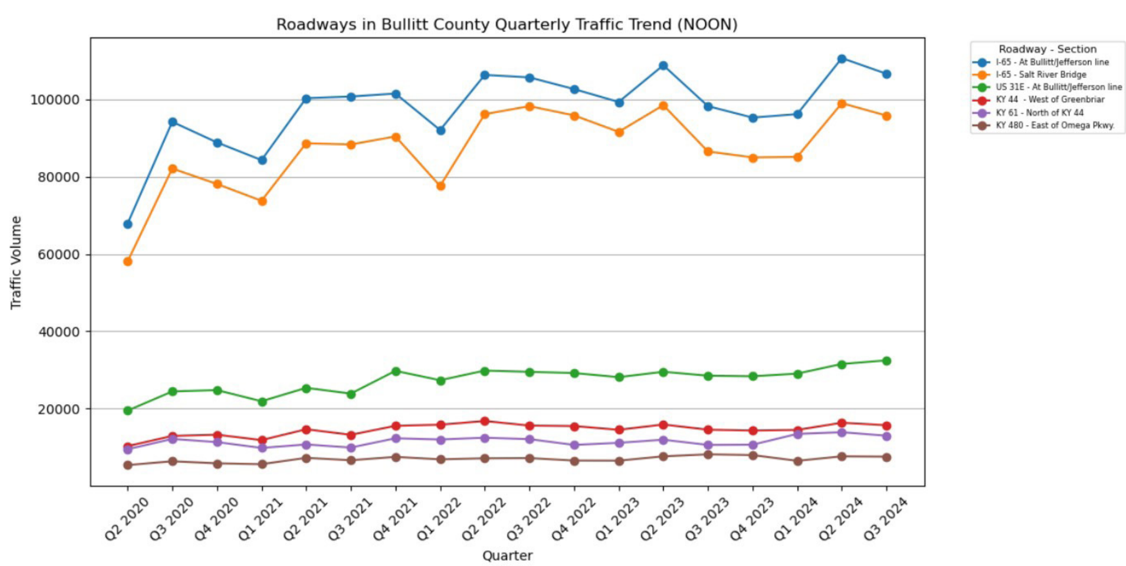


Figure 5: Roadways in Bullitt County (Midday)

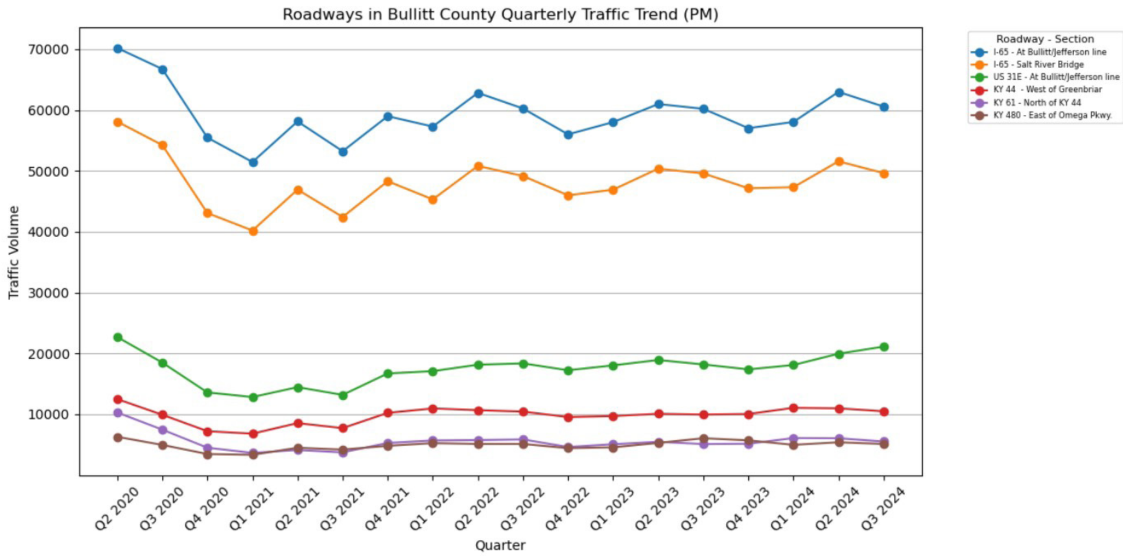


Figure 6:Selected Roadways in Bullitt County (Late Afternoon)

Clark County:

Figure 7 shows the morning traffic trend in selected roadways in Clark County, figure 8 shows the midday trend and figure 9 shows the late-afternoon traffic trend.

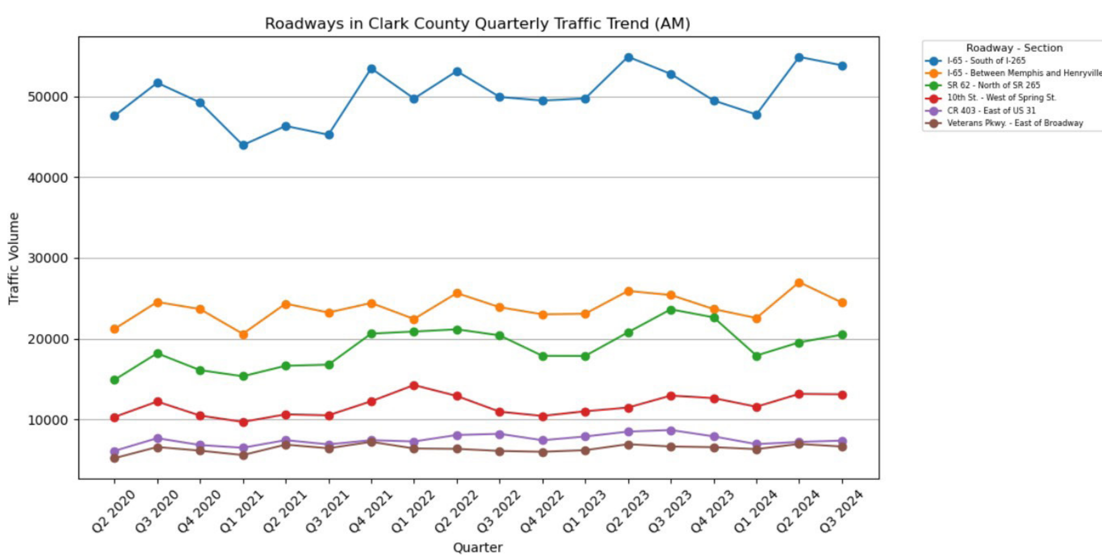


Figure 7: Clark County (Morning)

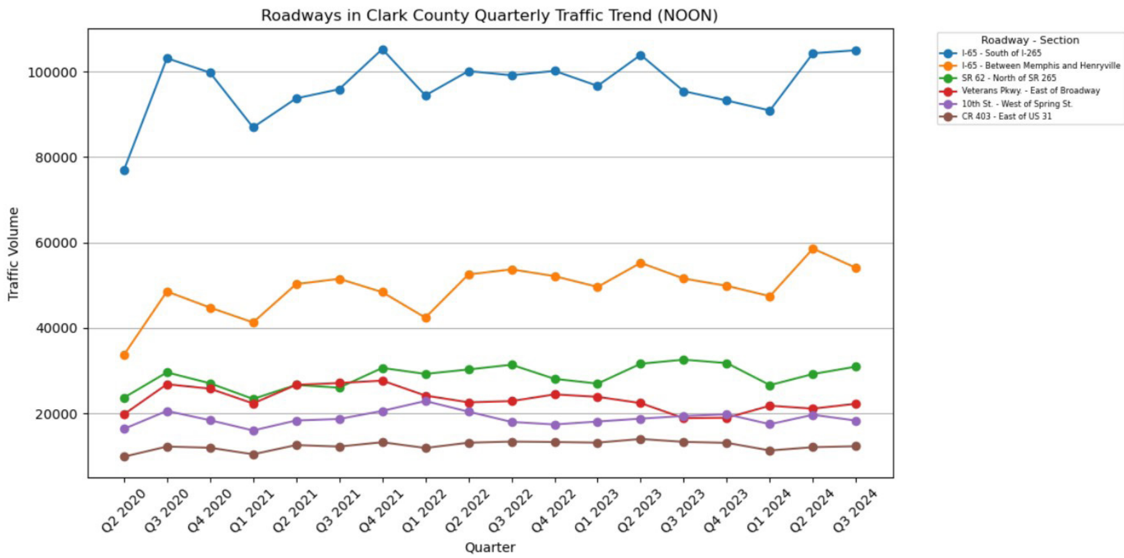


Figure 8: Clark County (Midday)

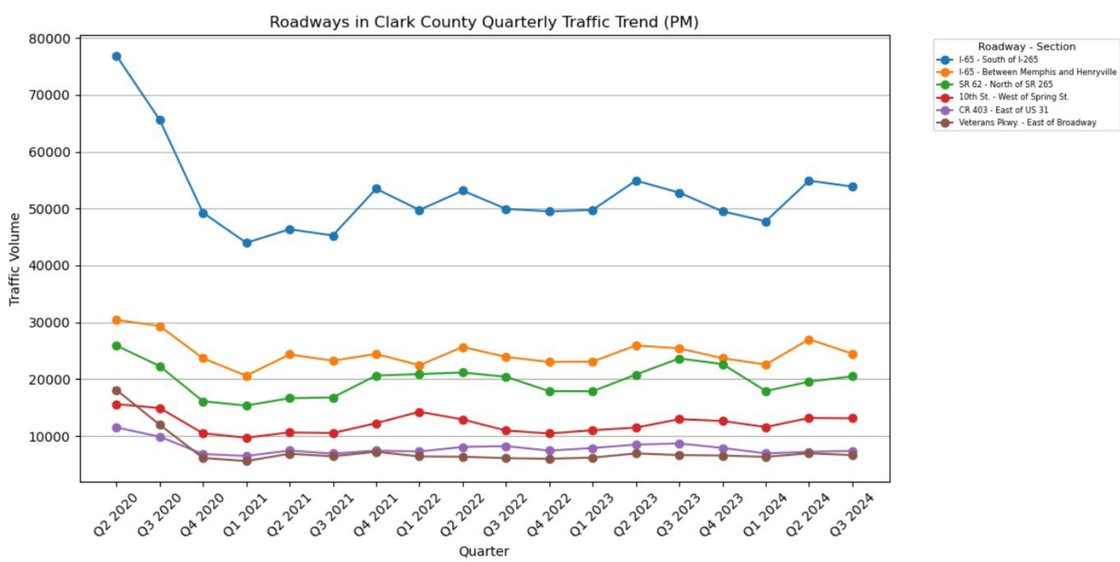


Figure 9: Clark County (Late Afternoon/Evening)

Jefferson County:

Figure 10 shows the morning traffic trend in selected roadways in Jefferson County, figure 11 shows the midday trend and figure 12 shows the late-afternoon traffic trend.

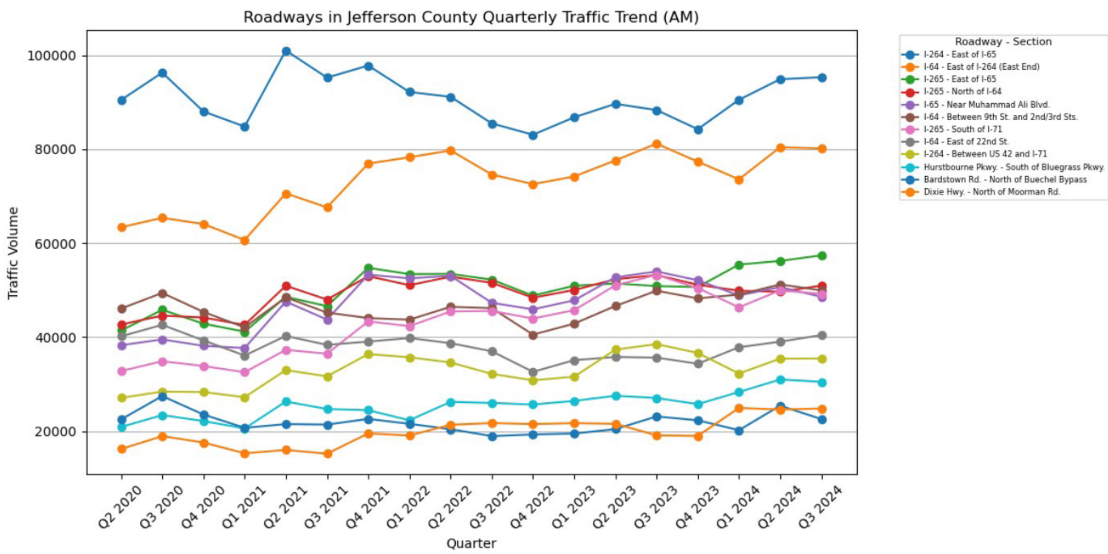


Figure 10: Jefferson County (Morning)

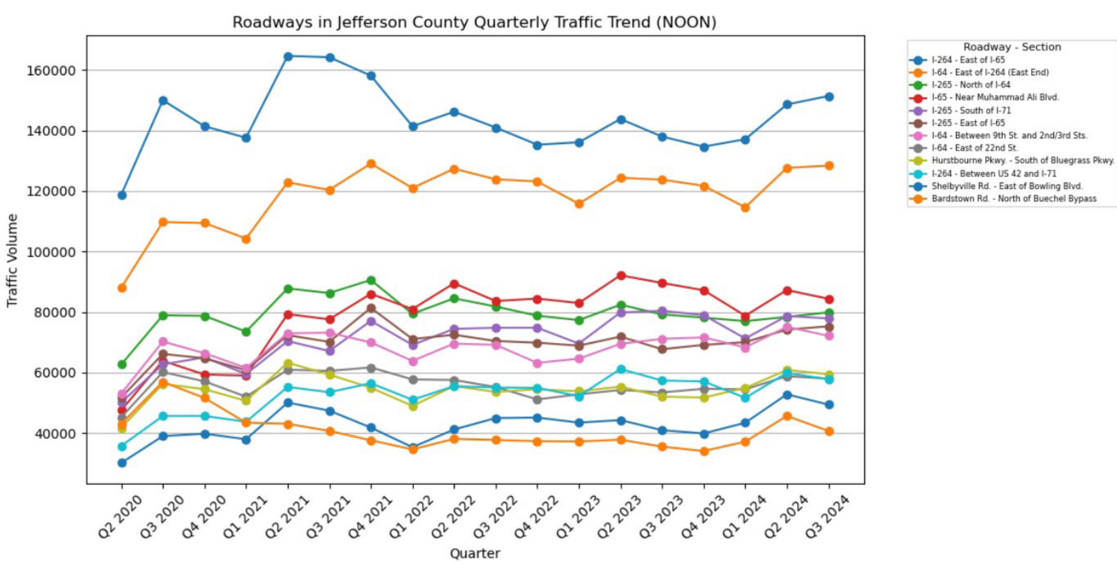


Figure 11: Jefferson County (Midday)

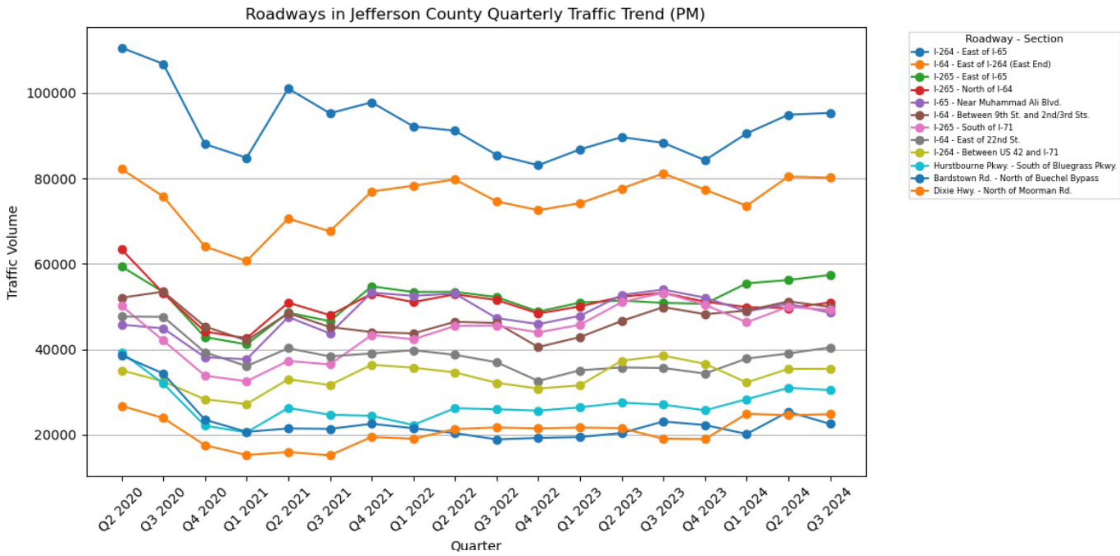


Figure 12: Jefferson County (Late Afternoon/Evening)

Floyd County:

Figure 13 shows the morning traffic trend in selected roadways in Floyd County, figure 14 shows the midday trend and figure 15 shows the late-afternoon traffic trend.

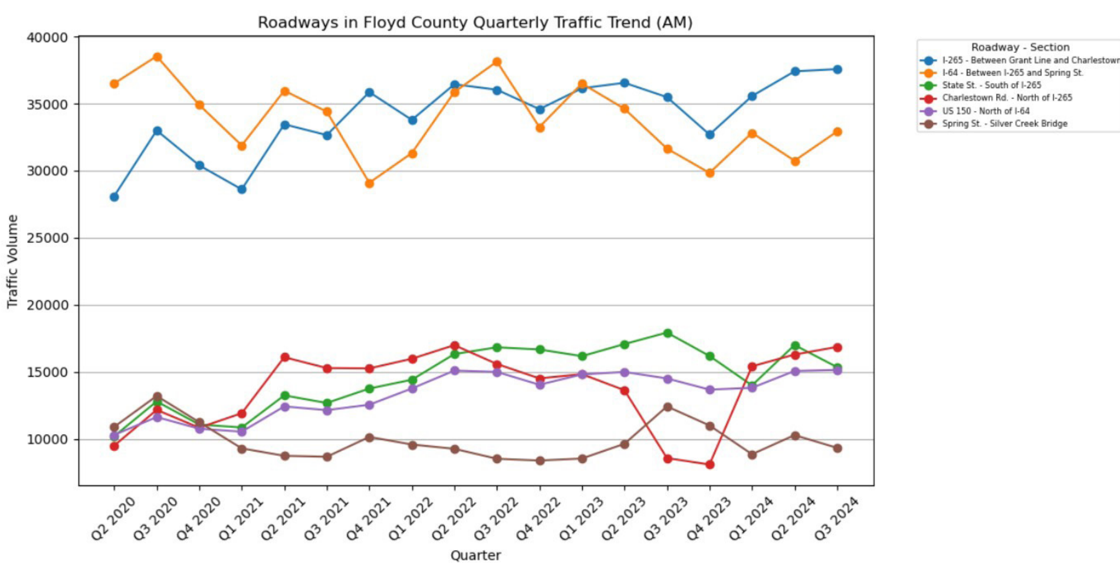


Figure 13: Floyd County (Morning)

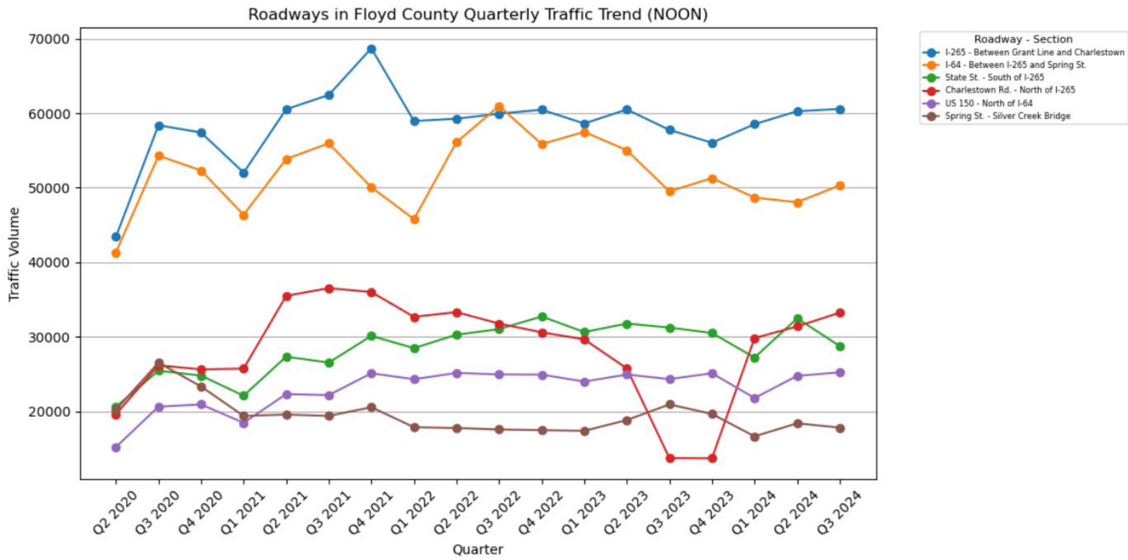


Figure 14: Floyd County (Midday)

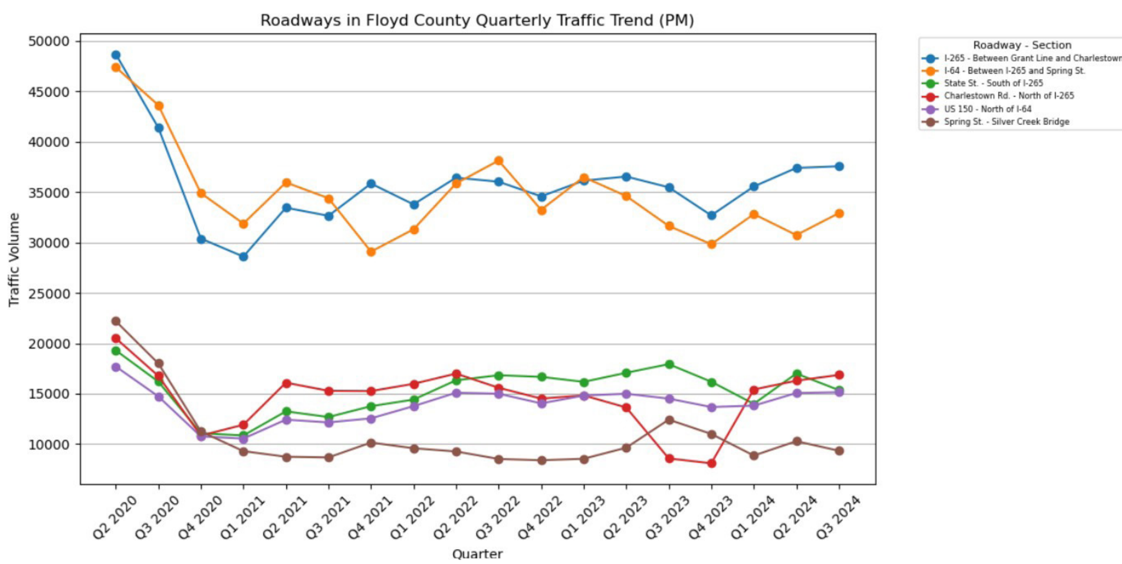


Figure 15: Floyd County(Late Afternoon/Evening)

Oldham County:

Figure 16 shows the morning traffic trend in selected roadways in Oldham County, figure 17 shows the midday trend and figure 18 shows the late-afternoon traffic trend.

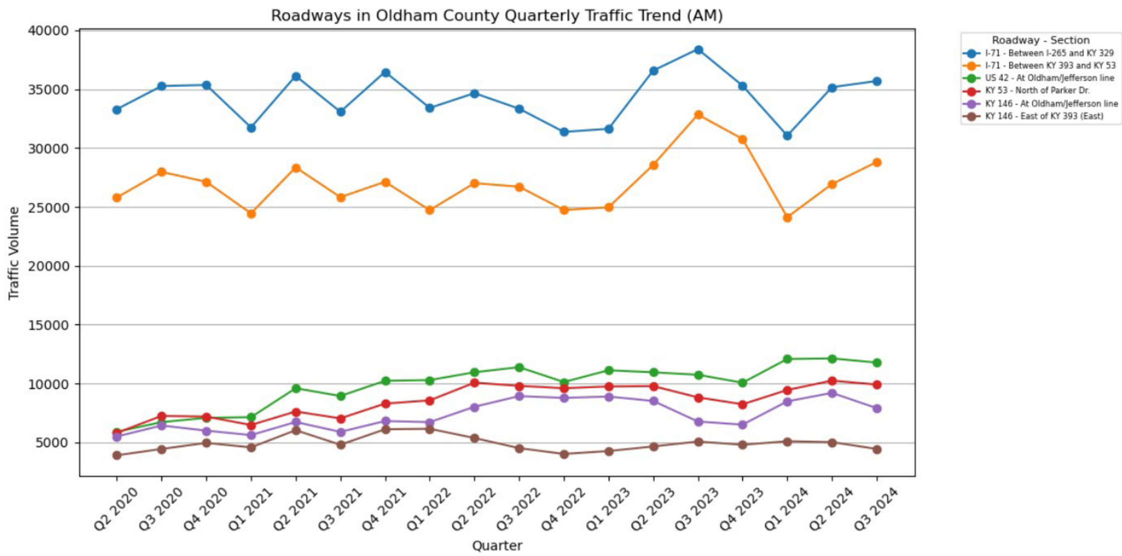


Figure 16: Roadways in Oldham County (Morning)

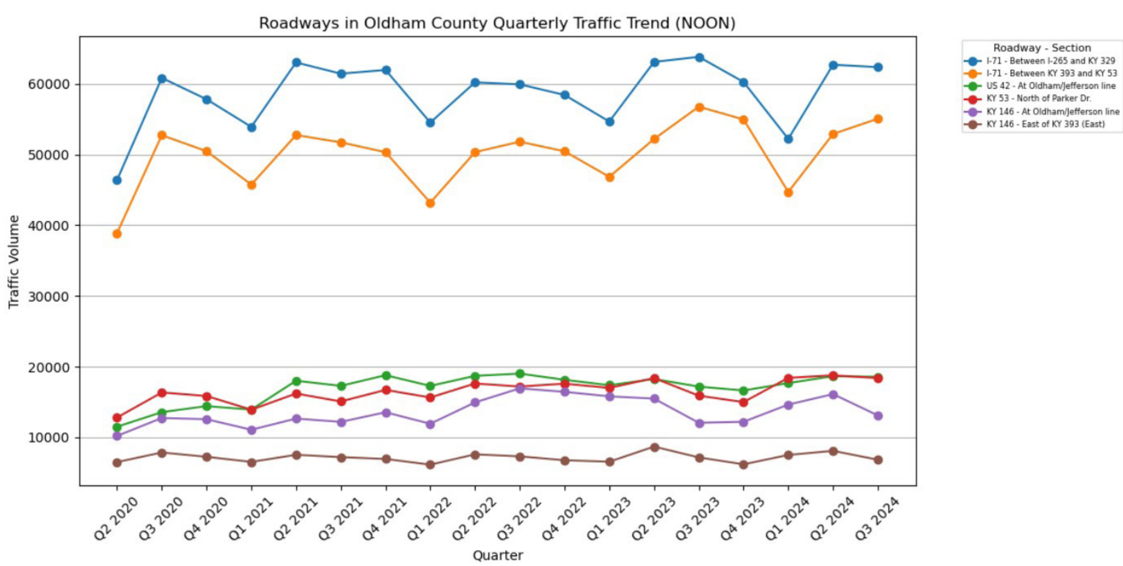


Figure 17: Roadways in Oldham County (Midday)

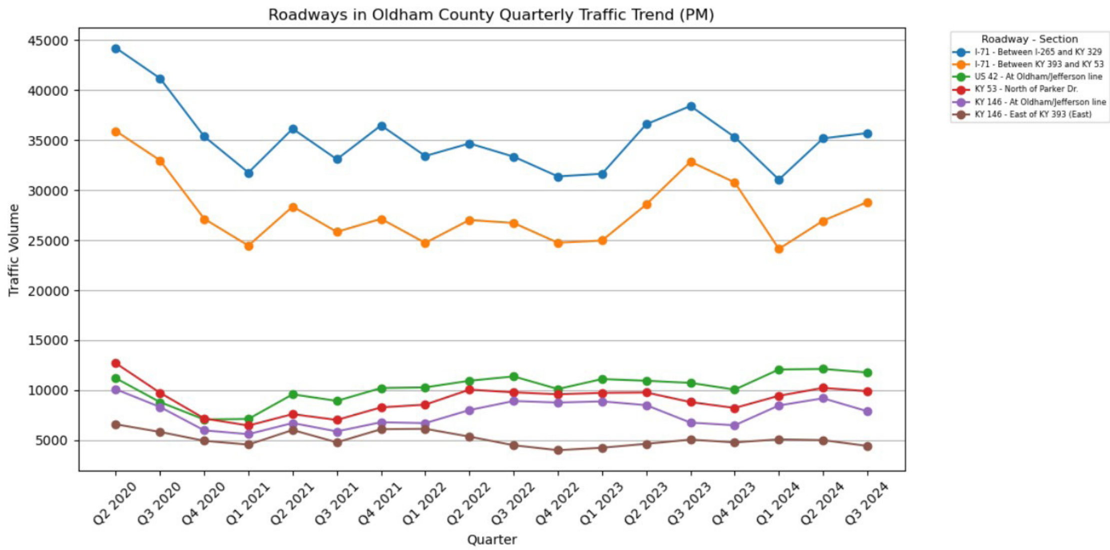


Figure 18: Roadways in Oldham County (Late Afternoon/evening)

Chapter 2

Goals, Objectives and Performance Measures

Listed below are the goals, objectives for each goal and their performance measures.

1. Enhance Regional Livability and Economic Development

- Objective 1.1: Improve the quality, accessibility, and reliability of transportation facilities to support economic growth, reduce congestion, and increase access to jobs, education, healthcare, and other essential services across the KIPDA MPO region.

  Performance Measures:

  - ◊ Level of Travel Time reliability on interstates
  - ◊ LOTTR on non-interstates on the NHS

- Objective 1.2: Develop a sustainable workforce through better employment accessibility and mobility options, especially for those residing in low-income areas with high unemployment

  Performance Measures:

  - ◊ Level of Travel Time reliability on interstates
  - ◊ Average headway of transit routes traveling from EJ areas to employment clusters.

- Objective 1.3: Enhance multi-modal access to major employment centers and areas with anticipated employment growth.

  Performance Measures:

  - ◊ Jobs within a ¼ mile walk
  - ◊ Jobs within 1-mile bike ride

2. **Improve Surface Transportation System Efficiency**

- Objective 2.1: Maintain or improve travel time on freeway and interstate roadways.

  Performance Measures:

  - ◊ Level of Travel Time reliability on interstates

- Objective 2.2: Maintain or improve travel time in arterials roadways.

  Performance Measures:

  - ◊ LOTTR on non-interstates on the NHS

- Objective 2.3: Direct efforts to expand facilities in support of electric and automated vehicles and other future transportation technologies

  Performance Measures:

  - ◊ Number of electric vehicles charging stations

3. **Monitor and Evaluate System Performance**

- Objective 3.1: Continuously assess transportation system conditions and trends using data-driven performance measures to inform planning decisions.

  Performance Measures:

  - ◊ Vehicle hours of delay

- Objective 3.2: Promote strategies that optimize the performance and utilization of the existing transportation network to better serve the region's mobility needs..

  Performance Measures:

  - ◊ Vehicle hours of delay

4. **Reduce Regional Congestion**

- Objective4.1: Achieve measurable reductions in roadway congestion by implementing targeted strategies, promoting multi modal options, and enhancing system operations.

5. **Expand Public Transit and Active Transportation**

- Objective 5.1: Improve access to transit

  Performance Measures:

  - ◊ Annual TARC Fixed-route ridership
  - ◊ Population served in transit service area (1/4 mile of a route)

- Objective 5.2: Increase ridesharing by expanding vanpooling, carpooling and similar strategies

Performance Measures:

- ◊ Number of rideshare trips

- Objective 5.3: Increase access to pedestrian facilities and the continuity of the system

Performance Measures:

- ◊ Number of miles of pedestrian facilities

- Objective 5.4: Increase access to and the utilization of bicycle facilities.

Performance Measures:

- ◊ Increase in bicycle facilities

6. Improve air quality by reducing carbon-based vehicle miles travel

- Objective 6.1: Improve air quality

Performance Measures:

- ◊ Total emissions reductions (CMAQ)
- ◊ Percent of non-SOV travel within urbanized areas
- ◊ Annual hours of peak excessive delay per capita within urbanized area
- ◊ Ratio of electric and hybrid vehicles to combustion engine vehicles in the fleet mix

7. Improve air quality by reducing carbon-based vehicle miles travel

- Objective 7.1: Provide reliable, up-to-date information and analysis on system performance to guide transportation planning, policy development, and implementation.

Performance Measures:

- ◊ Total emissions reductions (CMAQ)

Chapter 3

CMP Network and Congestion Data Collection

The KIPDA MPO region includes five counties: Bullitt, Jefferson, and Oldham counties in Kentucky, and Clark and Floyd counties in Indiana. The KIPDA CMP Network plays a vital role in the Congestion Management Process, and it is made up of interstate and arterial roadways. These key transportation routes are critical for managing traffic flow and congestion. Figure 19 illustrates the KIPDA CMP network.

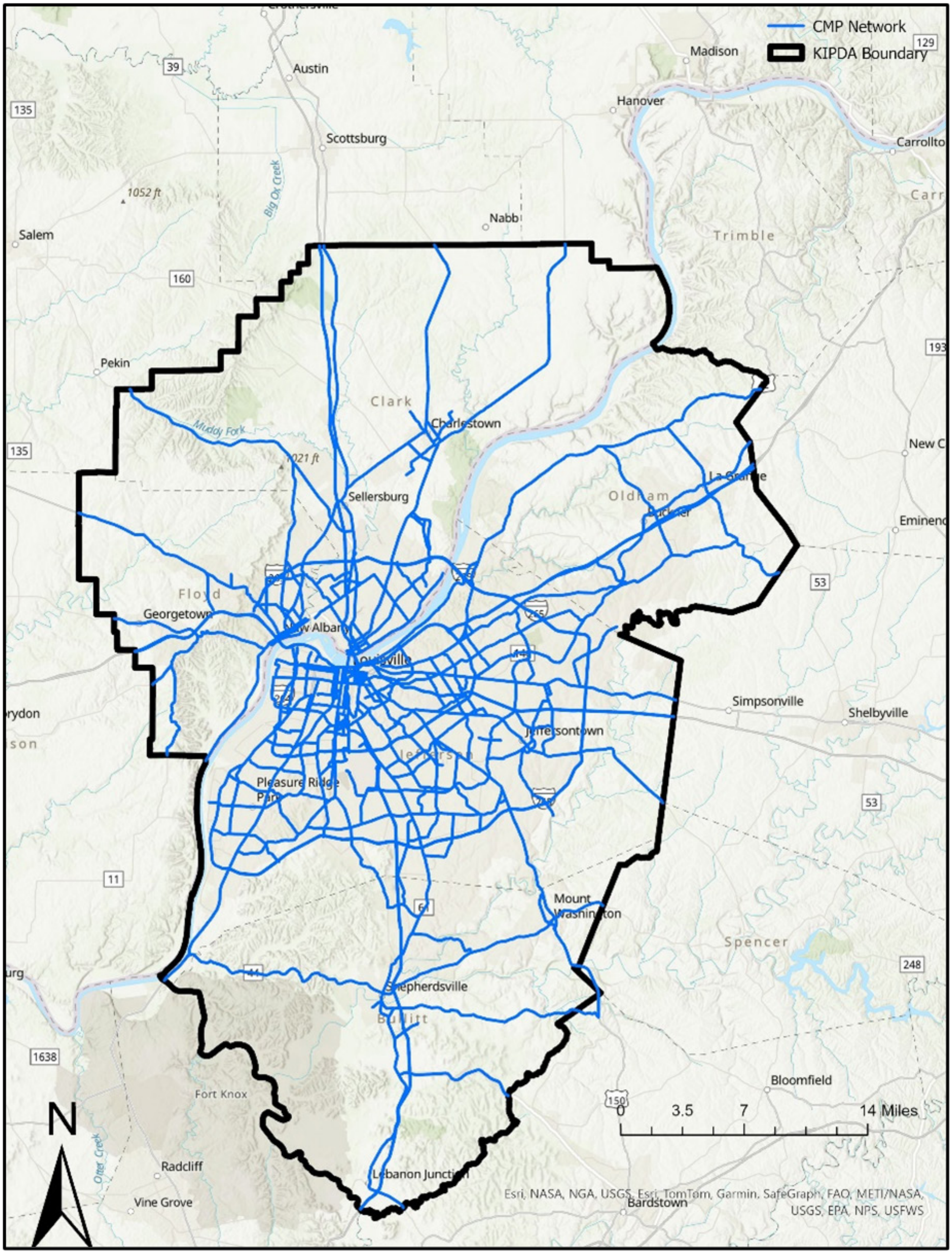


Figure 19: CMP Network

Figure 20 displays bike lanes within the KIPDA MPO region. Locations on the CMP Network that lack bicycle facilities may be areas where the construction of new facilities could prove helpful in mitigating congestion.

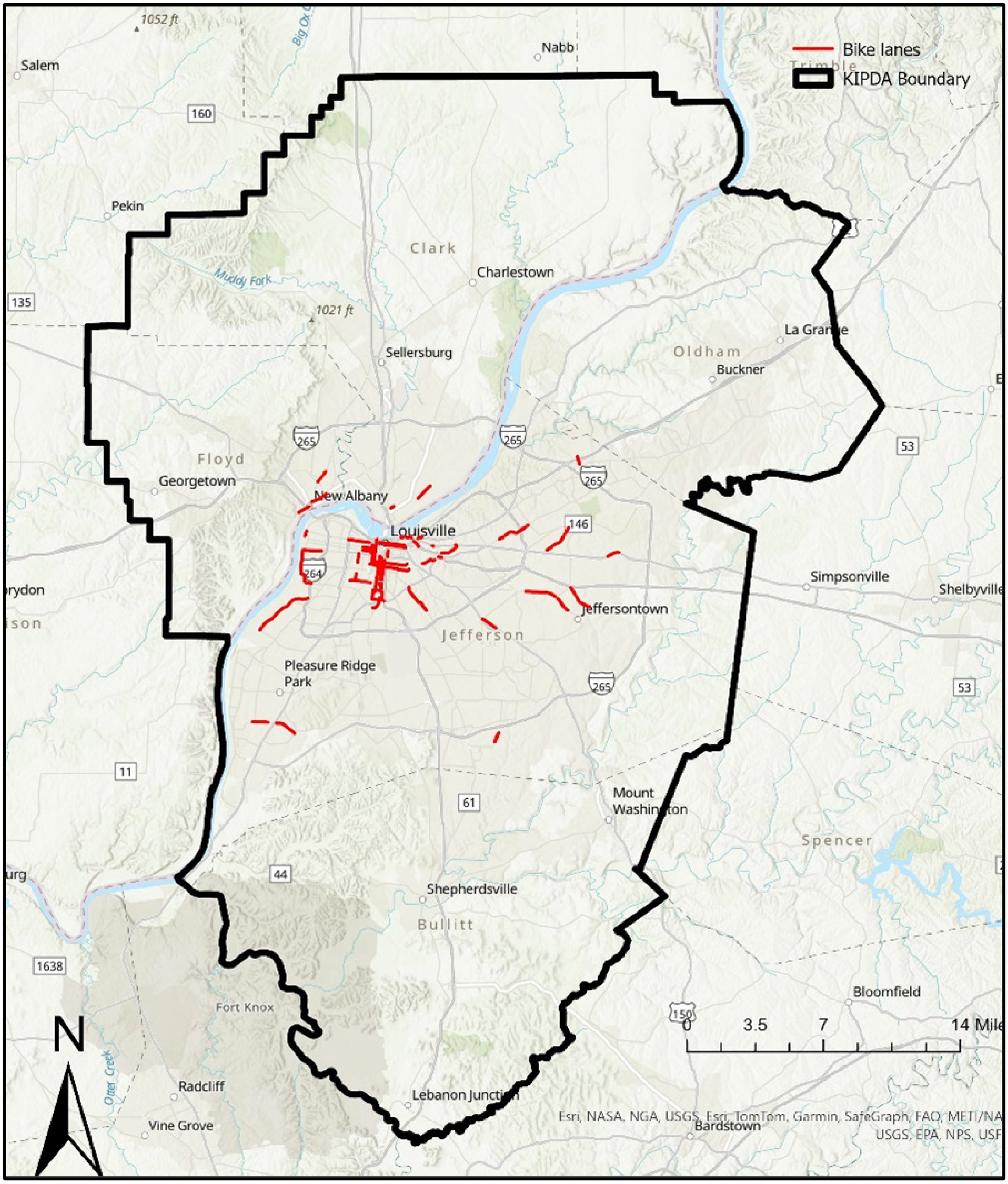


Figure 20: Bike Lanes

Dynamic Message Signs (DMS) play a crucial role in enhancing traffic management and communication across the region. Figure 21 shows the dynamic message signs in the KIPDA MPO region. These signs provide real-time information to drivers, helping to improve safety, reduce congestion, and promote efficient traffic flow. Strategically placed at key locations, as shown in the accompanying image, DMS display messages regarding road conditions, incidents, construction zones, travel times, and detour routes. By offering timely and relevant information, they allow drivers to make informed decisions and adjust their routes or behavior accordingly.

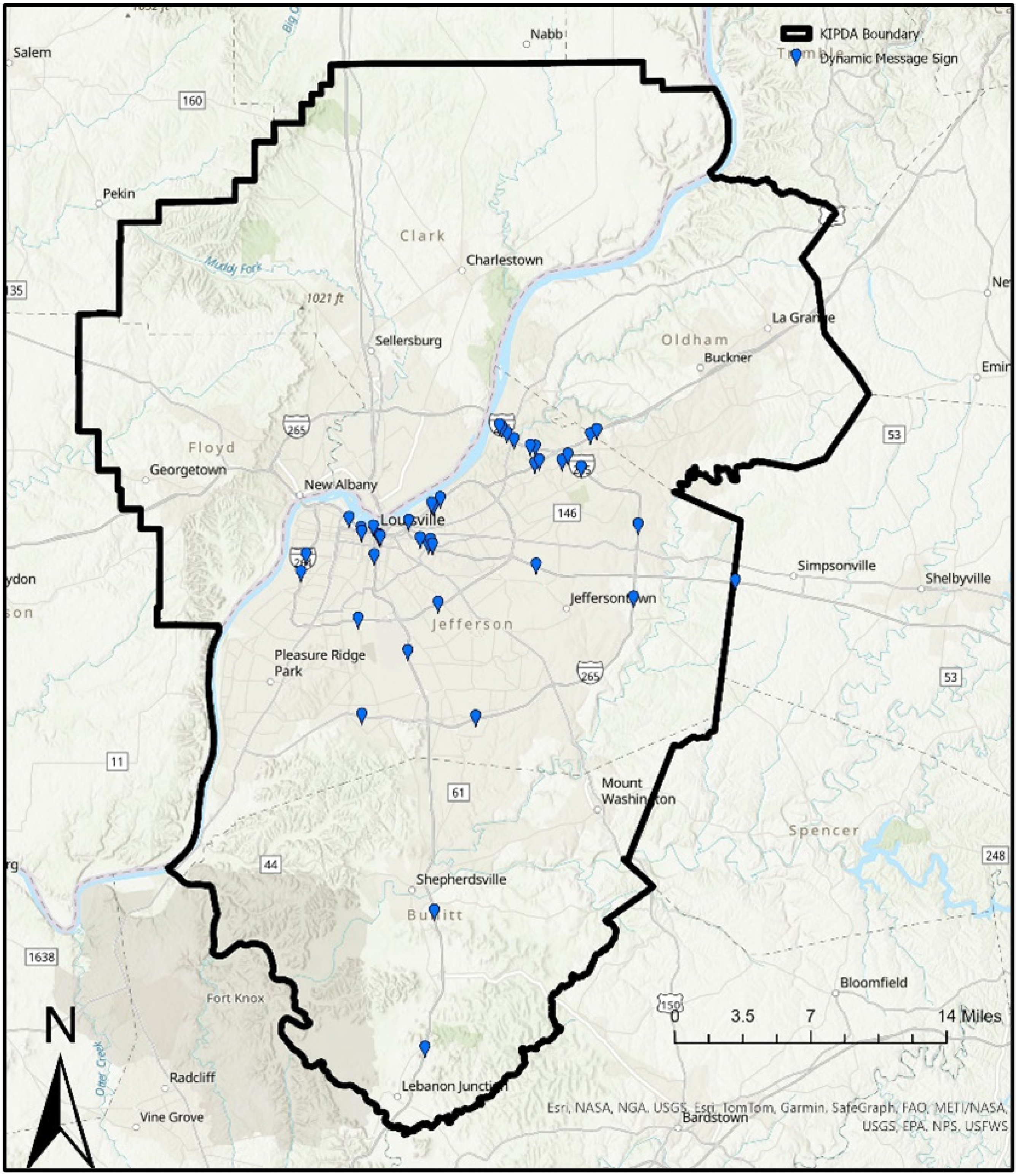


Figure 21: Dynamic Message Sign

Data Collection

The following is a list of data that KIPDA staff will maintain and update periodically to support the CMP. The majority of this data will be available to the public on the KIPDA Online Resource Center. Project sponsors will be encouraged to utilize this data when developing projects.

Table 1: Data and Sources

Data	Source	Last Updated	Next Update
CMP Network	KIPDA	May 2025	Next CMP
Traffic Counts	KIPDA	2023	As received
Streetlight Traffic Volumes	Streetlight Data	June 2024	As needed
Travel Time Data	National Performance Management Research Data Set (NPMRDS) & Streetlight Data	June 2024	Annual
Bike & Pedestrian Inventory	KIPDA	May 2023	As needed
Transit Ridership	TARC	FY 2024	Annual
Transit Routes & Stop Locations	TARC	2023	As needed
Vanpool Routes	KIPDA/ Every Commute Counts	2025	Annual
Regional ITS Architecture	KIPDA	May 2017	As needed
Transportation Systems Management & Operations	KIPDA	May 2018	Every 4 years

The following maps highlight much of the data that may prove helpful when it comes to implementing the strategies in this document and developing projects that mitigate congestion on the CMP Network. Interactive versions of these maps, as well as other data that KIPDA has collected and analyzed, are available on the KIPDA Online Resource Center.

National Performance Management Research Data Set (NPMRDS) – RITIS Platform

The National Performance Management Research Data Set (NPMRDS) is accessed through the Regional Integrated Transportation Information System (RITIS) platform, developed by the University of Maryland's Center for Advanced Transportation Technology Laboratory (CATT Lab). NPMRDS provides detailed speed and average travel time data in 15-minute intervals by calendar day, covering at least the National Highway System (NHS). The dataset is released monthly and includes data for passenger vehicles, freight vehicles, and all vehicles.

The data is sourced from a variety of platforms, including original equipment manufacturer (OEM) on-board navigation systems, GPS positional data from smartphone applications, and fleet vehicle location systems. The NPMRDS includes travel times for passenger vehicles, freight vehicles, and all vehicles, organized by road segment. These segments are identified using Traffic Message Channel (TMC) codes. TMC, initially developed for delivering traffic and travel information to drivers, is now used to segment roads in the data. Passenger vehicle travel times are derived from anonymous data collected through in-vehicle navigation systems, mobile phone location data, and connected vehicle technology. Freight vehicle times, on the other hand, are based on GPS probe data from the American Transportation Research Institute, specifically sourced from class 7 and 8 trucks.

Chapter 4

System Performance

The assessment of congestion in the KIPDA MPO region includes collection and monitoring of the system performance in the region

Travel Time Reliability of the Region (from RITIS Platform)

- In 2024, Interstate Travel Time Reliability was reported at 90.2%, indicating a high level of reliability across the interstate network.
- The Truck Travel Time Index (TTI) for the interstate system stood at 1.69, reflecting moderate congestion during peak periods.
- The Non-Interstate NHS network demonstrated even greater reliability, with a Travel Time Reliability of 93.4%.

Congestion Analysis in the KIPDA MPO Region

The KIPDA MPO region spans five counties across Indiana and Kentucky: Bullitt, Jefferson, and Oldham counties in Kentucky, and Clark and Floyd counties in Indiana. To identify areas vulnerable to frequent congestion, we compared posted speed limits on roadways to the 85th percentile speeds being driven. This comparison was conducted for both morning and evening periods. We then assessed vehicle hours of delay across different road segments and calculated the travel time index to further evaluate congestion patterns and network performance.

The data used in this analysis was obtained from StreetLight, a location-based services platform that aggregates anonymous mobile device data to provide insights into travel behavior and traffic conditions. The dataset spans the period from June 2022 to May 2023. This analysis will be updated periodically as new data becomes available. This powerful tool allows planners to examine vehicles and multimodal movement at various times of day, across different road types, and under varying conditions. The CMP analysis utilizes this information to create visualizations such as traffic trend graphs, and network performance summaries. These insights help identify where congestion is worst and support strategies like improving traffic signals, upgrading roads, or encouraging other ways of getting around.

Interstates are critical infrastructure designed to accomm date high volumes of traffic traveling at high speeds over long distances. These roads primarily serve to connect cities, industrial centers, and metropolitan areas, facilitating the rapid movement of people and goods between regions, states, and even across the country. Built for long-distance travel, they feature limited access points, with no direct property access and no intersections. Vehicles can only enter or exit through on-ramps and off-ramps, ensuring smooth traffic flow. With multiple lanes, interstates are engineered to handle heavy traffic at speeds ranging from 55 to 70 mph or more, allowing for efficient and expedited travel.

Speed Comparisons on the interstate

In the KIPDA MPO region, interstate speed limits are depicted in Figure 22 & 23. The 85th percentile speed is a widely recognized metric for evaluating congestion levels. This speed is shown in Figure 23 for the peak morning and Figure 24 for peak evening. This metric represents the speed at or below which 85% of vehicles travel, effectively filtering out extreme outliers, such as exceptionally slow or fast drivers. It provides a reliable benchmark for assessing typical free-flow operating conditions of roadways, offering valuable insight into traffic performance and mobility. From the analysis, commuters often travel above the speed limit during peak morning hours, with consistent speed trends observed across the region during both peak periods.

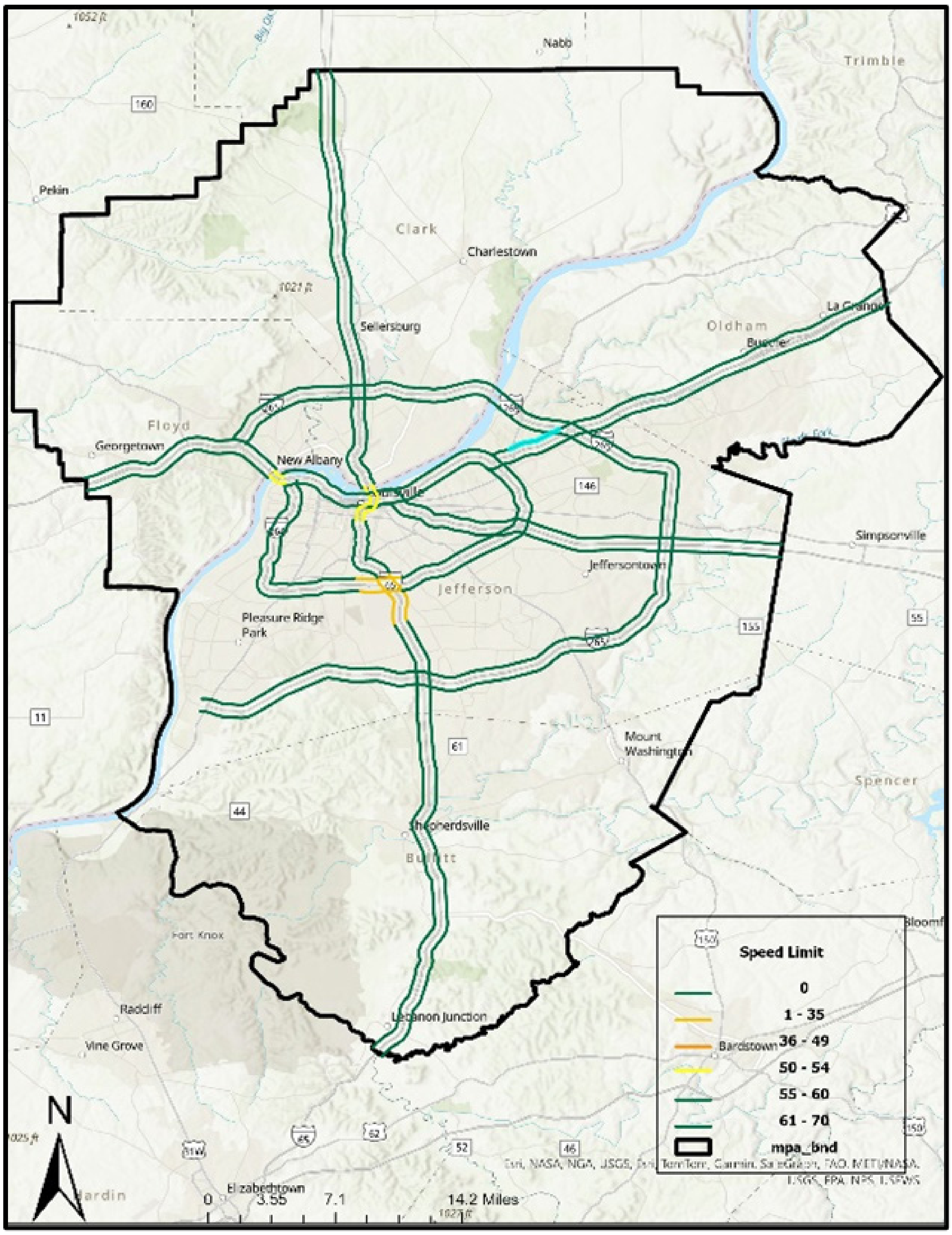


Figure 22: Interstate Speed limit

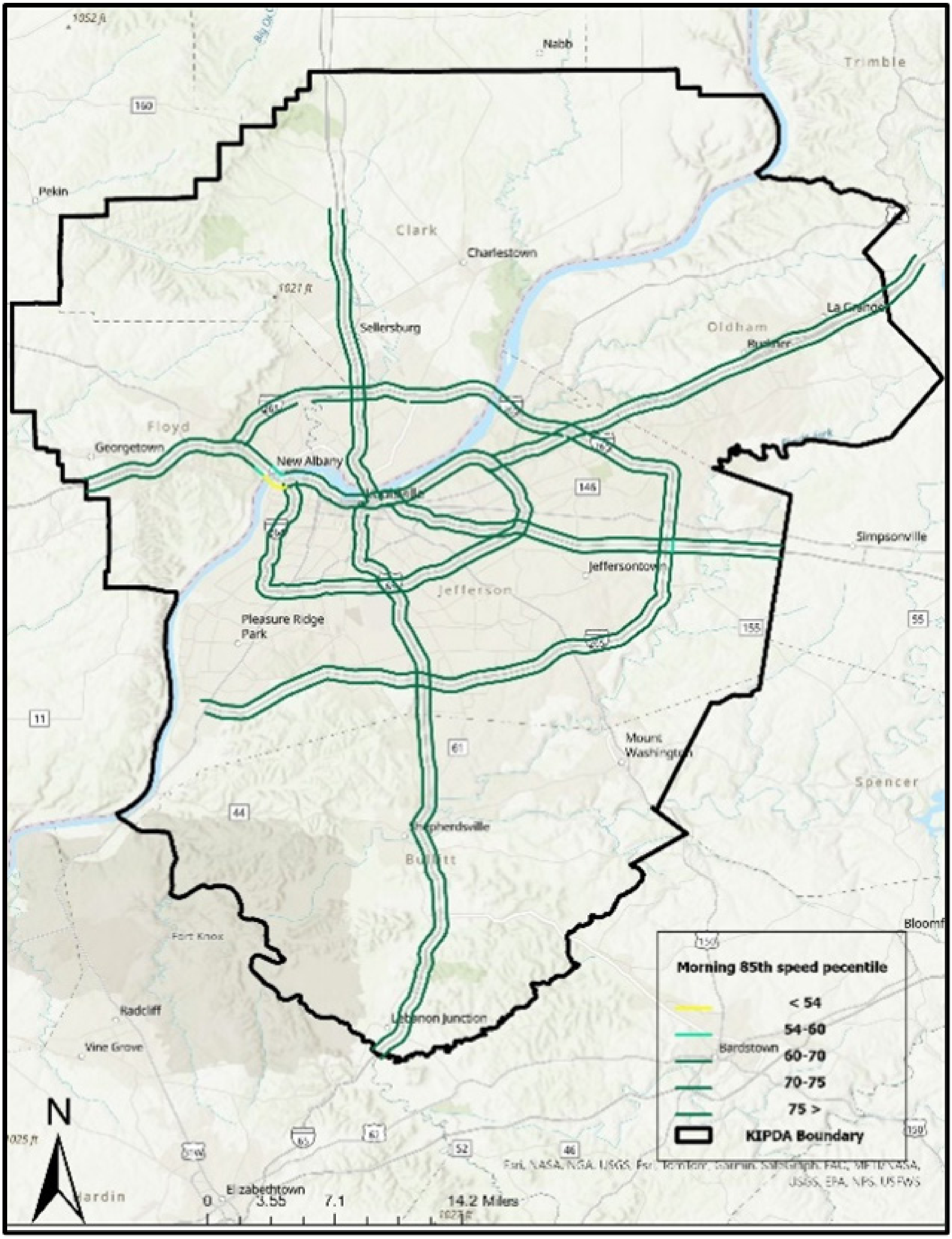


Figure 23: Peak morning 85th percentile speed

In general, commuters tend to travel above the speed limit during peak morning hours. Observations from the 85th percentile speed for both peak morning and evening periods, as illustrated in Figures 23 and 24, reveal a consistent trend in speeds across the region.

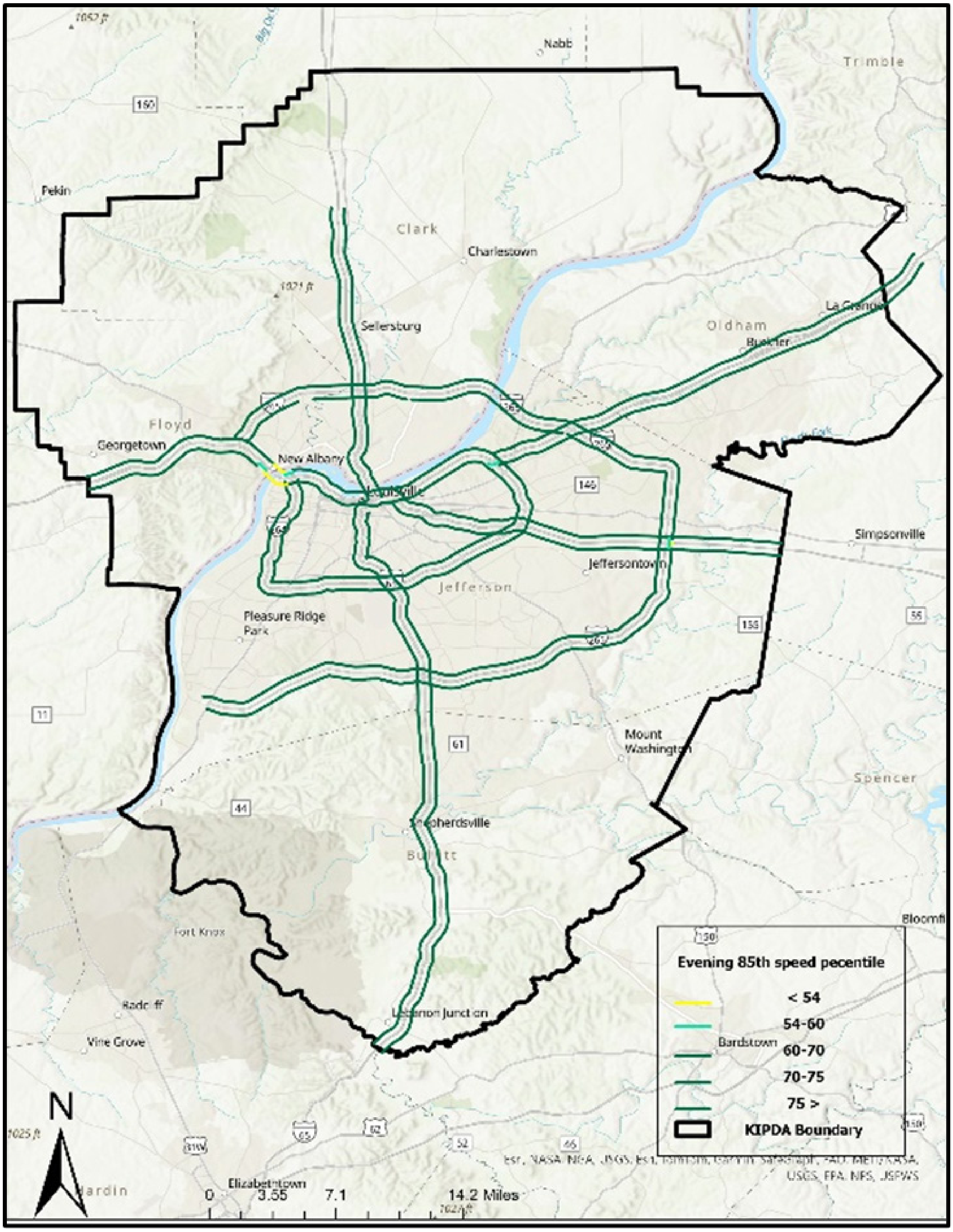


Figure 24: Peak evening 85th percentile speed

Interstate Vehicle Hours of Delay

KIPDA staff utilized the Vehicle Hours of Delay (VHD) metric to measure regional congestion and assess overall system performance. The regional interstate network includes I-265 (Gene Snyder Freeway), I-264 (Watterson Expressway), I-64, I-65, and I-71.

Vehicle Hours of Delay (VHD) is a key metric in transportation planning used to measure traffic congestion and identify congestion hotspots. This metric proved essential for understanding congestion levels across the transportation network. The data for VHD in the KIPDA MPO region was obtained using StreetLight. Vehicle Hours of Delay (VHD) explains the extra time spent traveling on a road segment due to many reasons. This measure gives the total delays in time experienced by every vehicle in that road corridor at the given time. In our case the peak commuting morning times (6 am-10 am) and peak commuting evening times (3 pm -7 pm). VHD refers to the total time vehicles are delayed compared to free-flow travel conditions and is calculated using the following formula:

Vehicle Hours of Delay = (Actual Travel Time) – (Free-Flow Travel Time) .... (1)

The actual travel time is the total time it takes for vehicles to travel through a given road segment under normal traffic conditions. These normal conditions include congestion from traffic signals, high traffic volumes, incidents on the road, weather conditions all impact the actual travel time. While the free flow time is the time it would take for vehicles to travel the same roadway segment under ideal conditions with no congestion or delays.

To account for variations in road segment length and allow for meaningful comparisons, KIPDA staff normalized the Vehicle Hours of Delay (VHD) by segment length, resulting in the metric VHD per mile (VHD/mile). This measure reflects both the number of delayed vehicles and the duration of their delays, adjusted for the length of each road segment. As part of the congestion management process, KIPDA established threshold categories to assess congestion severity. Segments with less than 22 VHD/mi are considered acceptable, indicating relatively smooth traffic conditions. Delays between 22 and 45 VHD/mi are categorized as moderate, suggesting noticeable but manageable congestion. Segments exceeding 45 VHD/mi are classified as experiencing severe congestion, reflecting significant delays that can negatively impact travel time, efficiency, and overall roadway performance.

Delays During Peak AM on Selected Road Segments

During the morning commute, the KIPDA MPO region experiences bottlenecks at several locations on the interstate. The vehicle hours of delay for peak morning time are shown in figure 25 and the peak AM times are from 6 am to 10 am. From Figure 25, the KIPDA MPO region experiences bottlenecks at several locations on the interstate. Such locations include I-265 northbound approaching the I-64 interchange. I-65 northbound at the I-264 interchange. I-264 at the I-65 interchange. Significant delays are occurring on several key routes in the KIPDA MPO area. On I-265 (Gene Snyder Freeway) northbound, approximately 169.03 vehicle-hours of delay have been recorded over a 7-mile stretch between Bardstown Road (KY 150) and the I-64 interchange. Westbound I-71 approaching downtown Louisville sees 46.57 vehicle-hours of delay along a 3-mile segment between the I-265 and I-264 interchanges. On the Sherman Minton Bridge (I-64 southbound), 261.42 hours of delay have been recorded over 6 miles between IN 62 and I-264. Northbound I-64 shows slight delays, with 81.26 hours of delay from I-265 to I-264, and 38.96 of those hours concentrated in the 2-mile stretch between KY 1747 (Hurstbourne) and I-264. Northbound I-65 also experiences slight delays just before the Preston Highway exit approaching the I-264.

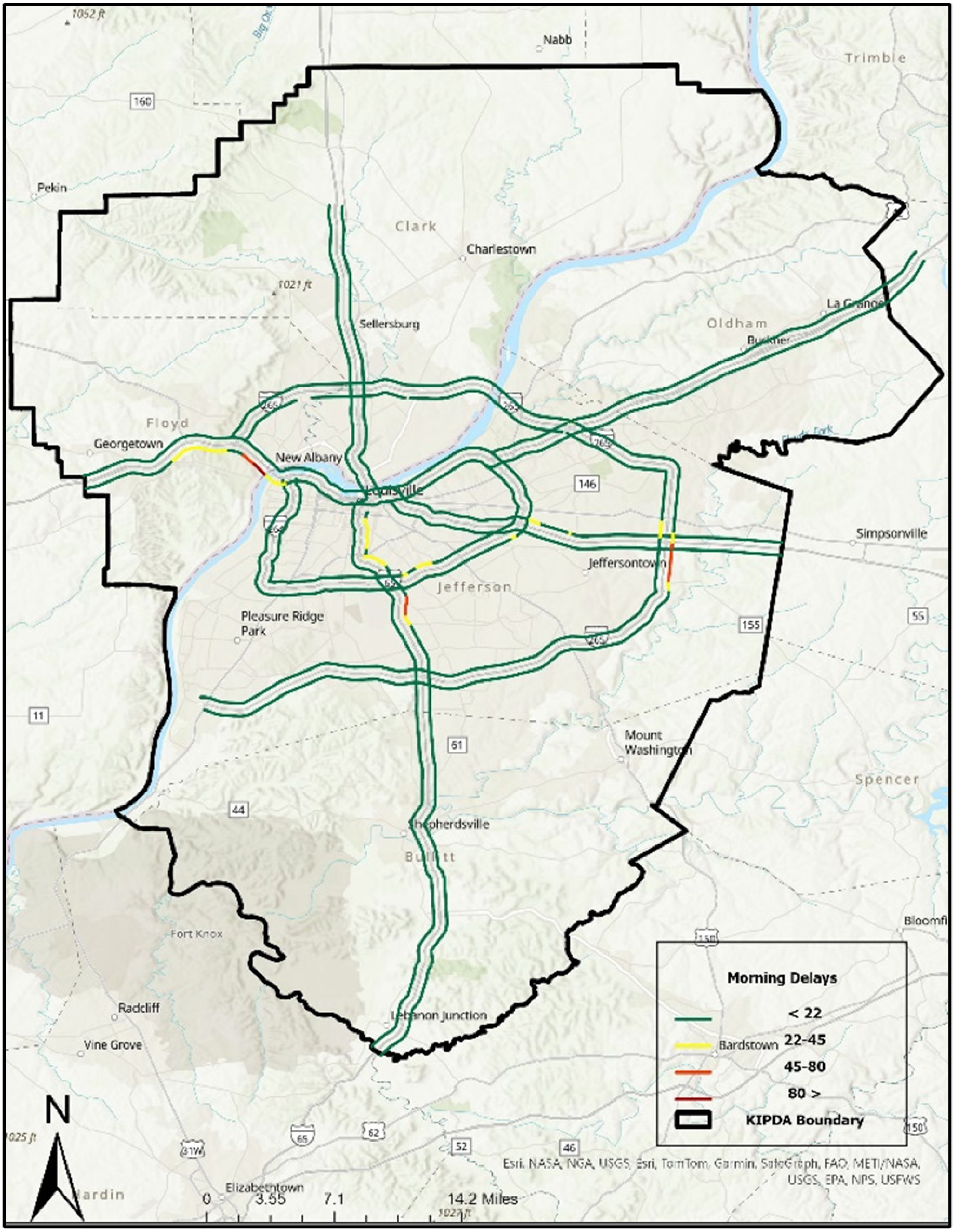


Figure 25: VHD for interstate Peak AM

Interstate Systems Delays During Peak PM

A higher vehicle delay is observed across the region during the peak afternoon periods as shown in Figure 26. During peak PM hours which is from 3 pm to 7 pm, I-265 experiences significant delays in both directions. Northbound, delays stretch from I-65 to KY 150 (Bardstown Road) with 187.27 total hours lost, and from KY 150 to the I-64 interchange with 76.95 hours of delay. From I-64 to I-65 in Indiana, 106.79 hours of delay are observed over a 6-mile segment. Southbound I-265 sees 114.22 hours of delay from La Grange Road to Shelbyville Road, 223.07 hours from I-64 to KY 150, and 96.21 hours from KY 150 to I-65. I-64 also faces major congestion: southbound delays total 128.84 hours from Story Avenue to I-264 and 211.23 hours from I-264 to I-265, while northbound delays include 36.16 hours between KY 1747 and I-264, 83.92 hours from I-264 to Mellwood Avenue, and 179.65 hours between US 150 and the Sherman Minton Bridge in New Albany. I-71 endures bi-directional congestion from downtown Louisville to beyond I-265, with westbound delays totaling 40.43 hours and eastbound delays reaching 70.61 hours from I-265 to I-264 and 51.21 hours between Zorn Avenue and I-264. Finally, southbound I-65 sees 96.23 hours of delay from the Gene Snyder interchange to KY 1526, and an additional 26.54 hours between Clermont Road and Lebanon Junction.

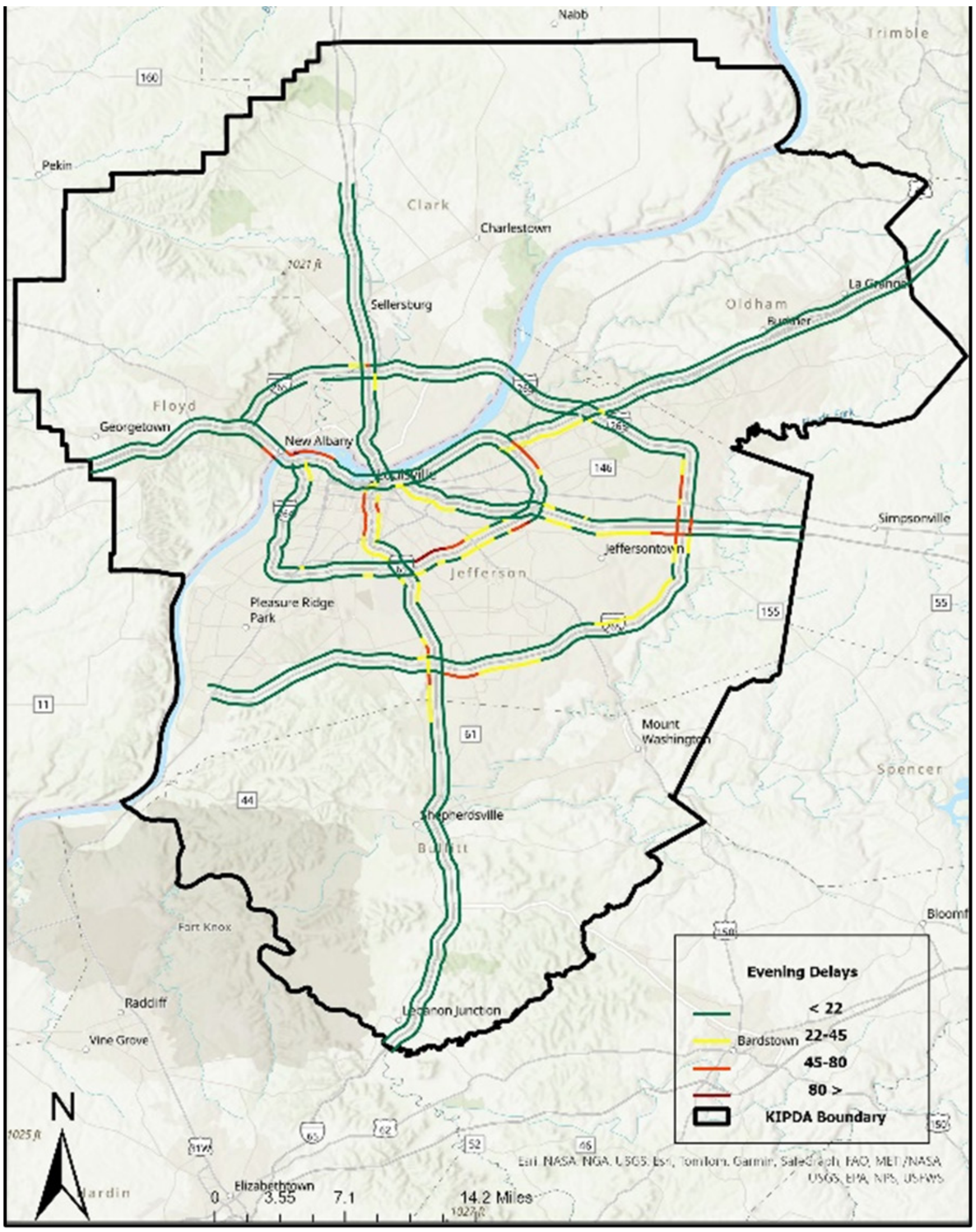


Figure 26: VHD for interstate Peak PM

Table 2: Most congested Segments on the Interstate

Roadway	Section Start	Section End	Direction	Vehicle Delay per Mile
I-264	Bardstown Road	I-65	Westbound	139
I-64 (Entering New Albany)	N 22nd Street on ramp	I-264 on ramp	Westbound	119
I-64 (Entering Louisville)	Exit 123	Sherman Minton Bridge	Eastbound	114
I-265	I-64 off ramp	I-64 on ramp	Northbound	102
I-264	Breckenridge Ln Interchange	I-64 Interchange	Eastbound	86
I-64	Blankenbaker	I-265 Interchange	Eastbound	79
I-65	Exit 134	E Chestnut off ramp	Northbound	75
I-264	Westport Rd	I-71 Exit Ramp	Eastbound	63
I-265	I-65 on ramp	Preston Hwy on Ramp	Eastbound	62
I-265	I-64 off ramp	I-64 on ramp	Southbound	58

Interstate Travel Time Index

The travel time index is a traffic congestion measure that represents the ratio of the time required to travel a given route during peak traffic conditions compared to uncongested conditions. To illustrate the concept of the Travel Time Index (TTI), consider a daily commute that typically takes 20 minutes under free-flow traffic conditions. However, during peak traffic hours, the same trip requires 30 minutes due to congestion. The TTI would be 1.5. This result indicates that travel time during peak hours is 1.5 times longer than under free-flow conditions. In other words, congestion causes a 50% increase in travel duration.

The TTI is calculated as follows:

$$TTI = \frac{Peak\ Travel\ Time}{Free - Flow\ Travel\ Time}$$

The map below shows the travel time index on the interstate system. The map highlights key locations where morning travel times are significantly impacted by congestion. One such location is the I-265 at the I-64 interchange, heading northbound, where travelers experience a Travel Time Index (TTI) of approximately 1.4. This means that during peak morning hours, travel time in this section is 40% longer compared to free-flow conditions.

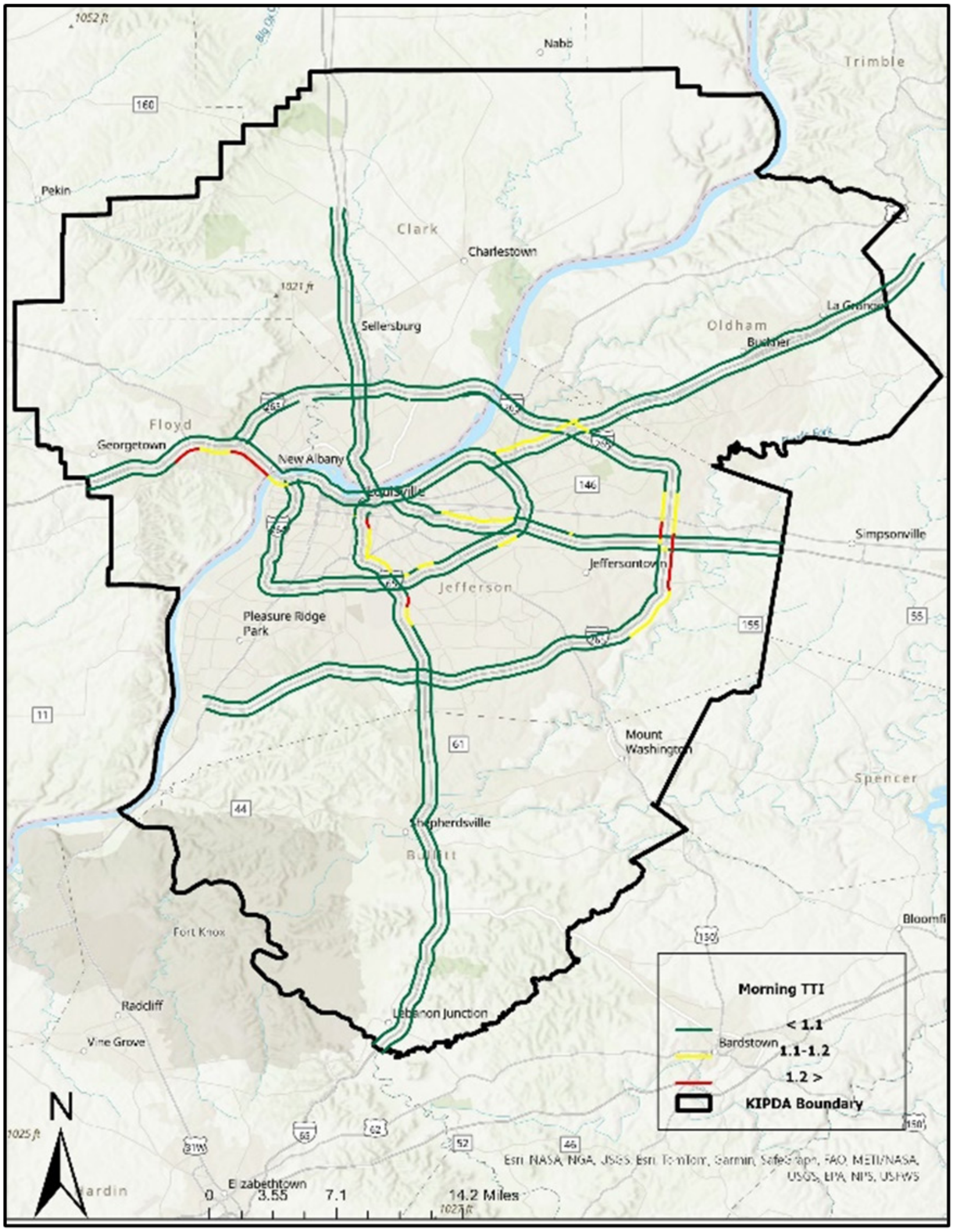


Figure 27: Peak Morning Travel Time Index

Interstate Travel Time Index Map Evening Peak

The evening traffic map highlights several locations where congestion leads to increased travel times. In multiple segments, the Travel Time Index (TTI) exceeds 1.2, indicating that commuters can expect to spend at least 20% more time traveling these routes compared to free-flow conditions.

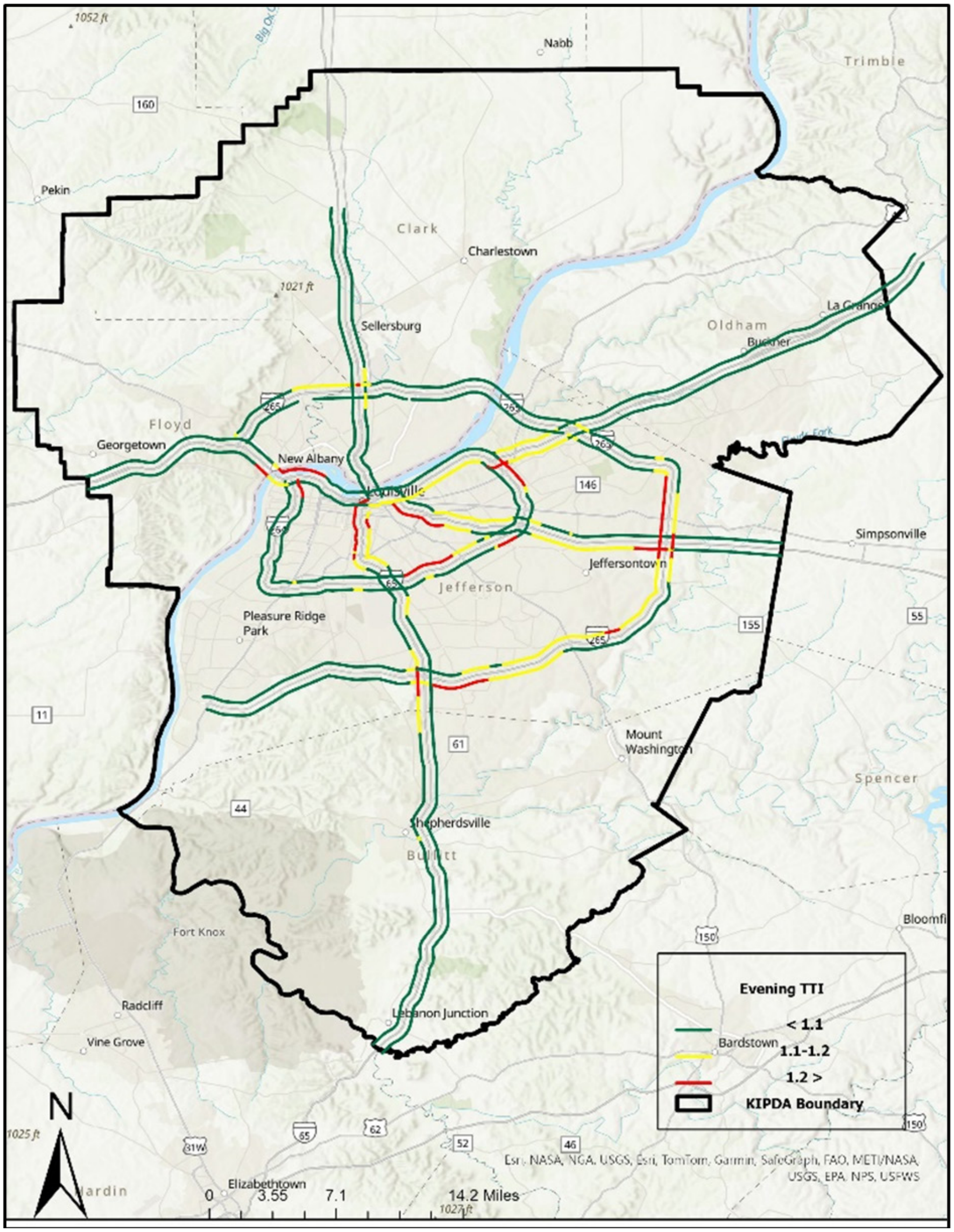


Figure 28: Peak Evening Travel Time Index

Arterials Congestion Analysis

Arterials are designed to carry traffic over moderate to long distances, connecting neighborhoods, commercial centers, and other key areas within a city, region, or between cities. They usually have more intersections and access points than interstates. They usually have more intersections and access points than interstates and freeways, which can slow traffic down. Arterials may have traffic lights, turn lanes, and more frequent exits. The speed limits on arterials are typically lower than on interstates and freeways due to the frequent intersections and access points.

Morning Arterials VHD

The map below illustrates vehicle hours of delay per mile on arterial roads across the region. In the morning, significant delays can be observed in several key locations, such as US 150 at the I-265 interchange, US 60 at the I-265 interchange, and Dixie Highway at Gagel Avenue.

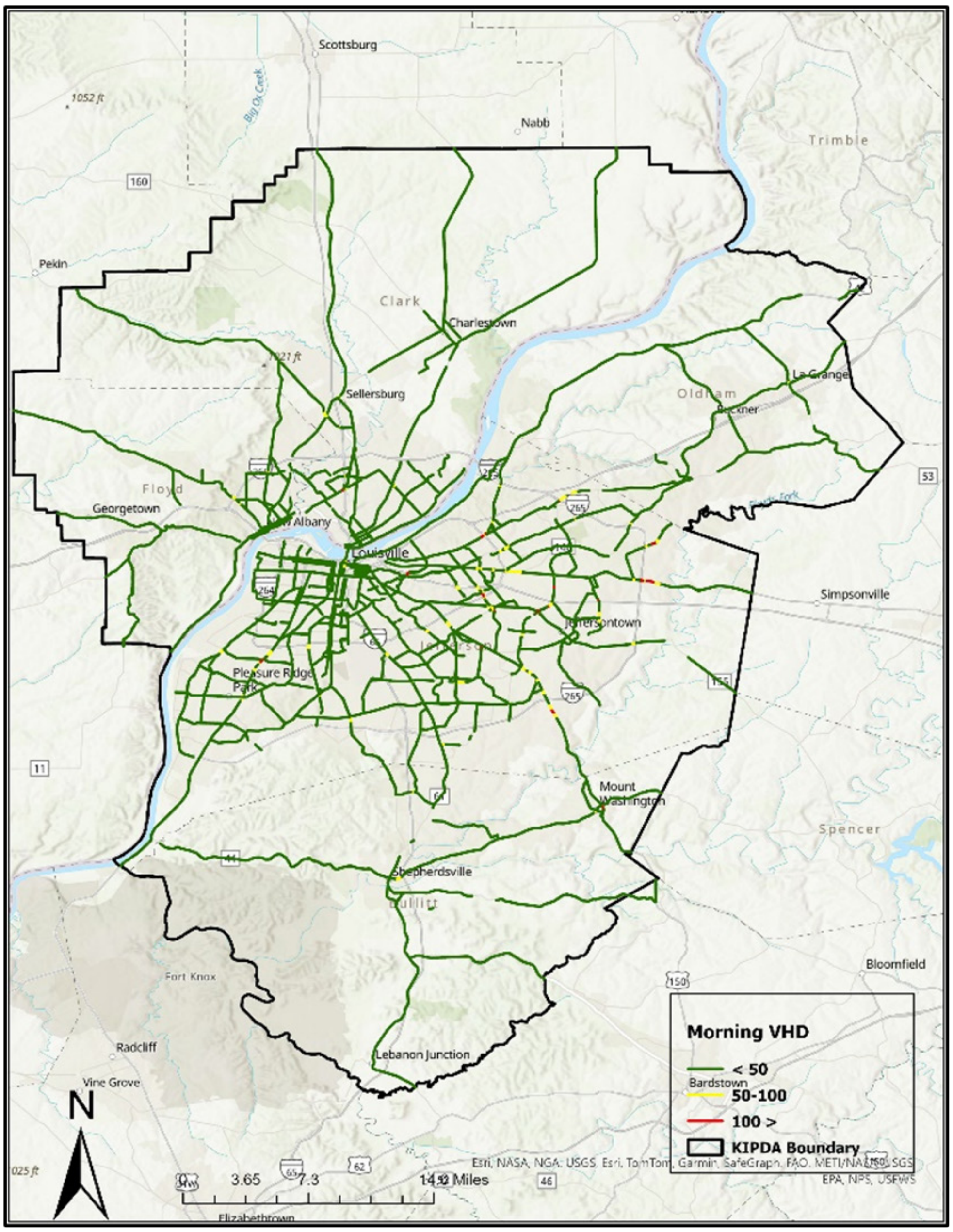


Figure 29: Morning Arterial vehicle hours of delay per mile

Evening Arterials VHD

The map below illustrates vehicle hours of delay per mile on arterial roads across the region in the evening. Compared to the morning, these delays extend over longer stretches of road segments. For example, on US 60, varying levels of delay are observed along a longer stretch, extending from KY 1932 to beyond the I-265 interchange. Similarly, on US 150, while delays occur at different points along the corridor, a particularly pronounced delay is seen between KY 1747 and Providence Drive, spanning approximately four miles. This pattern is also evident on Dixie Highway, where delays are experienced along the stretch from KY 841 to Crums Lane. These extended delays highlight the impact of evening congestion and the need for targeted traffic management strategies.

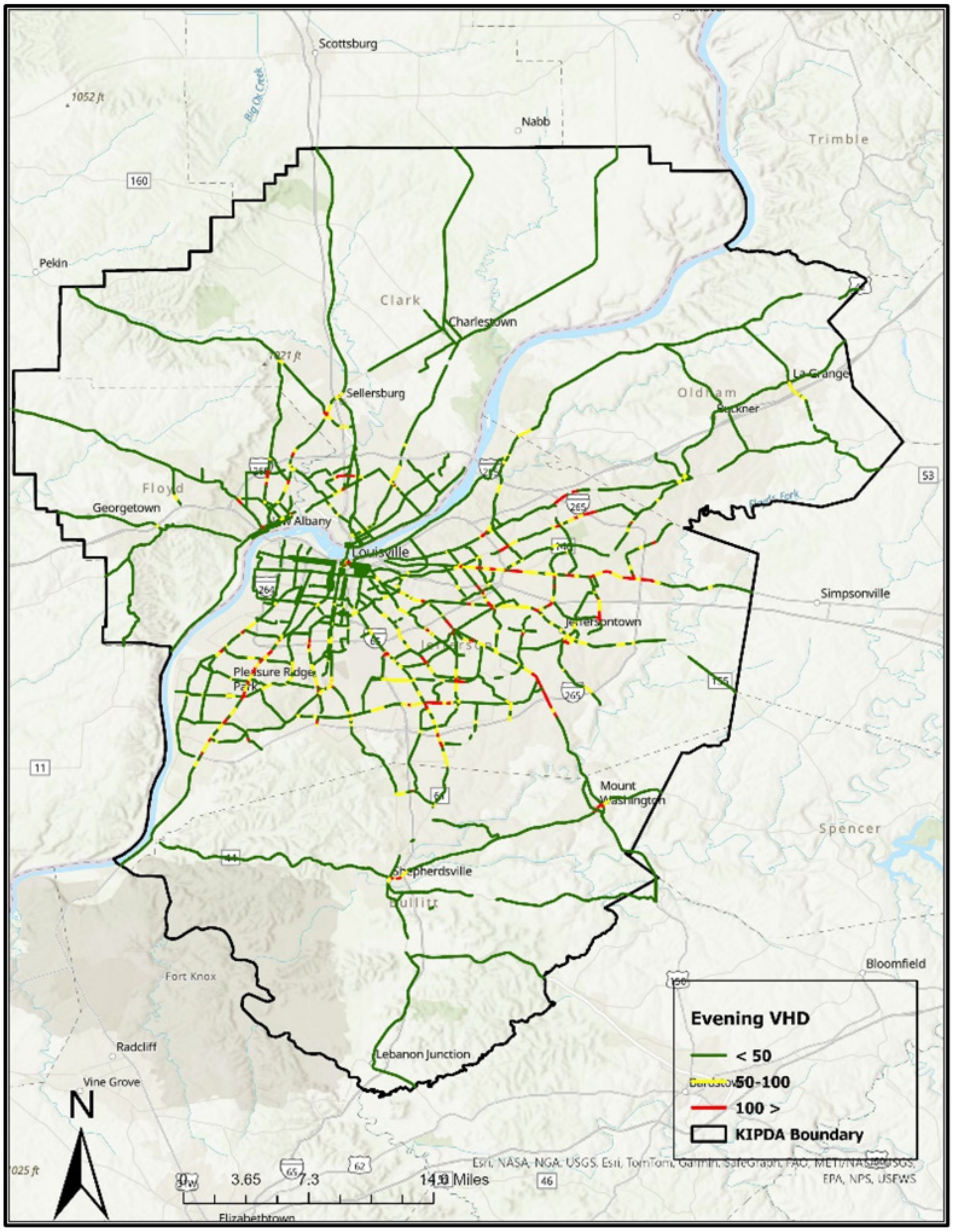


Figure 30: Evening Arterial vehicle hours of delay per mile

Most congested bottlenecks on the Arterials

Several key arterial corridors in the region exhibit significant traffic congestion, as measured by Vehicle Hours of Delay per mile (VHD/mile). Leading the list is East Lewis & Clark Parkway between Cedar Street and I-65, with an exceptionally high VHD/mile of 539, indicating a severe concentration of delay. This segment includes major intersections with US 31 and I-65, and just beyond I-65. Additionally, vehicles traveling toward Charlestown New Albany Pike encounter additional delays due to a rail crossing. Hurstbourne Parkway and Brownsboro Road also appear multiple times among the top congested segments.

Table 3: Most congested segments on the Arterials

Roadway	Section Start	Section End	Vehicle Delay per Mile
E Lewis & Clark Pkwy	Cedar Street	I-65	539
Hurstbourne	Taylorsville road	Axminster Ct	425
Brownsboro (KY 22)	Simcoe Ln	Norton Healthcare Blvd	361
Brownsboro (KY 22)	US Hwy 42	I-264 off ramp	102
Dutchmans Ln	Dupont	Breckenridge Ln	325
Brownsboro (KY 22)	I-264	US Hwy 42	321
Hurstbourne Pkwy	Bunsen Way	Hurstbourne Park Blvd	316
Veterans Pkwy	US-31	I-65 Interstate	313
Dixie Hwy	Kingsford Dr	Gagel Ave	304
Taylorsville Road	Breckenridge Ln	Manor House Dr	297
Bardstown	Glenworth Ave	Goldsmith Ln	281

Arterials Travel Time Index

The maps below and on the next page show the travel time index on the arterial roadways.

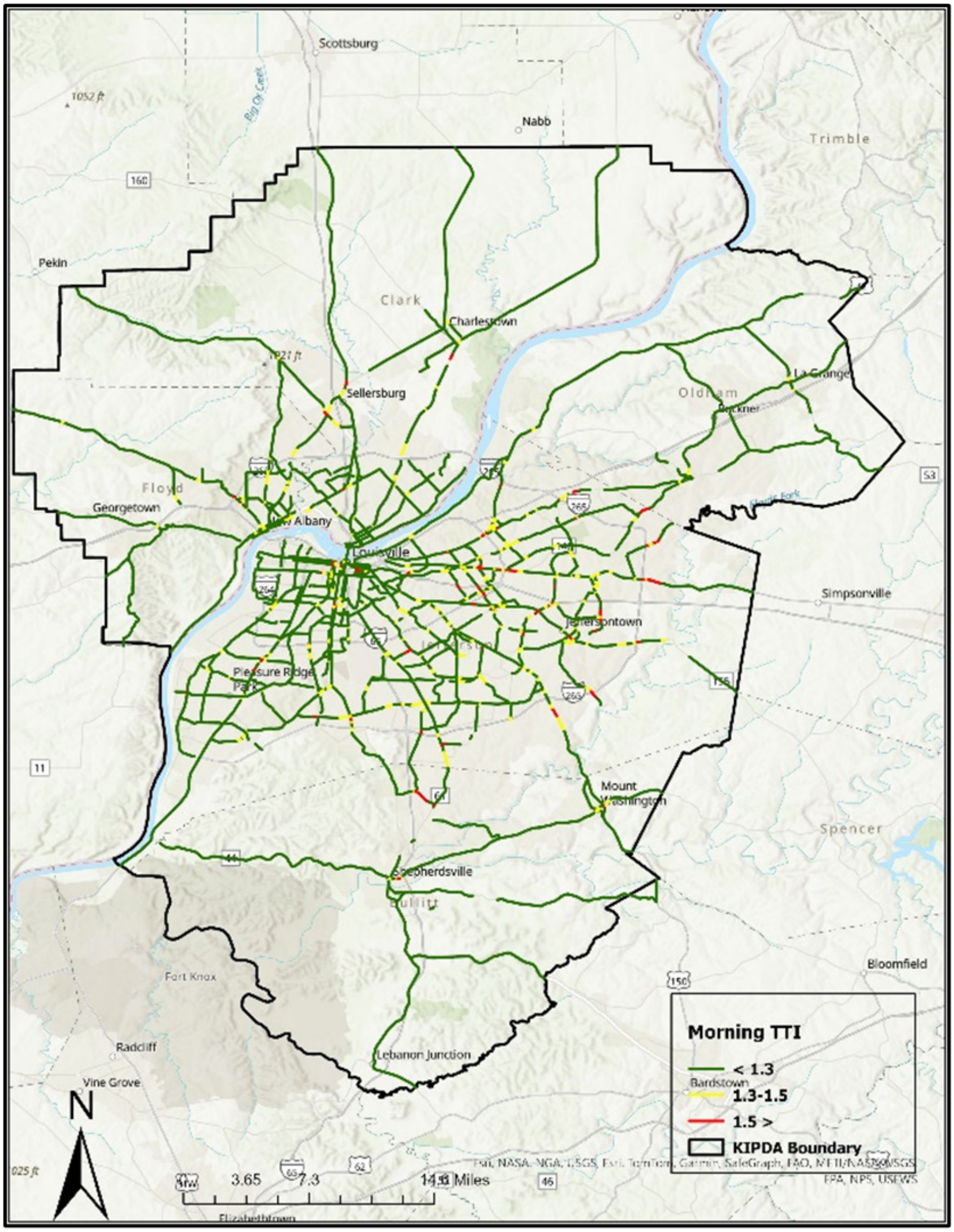


Figure 31: Morning Arterial TTI

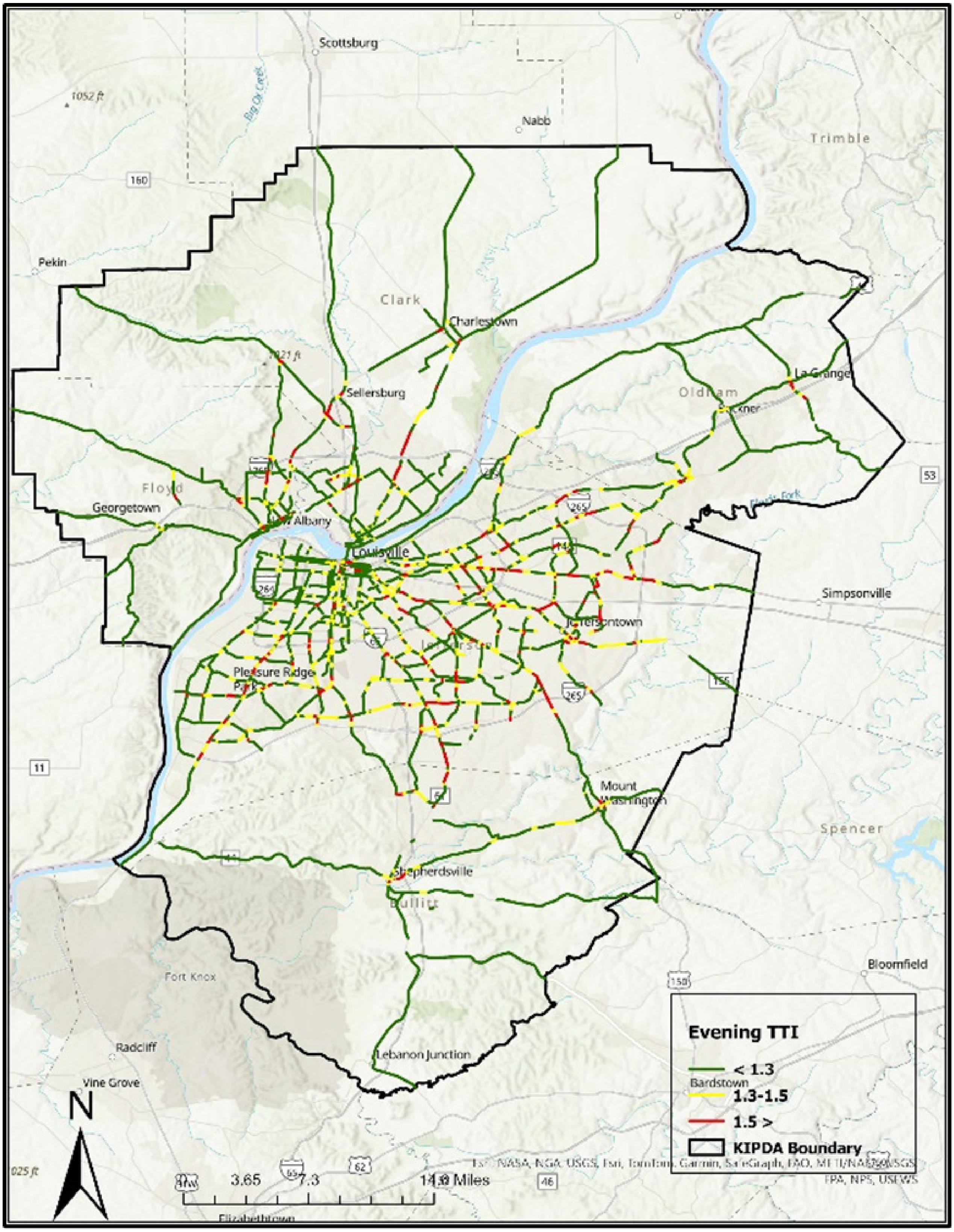


Figure 32: Evening Arterial TTI

Traffic Flow and Travel Time Analysis - Selected Routes in the KIPDA MPO Region

KIPDA conducted an in-depth analysis of travel conditions across selected routes in the region. This study assessed both usual travel times and worst-case travel times experienced during extreme congestion. To better understand the variability in travel times and the severity of delays, the analysis incorporated the Buffer Index. The Buffer Index measures the extra time a traveler should budget to ensure on-time arrival under unpredictable traffic conditions. By using this metric, the study highlights the extent of travel time fluctuations and identifies routes that require targeted congestion management strategies.

In traffic management, the buffer index time is used to assess the reliability of travel times. It measures the extra time a traveler should allow beyond the average or expected travel time to ensure on-time arrival, factoring in potential delays such as congestion. The buffer index time is calculated by subtracting the average travel time from the 95th percentile travel time (or another high percentile), then dividing that difference by the average travel time.

$$BTI = \frac{95th\ Travel\ Time\ Percentile - Avg\ Travel\ Time}{Avg\ Travel\ Time}$$

This formula shows the variability between average travel time and extreme travel times during congestion, providing a measure of how bad the traffic might get at its worst.

In the appendix, the tables show detailed traffic performance snapshot showing how fast, how reliable, and how congested the key roadways are for morning and evening times. This table presents travel time reliability and congestion conditions for major roadway segments. For each segment and direction (Southbound/Westbound and Northbound/Eastbound), it shows typical traffic volumes, speeds during free-flow and congested periods, and estimated travel times. It also includes planning times and buffer time indexes, helping assess how much extra time travelers need to account for delays.

Table 4: Traffic Flow and Travel Time Analysis

Column Name	What it Means
Route	The name of the road (like I-65, I-64, US 31E, etc.).
From	The starting cross-street or landmark for the road segment.
To	The ending cross-street or landmark for the road segment.
Distance (mi)	How long the segment is, in miles.
Traffic Volume	How many vehicles typically travel that segment per day or during a peak period.
Free Flow Speed (mph)	The typical speed when there's no congestion (light traffic).
Free Flow Travel Time (min)	How long it would take to drive the segment at free-flow speed.
Congested Speed (mph)	The actual average speed during congestion.
Average Travel Time (min)	Gagel Ave
Buffer Time Index	A measure of how much extra time you should plan for, compared to free-flow conditions. (Higher = worse reliability.)
Travel Time During Morning/Evening Rush hours	The amount of travel time spent traveling on the segment during rush times.

Chapter 5

Congestion Management Strategies

Identification and assessment of congestion mitigation strategies is an essential component of the CMP. The data and congestion analysis provide the framework for identifying congestion issues on or near the CMP network or in a High Congestion Zone in the KIPDA MPO. The following section is not an exhaustive listing of possible strategies to mitigate congestion but does offer an outline of the various strategies used and encouraged in the KIPDA MPO region. The strategies that have been selected are in alignment with the goals and objectives outlined in this plan and offer recommended solutions to effectively manage congestion.

Local Context of Strategies

Strategies should fit into the context of the community, include public involvement, and take into consideration which solutions are appropriate for a specific corridor, development, or intersection. For example, high density, mixed use, urban areas are often pedestrian friendly environments with multimodal connections. Strategies utilized in these areas will differ from ones implemented in suburban or industrial areas. Similarly, strategies to address freeway or job center congestion will differ from corridors that do not serve a high volume of commuter traffic.

Bicycle and Pedestrian

Providing a supportive pedestrian environment includes improvement and expansion of bike and pedestrian facilities. Some of these improvements include sidewalks, multi-use paths, street furniture, transit shelters, bike lanes, shared wide curb lanes, and bicycle parking and storage. In 2016, KIPDA staff collected a bicycle and pedestrian facility inventory on all roads in the MPA classified as Arterial and above. The inventory is updated periodically and is available on the KIPDA Online.

Transit

Improving transit accessibility, expanding transit services, and improving transit operations increases the efficiency of the transit system, therefore making it a more attractive travel option. "The Transit Authority of River City (TARC) provides public transportation in the Greater Louisville area with bus routes in Jefferson, Bullitt and Oldham counties in Kentucky and Clark and Floyd counties in Indiana. TARC currently runs 41 routes, owns and operates 89 paratransit vehicles, and 230 buses." 2 Two-thirds of all trips taken are for work or school; reducing traffic congestion during high commuter travel times.

Rideshare

Ride sharing is the practice of sharing rides or transportation, especially by commuters, typically in the form of carpooling and vanpooling. Ridesharing can be formal or informal and reduces the number of single occupant vehicles on the roadway which leads to less congestion. Every Commute Counts is the ridesharing program in the Louisville/Jefferson County KY-IN Metropolitan Planning Area (MPA). This program helps organize carpools and vanpools. The only requirement for utilizing this program is that a person must either work and/or reside within the KIPDA nine-county region which expands beyond the boundaries of the MPA. Efforts center on carpooling, bike-pooling, and vanpooling while providing incentives for "alternative mode" commutes.

Transportation Systems Management and Operations

Transportation systems management and operations "refers to multimodal transportation strategies to maximize the efficiency, safety, and utility of existing and planned transportation infrastructure." 3 Management and Operations strategies encompass many activities, such as:

Traffic Incident Management

- Traffic Signal Coordination
- Transit Signal Priority
- Bus Rapid Transit
- Freight and Work Zone Management
- Special Event Management
- Road Weather Management
- Congestion Pricing
- Managed Lanes
- Ridesharing and demand management programs
- Electronic Toll Collection
- Transit Smart Cards

Management and Operations are also connected to planning and infrastructure considerations such as access management, street network layout, and intersection design. Examples include:

- Use of Roundabouts
- Right-Turn Slip Lanes
- Median Islands
- Four-Way Stops
- Turning Lanes

Implementation of Strategies

Throughout project development, efforts will be made to assist project sponsors in their consideration of CMP strategies as congestion management measures. CMP-related processes have been established and planning tools made available that will integrate locally generated data, corridor-specific needs, regionally established goals and objectives, and performance -based transportation planning.

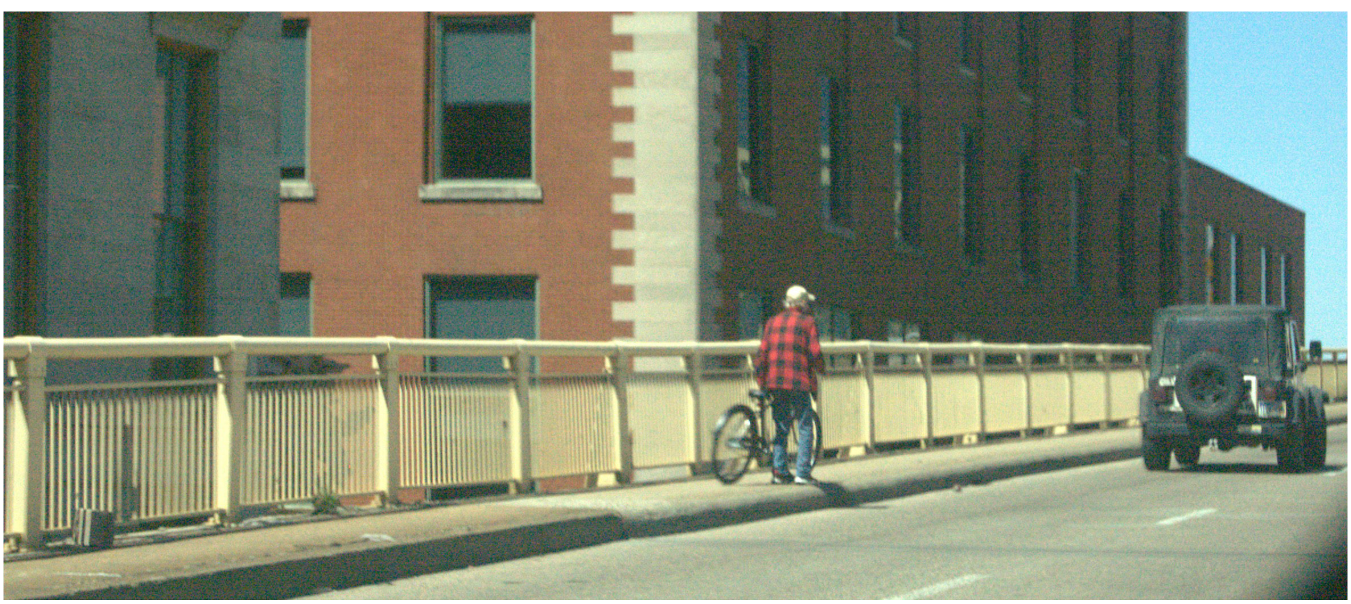
CMP project development begins with the KIPDA Metropolitan Transportation Plan (MTP), in the future referred to as Connecting Kentuckiana. Development of MTP CMP projects may occur through the update and the amendment processes. Once programmed in the MTP, the CMP-related projects and strategies will ultimately advance to the Transportation Improvement Program (TIP) for implementation while certain strategies are candidates for corridor level implementation (turning lanes, sidewalks) and others are more suited for regional consideration (transit and rideshare) there are also those strategies that may be applicable to both corridor level and regional implementation. Additionally, there are strategies that may address recurring congestion (signal timing, intersection improvements) and those that are more appropriate for non-recurring congestion (dynamic messaging signs). CMP-related projects and strategies will be considered at the corridor and regional levels, as well as in relation to recurring and non-recurring congestion. Using available data, congestion analysis, and existing transportation infrastructure inventories, the full

Connecting Kentuckiana Project Development Guidelines

Implementation of strategies will begin with the Connecting Kentuckiana Project Development Guidelines and Project Application. In fostering a collaborative CMP process, project sponsors will be responsible for identifying initial project proposals designed to manage congestion on the CMP Network. The project sponsor will also be responsible for identifying what CMP Management Strategies may be utilized as part of an initial project proposal. The Project Development Guidelines will assist sponsors as they complete their Project Application by providing guidance and identifying resources for consideration in project development. Many of the resources identified in the Project Development Guidelines are relevant to the CMP. For instance, some of the information that will be made available to project sponsors that is important to the CMP will include:

- Bicycle infrastructure inventory
- Pedestrian infrastructure inventory
- CMP Network
- Transit routes
- Vanpool routes
- Levels of current congestion
- Forecast 2050 congestion estimates (under a No Build Scenario)

The Connecting Kentuckiana Project Application will include items that are both directly and indirectly relevant to the CMP. For instance, each applicant will be responsible for identifying all pedestrian improvements associated with their proposed projects regardless of its relevance to the CMP Network. Each applicant, for example, will also be responsible for identifying whether or not their proposed project is located on the CMP Network. If a proposed project is located on the CMP Network, the project application may lead the project sponsor through a series of items designed to clarify the applicant's consideration of CMP Management Strategies.



Appendix

					Traffic Volume		Freeslow Speed(mph)		Congested Speed (mph)		Freeflow Travel Time (Minutes)		Average Travel Time (Minutes)		Buffer Time Index		Travel Time During Morning Rush	
S/N	Road Name	Segment Start	Segment End	Length	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
1	US 150	E Chestnut	Cherokee Pkwy	1.1 miles	514	1036	25.3	24.3	21.86	21	#REF!	#REF!	5.25	5.03	0.94	1.05	10.19	10.31
2	Dutchmans Ln	KY 155	KY 1932	1.3 miles	993	1473	38.3	36.2	31.75	29	#REF!	#REF!	2.68	3.28	1.73	1.36	7.32	7.74
3	KY 1747	US 60	US 150	6.2 miles	2321	3736	40.59	41.77	34.2	33.57	#REF!	#REF!	11.93	12.27	1.12	1.09	25.29	25.64
4	KY 1934	Crums Ln	KY 1931	4.7 miles	1555	2195	48.8	46.52	43.7	41	7.62	8.00	7.13	7.26	0.52	0.72	10.84	12.49
5	Taylor Blvd	Winkler Ave	I-264	4.8 miles	743	1244	38.12	37.04	31.33	33.33	#REF!	#REF!	3.42	3.23	0.73	0.52	5.92	4.91
6	KY 864	Eastern Pkwy	Produce Rd	4.2 miles	1943	2077	29.62	29.51	25.75	24	#REF!	#REF!	8.15	9.03	0.54	0.51	12.55	13.64
7	KY 1447	US 60	KY 1747	5.2 miles	2061	1098	42.17	34.15	33	27.13	#REF!	#REF!	8.83	10.6	0.47	0.58	12.98	16.75
8	KY 1065	US 150	KY 61	7.5 miles	1389	1186	33.44	33.92	28.3	28.63	#REF!	#REF!	12.03	11.73	0.66	0.65	19.97	19.35
9	W Broadway	Southwestern Pkwy	9th St	3.3 miles	866	767	33.28	28.73	27.18	24.18	#REF!	#REF!	7.53	8.18	0.76	0.79	13.25	14.64
10	Billtown Rd	Watterson Trail	I-265	3.8 miles	891	1599	39.24	39.06	32	30	#REF!	#REF!	6.03	6.52	0.47	0.5	8.86	9.78
11	Blackiston Mill Rd	Charlestown Rd	Lewis - Clark Pkwy	2.5 miles	814	644	29.48	27.45	25.25	23.6	#REF!	#REF!	5.42	5.48	0.4	0.43	7.59	7.84
12	I-71 N	I-264	I-265	5.9 miles	3851	3799	56.68	62.95	52	59	#REF!	#REF!	4.18	3.95	0.38	0.22	5.77	4.82
13	River Rd	Zorn Ave	US 42	6.9 miles	1162	393	45.2	44	40	39	#REF!	#REF!	10.28	10.8	0.17	0.16	12.03	12.53
14	US 31W	KY 1931	KY 2054	6.2 miles	2433	3349	41.52	41.75	34.43	34.59	#REF!	#REF!	12.63	12	0.72	0.85	21.72	22.20
15	Cooper Chapel Rd	KY 61	Cedar Creek Rd	4.1 miles	633	467	27.37	30.8	24.7	27.29	#REF!	#REF!	8.03	7.3	0.37	0.27	11.00	9.27
16	I-64	Mellwood Ave	I-264	4.6 miles	5960	4426	62.69	61.12	57.86	58.56	#REF!	#REF!	5.93	5.72	0.34	0.27	7.95	7.26
17	W Jefferson St	S 30th St	S 3rd St / 9th st	2.4 miles	554	132	24.5	20.17	22.14	18.25	#REF!	#REF!	6.75	5.45	0.65	0.7	11.14	9.27
18	Eastern Blvd	Lewis - Clark Pkwy	Spring St	1.9 miles	905	762	26.62	23.64	23	2.63	#REF!	#REF!	4.97	5.28	1.03	1.22	10.09	11.72
19	KY 146	KY 1408	I-265	3.6 miles	1402	982	39.28	35.85	33.42	30.3	#REF!	#REF!	6.67	6.57	0.6	0.8	10.67	11.83
20	Algonquin Pkwy	S 39th St	Winkler Ave	3.5 miles	471	594	33.59	29.68	31	26	#REF!	#REF!	6.43	7.53	0.52	0.54	9.77	11.60
21	I-65 S	E Oak St	KY 841	9.4 miles	7773	10088	65.22	66.66	63.19	60.91	#REF!	#REF!	8.62	9.13	0.3	0.43	11.21	13.06
22	I-264 W	KY 150	I-65 S	3.9 miles	6680	7483	61.3	55.54	55.8	49.62	#REF!	#REF!	4.12	4.38	0.46	0.52	6.02	6.66
23	KY 1931	Gagel Ave	KY 1934	6 miles	918	1273	34.67	34.39	29.75	29.11	#REF!	#REF!	12.13	11.82	0.48	0.49	17.95	17.61
24	Market St	9th street	Northwestern Pkwy	3.3 miles	205	472	24	25.41	19.33	22.67	#REF!	#REF!	8.5	8.35	-0.9	0.45	0.85	12.11
25	KY 1932	US 42	US 150	6.6 miles	1455	2428	32.76	33.06	27.79	26.94	#REF!	#REF!	14.25	14.8	0.92	0.7	27.36	25.16
26	KY 1065	KY 864	I-65	4.8 miles	1519	1205	37.17	34.18	32.55	30.09	#REF!	#REF!	10.1	10.97	0.68	0.78	16.97	19.53
27	Hubbards Ln	US 42	Bowling Blvd	2.4 miles	634	488	28.29	29.2	23.5	22.25	#REF!	#REF!	6.28	5.92	0.51	0.55	9.48	9.18
28	KY 155	KY 1747	US 150	5.1 miles	1542	2237	36.24	38.13	29.77	31.46	#REF!	#REF!	11.53	10.95	0.94	0.81	22.37	19.82
29	KY 61	Eastern Pkwy	KY 1065	6.3 miles	1510	2058	37.2	37.99	31.6	33.26	#REF!	#REF!	11.57	11.87	0.82	0.74	21.06	20.65
30	KY 1865	KY 841	I-264	4.7 miles	1054	2112	38.73	35.56	33.4	30.33	#REF!	#REF!	9.88	10.05	0.59	0.65	15.71	16.58
31	2nd St	W Broadway	US 31	2.2 miles	3023	1752	40.41	37.54	36.55	33.5	#REF!	#REF!	7.87	9.1	1.03	1.09	15.98	19.02
32	US 42	Mellwood Ave	I-264	4.7 miles	1338	1020	47.84	43.64	38	37.57	#REF!	#REF!	8.08	8.3	0.44	0.49	11.64	12.37
33	US 60	Breckinridge Ln	KY 1747	4.3 miles	2703	2421	38.46	41.07	30.6	32.69	#REF!	#REF!	8.77	9.02	0.87	0.96	16.40	17.68
34	I-264	US 31	I-65	9.9 miles	7456	7149	70.35	53.2	66.22	48.82	#REF!	#REF!	6.13	4.55	0.26	0.69	7.72	7.69
35	US 31W/60	KY 1931	KY 841	7 miles	1846	2422	43.09	37.92	37.38	31.57	#REF!	#REF!	7.17	7.13	0.61	0.75	11.54	12.48
36	KY 61	I-265	KY 44	8.8 miles	1656	2530	49.23	49.95	42.59	43.88	#REF!	#REF!	12.9	12.47	0.65	0.58	21.29	19.70
37	US 31	I-65	IN 311	5.9 miles	995	730	39.02	41.09	34.38	35	#REF!	#REF!	8.33	8.43	0.4	0.41	11.66	11.89
38	I-265	I-71	International Dr, IN	5.1 miles	2905	3733	71.87	72.29	70.6	70.75	#REF!	#REF!	4.32	4.07	0.2	0.21	5.18	4.92
39	KY 1703	Eastern Pkwy	KY 2052	5 miles	1914	2459	37.8	40.35	30.5	35	#REF!	#REF!	9.15	8.73	0.79	0.59	16.38	13.88
40	KY 2052	KY 1065	Hikes Ln	4.1 miles	1137	2008	34.56	38.52	30	33	#REF!	#REF!	8.33	7.62	0.58	0.58	13.16	12.04
41	KY 1020	E Main St	I-264	4.7 miles	616		24.78		21.44		#REF!	#REF!	14.32		0.8		25.78	0.00
42	10th St (Jeffersonville)	I-265	Spring St	5.1 miles	2041	1570	36.85	38.03	31.2	32.67	#REF!	#REF!	9.87	9.42	0.46	0.4	14.41	13.19
43	Veterans Pkwy/Greentr	Hamburg Pike	Lewis & Clark Pkwy	2.5 miles	1376	1279	26.78	27.72	22.72	24.14	#REF!	#REF!	6.47	6.3	0.69	0.68	10.93	10.58
44	Charlestown Rd	Vincennes St	I-265	3 miles	1545	1289	34.63	35.73	28.29	28.18	#REF!	#REF!	8.33	7.13	0.74	0.71	14.49	12.19
45	Lower Hunters Trace	US 31 W	Cane Run Rd	3 miles	464	622	32.18	33.31	28.25	28	#REF!	#REF!	6	6.75	0.46	0.53	8.76	10.33
46	KY 907	US 60	KY 1020	7 miles	691	839	35.02	35.72	29	29.22	#REF!	#REF!	13.17	12.73	0.49	0.41	19.62	17.95
47	Blankenbaker Pkwy	KY 155	US 60	4.4 miles	1834	2479	44.33	45.34	38.38	36.6	#REF!	#REF!	7.37	7.85	0.69	0.73	12.46	13.58
48	I-265	I-65	I-64	6.2 miles	6767	6547	73.66	74.35	70.13	69.73	#REF!	#REF!	12.81	12.88	0.23	0.36	15.76	17.52
49	Hikes Ln	KY 1703	KY 155	3.3 miles	1278	953	32.84	29.12	30.75	25.63	#REF!	#REF!	6.62	7.63	0.68	0.89	11.12	14.42
50	US 150	KY 44	I-265	7.5 miles	2522	4492	52.97	56.76	47.23	50.42	#REF!	#REF!	10.47	9.3	0.67	0.64	17.48	15.25
51	Mt Tabor Rd	Green Valley Rd	Charlestown Rd	2.1 miles	499	607	29.78	31.05	26.33	26.33	#REF!	#REF!	4.85	4.92	0.39	0.46	6.74	7.18
52	Grant Line Rd	8th Street	I-265	2.5 miles	1523	1252	33.08	33.93	25.17	27.33	#REF!	#REF!	5.77	5.72	0.66	0.47	9.58	8.41

					Traffic Volume		Freeslow Speed(mph)		Congested Speed (mph)		Freeflow Travel Time (Minutes)		Average Travel Time (Minutes)		Buffer Time Index		Travel Time During Morning Rush	
S/N	Road Name	Segment Start	Segment End	Length	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB
1	US 150	E Chestnut	Cherokee Pkwy	1.1 miles	514	1036	25.3	24.3	21.86	21	#REF!	#REF!	5.25	5.03	0.94	1.05	10.19	10.31
2	Dutchmans Ln	KY 155	KY 1932	1.3 miles	993	1473	38.3	36.2	31.75	29	#REF!	#REF!	2.68	3.28	1.73	1.36	7.32	7.74
3	KY 1747	US 60	US 150	6.2 miles	2321	3736	40.59	41.77	34.2	33.57	#REF!	#REF!	11.93	12.27	1.12	1.09	25.29	25.64
4	KY 1934	Crums Ln	KY 1931	4.7 miles	1555	2195	48.8	46.52	43.7	41	7.62	8.00	7.13	7.26	0.52	0.72	10.84	12.49
5	Taylor Blvd	Winkler Ave	I-264	4.8 miles	743	1244	38.12	37.04	31.33	33.33	#REF!	#REF!	3.42	3.23	0.73	0.52	5.92	4.91
6	KY 864	Eastern Pkwy	Produce Rd	4.2 miles	1943	2077	29.62	29.51	25.75	24	#REF!	#REF!	8.15	9.03	0.54	0.51	12.55	13.64
7	KY 1447	US 60	KY 1747	5.2 miles	2061	1098	42.17	34.15	33	27.13	#REF!	#REF!	8.83	10.6	0.47	0.58	12.98	16.75
8	KY 1065	US 150	KY 61	7.5 miles	1389	1186	33.44	33.92	28.3	28.63	#REF!	#REF!	12.03	11.73	0.66	0.65	19.97	19.35
9	W Broadway	Southwestern Pkwy	9th St	3.3 miles	866	767	33.28	28.73	27.18	24.18	#REF!	#REF!	7.53	8.18	0.76	0.79	13.25	14.64
10	Billtown Rd	Watterson Trail	I-265	3.8 miles	891	1599	39.24	39.06	32	30	#REF!	#REF!	6.03	6.52	0.47	0.5	8.86	9.78
11	Blackiston Mill Rd	Charlestown Rd	Lewis - Clark Pkwy	2.5 miles	814	644	29.48	27.45	25.25	23.6	#REF!	#REF!	5.42	5.48	0.4	0.43	7.59	7.84
12	I-71 N	I-264	I-265	5.9 miles	3851	3799	56.68	62.95	52	59	#REF!	#REF!	4.18	3.95	0.38	0.22	5.77	4.82
13	River Rd	Zorn Ave	US 42	6.9 miles	1162	393	45.2	44	40	39	#REF!	#REF!	10.28	10.8	0.17	0.16	12.03	12.53
14	US 31W	KY 1931	KY 2054	6.2 miles	2433	3349	41.52	41.75	34.43	34.59	#REF!	#REF!	12.63	12	0.72	0.85	21.72	22.20
15	Cooper Chapel Rd	KY 61	Cedar Creek Rd	4.1 miles	633	467	27.37	30.8	24.7	27.29	#REF!	#REF!	8.03	7.3	0.37	0.27	11.00	9.27
16	I-64	Mellwood Ave	I-264	4.6 miles	5960	4426	62.69	61.12	57.86	58.56	#REF!	#REF!	5.93	5.72	0.34	0.27	7.95	7.26
17	W Jefferson St	S 30th St	S 3rd St / 9th st	2.4 miles	554	132	24.5	20.17	22.14	18.25	#REF!	#REF!	6.75	5.45	0.65	0.7	11.14	9.27
18	Eastern Blvd	Lewis - Clark Pkwy	Spring St	1.9 miles	905	762	26.62	23.64	23	2.63	#REF!	#REF!	4.97	5.28	1.03	1.22	10.09	11.72
19	KY 146	KY 1408	I-265	3.6 miles	1402	982	39.28	35.85	33.42	30.3	#REF!	#REF!	6.67	6.57	0.6	0.8	10.67	11.83
20	Algonquin Pkwy	S 39th St	Winkler Ave	3.5 miles	471	594	33.59	29.68	31	26	#REF!	#REF!	6.43	7.53	0.52	0.54	9.77	11.60
21	I-65 S	E Oak St	KY 841	9.4 miles	7773	10088	65.22	66.66	63.19	60.91	#REF!	#REF!	8.62	9.13	0.3	0.43	11.21	13.06
22	I-264 W	KY 150	I-65 S	3.9 miles	6680	7483	61.3	55.54	55.8	49.62	#REF!	#REF!	4.12	4.38	0.46	0.52	6.02	6.66
23	KY 1931	Gagel Ave	KY 1934	6 miles	918	1273	34.67	34.39	29.75	29.11	#REF!	#REF!	12.13	11.82	0.48	0.49	17.95	17.61
24	Market St	9th street	Northwestern Pkwy	3.3 miles	205	472	24	25.41	19.33	22.67	#REF!	#REF!	8.5	8.35	-0.9	0.45	0.85	12.11
25	KY 1932	US 42	US 150	6.6 miles	1455	2428	32.76	33.06	27.79	26.94	#REF!	#REF!	14.25	14.8	0.92	0.7	27.36	25.16
26	KY 1065	KY 864	I-65	4.8 miles	1519	1205	37.17	34.18	32.55	30.09	#REF!	#REF!	10.1	10.97	0.68	0.78	16.97	19.53
27	Hubbards Ln	US 42	Bowling Blvd	2.4 miles	634	488	28.29	29.2	23.5	22.25	#REF!	#REF!	6.28	5.92	0.51	0.55	9.48	9.18
28	KY 155	KY 1747	US 150	5.1 miles	1542	2237	36.24	38.13	29.77	31.46	#REF!	#REF!	11.53	10.95	0.94	0.81	22.37	19.82
29	KY 61	Eastern Pkwy	KY 1065	6.3 miles	1510	2058	37.2	37.99	31.6	33.26	#REF!	#REF!	11.57	11.87	0.82	0.74	21.06	20.65
30	KY 1865	KY 841	I-264	4.7 miles	1054	2112	38.73	35.56	33.4	30.33	#REF!	#REF!	9.88	10.05	0.59	0.65	15.71	16.58
31	2nd St	W Broadway	US 31	2.2 miles	3023	1752	40.41	37.54	36.55	33.5	#REF!	#REF!	7.87	9.1	1.03	1.09	15.98	19.02
32	US 42	Mellwood Ave	I-264	4.7 miles	1338	1020	47.84	43.64	38	37.57	#REF!	#REF!	8.08	8.3	0.44	0.49	11.64	12.37
33	US 60	Breckinridge Ln	KY 1747	4.3 miles	2703	2421	38.46	41.07	30.6	32.69	#REF!	#REF!	8.77	9.02	0.87	0.96	16.40	17.68
34	I-264	US 31	I-65	9.9 miles	7456	7149	70.35	53.2	66.22	48.82	#REF!	#REF!	6.13	4.55	0.26	0.69	7.72	7.69
35	US 31W/60	KY 1931	KY 841	7 miles	1846	2422	43.09	37.92	37.38	31.57	#REF!	#REF!	7.17	7.13	0.61	0.75	11.54	12.48
36	KY 61	I-265	KY 44	8.8 miles	1656	2530	49.23	49.95	42.59	43.88	#REF!	#REF!	12.9	12.47	0.65	0.58	21.29	19.70
37	US 31	I-65	IN 311	5.9 miles	995	730	39.02	41.09	34.38	35	#REF!	#REF!	8.33	8.43	0.4	0.41	11.66	11.89
38	I-265	I-71	International Dr, IN	5.1 miles	2905	3733	71.87	72.29	70.6	70.75	#REF!	#REF!	4.32	4.07	0.2	0.21	5.18	4.92
39	KY 1703	Eastern Pkwy	KY 2052	5 miles	1914	2459	37.8	40.35	30.5	35	#REF!	#REF!	9.15	8.73	0.79	0.59	16.38	13.88
40	KY 2052	KY 1065	Hikes Ln	4.1 miles	1137	2008	34.56	38.52	30	33	#REF!	#REF!	8.33	7.62	0.58	0.58	13.16	12.04
41	KY 1020	E Main St	I-264	4.7 miles	616		24.78		21.44		#REF!	#REF!	14.32		0.8		25.78	0.00
42	10th St (Jeffersonville)	I-265	Spring St	5.1 miles	2041	1570	36.85	38.03	31.2	32.67	#REF!	#REF!	9.87	9.42	0.46	0.4	14.41	13.19
43	Veterans Pkwy/Greentr	Hamburg Pike	Lewis & Clark Pkwy	2.5 miles	1376	1279	26.78	27.72	22.72	24.14	#REF!	#REF!	6.47	6.3	0.69	0.68	10.93	10.58
44	Charlestown Rd	Vincennes St	I-265	3 miles	1545	1289	34.63	35.73	28.29	28.18	#REF!	#REF!	8.33	7.13	0.74	0.71	14.49	12.19
45	Lower Hunters Trace	US 31 W	Cane Run Rd	3 miles	464	622	32.18	33.31	28.25	28	#REF!	#REF!	6	6.75	0.46	0.53	8.76	10.33
46	KY 907	US 60	KY 1020	7 miles	691	839	35.02	35.72	29	29.22	#REF!	#REF!	13.17	12.73	0.49	0.41	19.62	17.95
47	Blankenbaker Pkwy	KY 155	US 60	4.4 miles	1834	2479	44.33	45.34	38.38	36.6	#REF!	#REF!	7.37	7.85	0.69	0.73	12.46	13.58
48	I-265	I-65	I-64	6.2 miles	6767	6547	73.66	74.35	70.13	69.73	#REF!	#REF!	12.81	12.88	0.23	0.36	15.76	17.52
49	Hikes Ln	KY 1703	KY 155	3.3 miles	1278	953	32.84	29.12	30.75	25.63	#REF!	#REF!	6.62	7.63	0.68	0.89	11.12	14.42
50	US 150	KY 44	I-265	7.5 miles	2522	4492	52.97	56.76	47.23	50.42	#REF!	#REF!	10.47	9.3	0.67	0.64	17.48	15.25
51	Mt Tabor Rd	Green Valley Rd	Charlestown Rd	2.1 miles	499	607	29.78	31.05	26.33	26.33	#REF!	#REF!	4.85	4.92	0.39	0.46	6.74	7.18
52	Grant Line Rd	8th Street	I-265	2.5 miles	1523	1252	33.08	33.93	25.17	27.33	#REF!	#REF!	5.77	5.72	0.66	0.47	9.58	8.41