2050 Metropolitan Transportation Plan

KYOVA Interstate Planning Commission

Plan prepared by

BURGESS & NIPLE

KYOVA 2050 Metropolitan Transportation Plan (MTP)

KYOVA Interstate Planning Commission

400 Third Avenue

Huntington, West Virginia 25701

www.kyovaipc.org

March 2022

Abstract

TITLE: **KYOVA 2050 Metropolitan Transportation Plan**

AUTHORS: **KYOVA Interstate Planning Commission**
Kimley-Horn and Associates, Inc. (lead consultant)

SUBJECT: The development of the KYOVA 2050 Metropolitan Transportation Plan (MTP) was accomplished by the Infrastructure Investment and Jobs Act ((JA) (Public Law 117-58, also known as the Bipartisan Infrastructure Law (BIL), signed into law on November 21, 2021. The bill included the reauthorization of the Fixing America's Surface Transportation (FAST) Act, which had been in effect since 2016 and requires a long-range transportation plan be adopted by each Metropolitan Planning Organization and updated every five years. The MTP was developed in cooperation with the West Virginia Department of Transportation, Ohio Department of Transportation, Kentucky Transportation Cabinet, Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Tri-State Transit Authority (TTA), Ashland Bus System (ABS), and Lawrence County Public Transit System.

DATE: **February 2022**

SOURCE: **KYOVA Interstate Planning Commission**

400 Third Avenue www.kyovaipc.org
Huntington, West Virginia 25701

AUTHORIZED OFFICER: **Christopher M. Chiles, Executive Director** cchiles@kyovaipc.org

ABSTRACT: This document describes the process of the development of the KYOVA 2050 MTP. The KYOVA 2050 MTP recommends the region's transportation system needs through 2050, based on best analysis of current conditions and projected needs and guided by the complex requirements of the Fixing America's Surface Transportation (FAST) Act and Clean Air Act Amendment (CAAA). The KYOVA 2050 MTP recognizes the relationship between transportation facilities, employment, population, goods movement, land use, and air quality. The KYOVA 2050 MTP emphasizes maintaining and increasing the operating efficiency of the existing system before expensive new facilities are considered. It recognizes that improvement to river, rail, air, trail, and transit systems are equally important as improvement to the highway system. It is estimated that $6 billion in WVDOT, KYTC, ODOT, FTA and FHWA funds will be available through 2050 to fund capital, maintenance, and operation projects. The KYOVA 2050 MTP will be updated every five years.

This area is required to conduct conformity determinations for the 1997 8-hour ozone standard; however, only the conformity report is required, not regional emissions analysis. This area is in attainment for the 2008 8-hour ozone standard. Due to the insignificance finding of the 1997 PM2.5 no regional modeling analysis is required as the Huntington-Ashland area is in attainment for the 24-hour 2006 PM2.5 standard. KYOVA Performance Targets: KYOVA supports the State DOT's Targets and this has been completed within 180 days of states adoption of goals. A mechanism jointly with the State DOTs is established to report these targets and annual values upon request of FHWA and FTA.

KYOVA Staff Members

Chris Chiles, Executive Director

Saleem A. Salameh, Ph.D., P.E., Deputy Executive Director/Technical Study Director

Terri Sicking, Senior Transportation Planner

Jody Sigmon, Transportation Planner /System Performance

Bethany Wild, Transportation Planner/GIS

Paul Young, Web Designer/System Analyst

Danielle Slusher, Finance/Office Manager/Title VI Environmental Justice Officer

Steve Fry, Finance Assistant

Annette Johnson, Transportation Technician/Administrative Assistant

KYOVA 2050 MTP Development Schedule

- 02/22/2022—First Draft KYOVA 2050 MTP
- 03/28/2022—Final Draft KYOVA 2050 MTP

Acknowledgements

On behalf of the project team, the KYOVA Interstate Planning Commission thanks the diverse group of participants whose input was instrumental to creating a blueprint for a safe and sustainable transportation system that provides real choice among modes of travel. The KYOVA 2050 Metropolitan Transportation Plan is the direct result of a collaborative effort between the MPO and its member jurisdictions with support from the West Virginia Department of Transportation, Kentucky Transportation Cabinet, Ohio Department of Transportation, numerous federal agencies, and a host of stakeholders. We extend our sincere appreciation to the elected officials, residents, stakeholders, and local staff who participated in the planning process and guided the development of this plan. Everyone's time, input, and energy are greatly appreciated.

KYOVA

Chris Chiles, Executive Director
Saleem Salameh, Deputy Executive Director/Technical Study Director
Terri Sicking, Senior Transportation Planner
Jody Sigmon, Transportation Planner
Bethany Wild, Transportation Planner
Paul Young, Web Designer/System Analyst
Dora A. Young, Fiscal/Office Manager
Danielle Slusher, Secretary/Bookkeeper
Annette Johnson, Administrative Assistant

Consultant Team

Burgess & Niple
HDR Engineering, Inc.
Burton Planning Services

Advisory Group

Chris Kinsey - WVDOH
Brian Carr - WVDOH
Scott Eplin - WVDOH District 2
Rob Pennington- WVDOH District 2
Jim Insco- City of Huntington
Bre Shell- City of Huntington
Janney Lockman- City of Huntington
Hank Dial - City of Huntington
Cathy Burns - Huntington Municipal Development Authority
Chris Tatum-Village of Barboursville
Danny Porter- Village of Barboursville
Beth Thompson- Cabell County Commission
Keli Sobonya- Cabell County Commission
Jeffrey Maddox- Wayne County Commission
Jimmy Boggs- Wayne County Commission
Thomas Witt - KYTC
Darrin Eldridge - KYTC D9
Blake Jones - KYTC D9
Michael Read - KYTC D9
Robert Carpenter-Greenup County
Michael Graese-Ashland City Manager
Eric Chaney - Boyd County
Phil Biggs - Boyd/Greenup County
Nate Brugler - ODOT
Jordan Whisler - ODOT
Scott Thompson - ODOT D9
Christopher Pridemore - ODOT D9
Patricia Wetzel - ODOT D9
Patrick Leighty - Lawrence County Engineer
Ralph Kline - Lawrence County
Bill Dingus - Lawrence County
Vicki Green - FIVCO
Doug Pinkerton - FIVCO
Kelly Ward - FIVCO
Paul Davis - Tri-State Transit Authority
Jennifer Woodall - Tri-State Transit Authority
Randy Wheeler - Ashland Bus System
Mike Payne - Lawrence County Transit
Brent Brown- Tri-State Airport
Jason Workman - FHWA
Bernadette Dupont – FHWA
Velyjha Southern - FHWA

Contents

Exhibits

Tables

1.0 Introduction

The KYOVA 2050 Metropolitan Transportation Plan (MTP) addresses transportation needs in Cabell and Wayne Counties in West Virginia, Boyd and Greenup Counties in Kentucky, and Lawrence County Ohio. The plan focuses on the continued development of a multimodal transportation system fostering economic growth without compromising the region's natural character.

The KYOVA 2050 MTP identifies project and policy recommendations to address needs in the region's multimodal transportation system through the year 2050. Strategic investment in major roadways are balanced with improvements to the bicycle, pedestrian, transit, rail, and freight network. These improvements keep people and goods moving, allow better and more equitable access and mobility for residents and visitors, and enhance the area's quality of life. The plan supports a balanced transportation network built upon the premise of choice and connectivity.

To create this plan, KYOVA conducted extensive stakeholder and public engagement, analyzed trends in population and employment growth, identified existing and anticipated future transportation network deficiencies, and developed a series of prioritized project and strategy recommendations.

1.1 KYOVA Interstate Planning Commission

The KYOVA Interstate Planning Commission is the Metropolitan Planning Organization (MPO) that serves local governments in southwestern West Virginia, eastern Kentucky, and southeastern Ohio. The MPO's goal is to promote cooperation among members, the governments closest to the people, and to maximize their capabilities for solving regional transportation needs. By working as a tri-state organization, KYOVA facilitates the continued development and enhancement of a comprehensively planned multimodal transportation system that functions across state lines.

KYOVA was formally organized on October 11, 1968. Its creation, via interstate compact, was the culmination of years of thought initiated in 1965 with the beginning of the Huntington-Ashland-Ironton Area Transportation Study (HAIATS). KYOVA was formed from HAIATS to coordinate and administer transportation planning.

In the late 1980s, the state of Kentucky elected to form a separate MPO from the Kentucky portion of HAIATS. Then, the Transportation Study name changed to Huntington-Ironton Area Transportation Study (HIATS), reflecting that Ashland and the associated Kentucky counties were no longer covered by the agency.

In March 2012, the U.S. Census Bureau released its 2010 urbanized area (UZA) information which demonstrated that the Huntington, WV–KY–OH Urbanized Area grew in terms of land area and population. The 2010 population for the Huntington, WV-KY-OH Urbanized Area exceeded 200,000, and as a result of the population growth, the area was designated a Transportation Management Area (TMA). The newly designated Huntington, WV-KY-OH TMA included Boyd and Greenup counties, Kentucky with the previous West Virginia counties of Cabell and Wayne and the urbanized portion of Lawrence County, Ohio. Additionally, the areas of Hurricane and Teays Valley in Putnam County, West Virginia were included in the March 2012 TMA designation. As a result, beginning July 1, 2013, all MPO planning activities relating to the Boyd and Greenup counties in Kentucky were reunited with the KYOVA Interstate Planning Commission. However, the transportation planning activities for Putnam County continue to be overseen by the Regional Intergovernmental Council (RIC) located in Charleston, West Virginia.

The study area for the KYOVA 2050 MTP encompasses all of Wayne, Cabell, Greenup, and Boyd Counties, along with the urbanized area of southern Lawrence County which includes the town

of Ironton and the land immediately adjacent to the northern bank of the Ohio River. **Exhibit 1-1** illustrates the study area for the KYOVA 2050 MTP.

1.2 Purpose of the MTP

A region's metropolitan transportation plan is the blueprint for developing a transportation system that accommodates the current mobility needs of the area's residents but also anticipates the future and where new needs will arise. The MTP is a financially constrained plan, meaning it identifies projects and programs that can be implemented within the years of the plan with the anticipated funds available. The MTP will help guide regular updates of the KYOVA Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP). In response to federal mandates and the desires of local residents, the KYOVA 2050 MTP addresses all modes of transport including automobile, bicycle, pedestrian, transit, air, rail, maritime, and freight movements.

1.3 Federal Planning Requirements

The transportation plan is shaped by several elements, primarily federal legislation, but also the direction of state and local agencies. The federal government requires a metropolitan transportation plan to be updated every five years to reflect the region's changing needs and priorities. The KYOVA 2050 MTP was developed to meet all requirements of the Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58, also known as the Bipartisan Infrastructure Law [BIL]), signed into law on November 21, 2021. The bill included the reauthorization of the Fixing America's Surface Transportation (FAST) Act, which had been in effect since 2016, and the previous transportation bill – Moving Ahead forProgress in the 21st Century Act (MAP-21), which was signed into law on July 6, 2012.

1.3.1 Planning Factors

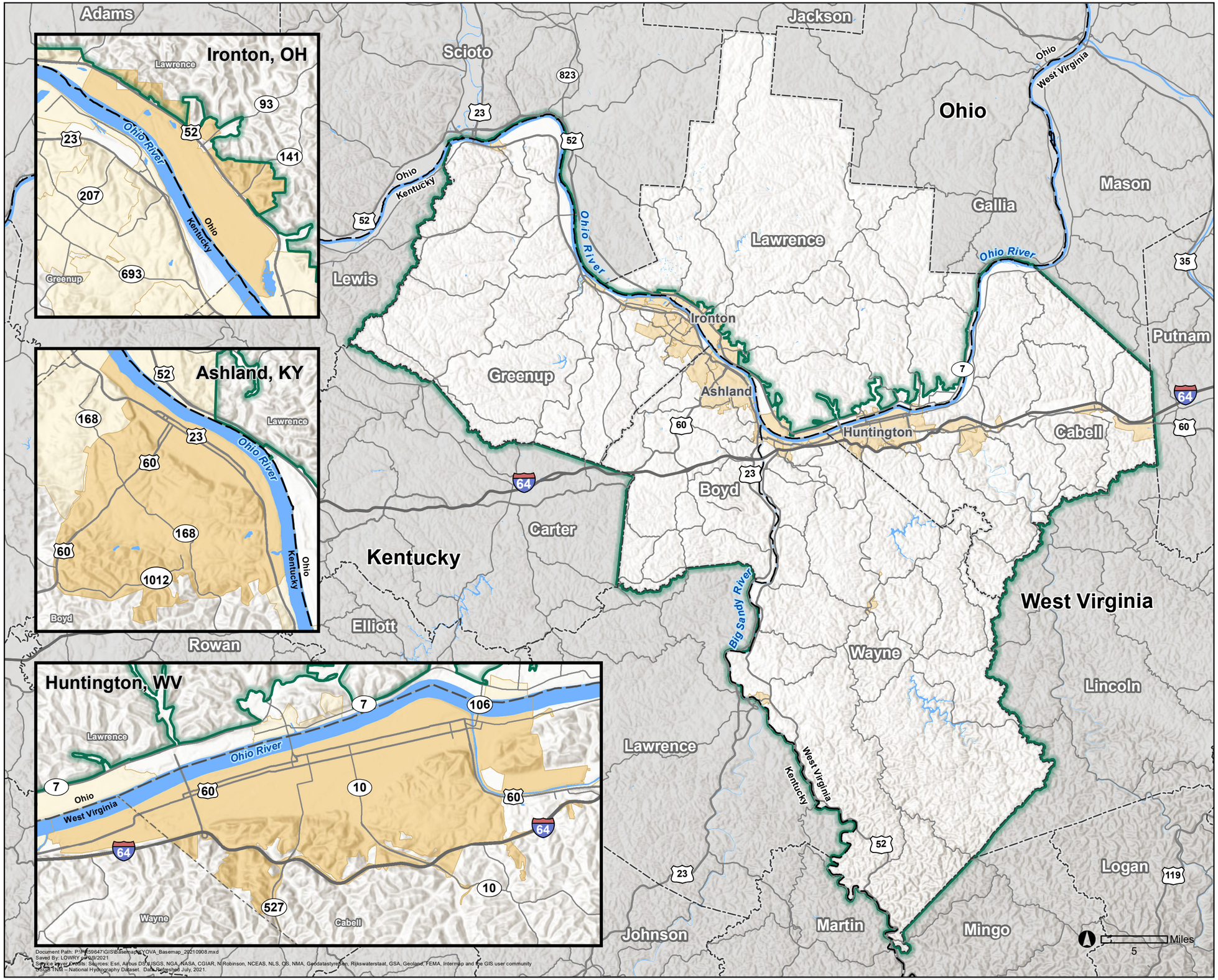
The FAST Act addresses challenges inherent to the modern transportation system including safety, security, traffic congestion, intermodal connectivity, freight movement, and environmental protection. It lists ten planning factors that agencies must consider when developing their plans. These planning factors require the planning process to consider projects and strategies that:

- Support economic vitality, especially by enabling global competitiveness, productivity, and efficiency.
- Increase the safety of the transportation system for motorized and non-motorized users.
- Increase the security of the transportation system for motorized and non-motorized users.
- Increase accessibility and mobility options available to people and freight.
- Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
- Promote efficient system management and operation.
- Emphasize the preservation of the existing transportation system.
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
- Enhance travel and tourism.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 1-1

Study Area



Legend

KYOVA MPO Boundary

Document Path: P:\P59647\GIS\Basemap\KYOVA_Basemap_20210908.mxd
Saved By: LOWRY on 9/9/2021
Service Layer Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS 1NM – National Hydrography Dataset. Data Refreshed July, 2021.

Last Updated: 9/9/2021

1.3.2 Performance Measurement

Federal transportation legislation requires a performance-based planning approach that supports national goals and performance measures. This approach requires MPOs, in coordination with the states and transit providers, to develop targets that address specific performance measures. National performance goals have been established for seven key areas and states are required to establish performance targets in support of these national goals. Projects included in the fiscally-constrained KYOVA 2050 MTP address transportation needs in one or more of these key areas:

- Safety
- Infrastructure Condition
- Congestion Reduction
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability
- Reduced Project Delivery Delays

1.4 Participants

KYOVA works in coordination with the state departments of transportation in West Virginia, Kentucky, and Ohio as well as local governments in the region to plan for future infrastructure improvements. The KYOVA Policy Committee, the decision-making body of the MPO, is made up of elected and appointed officials from member local governments and major organizations. The KYOVA Technical Advisory Committee (TAC) is appointed by the Policy Committee to provide technical, legal, and financial advice to the Policy Committee. In addition to the Policy Committee and TAC, KYOVA formed an Advisory Group to help guide development of the 2050 MTP. The Advisory Group included representatives from both the Policy Committee and TAC as well as other key stakeholders in the region. Additional details about the specific stakeholder and public engagement activities conducted during development of the KYOVA 2050 MTP are provided in **Chapter 2** of this plan.

1.5 MTP Development

The KYOVA 2050 MTP builds on the KYOVA 2040 Integrated MTP and numerous other planning efforts conducted in the region by KYOVA and its agency partners. The planning process included the following activities:

- A public involvement program including the development of a project website, an online survey and open house, and two public meetings.
- Stakeholder engagement consisting of stakeholder interviews, focus group facilitation, and working with the Advisory Group.
- Establishing a vision, goals, and objectives.
- Identifying baseline performance conditions of the region's transportation system in relation to federal performance measures and KYOVA performance targets.
- Data collection and documentation of existing conditions.
- Transportation system overview and analysis of roads and highways; transit routes and facilities; bicycle and pedestrian ways; railroads, intermodal facilities; airports; river ports; and pipelines.
- Updating the KYOVA Travel Demand Model and validating results.
- Identification of existing and anticipated future regional transportation needs through 2050.
- Development and evaluation of transportation improvements and strategies to meet the identified needs.

- Development of a financial plan to meet the requirements for MPOs to develop fiscally constrained long-range transportation plans.
- Reviewing recommended projects for potential ecological and/or environmental justice impacts.
- Air quality conformity analysis and consultation.
- Development of the MTP document.

1.6 Plan Organization

The KYOVA 2050 MTP updates the previous long-range transportation plan, the KYOVA 2040 Integrated MTP. It identifies key regional transportation decisions based on community needs and provides critical information for consideration in the prioritization and funding of near-term projects in the KYOVA TIP. The plan is divided into the following chapters:

Executive Summary - The Executive Summary provides a high-level overview of the information contained in the full plan document.

Chapter 1: Introduction - This chapter provides background information about the purpose of the plan, the role of KYOVA, the regulatory framework guiding plan development, and the process used to prepare the updated MTP.

Chapter 2: Public and Stakeholder Involvement This chapter describes the public and stakeholder engagement approach, activities, input, and outcomes.

Chapter 3: Vision, Goals, and Objectives – This chapter discusses the region's transportation vision, goals, and objectives.

Chapter 4: Regional Profile - Examines demographic trends, environmental characteristics, and community resources to provide a spatial frame of reference to assess the relative impacts of recommended projects on the community.

Chapter 5: Regional Travel Demand Model – This chapter summarizes how the project team used the KYOVA regional travel demand model to identify current and anticipated future traffic conditions.

Chapter 6: Transportation System Overview and Analysis - Describes the transportation system review and analysis process and summarizes transportation system needs.

Chapter 7: Performance Based Planning – This chapter describes the federal performance measures and the performance targets adopted by KYOVA to support the federal measures. It also discusses the condition and performance of the existing system with respect to the federal performance targets, and progress achieved in meeting the performance targets compared to baseline performance conditions.

Chapter 8: Multimodal Recommendations - This chapter identifies the candidate projects and strategies and describes the project prioritization process that was used to evaluate and prioritize the candidate projects.

Chapter 9: Financial Plan – This chapter identifies anticipated revenues through 2050 and the estimated costs of implementing plan recommendations. This chapter presents fiscally-constrained lists of projects within the near-term, mid-term, and long-term phases of the KYOVA 2050 MTP and also identifies a series of unfunded needs.

Chapter 10: Environmental Screening – This chapter describes the process and results of the ecological and environmental justice screening that will review each of the recommended fiscally-constrained projects to identify any potential adverse impacts. This chapter will also discuss mitigation measures.

Chapter 11: Air Quality Conformity – This chapter includes a summary of the air quality analysis process that was used to demonstrate conformity of the MTP.

2.0 Public and Stakeholder Involvement

Successful planning projects begin with an inclusive process of strong citizen and stakeholder involvement. This process recognizes citizens and community stakeholders have an intimate knowledge of the places where they live, work, and travel as well as the problems they encounter along the way. The planning process for the KYOVA 2050 MTP was designed to create an open dialogue about the needs of current and future residents, businesses, and visitors. Local staff and the project team worked alongside active members of the community throughout the planning process.

2.1 Public Involvement

KYOVA conducted extensive public involvement to help guide development of the 2050 MTP. Public involvement included an online project website, two online open houses with online surveys, three online public meetings, press releases, social media, and targeted underserved populations outreach. The public and stakeholder engagement approach and activities were consistent with KYOVA's Participation Plan and conducted in accordance with Title VI of the Civil Rights Act of 1964 (Title VI) and the Environmental Justice requirements established in Executive Order 12898.

There was also a 30-day public comment period conducted along with the release of the draft MTP between February 22 and March 23, 2022. No public comments were submitted during the 30-day public comment period.

2.2.1 Project Website

KYOVA created a project website (www.kyova2050.com) to provide a platform for sharing information about the MTP development progress. The website provided background information on the purpose and scope of the MTP. In addition, the website hosted online open houses, online surveys, and an interactive mapping tool.

2.2.2 Public Open Houses

The first online public open house ran from September 20th, 2021 through October 20th, 2021. The purpose of this open house was to announce the start of the MTP development and gather input from the community on the priorities and needs that should be considered during the planning process.

The second online public open house ran from January 18th, 2022 – February 1st, 2022. The purpose of this open house was to provide an update on the MTP status and share the preliminary recommendations with the public before completing the draft plan. For this open house, an online comment form was set up to allow people to easily provide input and comment on the preliminary recommendations.

Advertisements and Materials

Both open houses were advertised through the KYOVA website, the KYOVA 2050 MTP website, press releases (see **Appendix A**), social media, and flyers. The online open houses include pre-recorded presentation videos with project updates that participants could access at any time throughout the duration of the open house.

2.2.3 Public Meetings

In addition to the open houses, KYOVA also hosted two online public meetings during the plan development. These online meetings shared similar information as what was shared through the open houses but also provided an opportunity for the public to hear a live presentation and provide comments and ask questions in real time. Both meetings were held using the Zoom platform. The first online public meeting was November 17th from 4:00 to 6:00 PM. The second online public meeting was January 18th from 5:00 to 6:00 PM. A third online public meeting was held March 1st, 2022 from 5:00 to 6:00 PM to coincide with a 30-day public review of the draft KYOVA 2050 MTP, which took place February 22nd – March 23rd, 2022.

Advertisements and Materials

Advertisements for the public meetings were similar to those for the open houses and included posts on the KYOVA website, the 2050 MTP website, press releases (see **Appendix A**), social media advertisements on the KYOVA Facebook channel, and flyers distributed through KYOVA stakeholders.

2.2.4 Online Survey

An online survey was provided on the project website. Hard copies of the survey were also distributed to provide the option to mail in responses (see **Section 2.2.6**). The survey consisted of four questions, including one open-ended question. A total of six responses were received. Responses are summarized below.

Question 1: How do you rate the following in the region?

This question asked respondents to rate the condition of 11 different elements of the region's transportation system: parking and signage, traffic congestion, traffic signals, transit service, intraregional connectivity, traffic safety, roadway maintenance, attractiveness of roads, sidewalks/crosswalks, greenways/multi-use paths, and on-street bicycle facilities. Respondents were asked to rate each category as Excellent, Good, Fair, Poor, or No Opinion. Traffic congestion and parking and signage received the highest average ratings and on-street bicycle facilities received the lowest average ratings, with five respondents rating them as "Poor".

Question 2: Regional Objectives

This question assessed the relative importance of nine regional transportation objectives. Overall, the objective "Improving access to work, school, recreation, shopping, and other destinations" emerged as the most important objective and, 'Reducing travel time and delays on roadways' as the least important objective. The average scores of each objective, on a scale of 1 (least important) to 5 (most important) are provided in **Table 2-1**.

Table 2-1 – Average Level of Importance of Transportation Objectives

Regional Objective	Average Level of Importance
Improving access to work, school, recreation, shopping, and other destinations	4.5
Supporting economic development and job growth	4.2
Making it safer to walk or bicycle	4.2
Reducing crashes at high-crash locations	4.0
Enhancing the visual/aesthetic quality of roadways	3.7
Maintaining a smooth, drivable roadway pavement	3.7
Reducing emergency response times	3.7
Strengthening connections between cities	3.5
Reducing travel time and delays on roadways	3.2

Question 3: How Important are the Following Improvements?

This question asked participants to rate the relative importance of nine different types of transportation improvement for the region. Overall, 'adding more multi-use paths, trails, and greenways for bicycles and pedestrians' was selected to be the most important whereas, the addition of 'street furniture' was deemed to be the least important form of improvement. The average scores of each improvement type, on a scale of 1 (least important) to 5 (most important), are provided in **Table 2-2** below.

Table 2-2 – Average Level of Importance of Transportation Improvements

Improvements	Average Level of Importance
Adding more multi-use paths, trails, and greenways for bicycles and pedestrians	4.5
Adding more bike lanes and bike routes	4.3
Adding more sidewalks and safe crossings for pedestrians	4.3
Additional and/or improved street lighting	4.2
Adding more bus routes, service, and amenities	4.2
Plant trees along streets	3.8
Creating gateway features	3.3
Neighborhood traffic controls	2.8
Street furniture	2.7

Question 4: Additional Thoughts

The last question was an open-ended question that invited participants to provide any additional comments. Both comments provided through the open-ended question noted the current nature of car-oriented development in the region and high vehicular speeds on area roadways. Both comments also addressed the need to improve multi-modal accessibility to destinations like downtown, workplaces, and neighborhoods. One respondent highlighted the walkability of Huntington and urged similar efforts be taken to improve dedicated bicycling infrastructure as well.

2.2.5 Interactive Map

In addition to the survey, an interactive map was hosted on the kyova2050.com website to provide an opportunity for people to provide location-based comments. Seven location-based comments were submitted through the interactive map. Of these, five comments specifically mentioned a safety issue or concern. The other comments pertained to maintenance issues with one of the viaducts and the need for enhanced transit service along US 60.

2.2.6 Environmental Justice and Underserved Populations Outreach

KYOVA developed a targeted engagement strategy to reach underserved populations that have traditionally been underrepresented during planning processes. This included developing a contact list for neighborhood organizations, community service organizations, places of worship, and organizations representing minorities, senior citizens, immigrant groups, people with special mobility needs, low-income persons, and other groups. KYOVA created physical advertising materials including a letter, project brochure, and surveys, and mailed these materials directly to the contact list in parallel to the other, largely digital public engagement efforts. This also included facilitating a Diversity, Equity, and Inclusion Focus Group (see **Section 2.3.3**) to gain additional insight on transportation needs and priorities of traditionally underserved populations.

2.3 Stakeholder Engagement

Throughout the planning process, KYOVA gathered input from local experts and leaders on the priorities and need that should be addressed in the 2050 MTP. Stakeholder engagement included forming an Advisory Group, facilitating focus groups, and conducting individual and small group stakeholder interviews. The stakeholders consulted during these engagement efforts included subject matter experts in various transportation, economic development, and planning fields as well as elected and appointed officials representing communities in the region. These stakeholders are intimately familiar with the unique challenges, assets, and opportunities in the KYOVA planning area.

2.3.1 Advisory Group

KYOVA held three Advisory Group meetings during the development of the 2050 MTP. The advisory group was comprised of members of KYOVA's Technical Advisory Committee (TAC), KYOVA's Policy Board, and other key transportation stakeholders identified by KYOVA. The focus of each Advisory Group meeting had a discrete theme and objective:

- The first meeting included an overview of the plan development process, a review of existing conditions and trends within the planning area, and a discussion to collectively set the framework for the vision, goals, and objectives of the MTP.
- The second meeting included a review of the draft vision, goals, and objectives and a review of existing conditions and future trends. This meeting also included a discussion on existing and anticipated future priorities and needs for the region's transportation system.
- The third meeting included a presentation of preliminary candidate projects and planning strategies for the MTP. At this meeting, the Advisory Group members had an opportunity to discuss the preliminary projects and provide comments and feedback prior to release of the full draft plan.

Summaries of each Advisory Group meeting can be found in **Appendix A**.

2.3.2 Focus Groups

The project team facilitated three focus group meetings to gain input on various aspects of the transportation system and needs from key interest groups. The topics of the focus groups included: Diversity, Equity, and Inclusion; Active Transportation; and Economic Development and Freight. The focus groups included representatives from local governments, non-profits, advocacy groups, state DOTs, transit providers, and the private sector. Highlights of the focus group discussions are provided below.

Diversity, Equity, and Inclusion Focus Group

Participants were asked about the greatest transportation needs and priorities for traditionally underserved populations in the region, and responses included:

- Better coordination and connections between the three main cities (Huntington, Ashland, and Ironton) and transit providers in the region;
- The Madison Avenue bus route needs a second bus, but funding is a challenge;
- More transit connections in areas with higher concentrations of seniors and households below the poverty level;
- Tie transit stops and hubs with multimodal opportunities;
- Provide additional public education and outreach on the bus system, transit services, and routes; and
- Improve safe access to bus stop locations.

Alternative Transportation Focus Group

Participants were asked what they believe are the greatest bicycle and pedestrian mobility challenges and needs in the region, and responses included:

- Bicycle and pedestrian safety awareness and education;
- Street and safety improvements at locations with high bicycle- and pedestrian-related crashes;
- Policies and strategies for mid-block crossings;
- Closing gaps in the local networks and connecting into the statewide bicycle network;
- Improve pedestrian and bicycle connections over the rivers; and
- Build bicycle and pedestrian connections into areas of new growth.

Economic Development and Freight Focus Group

Participants were asked they believe are the most substantial needs and opportunities in the region, and responses included:

- Continue investing in sports and tourism opportunities throughout the region;
- Improve and expand healthcare availability and services, especially elderly care;
- Invest in intermodal opportunities, such as port connections and rail-to-truck transloading;
- Upgrade and expand broadband internet in rural areas;
- Invest in the IT sector and development; and
- Invest in electrical charging stations, including truck freight charging stations.

Summaries of each of the focus group discussions are provided in **Appendix A**.

2.3.3 Stakeholder Interviews

KYOVA also conducted stakeholder interviews with individuals and small groups. These stakeholders included elected officials, agency representatives, university representatives, and private industry. The purpose of these conversations was to obtain more in-depth information on some of the transportation needs

introduced through the other stakeholder engagement activities and to review the preliminary candidate projects for the KYOVA 2050 MTP. Key takeaways from the interviews included:

- There is an interest in seeing the Prichard intermodal facility operating again. Upgrades to US 52 would facilitate improved freight movements in and out of that facility.
- The airport connector road project has changed to realigning the access road and adding a parking structure.
- Another access point is needed for the south side of the Airport.
- Both the City of Huntington and Marshall University expressed a desire to improve bicycle/pedestrian safety around the university, with Third and Fifth Avenues noted as priorities.
- Marshall University also expressed a long-term goal of connecting all of its campuses with bike paths.
- There were discussions on how to fast track priority projects in the region and position them to be competitive for the additional federal grant funding that will be made available through the new federal Bipartisan Infrastructure Law.

3.0 Vision, Goals, and Objectives

As stated in **Chapter 1**, The IIJA/BIL reauthorized the FAST Act which provides guiding principles for transportation decision-making in metropolitan areas. One of the major requirements is for MPOs to consider projects and strategies that will:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase accessibility and mobility of people and freight.
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
10. Enhance travel and tourism.

The vision, goals, and objectives in the KYOVA 2050 MTP align with these principles and establish KYOVA's transportation priorities over the next 25-plus years. They also represent a way federal and state officials can assess how this transportation plan addresses the unique needs of today's complex transportation systems.

3.1 Vision

The vision statement for the KYOVA 2050 MTP is drawn directly from the previously adopted KYOVA 2040 MTP. This vision statement was developed in collaboration with the Advisory Group. The Vision Statement, which guided the planning process, is as follows:

> We envision a growing region serviced by a safe, equitable, and sustainable transportation system that provides real choice among modes of travel. Our transportation system will contribute to an enhanced quality of life by providing attractive connections between destinations for motorists, bicyclists, pedestrians, and transit users without compromising air quality or cultural and environmental resources, and it will support the efficient movement of people and goods at both the local and regional scale.

3.2 Goals and Objectives

Goals and objectives were developed to ensure the plan addresses regional transportation needs and complies with federal requirements for MPO long-range planning. The goals define the desired result for the transportation network, while objectives define how these results will be achieved or actions that must be followed to reach their respective goal. The cumulative effect each project has on the plan's

goals and objectives must produce a significant net benefit before it can be incorporated into the MTP.

The 2050 goals and objectives presented below were developed using the following 1) a review of the KYOVA 2040 MTP goals and objectives, 2) Federal and State transportation goals to ensure consistency, and 3) stakeholder and public input.

Goal 1: Preserve, maintain, and enhance the existing transportation system.

Goal 1 Objectives:

- Give priority to projects that improve the condition of the existing transportation system or upgrade existing transportation facilities.
- Improve connections between modes of transportation.
- Seek opportunities to use access management and design treatments to improve the mobility of strategic corridors.

Goal 2: Support the economic vitality of the region, especially by enabling global competitiveness, productivity, and efficiency.

Goal 2 Objectives:

- Improve access to intermodal facilities (ports, aviation, inland terminals) for people and freight.
- Integrate into the planning process the aviation needs of the region, whether general aviation or commercial, as a way to attract additional economic activity.
- Subscribe to efforts that encourage the development of tourism in the region.
- Give priority to transportation programs that retain existing businesses and attract new businesses to the area.
- Provide the people of the region with equitable modal options to carry out essential daily activities and support access to the region's opportunities.

Goal 3: Improve the operational efficiency of the transportation network.

Goal 3 Objectives:

- Encourage initiatives that promote transit and other transportation modes as alternatives to the single occupancy vehicle.
- Promote operational efficiency through the use of technological improvements.
- Support measures that reduce travel during peak demand hours.
- Identify opportunities to integrate Intelligent Transportation Systems (ITS), smart streets, and other emerging technologies as part of an overall transportation management strategy.

Goal 4: Enhance the safety of the transportation system for all users.

Goal 4 Objectives:

- Provide a safe and equitable traveling experience for all users by implementing safety measures at high crash and high-risk locations.
- Improve facilities for bicyclists and pedestrians.
- Promote programs and projects that reduce the number and severity of traffic crashes, especially at railroad crossings.
- Give priority to construction projects that eliminate roadway hazards, which would improve safety.
- Support the development and implementation of roadway design standards that improve highway safety.

Goal 5: Enhance the security of the transportation system for all users.

Goal 5 Objectives:

- Review each transportation improvement for its impact on neighborhoods, travel times, and access to community services.
- Give priority to construction projects that eliminate roadway hazards and improve security.
- Support the development and implementation of roadway design standards that improve highway security.
- Protect the capacity of I-64, strategic bridges and other regional corridors that serve as evacuation routes for natural disasters.
- Maintain and enhance the security of the existing disaster evacuation systems.

Goal 6: Protect and enhance the environment and promote energy conservation.

Goal 6 Objectives:

- Continue to develop plans and programs that will help the KYOVA region achieve the federal clean air regulations.
- Integrate land use and transportation policies to limit impacts to sensitive land, focus development in prime locations, encourage trips by modes other than personal automobiles, and enhance the region's quality of life.
- Minimize direct and indirect environmental impacts of the transportation system by first considering improvements to the existing system before selecting strategic locations for newly constructed facilities.
- Minimize any detrimental impacts of proposed transportation improvements upon neighborhoods.
- Support mixed-use development to encourage biking and walking, in turn improving the KYOVA region's environment and the health of its citizens.
- Give priority to projects that improve the resiliency and reliability of the transportation network.

Goal 7: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

Goal 7 Objectives:

- Provide equitable access to homes, parks, community activity centers, employment hubs, and other key destinations to one another.
- Promote a bicycle-friendly environment through a coordinated network of bicycle facilities and off-road trails.
- Promote a pedestrian-friendly environment by filling gaps and improving connectivity throughout the sidewalk system and to key destination or activity nodes.
- Create a system of interconnected streets to improve mobility and access and distribute traffic efficiently and appropriately by purpose and function.
- Encourage Complete Streets initiatives, streetscape and traffic calming features in roadway designs for collector and residential streets.

Goal 8: Maintain financial responsibility in the development and preservation of the transportation system.

Goal 8 Objectives:

- Uphold cost-effective operating strategies for all transportation services.

- Ensure that all transportation projects and programs utilize available funds in the most cost-effective and financially responsible manner possible.
- Give priority to those transportation projects and programs that provide the greatest net benefit at the least cost.
- Seek out additional federal and state transportation funds whenever possible.

The KYOVA 2050 MTP goals and objectives also were developed in consideration of the planning factors established in the FAST Act and MAP-21. **Table 3-1** shows how the KYOVA 2050 MTP goals and objectives address these federal planning factors.

Table 3-1 – KYOVA 2050 MTP and FAST Act/MAP-21 Planning Factors

Planning Factor		2050 MTP Goal/Objective
1	Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.	2, 7
2	Increase the safety of the transportation system for motorized and non-motorized users.	4 Selected objectives under Goal 7
3	Increase the security of the transportation system for motorized and non-motorized users.	5 Selected objectives under Goal 3, 6
4	Increase the accessibility and mobility of people and freight.	6, 7 Selected objectives under Goal 2, 3, 4, 5
5	Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.	1, 2, 3, 6, 7, 8
6	Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.	1, 2, 3, 4, 5, 6, 7, 8
7	Promote efficient system management and operation.	1, 2, 3
8	Emphasize the preservation of the existing transportation system.	1, 2, 3, 4, 5, 6, 8

4.0 Regional Profile

This chapter documents social and environmental features that impact transportation in the region. It includes maps that illustrate the distribution of minority, elderly, low-income, and no vehicle populations as well as the locations of natural and cultural resources.

4.1 Socioeconomic Conditions

4.1.1 Introduction

Understanding the current and anticipated future socioeconomic characteristics of the region will help identify transportation needs and priorities for the next 25-plus years. This information ensures that when transportation planning decisions are made, they will incorporate the unique needs of socioeconomic groups in a fair and equitable way and also meet local, state, and federal regulations.

4.1.2 Race and Ethnicity

Based on 2019 ACS Census data, minorities make up 6% of the population within the KYOVA region. These rates are lower than national averages. Among KYOVA counties, Cabell County has the most diverse population, with a minority population of 9.4% while Wayne County has a 2.4% minority population. **Table 4-1** shows race and ethnicity population characteristics for residents within the KYOVA MPO. See **Exhibit 4-1** for a map showing the percent of minority population.

Table 4-1 – Population Demographics – Race

	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA
Total Population	47,682	35,555	60,184	94,339	40,303	278,063
White	94.1%	97.0%	95.5%	90.6%	97.6%	94%
Black or African American	2.3%	1.1%	2.0%	4.9%	0.9%	3%
American Indian and Alaska Native	0.1%	0.0%	0.0%	0.2%	0.2%	0%
Asian	0.3%	0.5%	0.5%	1.4%	0.3%	1%
Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0%
Some other race	0.7%	0.1%	0.2%	0.6%	0.4%	0%
Two or more races	2.5%	1.3%	1.7%	2.3%	0.7%	2%
Hispanic or Latino origin (of any race)	1.8%	1.1%	1.0%	1.4%	0.7%	1%

Source: 2019 5 Year ACS Data

Exhibit **4-**1

Non-White Population

Legend

Non-White Population

- 0% - 5%
- 5% - 10%
- 10% - 15%
- 15% - 20%
- >20%

Last Updated: 11/1/2021

4.1.3 Age and Sex

According to 2019 ACS Census data, the median age for residents within the KYOVA region is 42.3 years old, and 51% of the population is female and 49% male. Cabell County had the lowest median age of 38.8, while Wayne County had the highest median age of 44.1. The male-female ratios of all five counties in the KYOVA region are nearly identical. Region-wide, 20% of the KYOVA population was over the age of 65 and 21% were under the age of 18. Wayne County had the highest percentage of people over the age of 65 with 25.1%. Wayne County also had the highest percentage of people under the age of 18 with 30.8%. **Tables 4-2** and **4-3** show the population characteristics for age and sex of the KYOVA population. See **Exhibit 4-2** for a map showing the 65 and over population.

Table 4-2 – Population Demographics – Age

	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA MPO
Total Population	47,682	35,555	60,184	94,339	40,303	278,063
17 and under	20.3%	20.5%	21.0%	18.9%	30.8%	21%
18 to 64	59.8%	58.2%	59.6%	62.0%	83.7%	64%
65+	18.9%	20.3%	18.4%	18.2%	25.1%	20%
Median Age	42.3	43.4	41.8	38.8	44.1	42.3

Source: 2019 5 Year ACS Data

Table 4-3 – Population Demographics – Sex

	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA MPO
Total Population	47,682	35,555	60,184	94,339	40,303	278,063
Male	50.0%	48.9%	48.8%	48.9%	48.7%	49%
Female	50.0%	51.1%	51.2%	51.1%	51.3%	51%

Source: 2019 5 Year ACS Data

Exhibit 4-2

Population 65 and Over

Legend

Population 65+

- 0% - 10%
- 10% - 15%
- 15% - 20%
- 20% - 25%
- >25%

Last Updated: 11/1/2021

4.1.4 Population Density

The population within the KYOVA region is highly concentrated along the Ohio River and I-64. Census tracts with population densities of more than five persons per acre are located within the City of Huntington (specifically near Marshall University) and the City of Ironton. Population densities decrease moving away from the Ohio River, with these areas showing populations densities of less than 0.5 persons per acre. See **Exhibit 4-3** for a population density map. Employment density mirrors population density since the majority of industrial centers are concentrated along the Ohio and Big Sandy Rivers.

4.1.5 Housing Characteristics

Tenure, Household Size, and Median Household Income

According to the 2020 Decennial Census Redistricting Data and 2019 5-Year ACS Data, the KYOVA region included 128,753 total housing units, 12% (15,146 households) of which were vacant housing units. Cabell County accounted for the most housing units (46,125), with 13% (6,204) being vacant.

Within the KYOVA MPO, 69% of all occupied housing units were owner occupied units, and 31% were renter occupied. Among the counties, Greenup County had the highest owner-occupied household percentage, at 77.6% and the lowest renter occupied percentage, at 22.4%. The average household size for the region was 2.51 persons, and the median household income was $23,838. Wayne County had the highest average household size (2.65) persons and the lowest median household income ($21,185). Cabell County had the lowest average household (2.31) and Greenup County had the highest median household income ($25,769). **Table 4-4** shows the housing make-up and household characteristics for the KYOVA MPO.

Table 4-4 – Housing Characteristics

	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA MPO
Total Housing Units	21,742	16,235	26,501	46,125	18,150	128,753
Vacant	11.3%	11.1%	9.9%	13.5%	11.4%	12%
Owner Occupied	68.8%	77.6%	72.2%	61.8%	73.5%	69%
Renter Occupied	31.2%	22.4%	27.8%	38.2%	26.5%	31%
Average Household Size	2.52	2.50	2.56	2.31	2.65	2.51
Median Household Income (In Dollars)	$25,178	$25,769	$24,733	$22,326	$21,185	$23,838

Source: 2019 5 Year ACS Data

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-3

Population Density

Legend

Population per Square Mile

- 1 - 500
- 501 - 1500
- 1501 - 3000
- 3001 - 4500
- > 4500

Last Updated: 11/1/2021

4.1.6 Educational Attainment

According to 2019 ACS Census data, educational attainment levels for persons over the age of 25 in the KYOVA region are evenly distributed. Thirteen percent have less than a high school diploma, 37% have a high school diploma or equivalent, and 12% have earned a bachelor's degree or higher. Cabell County had the highest percentage of population who earned a bachelor's degree or higher, at 15%. Wayne, Greenup and Lawrence Counties had the lowest percentage of their populations to complete a bachelor's degree, at 10%. **Table 4-5** shows the educational attainment within the KYOVA region for the population over the age of 25.

4.1.7 Poverty

In the region, approximately 20% of residents have incomes below the poverty line based on the 2019 ACS Census data. Poverty rates within the KYOVA region are higher than the national rate of 11.4%. The percentages of individuals in poverty varied across all the counties from 17%-23%. **Table 4-6** shows the poverty status for residents within the KYOVA region.

Census tracts with populations living in high poverty are found along the Ohio River in the City of Huntington, southern and northwestern Wayne County, and along the Ohio River in western Lawrence County and Boyd County. Census tracts with low concentrations of poverty are in south and western Cabell County, western Wayne County, southeastern Lawrence County, eastern Boyd County, and eastern Greenup County. See **Exhibit 4-4** for a percent low-income map

Table 4-5 – Education Attainment Age 25 and Over

	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA MPO
Population 25 and Over	34,109	25,337	42,404	62,993	28,880	193,723
Less than High School	11.8%	11%	12.5%	12%	20.3%	13%
High School Graduate	33.9%	36%	43.9%	33.3%	40.6%	37%
Some College	35%	35.9%	28.7%	28.7%	24.1%	30%
Bachelor's Degree or Higher	10.6%	9.9%	9.7%	15.1%	9.7%	12%
Graduate or Professional Degree	8.8%	7.2%	5.2%	10.9%	5.4%	8%

Source: 2019 5 Year ACS Data

Table 4-6 – Population Demographics – Poverty

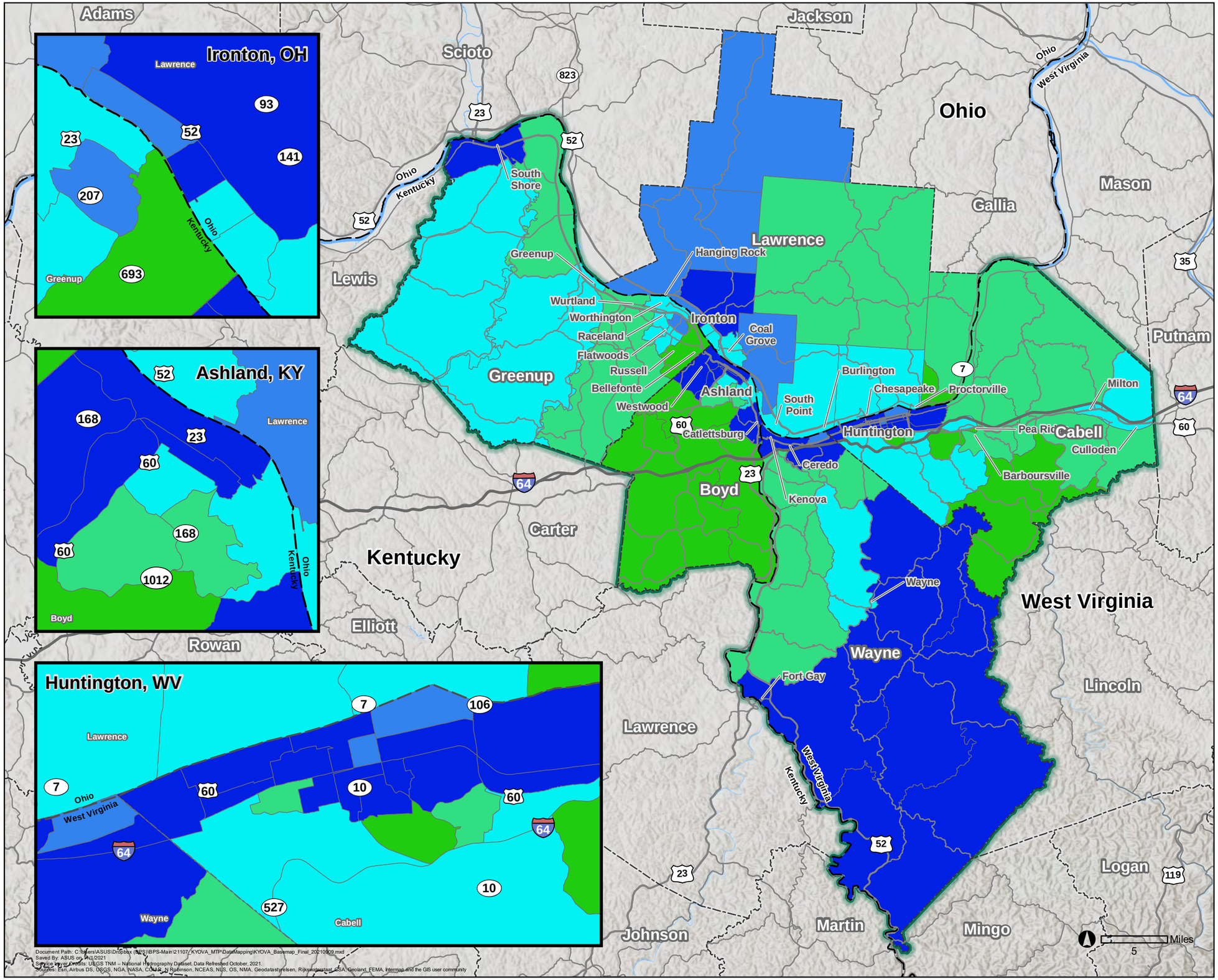
	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA MPO
Percent in Poverty	18.9%	16.9%	18.1%	22.3%	23.2%	20%

Source: 2019 5 Year ACS Data

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-4

Households in Poverty



Legend

Percent in Poverty

- 0% - 10%
- 10% - 15%
- 15% - 20%
- 20% - 25%
- >25%

Document Path: C:\Users\ASUS\Dropbox (BES)\BPS-Main\21107_KYOVA_MTP\DataMapping\KYOVA_Basemap_Final_20210809.mxd
Saved By: ASUS on 8/9/2021
Service layer credits: USGS TNM – National Hydrography Dataset. Data Refreshed October, 2021.
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Last Updated: 11/1/2021

4.1.8 Vehicle Access

According to 2019 ACS Census data, parts of the region with 20% or more of households without access to a vehicle are concentrated within the Cities of Huntington, Ashland and Ironton along the Ohio River. Southern Wayne County also reported a high number of households without access to a vehicle. See **Exhibit 4-5** for a map of vehicle access.

4.1.9 Workforce

Based on 2018 Longitudinal Employer-Household Dynamics (LEHD) data from the Census OnTheMap feature, there were 106,913 jobs within the KYOVA region. Cabell County accounts for the most jobs, at 54,218, or 50.7%. Boyd County had the next highest job count with 23,797 jobs, at 12%, followed by Lawrence County with 12,552 jobs, at 11.73.%.

The average commute time to work within the KYOVA region is 23.5 minutes. While most workers both live and work within the KYOVA region, 28,274 residents are employed in jobs located outside the region. This compares to the 21,823 of workers who have jobs located within the region but reside outside the region. The morning outmigration of workers from the KYOVA region increases the travel time from home to work.

Table 4-7 highlights the job counts by counties for where workers within the KYOVA region are employed.

Table 4-7 – Job Counts by Where Workers are Employed

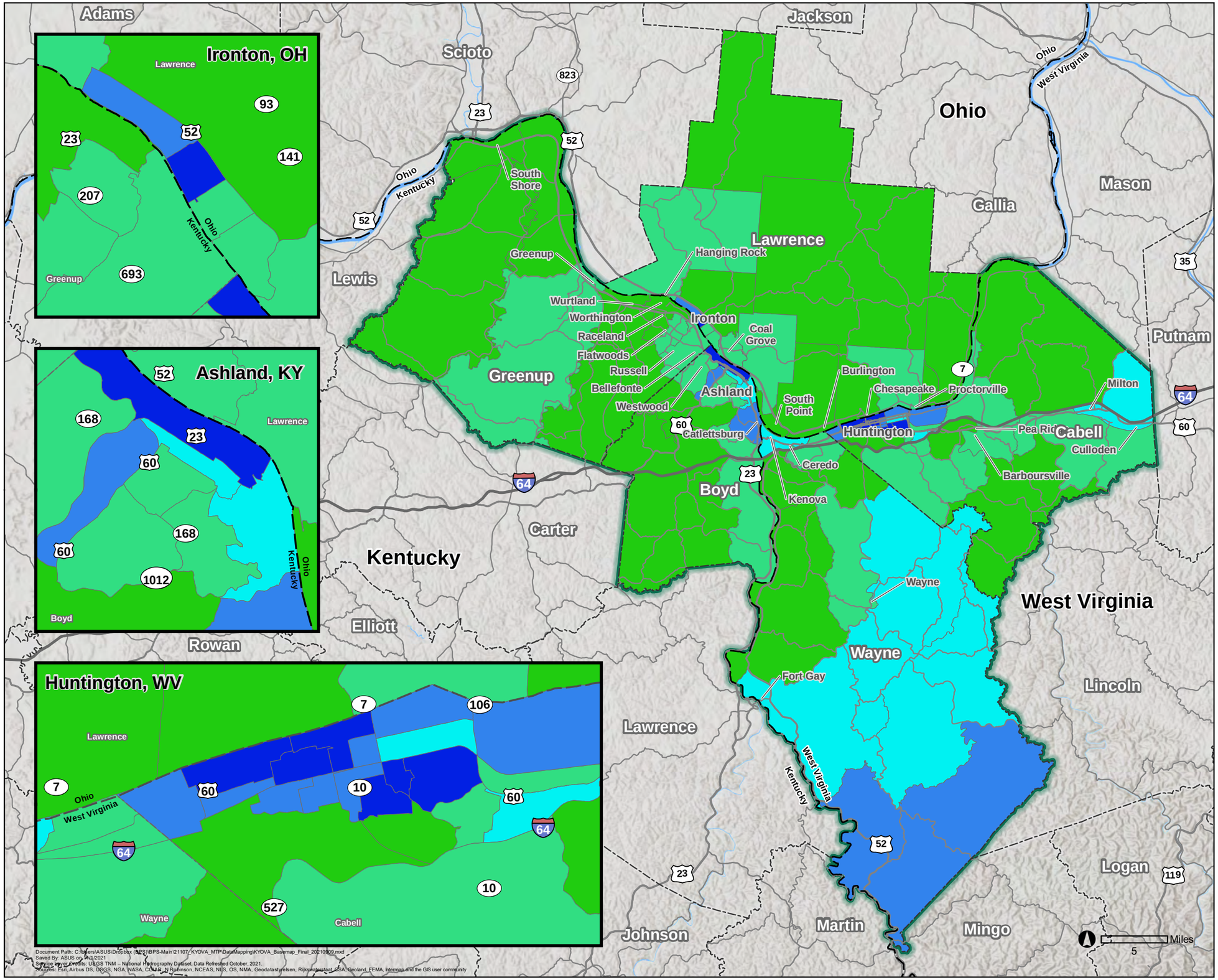
	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA MPO
Job Count	23,797	8,181	12,552	54,218	8,165	106,913
Share (%)	22.3%	7.7%	11.7%	50.7%	7.6%	100%

Source: 2019 5 Year ACS Data

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-5

Households with No Vehicles



Legend

Percent with No Vehicles

- 0% - 5%
- 5% - 10%
- 10% - 15%
- 15% - 20%
- >20%

Document Path: C:\Users\ASUS\Dropbox (RPS)\BPS-Main\21107_KYOVA_MTP\DataMapping\KYOVA_Basemap_Final_20210809.mxd
Saved By: ASUS on 9/1/2021
Service layer credits: USGS TNM – National Hydrography Dataset. Data Refreshed October, 2021.
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Last Updated: 11/1/2021

4.1.12 Commuting Patterns

The majority of people within the KYOVA region commute to work via single occupancy vehicle, at 84%.

Percentages of Cabell County workers commuting to work via alternative transportation means are higher than in the outlying counties, but in general, alternative means of transportation are not being widely utilized by workers. This is evident as less than 1% of workers in the KYOVA region use public transportation, while 2.5% walk to work and 0.4% use a bicycle to commute to work. **Table 4-8** highlights the means of transportation to work for workers over the age of 16 for the KYOVA MPO.

Table 4-8 - Commuter Characteristics

	Boyd	Greenup	Lawrence	Cabell	Wayne	KYOVA MPO
Total Workers	17,962	13,991	24,197	37,241	13,087	106,478
Drove Alone	83.8%	86.8%	87.1%	81.7%	85%	84%
Carpooled	10.3%	9.4%	8.6%	7.8%	6.5%	8%
Rode Public Transportation	0.3%	0.3%	0.1%	1.5%	0.8%	1%
Biked	0.1%	0.0%	0.0%	0.4%	0.1%	0%
Walked	2.2%	1.0%	1.5%	3.9%	1.5%	2%
Worked at Home	2.3%	2.3%	2.2%	3.2%	4.0%	3%
Mean Travel Time to Work (minutes)	22.4	23.7	23.4	20.6	27.2	23.5

Source: 2019 5 Year ACS Data

4.2 Environmental Context

4.2.1 Introduction

Transportation infrastructure contributes to economic growth and social welfare. While it provides many benefits, it can also cause environmental and social impacts. The FAST Act requires MPOs to consider these impacts within the transportation planning process. The FAST Act also requires MPOs to consult with Federal and state agencies to develop possible environmental mitigation activities for transportation projects identified in long range transportation plans.

This section provides a general summary and inventory of environmental, community, and cultural resources in the KYOVA region. The inventory identifies resources that will directly influence the preliminary alignments for various projects. Some projects, such as new location roadways, will require avoidance of these resources where possible. Other projects, such as multiuse trails, will be located along natural resources to take advantage of the area's green infrastructure and connect activity centers. The Environmental Screening in Chapter 9 will provide project-level analysis of potential impacts to the resources identified in this chapter.

4.2.2 Land Cover

The KYOVA region has a rich natural ground cover from forests, wetlands, water bodies, to rolling terrains, farmland, and parks. The predominant land cover types are deciduous forest, hay pasture, and a variety of developed lands. The land cover in the KYOVA region is displayed in **Exhibit 4-6** and the percentage of total MPO area for each of the major land cover types is provided in **Table 4-9.**

Table 4-9 - KYOVA Region Land Cover

Land Cover Type	Percent Cover
Open Water	1%
Developed, Open Space	5%
Developed, Low Intensity	4%
Developed, Medium Intensity	2%
Developed, High Intensity	1%
Deciduous Forest	74%
Mixed Forest	3%
Shrub/Scrub	1%
Herbaceous	1%
Hay/Pasture	7%

Source: USGS National Land Cover Database

4.2.3 Streams and Wetlands

Streams and wetlands are located throughout the KYOVA region and identified using data from Multi-Resolution Land Characteristics (MRLC) Consortium. The United States Environmental Protection Agency (USEPA) defines a wetland as an area where water covers the soil or is present either at or near the surface of the soil all year or for varying periods of time during the year, including the growing season. Three mandatory criteria are used to designate an area as wetland: hydrophytic vegetation, hydric soils, and wetland hydrology. Wetlands generally include swamps, marshes, bogs, and similar areas.

Most of the wetlands are found along streams in the area or are located adjacent to streams flowing into the two major water resources in the KYOVA region - the Ohio River and the Big Sandy River. Location of the streams in the area are illustrated in **Exhibit 4-7**.

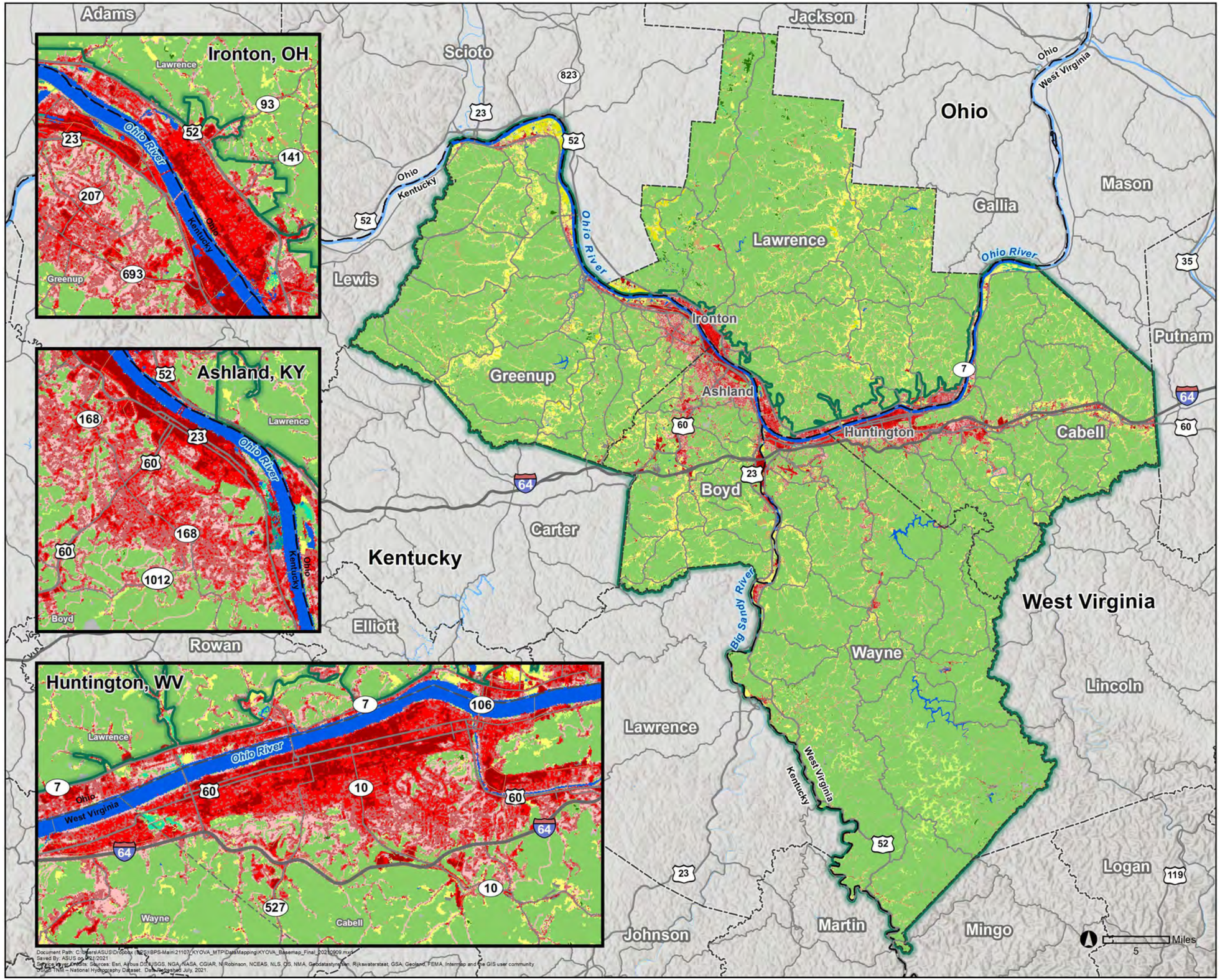
4.2.4 Floodplains

The Federal Emergency Management Agency (FEMA) identifies flood hazards, assesses flood risks, and provides accurate data to guide actions that result in safer and more resilient communities. This data are shown in flood maps, known as Flood Insurance Rate Maps (FIRMs). These FEMA-FIRM maps help identify if a project is located within Special Flood Hazard Areas (SFHA). SFHA is the land area covered by the floodwaters and where the National Flood Insurance Program's floodplain management regulations must be enforced by the community, and the area where the mandatory flood insurance purchase requirement applies. **Exhibit 4-7** identifies areas in the KYOVA region lying within a 100-year floodplain, that is, areas within a floodplain that has an annual 1% chance of flooding.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-6

Land Cover



Legend

- KYOVA MPO Boundary

Land Cover

- Woody Wetlands
- Shrub/Scrub
- Perennial Snow/Ice
- Open Water
- Mixed Forest
- Herbaceous
- Hay/Pasture
- Evergreen Forest
- Emergent Herbaceous Wetlands
- Developed, Open Space
- Developed, Medium Intensity
- Developed, Low Intensity
- Developed, High Intensity
- Deciduous Forest
- Cultivated Crops
- Barren Land

Document Path: C:\Users\ASUS\Dropbox (BPS)\BPS-Main\21107_KYOVA_MTP\DataMapping\KYOVA_Basemap_Final_20210909.mxd
Saved By: ASUS on 9/21/2021
Sources & Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Basemap: NHM – National Hydrography Dataset. Data refreshed July, 2021.

Last Updated: 9/21/2021

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-7

Flood Hazards

Legend

Flood Zone

100-Year Flood

Water Features

Streams

Last Updated: 10/29/2021

4.2.5 Biodiversity

The KYOVA region is home to several animals, birds, other wildlife, trees, plants, and other plentiful green cover that are essential for the region's environmental health and quality. They are an integral part of the larger ecosystem that supports and sustains all lifeforms. Many animal and plant species are becoming endangered as a result of changes in their natural habitats and reduction of ranges due to the fragmentation of their habitat by transportation infrastructure.

Project sponsors must consider the effects of a proposed project on protected wildlife and plant species and/or their habitats as part of the NEPA process to comply with Federal laws, including the Endangered Species Act of 1973, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act of 1972, and Executive Order 13112 Invasive Species.

Endangered Species

Information on Endangered Species and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries). There are 21 Endangered or Threatened Species and one candidate species that could potentially be impacted by projects in the KYOVA region (**Table 4-10**). Critical Habitat for the endangered Indiana Bat Species covers all of Greenup County.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described by USFWS Information for Planning and Consultation (IPaC) system.

There are 14 birds of particular concern in the KYOVA region, either because they occur on the USFWS Birds of Conservation Concern (BCC) list and/or warrant special attention in a project location (**Table 4-10**). This is not a list of every bird in the KYOVA region, nor a guarantee that every bird on this list will be found in project areas. Exact locations of where birders and the general public have sighted birds in and around a project area, can be found on the E-bird data mapping tool, developed and managed by Cornell University.

Forests

The KYOVA region is located within the Appalachian Mixed Mesophytic Forests ecoregion which encompasses the moist broadleaf and mixed forests that cover the Western Allegheny Plateau and rolling hills west of the Appalachian Mountains. This ecoregion has a dense forest cover as illustrated in **Figure 4-6**.

The most prominent forests in KYOVA are:

- Wayne National Forest, Lawrence County, Ohio
- Wayne National Forest - Ironton Ranger District, Lawrence County, Ohio
- Dean State Forest, Lawrence County, Ohio
- Cabwaylingo State Forest, Wayne County, West Virginia

There are several native plants as well that are rare in the region and must be protected from extinction. In West Virginia, the West Virginia Department of Natural Resources provides state wide list of endangered species of plants. In Kentucky, the Office of Kentucky Nature Preserves maintains a similar database. In Ohio, Division of Wildlife, Ohio Department of Natural Resources, maintains the list of state listed plant species by county and updates it every five years.

Table 4-10 – Endangered Species

Species	Status
Mammals	
Gray Bat (Myotis grisescens)	Endangered
Indiana Bat (Myotis sodalist)	Endangered
Northern Long-eared Bat (Myotis septentrionalis)	Threatened
Virginia Big-eared Bat (Corynorhinus (=Plecotus) townsendii virginianus)	Endangered
Clams	
Clubshell (Pleurobema clava)	Endangered
Fanshell (Cyprogenia stegaria)	Endangered
Northern Riffleshell (Epioblasma torulosa rangiana)	Endangered
Orangefoot Pimpleback (pearlymussel) (Plethobasus cooperianus)	Endangered
Pink Mucket (pearlymussel) (Lampsilis abrupta)	Endangered
Rabbitsfoot (Quadrula cylindrica cylindrica)	Threatened
Rayed Bean (Villosa fabalis)	Endangered
Ring Pink (mussel) (Obovaria retusa)	Endangered
Rough Pigtoe (Pleurobema plenum)	Endangered
Sheepnose Mussel (Plethobasus cyphyus)	Endangered
Snuffbox Mussel (Epioblasma triquetra)	Endangered
Spectaclecase (mussel) (Cumberlandia monodonta)	Endangered
Tubercled Blossom (pearlymussel) (Epioblasma torulosa torulosa)	Endangered
Insects	
Monarch Butterfly *(Danaus plexippus)*	Candidate
Crustaceans	
Big Sandy Crayfish *(Cambarus callainus)*	Threatened
Flowering Plants	
Northeastern Bulrush *(Scirpus ancistrochaetus)*	Endangered
Small Whorled Pogonia *(Isotria medeoloides)*	Threatened
Virginia Spiraea *(Spiraea virginiana)*	Threatened
Critical Habitats	
Indiana Bat *(Myotis sodalist)*	Final

Status Key:

1. *Candidate: A species under consideration for official listing for which there is sufficient information to support listing.*
2. *Threatened: A species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.*
3. *Endangered: A species in danger of extinction throughout all or a significant portion of its range.*
4. *Final: Potential effects to critical habitat(s) in the region must be analyzed along with the endangered species themselves.*

Table 4-11 – Birds of Conservation

Species	Birds of Conservation Concern List	Vulnerability	Breeding Season
Bald Eagle	Non-BCC	Vulnerable	Breeds Sep 1 to Aug 31
Black-billed Cuckoo	BCC	Rangewide	Breeds May 15 to Oct 10
Black-capped Chickadee	BCC	BCR	Breeds Apr 10 to Jul 31
Bobolink	BCC	Rangewide	Breeds May 20 to Jul 31
Canada Warbler	BCC	Rangewide	Breeds May 20 to Aug 10
Cerulean Warbler	BCC	Rangewide	Breeds Apr 27 to Jul 20
Eastern Whip-poor-will	BCC	Rangewide	Breeds May 1 to Aug 20
Henslow's Sparrow	BCC	Rangewide	Breeds May 1 to Aug 31
Kentucky Warbler	BCC	Rangewide	Breeds Apr 20 to Aug 20
Prairie Warbler	BCC	Rangewide	Breeds May 1 to Jul 31
Prothonotary Warbler	BCC	Rangewide	Breeds Apr 1 to Jul 31
Red-headed Woodpecker	BCC	Rangewide	Breeds May 10 to Sep 10
Rusty Blackbird	BCC	BCR	Breeds elsewhere

Vulnerability Key:

1. *Birds found throughout its range in the continental USA and Alaska are designated to have "Rangewide" vulnerability.*
2. *Birds that are not in the BCC list but warrant attention due to certain protection Acts or for potential susceptibilities in offshore areas from certain types of development or activities, are designated as "Vulnerable".*
3. *Birds found only in particular Bird Conservation Regions (BCRs) in the continental USA as designated to have "BCR" vulnerability.*

4.2.6 Hazardous Materials

Transportation projects may encounter hazardous materials during construction, especially if a project is built on a brownfield or a previously disturbed site. "Hazardous substance" is a broad term that includes all substances that can be harmful to people or the environment. The discovery of hazardous materials within a proposed project area may have an adverse impact on timely completion of the project. Project sponsors must complete a thorough assessment of potential contamination during the environmental review process.

Exhibit 4-8 illustrates the Hazardous Materials sites in the KYOVA region as identified under the Resource Conservation and Recovery Act (RCRA) of 1976 and provided by EPA's Enviromapper. This act was passed by Congress in 1976 to seek to protect human health and the environment from the potential hazardous of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that waste is managed in an environmentally sound manner.

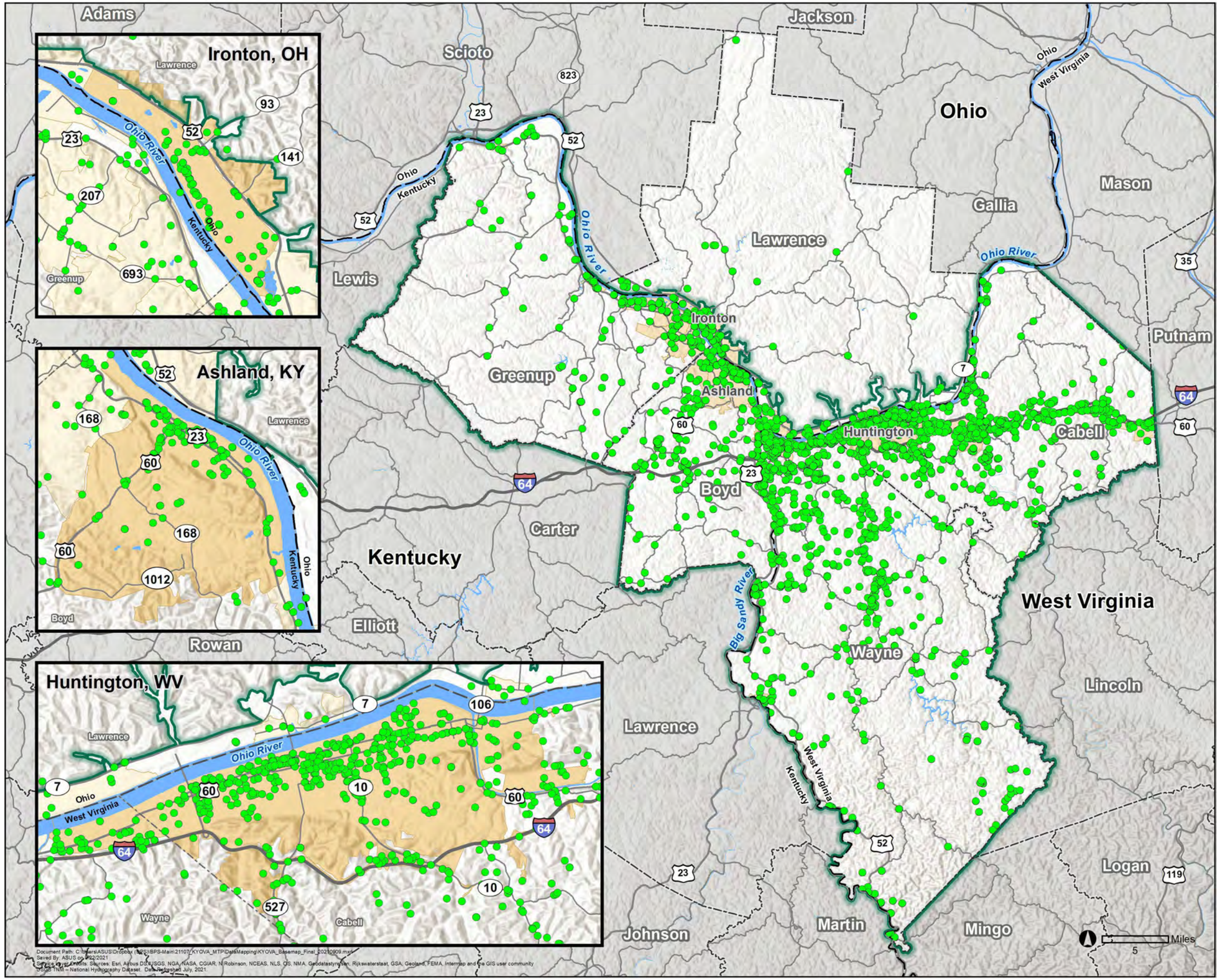
4.2.7 Parks and Recreational Areas

Publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public or privately-owned historic sites are protected under Section 4(f) of the United States Department of Transportation (USDOT) Act from adverse impacts resulting from the construction of transportation projects that receive federal funding. Major State and National Park Lands in the KYOVA region are illustrated in Exhibit 4-9.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-8

Hazardous Materials Sites



Legend

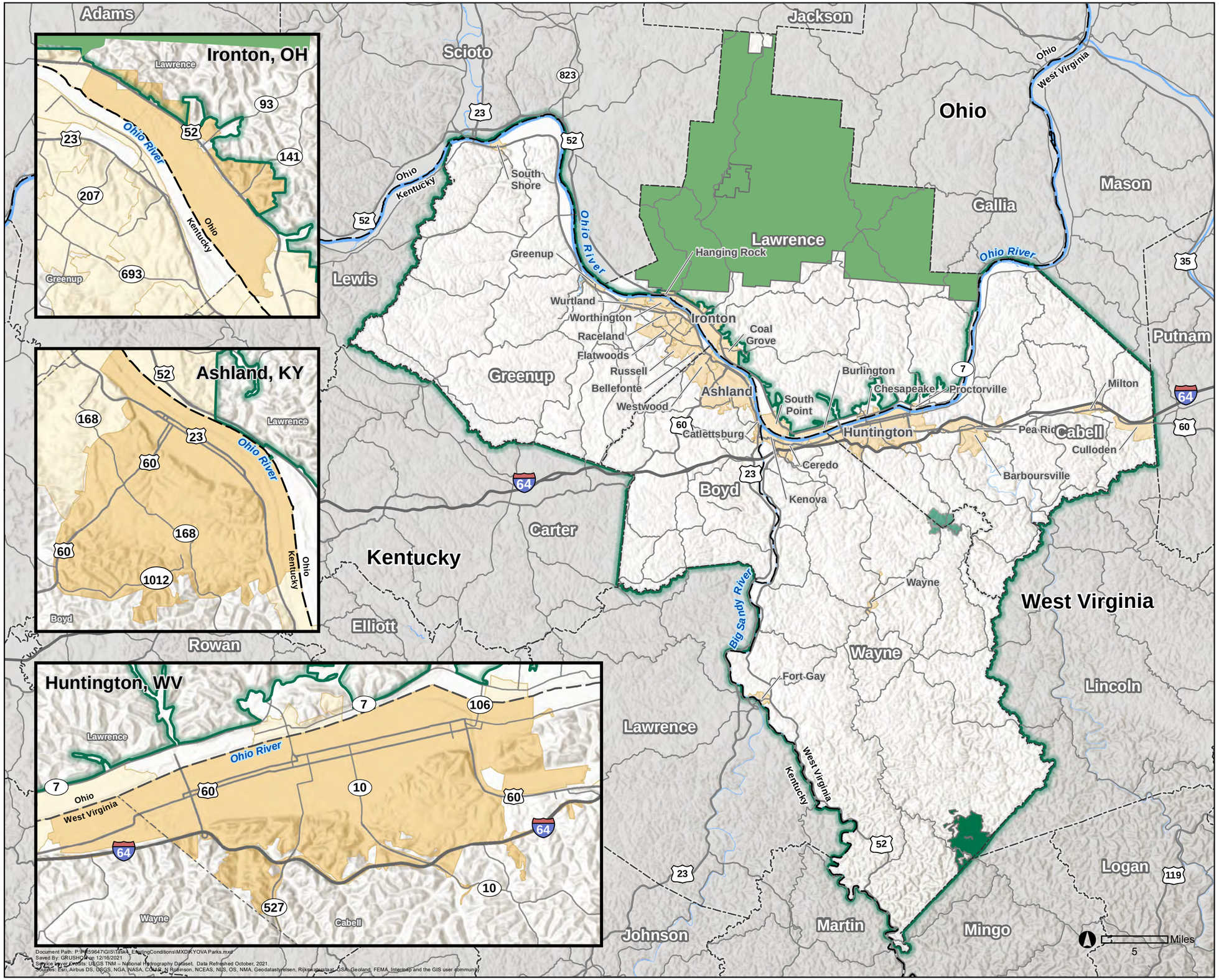
- Hazardous Materials Sites
- KYOVA MPO Boundary

Last Updated: 9/22/2021

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-9

State and National Parks and Forests



Legend

- Wayne National Forest
- Beech Fork State Park
- Cabwaylingo State Forest

Last Updated: 12/16/2021

4.2.8 Cultural Resources

As stated in the Cultural Resources Manual & Guidance, a "cultural resource" is any prehistoric or historic site, district, building, structure, or object. A "historic property," as defined in the regulations at 36 CFR Part 800, is any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP), including artifacts, records, and remains related to and located within such properties.

The manual, developed by the Ohio Department of Transportation's Office of Environmental Services (ODOT OES), the Ohio Historic Preservation Office (OHPO) and the Federal Highway Administration (FHWA), serves as a guide on procedures for scoping, identifying, evaluating, and documenting cultural resources for projects on ODOT's Transportation Improvement Program. The manual also recognizes cultural resource management as a process along the project development path which affords opportunities to avoid, minimize and/or mitigate impacts to historic properties.

Cultural resources reviews and mitigation plans must comply with regulations stated in the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.), Section 4(f) of the Department of Transportation Act, the Ohio Revised Code, 36 CFR Part 800, and the National Register of Historic Places (NRHP). All require cultural resources to be considered during the development of all transportation projects in Ohio.

Mitigation plans to avoid adverse effects on a site/property may vary depending on the type of site/property, the qualities that make it eligible for inclusion in NRHP, the location of the site/property with respect to the project, etc. Mitigation plans are developed in consultation with ODOT, State Historic Preservation Office (SHPO), FHWA, federally recognized Native American Indian tribes, local officials, organizations, general public, and as required, the Advisory Council on Historic Preservation (ACHP).

NRHP lists 112 properties in the KYOVA region. These include buildings, structures, sites, objects, and districts. Nine properties are indicated as National Level of Significance, 21 as State Level of Significance, and 112 as Local Level of significance. Some properties may be a part of more than one level of significance. The National- and State-Level Significant properties are listed in **Table 4-12**. Other community resources in the area include schools, universities, libraries, community centers, and hospitals. These locations are popular destinations for residents and visitors and serve as important community landmarks and critical service facilities. Some of the most prominent community resources are listed below and identified on **Exhibit 4-10**:

- Ashland City Hall/Boyd County Courthouse/Greenup County Courthouse
- Ashland Town Center Mall
- Bellefonte Hospital
- Cabell County Vocational Training Center
- Cabell Huntington Hospital
- Huntington City Hall/Cabell County Courthouse
- Huntington Internal Medicine Group
- Huntington Mall
- Ironton City Hall/Lawrence County Courthouse
- King's Daughters Medical Center
- Marshall University
- Ohio University – Ironton
- Ohio University – Proctorville
- Pullman Square
- St. Mary's Medical Center
- VA Medical Center

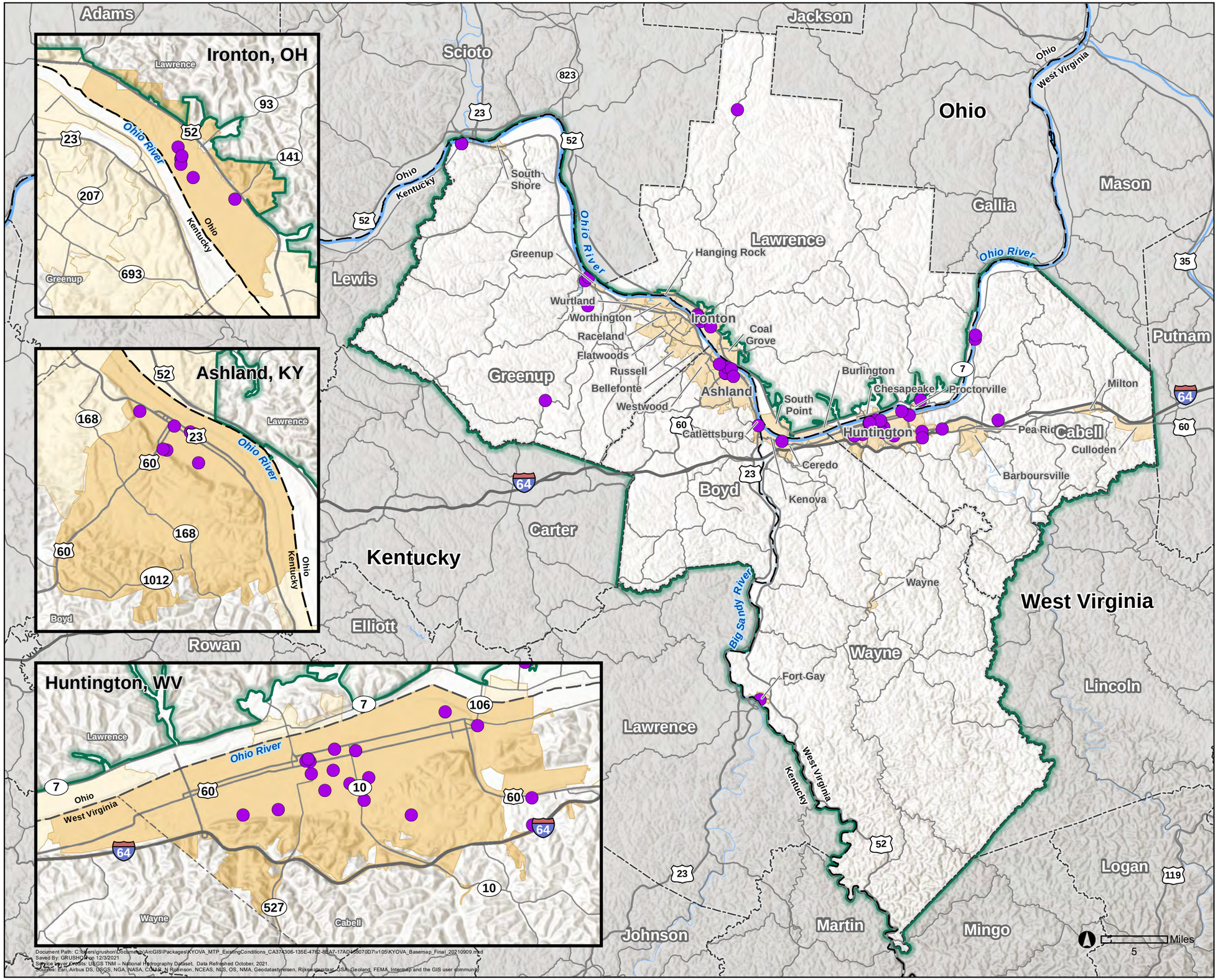
Table 4-12 – National and State Significant Properties

Property Name	County	State	Level of Significance
Stone Serpent Mound	Boyd	Kentucky	National
Lower Shawneetown	Greenup	Kentucky	National
Lower Shawneetown Archeological District	Greenup	Kentucky	National
Vesuvius Furnace	Lawrence	Ohio	National
Clover Site	Cabell	West Virginia	National
Garrison, Memphis Tennessee House	Cabell	West Virginia	National
Harvey House	Cabell	West Virginia	National
Jenkins, Gen. Albert Gallatin, House	Cabell	West Virginia	National
Old Main, Marshall University	Cabell	West Virginia	National
Culbertson House	Boyd	Kentucky	State
Hilton, Martin, House	Boyd	Kentucky	State
Paramount Theatre	Boyd	Kentucky	State
Bennett's Mill Covered Bridge	Greenup	Kentucky	State
Oldtown Covered Bridge	Greenup	Kentucky	State
Portsmouth Earthworks, Group A	Greenup	Kentucky	State
Stuart, Jesse, House	Greenup	Kentucky	State
Fifth and Lawrence Streets Residential District	Lawrence	Ohio	State
Olive Furnace	Lawrence	Ohio	State
Rankin Historic District	Lawrence	Ohio	State
Baltimore and Ohio Railroad Depot	Cabell	West Virginia	State
Barnett Hospital and Nursing School	Cabell	West Virginia	State
Carroll, Thomas, House	Cabell	West Virginia	State
Douglass Junior and Senior High School	Cabell	West Virginia	State
Downtown Huntington Historic District	Cabell	West Virginia	State
Memorial Arch	Cabell	West Virginia	State
Ohev Sholom Temple	Cabell	West Virginia	State
Ricketts House	Cabell	West Virginia	State
Ritter Park Historic District	Cabell	West Virginia	State
Miller, Joseph S., House	Wayne	West Virginia	State
Wildcat Branch Petroglyphs	Wayne	West Virginia	State

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 4-10

Cultural Resources



Legend

- Cultural Resources

Last Updated: 12/3/2021

Document Path: C:\Users\grushon\Documents\ArcGIS\Packages\KYOVA_MTP_ExistingConditions_CA374306-135E-4762-8EA7-17AD45B070D7\v105\KYOVA_Basemap_Final_20210909.mxd
Saved By: GRUSHON on 12/3/2021
Service layer credits: USGS TNM – National Hydrography Dataset. Data Refreshed October, 2021.
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

5.0 Regional Travel Demand Model

5.1 Background

This chapter summarizes the methodology and results applied for the planning-level evaluation of the interstates and arterials within the KYOVA area. The project team used the KYOVA regional Travel Demand Model (TDM) to forecast annual traffic growth rates and employed a planning-level approach to estimate when traffic volumes would approach levels that would cause some peak hour travel delays on the system.

5.2 Travel Demand Forecasting

As part of the MTP development, the project team evaluated the TDM and adjustments to various components were tested with the goal of improving the model's outputs to observed conditions for the 2015 base year while also ensuring the model is not over-calibrated and constrained in its ability to react to scenario changes. These adjustments were documented in a Technical Memorandum submitted to KYOVA (see **Appendix B**).

Daily forecasts were developed through application of the TDM with the committed roadway cross-sections assumed to be in place by 2050.

5.3 Planning Level Needs Assessment

The high-level assessment in this chapter identifies how anticipated future traffic growth would impact traffic operations on key roadways throughout the KYOVA area. This approach looked at when future capacity improvements or widening might be considered necessary to address peak period congestion.

WHAT IS LEVEL OF SERVICE?

Level of Service (LOS) captures the traveler-based perception of the flow of traffic on a transportation facility. LOS uses six (6) letter grades, A through F, to grade the facility from best to worst.

LOS is calculated using **volume-to-capacity (V/C)** ratios, which are found by dividing the traffic volume of a roadway segment by its theoretical capacity. The resulting measurement provides a benchmark for levels of congestion and standardizes traffic analysis. For the purposes of the *KYOVA 2050 Integrated MTP*, V/C ratios are grouped into one of the following categories:

Below Capacity | LOS A, B, or C
V/C is less than 0.8

Little to no congestion during peak travel periods. As the V/C nears 0.8, the roadway becomes more congested.

At Capacity | LOS D
V/C is 0.8 to 0.86

Somewhat congested during non-peak periods with congestion building during peak periods. Traffic incidents impact the travel flow.

Above Capacity | LOS E or F
V/C greater than 0.86

Heavy congestion during peak periods and moderate congestion during non-peak period. Traffic incidents may create gridlock conditions.

The planning level needs assessment used the following steps:

- Estimate a reasonable capacity level for operational issues. This task used daily traffic volumes and forecasts, so the goal was to estimate a reasonable daily volume threshold where peak period operations would degrade from LOS E to F. The daily per lane capacity range, based on facility type, is provided below:
    - Interstate → 17,424 to 18,621 vpd
    - Principal → Arterial 6,402 to 14,535 vpd, note this facility also included some limited access facilities
    - Minor Arterial → 6,573 to 11,252 vpd
    - Collector → 7,327 to 11,675 vpd
    - Local → 3,793 to 9,079 vpd
- Assumptions were made for some Highway Capacity Manual factors and what portion of daily traffic occurred during the peak period. Note that this daily threshold is established for identifying peak period congestion, not daily (or extended, multiple hours of) congestion.
- Understanding that KYOVA and their partner agencies would like to address congestion levels before they achieved LOS E/F (full capacity with complete breakdown in traffic flows), the capacity levels were adjusted to a v/c of 0.86. Volume-to-capacity breakpoints and associated LOS are shown in **Figure 5-1**. A v/c of 0.86 is associated with approximately LOS D/E threshold traffic operations, where peak period delays and slowdowns are emerging.

Figure 5-1 – Volume/Capacity Ratio Scale

Table 5-1 – 2050 Level of Service

Location	Corridor	From	To	2050			
				Daily Traffic Forecast	Daily Traffic Capacity	Volume to Capacity Ratio	Level of Service
KY	US Highway 23	State Route 693	Greenup Avenue	24,000 – 36,000	34,000 – 45,000	0.71 – 0.99	D/E
KY	State Route 693	Espy lane	Shorte White Oak Road	14,000 – 15,000	17,000	0.81 – 0.86	D/E
KY	Central Avenue/River Hill Drive	US 23	6th Street	12,000	15,000	0.80	D
KY	US Highway 60	Overview Road/Pollard Road	State Route 168	20,000 – 23,000	29,000	0.77 – 0.79	D
KY	US Highway 23	State Route 827	State Route 2	32,000	45,000	0.71	D
KY	US Highway 23	Ironton-Russell Bridge	Ashland Drive	25,000	36,000	0.71	D
OH	State Route 7	OH 15/WV 527 Bridge	East Huntington Bridge	11,000 – 12,500	11,000	1.13 – 1.18	F
OH	State Route 243	Carlton Davidson Lane	High Street	12,000	15,000	0.78	D
OH	US Highway 52	Charley Creek Road	State Route 7	32,000	43,000	0.74	D
OH	State Route 7	3rd Avenue	North Huntington Heights Road	13,000	17,000	0.74	D
OH-KY	Ironton-Russell Bridge	Jefferson Street	US Highway 23	20,000 – 21,000	21,000	0.95 – 0.96	E
OH-KY	12th Street Bridge	US Highway 52	Winchester Avenue	14,000	15,000 – 20,000	0.73 – 0.95	D/E
OH-WV	US 52 Bridge	State Route 7	Adams Avenue	22,000	23,000	0.96	E
OH-WV	East Huntington Bridge	Irene Road	31st Street	19,000	22,000	0.86	E
WV	US Highway 60	East Mall Road	Cyrus Creek Road	19,000 – 21,000	15,000	1.22 – 1.41	F
WV	US Highway 60	East Pea Ridge Road	State Route 193	24,000 – 26,000	20,000	1.19 – 1.29	F

Location	Corridor	From	To	2050			
				Daily Traffic Forecast	Daily Traffic Capacity	Volume to Capacity Ratio	Level of Service
WV	US Highway 60	Midland Trail	Interstate 64	31,000 – 41,000	34,000 – 40,000	0.91 – 1.13	E/F
WV	5th Street	Riverside Drive	US Highway 60	12,000	12,000	1.03	F
WV	East Mall Road	Melody Farms Road	Interstate 64	28,000	28,000	1.01	F
WV	State Route 75	Maple Street	Ferndale Road	9,000 – 10,000	11,000	0.85 – 0.90	D/E
WV	State Route 152	Riverside Drive	Wood Haven Drive	14,000 – 17,000	19,000	0.72 – 0.87	D/E
WV	Hal Greer Boulevard	15th Street	Interstate 64	22,000 – 29,000	33,000	0.71 – 0.87	D/E
WV	State Route 193	US Highway 60	Interstate 64	18,000 – 19,000	22,000	0.84 – 0.86	D/E
WV	8th Avenue	20th Street	29th Street	12,000 – 13,000	16,000	0.75 – 0.84	D
WV	US Highway 60	Cedar Drive	East Mall Road	13,000 – 17,000	16,000 – 21,000	0.78 – 0.83	D
WV	Main Street	Water Street	Central Avenue	13,000	15,000	0.83	D
WV	8th Street	7th Avenue	8th Avenue	10,000	12,000	0.82	D
WV	US Highway 60	Newmans Branch Road	North & South Main Street Frontage Roads	13,000	16,000	0.80	D
WV	5th Street	Altizer Avenue	Riverside Drive	9,000	12,000	0.75	D
WV	13th Avenue	8th Street	12th Street	9,000	12,000	0.75	D
WV	US Highway 52	Madison Avenue	Interstate 64	34,000	46,000	0.73	D
WV	Central Avenue	Main Street	Slaughter Street	12,000	16,000	0.73	D
WV	1st Street	7th Avenue	8th Avenue	8,000	12,000	0.73	D
WV	John Morris Road	Interstate 64	Main Street	14,000	19,000	0.72	D
WV	US Highway 60	Irwin Road	Longwood Road	27,000	38,000	0.71	D
WV	Interstate 64	State Route 527	Hal Greer Boulevard	49.000	70,000	0.70	D

6.0 Transportation System Overview

Development patterns in an area are primarily shaped by the transportation modes available during the time of development. Population and job centers in the KYOVA planning area originally settled along the Ohio and Big Sandy Rivers because they allowed for the easy movement of goods and people. Over the past century, development in the region has expanded around a robust local and regional roadway network. This network provides efficient travel to destinations along the rivers and provides overland connections between different economic centers around the region such as Charleston, West Virginia, Columbus, Ohio, and Lexington, Kentucky. The Transportation System Overview of the KYOVA 2050 Metropolitan Transportation Plan documents current and forecasted conditions of the region's transportation system and identifies existing and future transportation needs.

6.1 Highways and Roads

The roadway network is the primary mode of transportation in the KYOVA planning area. As such, it provides essential links between land use and other modes of travel. To identify current and future problem areas, it is helpful to understand the characteristics of the existing transportation corridors in the region.

6.1.1 Transportation Corridors and Activity Centers

Within the KYOVA planning area are several activity centers that attract numerous peak period trips each day. Most of these centers are located along the Ohio and Big Sandy Rivers, which are paralleled by major roadway corridors such as US 52, SR 7, I-64, and US 60. The three largest economic centers in the KYOVA region are Huntington (WV), Ashland (KY), and Ironton (OH). However, other areas such as Barboursville, West Virginia and South Point, Ohio also contain significant activity and destination points.

How the roadway network facilitates interaction between activity centers is important, as are the mobility choices provided within these centers. Often neighborhoods and economic/activity centers rely on a few key transportation corridors to provide essential links between home, school, employment, shopping, social, and recreational destinations. As residential, commercial, and industrial growth occurs and more vehicles take to the road, roadway improvements will be needed to reduce traffic congestion and improve safety.

6.1.2 Functional Classification

Functional classification is a system for describing roadways based on the type of service they are intended to provide and characteristics such as design speed, traffic volumes, and roadway widths. Balancing access and mobility requires roadways with different contexts that serve a variety of user groups and adjacent land uses. Roads that are intended to carry high volumes of traffic for longer distances at higher speeds, like arterials, will prioritize mobility over access whereas access would be prioritized over mobility for local roads serving low to medium-density single-family residential neighborhoods. In order of decreasing mobility, the five classifications in the KYOVA planning area are: expressways and freeways, major arterials, minor arterials, collectors, and local roads. **Exhibit 6-1** shows the functional classification of the KYOVA roadway network based on how the roadways are categorized in the region's current travel demand model.

6.1.3 Regional Mobility Corridors

The KYOVA area benefits from having multiple options for regional mobility. This mobility is anchored by a few key routes including US 52, I-64, WV 152, US 60, US 23, OH 7, KY 67, WV 10 and WV 2. US 52 provides a critical transportation corridor for the economic vitality within the KYOVA region, serving as a link between the

industrial communities along the Ohio and Big Sandy Rivers such as Huntington, Ironton, Coal Grove, and Prichard. I-64 and US 60 provide an important regional east-west link to other metropolitan areas such as Charleston, West Virginia and Lexington, Kentucky. OH 7, KY 67, WV 152, WV 10, and WV 2 provide connections to surrounding local communities to the south and points along the Ohio River to the northeast of the planning area.

6.1.4 Average Annual Daily Traffic

Traffic volumes signify the total number of vehicles traveling along a roadway segment on an average day. **Exhibit 6-2** illustrates the existing traffic volumes on roadways in the KYOVA area based on the regional travel demand model. I-64 south of Huntington has the area's highest traffic volume with approximately 44,000 vehicles per day (vpd). US 60 entering downtown Huntington from the east carries around 30,000 vehicles per day (vpd). US 23 near the Boyd/Greenup county line in Kentucky also carries around 30,000 vpd. As US 60 in West Virginia travels through the downtown area and the roadway character becomes more urban (closer intersections and a traditional street grid network), it still maintains relatively high volumes (up to 15,000 vpd). US 60 also has between 15,000 and 20,000 vpd through Barboursville and up to 10,000 vpd through Ceredo and Kenova.

Other notable corridors with high traffic volumes include:

- East Mall Road (29,000 vpd);
- US 52 north of the Ohio River near Chesapeake (11,000 vpd);
- US 52 entering Ironton from the southeast (16,500 vpd);
- US 60 near downtown Ashland (20,000 vpd);
- WV 10 entering Huntington from the southeast (21,500 vpd); and
- WV 152 entering Huntington from the south (18,500 vpd).

These roadways represent the critical access points into the Huntington employment and economic center. Numerous other important collectors and local roads within Huntington and surrounding communities carry smaller volumes of traffic proportional to their design and location.

6.1.5 Roadway Congestion

Traffic volumes only provide a piece of the story because they do not account for functional classification and roadway capacity. A better measurement is volume-to-capacity (V/C) ratios, which are calculated by dividing the traffic volume of a roadway segment by its theoretical capacity. The resulting measurement provides a benchmark for levels of congestion and standardizes traffic analysis. A V/C ratio greater than 1.0 indicates that the current level of traffic exceeds the capacity of the roadway, indicating congested conditions.

Existing Conditions

Exhibit 6-3 shows how roadways in the KYOVA region currently perform. The V/C ratios computed for these roadways is based on output from the KYOVA regional travel demand model, which predicts volumes and movement on the transportation system based on development patterns, mode choice, and preferred routing based on trip length, speed, and friction.

The map of existing congestion shows minimal congestion in the KYOVA region. Corridors with notable congestion in the model base year include:

- US 60 between E Mall Road and Cyrus Creek Road;
- US 23 between KY 693 and KY 5;
- US 60 and just west of WV 193 (Big Ben Bowen Highway);
- US 60 between the Guyandotte River and the interchange with I-64 near Pea Ridge;
- OH 7 between Second Street in Chesapeake and OH 775; and

- 12th Street Bridge over the Ohio River in Ashland.

Existing + Committed (2050) Conditions

The KYOVA Transportation Improvement Program (TIP) is a four-year schedule of federally assisted transportation projects for the five-county region that is required under federal transportation legislation. TIP projects include roadway, transit, bicycle, pedestrian, and freight transportation. The TIP is revised and issued biennially by the KYOVA Interstate Planning Commission in coordination with WVDOT, KYTC, and ODOT. The TIP includes cost estimates and funding sources. Once compiled, the list of projects must meet federal air quality requirements under the 1997 eight-hour ozone NAAQS. The development of the 2021-2024 TIP primarily was guided by the KYOVA 2040 MTP. The TIP must be financially constrained, so a financial plan is included to demonstrate the list of projects that can be implemented with the financial resources reasonably expected to be available in the KYOVA area over the next four years. Some projects included in the TIP are completely funded using federal money, while others are supplemented with state and local dollars.

Table 6-1 lists the improvement projects from the 2021-2024 TIP that are still in progress. Please note that programmed maintenance projects are not included in **Table 6-1**, but they are listed later in this chapter in **Section 6.3.4**. **Exhibit 6-4** depicts traffic congestion in 2050 for the KYOVA area assuming these committed projects are added to the existing transportation network. This process helps illustrate system needs beyond the projects currently funded and programmed for improvement.

Congestion Management Process

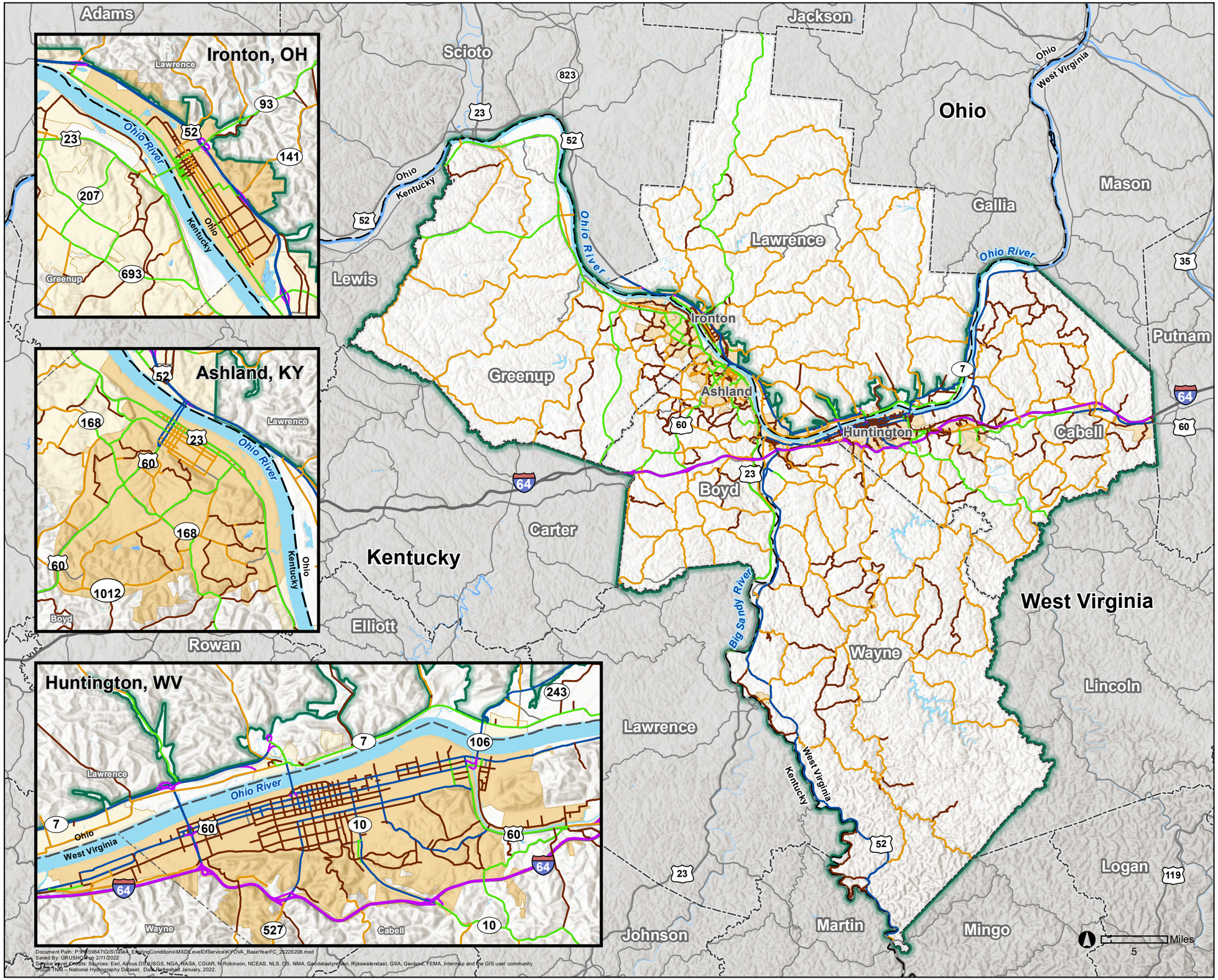
After the 2010 Census, the Huntington urbanized area was designated as a Transportation Management Area (TMA) due to its population exceeding 200,000. The Huntington, WV-KY-OH TMA boundary includes all of the KYOVA MPO planning area as well as a portion of Putnam County, WV (which will continue to be served by the Regional Intergovernmental Council MPO). After designation as a TMA, KYOVA prepared a Congestion Management Process (CMP), a federally required documented process for all TMAs. KYOVA uses this process to assist in selecting projects that will meet the goals of the CMP. Additional information can be found in the 2014 Huntington, WV-KY-OH CMP.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-1

Functional Class

(Based on 2015 Travel Demand Model)



Legend

- Interstate
- Major Arterial
- Minor Arterial
- Collector
- Local

Document Path: P:\PRS9647\GIS\Task4_ExistingConditions\MXD\LevelOfService\KYOVA_BaseYearFC_20220208.mxd
Saved By: GRUSHOVSKI on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS 3DNM – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/11/2022

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-2

Existing Traffic Volumes (2015)

Legend

- 7,500 or Less
- 7,501 - 15,000
- 15,001 - 30,000
- 30,000 or More

Miles 0 5

Last Updated: 2/11/2022

BURGESS & NIPLE

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-3

Level of Service (2015)

Legend

- LOS A - C (less than or equal to 0.70)
- LOS D (0.71 - 0.85)
- LOS E (0.86 - 1.00)
- LOS F (greater than 1)

Ironton, OH

Ashland, KY

Huntington, WV

Document Path: P:\PE59647\GIS\Task4_ExistingConditions\MXD\LevelOfService\KYOVA_BaseYearVOC_20220208.mxd
Saved By: GRUSHOHAN on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS 1/3 – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/11/2022

Table 6-1 – KYOVA FY 2021-2024 TIP Roadway Improvement Projects

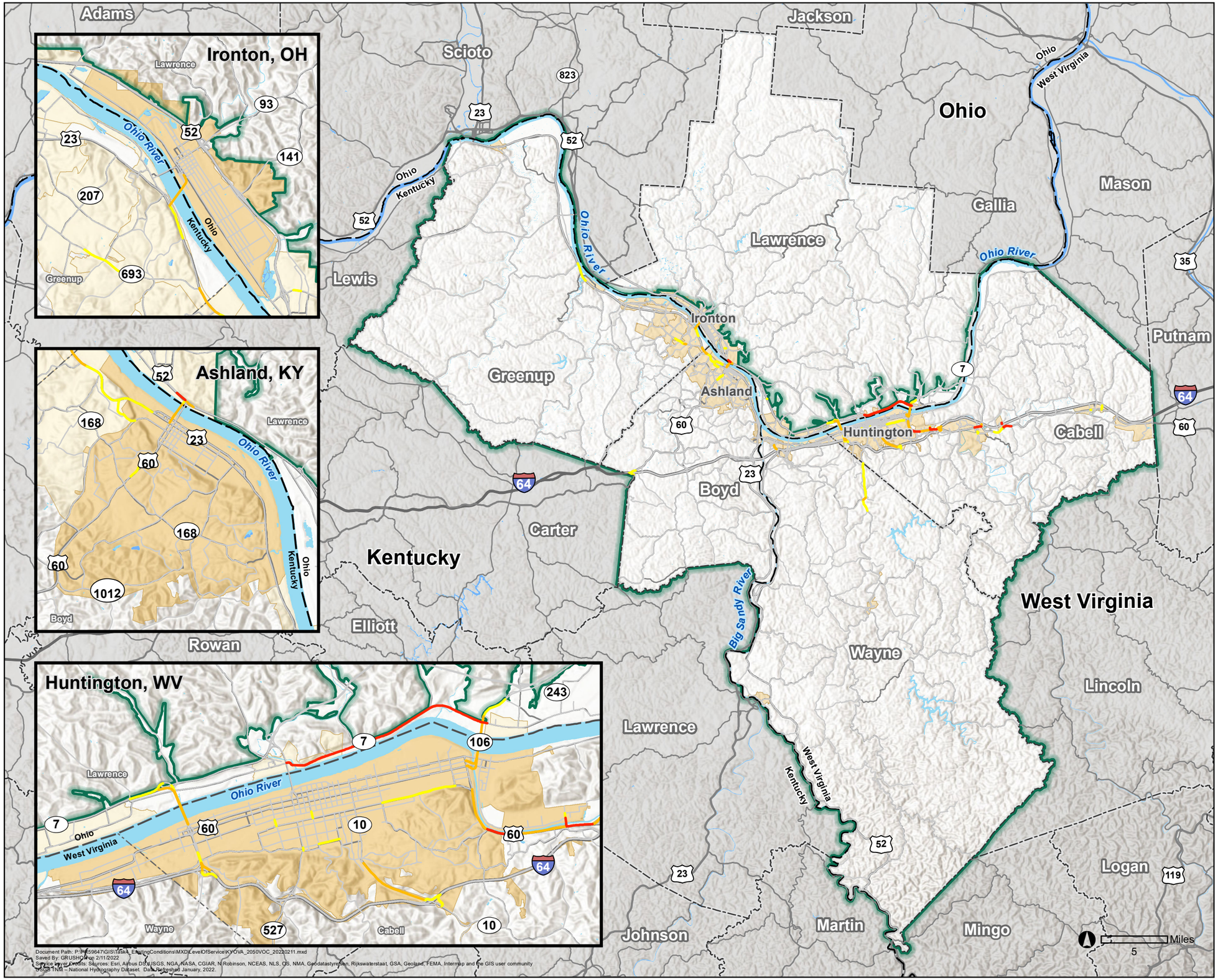
Project ID	Route	Length (Mile)	Location and Description	Phase	Total Cost
Cabell County, WV					
U306-10/-17.18 SEC 00 STBG-0010(283)D	WV 10	1.37	Hal Greer Blvd construction of street improvements	CN	$10,790,000
S306 ALLPG 1 00 STBG2018(201)D	N/A	N/A	All inclusive playground Design/plan playground at Saint Clouds Park	ENG	$25,000
S306 3RDAV 1 00 STBG2018(200)D	N/A	N/A	Bike pedestrian connector Design bike pedestrian connector 22nd Street (US 60) – 24th Street (US 60)	ENG	$250,000
U306 CITY 1 00 STBG2019(191)D	N/A	N/A	City Street – 14th St West Design 14th St West Path 14th Street West railroad crossing – Old James River Road	ENG	$100,000
U306-64/-018.00 00 NHP-0641(400)	I-64	2.27	Merritts Creek-Barboursville advanced construction payback project (split funded) Widen to 8 lanes I-64 milepost 18 to milepost 20.27	CN	$14,125,000
U306-64/-018.00 00 NHP-0641(400)	I-64	2.27	Merritts Creek-Barboursville advanced construction payback project (split funded) Widen to 8 lanes I-64 milepost 18 to milepost 20.27	CN	$9,067,500
U306-64/-018.00 00 NHP-0641(400)	I-64	2.27	Merritts Creek-Barboursville advanced construction payback project (split funded) Widen to 8 lanes I-64 milepost 18 to milepost 20.27	CN	$10,375,000
U306-64/-018.00 00 NHP-0641(400)	I-64	2.27	Merritts Creek-Barboursville advanced construction payback project (split funded) Widen to 8 lanes I-64 milepost 18 to milepost 20.27	CN	$12,817,500
U306 64 03165 00 NFA2617(001)	US 60	1.0	Culloden Interchange (KYOVA & RIC) (GO Bond 2/3) Construction of a new diamond interchange and connector road on I-64 on the Cabell/Putnam border	CN	$37,000,000

Project ID	Route	Length (Mile)	Location and Description	Phase	Total Cost
Wayne County, WV					
S350-301/01 00 STBG-0031(053)D	CR 3/1	N/A	Huntington Tri-State Airport Design parking structure	ENG	$650,000
Boyd County, KY					
09-409.00	US-23	0.10	Install continuous green light for the right lanes on NB US-23 at the intersection of KY-5 with concrete island near the center of intersection	C	$274,755
09-410.00	US-60	0.10	Install continuous green light for the right lanes on WB US-60 at the intersection of KY-1012 MP 8.617 with concrete island near the center of the intersection	C	$154,547
09-411.00	US-23	1.56	Remove raised median sections on Greenup Ave (US-23) from MP 17.078 to MP 18.640 and add a continuous two way turn lane from 20th Street to 21st Street	C	$454,612
09-244.00	US-23/US-23X	0.7/0.218	Design for downtown streetscape (Winchester Avenue – US-23) from 7th street (MP19.33) through 12th Street (MP 18.63) and Winchester Avenue (US-23X) from 18th Street (MP 1.18) through 21st Street (MP .962) in Ashland, KY	D	$250,000
Greenup County, KY					
09-8509.00	KY-207	4.95	Improve KY-207 from the industrial parkway to the KY-693 intersection in Flatwoods	D	$2,000,000
09-9018.00	KY-23	0.30	Construct left and right turn lanes on KY-23 at the entrance of Argillite Elementary	D / R / R / C	$1,225,000
Lawrence County, OH					
75923	US 52 / SR 7	N/A	Chesapeake Bypass Phase 2	PE / RW / CN	$86,282,249
106508	US 52 and SR 243	N/A	Interchange improvements at Coal Grove exit.	CN	$2,800,000 w/ $500,000 from ARC
83280	US 52	N/A	Charley Creek/US 52 intersection. Realign the intersection of CR 144 and CR1 and build an access road south of US 52	CN	$1,406,836

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-4

Level of Service (2050)



Legend

- LOS A - C (less than or equal to 0.70)
- LOS D (0.71 - 0.85)
- LOS E (0.86 - 1.00)
- LOS F (greater than 1)

Document Path: P:\P65964\GIS\Task 4_ExistingConditions\MXD\LevelOfService\KYOVA_2050VOC_20220211.mxd
Saved By: GRUSHOW on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS NHD – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/11/2022

6.2 Safety

According to the Center for Disease Control and Prevention (CDC), traffic crashes are a leading cause of death in the United States every year, representing a major public health concern in communities around the country. KYOVA is dedicated to enhancing the safety of the transportation system for all users. This means examining crash data to find high injury locations across all five counties, to determine where safety improvements are needed the most. Regional studies involving safety as a key component have been completed for Cabell and Wayne Counties and the urban areas of Boyd, Greenup and Counties.

6.2.1 Previous Safety Studies

Safety Study for Cabell and Wayne Counties (2020)

The Safety Study for Cabell and Wayne Counties (2020) was completed by Burgess & Niple, Inc. in coordination with KYOVA. The goal of the study was to identify crash trends and high crash locations in Cabell and Wayne Counties. Crash data was analyzed for the five-year period between January 1st, 2013 and December 31st, 2017. In the five-year period, 16,974 crashes occurred in the two-county region with an overall upward trend in crashes each year. Out of the total crashes, 87 (1 percent) crashes resulted in a fatality and 4,529 (27 percent) resulted in injury. The most prevalent crash type in the region was rear end collisions. Head on and overturning collisions were less prevalent but resulted in the highest fatal and serious injury percentages.

The City of Huntington had the highest frequency of fatal and serious injury collisions out of all jurisdictions, with 280 fatal and serious injury crashes in five years. Crum, West Virginia had the highest percentage of crashes result in a fatal or serious injury (10 percent). The more rural areas in Wayne County had fewer total crashes but the highest fatal and injury crash percentage, likely due to higher speeds and more rolling terrain.

The crash data in the two-county region was then geolocated to create heat maps and identify high crash and injury locations. The locations were ranked based on the total Equivalent Property Damage Only (EPDO) which is a method that determines the relative severity of crashes by weighting the crash costs. The locations were then prioritized using methodology from the Highway Safety Manual, and infrastructure countermeasures were evaluated for the top locations. As part of the infrastructure countermeasures, cost estimates and benefit/cost ratios were created for each location.

The locations were then prioritized based on implementation, involving factors such as the benefit/cost ratio, the potential need for right-of-way and total cost. The high implementation priority intersections for Cabell and Wayne Counties are shown in **Table 6-2** and **Table 6-3** respectively. The high priority segments in both Cabell and Wayne County area shown in **Table 6-4**.

Table 6-2 – High Priority Intersections in Cabell County

Cabell County Intersections	
1	Adams Ave at 19th St W
2	Washington Blvd at Midland Trail (US 60)
2	Midland Trail (US 60) at Davis Creek Rd
2	8th Ave at 31st St (US 60)
5	Midland Trail (US 60) at Bonnie Blvd
5	Washington Ave at W 17th St
7	8th Ave at 20th St
7	Midland Trail (US 60) at Farmdale Rd
9	Midland Trail (US 60) at W Mall Rd
9	Midland Trail (US 60) at E Mall Rd
11	Adams Ave/5th Ave at 1st St
12	Midland Trail (US 60) at Kroger
13	Midland Trail (US 60) at E Pea Ridge Rd
13	5th Ave at 29th St
15	Midland Trail (US 60) at W Pea Ridge Rd/Bridge
16	5th Ave at 20th St
17	5th Ave at 31st St/Bridge Ramp
17	Midland Trail (US 60) at Irwin Rd
19	Midland Trail (US 60) at Pinecrest Dr

Table 6-3 – High Priority Intersections in Wayne County

Wayne County Intersections	
1	German Ridge Road at WV 152
2	5th St Rd (US 152) at Food Fair Plaza
3	WV 75 at Spring Valley Dr
4	Waverly Rd (US 60) at Carson St
5	Waverly Rd at Camden Rd/Auburn Rd
6	Waverly Rd (US 60) at Burlington Rd
6	Court St at Route 52
8	WV 75 at 5th St Rd (WV 152)

Table 6-4 – High Priority Segments in Cabell and Wayne Counties

Cabell and Wayne County Segments	
1	WV 152 from Bloss Branch Rd to Big Creek Rd
2	WV 152 - German Ridge Hill
2	WV 152 from CR 11 Access (By Pharmacy) to 8th St Rd
4	WV 152 from Darism Dr to Hickory lane
5	US 60 from Braley Rd to Longwood Rd
6	US 60 from Hazel Jane Estates to Childers Rd

An implementation plan was then created based on infrastructure improvements, behavioral countermeasures and corridor studies with the goal of improving safety in the study area. The improvements were organized into a timeline for implementation: Immediate-Term (0 to 1 year); Short-Term (1 to 2 years); and Medium-Term (2 to 5 years).

Boyd-Greenup Small Urban Area Study (2020)

The Boyd-Greenup Small Urban Area Study (2020) was completed by KYTC in partnership with QK4, Inc Engineering and Planning in August 2020. Crash data was analyzed for a three-year period between January 1st, 2016 to December 31st, 2018. In the three-year period there were a total of 3,654 reported crashes with 16 percent resulting in injury. Six fatal crashes occurred in the study area with three involving motorcycles and two involving pedestrians. The remaining fatal crash was an angle crash involving a vehicle running a red light. The most prevalent crash type in the study area was rear end collisions.

Maps were created to show the location of fatal/injury collisions and pedestrian/bicycle collisions. The highest concentration of both injury collisions and bicycle/pedestrian collisions was in the City of Ashland, Kentucky, near the bridge between Ohio and Kentucky.

This study focused on 90 miles of state-maintained routes and 11 miles of local roads in Boyd and Greenup County. In this study, high crash segments and spots were identified using critical crash rate factors (CCRF). CCRF's are expressed as the ratio of the crash rate to a given location compared to statewide crash rates for similar roadways. A CCRF greater than one indicates that crashes could be overrepresented in that segment/spot. The study identified 25 high crash segments and 80 high crash spots.

Improvements were recommended in the area based on existing safety concerns identified from crash data and community input. Incorporating traffic operations, safety considerations, and stakeholder input, long-term and short-term improvement projects were developed and prioritized. Long-term projects are higher cost projects that often require purchasing additional right-of-way. Short-term projects are lower cost projects that can be implemented in the near future. Local projects are improvements beyond the state-maintained highway system that can be funded by local agencies. The highest priority locations identified from this study are listed in **Table 6-5**.

.

Table 6-5 – High Priority Locations Identified in the Boyd/Greenup Small Urban Area Study

	Intersection/Segments	Time Frame
Boyd County	US 60 at KY 168 and Algonquin Avenue	Long Term
	KY 5 (Bellefonte Road) at US 23	Long Term
	Central Avenue (CS-2350) Corridor At 14th -17th, 22nd, 24th Streets	Local
Greenup County	KY 693 (Diederick Boulevard) at KY 1172 (Red Devil Lane)/Thompson Road	Long Term
	US 23 at Caroline Road	Long Term
	KY 693 (Bellefonte Road) at Espy Lane	Local
	Caroline Road approaching US 23	Local

6.2.2 Lawrence County Crash Analysis

Crash Trends Analysis

Crash data for the portion of Lawrence County within the KYOVA region was analyzed to understand overall crash trends. This analysis demonstrates existing safety conditions and provides valuable safety insights into the factors involved in collisions.

Crash data between January 1st, 2015 to December 31st, 2019 were obtained for Lawrence County within the boundaries of the KYOVA MPO. The crash data were downloaded using ODOT's GIS Crash Analysis Tool (GCAT). In the five-year period, 3,062 crashes occurred with 31 percent resulting in injury. **Exhibit 6-5** illustrates the crash frequency per year, showing an overall upward trend in crashes per year. While crashes have been upwardly trending, the overall population of Lawrence County has been decreasing each year based on the US Census Bureau.

In the five-year period, 10 crashes (< one percent) resulted in a fatality and 57 crashes (two percent) resulted in serious injury. On average, 613 crashes occur per year including 2 fatal crashes and 11 serious injury crashes

Exhibit 6-5 - Crash Frequency Per Year

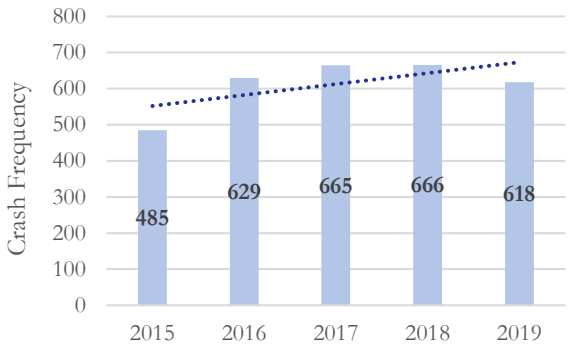
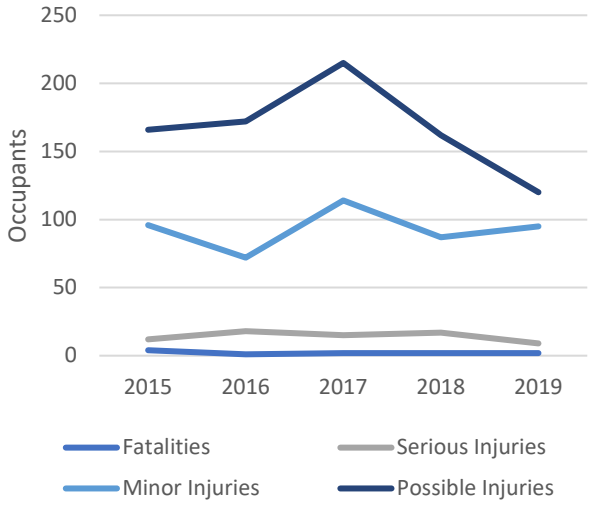


Exhibit 6-6 illustrates the fatalities and injuries occurring each year in Lawrence County. Fatalities and serious injuries were relatively constant over the five-year period. Minor injuries are trending upward, while possible injuries have been trending downward.

Exhibit 6-6 - Fatalities and Injuries Per Year



The Ohio Strategic Highway Safety Plan (SHSP) highlights several emphasis areas that help direct resources and focus Ohio's safety improvement efforts. **Table 6-6** compares the percentage of fatalities and serious injuries in the state to the percentage in Lawrence County (MPO Boundary) for several different emphasis areas. Ohio had a combined total of 47,818 fatalities and serious injuries, while Lawrence County had 82 total fatalities and serious injuries.

Table 6-6 – Emphasis Area Comparison

	Percentage of Total Fatalities & Serious Injuries	
Emphasis Area	Statewide	Lawrence County MPO Area
Roadway Departure	43%	38%
Intersections	39%	43%
Young Drivers (15-25)	35%	37%
Speed	24%	24%
Older Drivers (65+)	19%	26%
Alcohol Impaired	16%	11%
Motorcycles	11%	12%
Drug Impaired	9%	5%
Pedestrian	7%	10%
Bicycles	2%	0%

Lawrence County has a higher rate of intersection related crashes, young driver and old driver related crashes, motorcycle collisions and pedestrian collisions than the statewide averages.

The crash type trends for Lawrence County are summarized in **Table 6-7.**

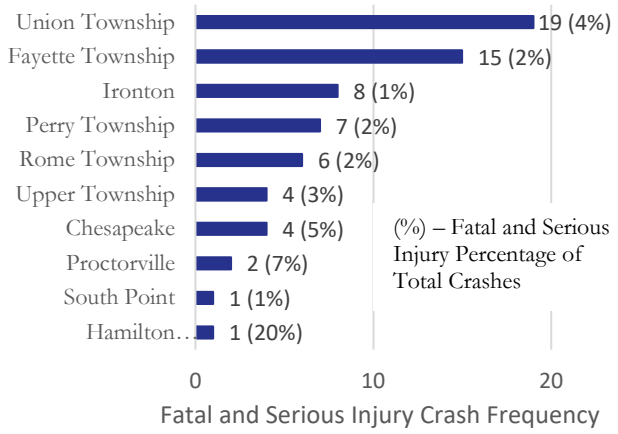
Table 6-7 – Crash Type Comparison

	Total Crashes	Fatal and Serious Injury %
Rear End	1,111	2%
Angle	458	2%
Fixed Object	402	3%
Sideswipe - Passing	269	0%
Parked Vehicle	176	1%
Animal	154	0%
Left Turn	134	2%
Backing	132	0%
Right Turn	66	2%
Head On	63	11%
Pedestrian	21	38%
Other Non-Collision	17	12%
Other Object	17	0%
Overturning	17	18%
Pedalcycles	14	0%
Unknown	10	10%
Sideswipe - Meeting	1	0%

The most prevalent crash type in the region was rear end collisions resulting in 36 percent of the total crashes. The majority of the rear end collisions were intersection related (77 percent). Pedestrian and overturning collisions were less prevalent but resulted in the highest fatal and serious injury percentages.

The jurisdictions where the 67 fatal and serious injury collisions occurred is summarized in **Exhibit 6-7**.

Exhibit 6-7 – Fatal and Serious Crashes by Location



Union Township resulted in the highest number of fatal and serious injury crashes. Hamilton Township resulted in the highest fatal and serious injury percentage, as there were only five crashes and one crash resulted in a serious injury.

Intersection Prioritization

In order to prioritize intersections for study, the initial step of the process was to map the crash locations using GIS. The crash records had geographic coordinates, which were used to locate the crashes in Lawrence County.

After the crashes were located in GIS, "heat maps" were created to determine the crash hot spots in Lawrence County, shown in **Exhibit 6-8.** As seen from the figure, the highest density of crashes occurred along US 52 between Burlington Macedonia Road (CR 120) and Charley Creek Road in Fayette Township. The majority of crashes in this area were rear end collisions, likely related to high traffic volumes and congestion at the signalized intersections. For example, at the intersections of US 52 with Burlington Macedonia Road (CR 120), Sandusky Road and Charley Creek Road, the percentage of rear end collisions was 58, 82 and 81 percent respectively.

From the heat map, intersection hot spots were identified. A crash was included in an intersection hot spot if it was located within 150, 250 or 500 feet of an intersection, depending on the size of the intersection and the length of the turn lanes. Intersections in the downtown Ironton area were generally given a buffer of 150 feet due to the closely spaced intersections. The 500-foot buffers were only used along US 52 due to the longer turn

Exhibit 6-8 – Lawrence County Heat Map (All Crashes)

lanes and larger intersection areas. A minimum limit of five crashes was used when defining hot spots.

After all hot spots were identified, the crash data were analyzed and ranked based on the total Equivalent Property Damage Only (EPDO), which is a method that determines the relative severity of crashes by weighting the crash costs. **Table 6-8** shows the weight of each level of injury severity. The relative weighting is based on crash costs developed by ODOT for economic analysis purposes.

Table 6-8 – EPDO Factors for Ohio

	Ohio Crash Economic Cost	Severity Weight
Fatal Injury Crash (K)	$422,724.60	52.3
Serious Injury (A)		
Non-Incapacitating Injury (B)	$54,138.60	6.7
Possible Injury (C)	$47,325.16	5.9
Property Damage Only (O)	$8,080.35	1.0

The hot spot locations were then ranked by each of the values calculated by the formulas shown in **Exhibit 6-9**.

Exhibit 6-9 – Ranking Formulas

Equivalent Property Damage Only (total) = *(EPDO Weight* Fatal Crashes/ Serious Injury Crashes) + (EPDO Weight * Non-Incap. Crashes) + (EPDO Weight * Possible Injury Crashes) + (PDO Crashes)*

Equivalent Property Damage Only (per crash) = *((EPDO Weight * Fatal Crashes/ Serious Injury Crashes) + (EPDO Weight * Non-Incap. Crashes) + (EPDO Weight * Possible Injury Crashes) + (PDO Crashes))/ Crash Frequency*

Crash Frequency = *Total number of crashes occurring along segment or at intersection*

Priority Score = *Crash Frequency Rank + EPDO (total) Rank + EPDO (per crash) Rank*

The resulting score was determined by adding together the EPDO (total) rank, EPDO (per crash) rank and the crash frequency rank. The EPDO (total) takes both the crash frequency and the severity of the crashes into account, while EPDO (per crash) looks at the weighted average of each crash. The locations with the lowest overall score were moved to the top of the list. The top 20 high priority intersections for Lawrence County are summarized in **Table 6-9.**

Table 6-9 – High Priority Locations in Lawrence County

Lawrence County	
Priority Ranking	Intersection
1	State St/Market St at Cedar St
2	US 52 at Old US 52 (CR 1)
3	SR 7 at SR 775
4	US 52 at Sandusky Rd
4	Jefferson St at Court St
6	US 52 at Walmart Way
7	US 52 at Charley Creek Rd
8	SR 7 at SR 243
8	US 52 at Burlington Macedonia Rd
10	SR 7 at Eaton Rd/Elm St
11	Market St at Demaria St
12	US 52 at Grandview Ave
12	Lorain St at S 3rd St
14	Old US 52 at Grandview Ave
14	Railroad St at N 4th St
16	CR 1 at Nancy St/Harbour Dr
17	SR 7 at Willow St
18	SR 7 at Irene Rd
19	Jefferson St at Davidson St
20	State St at Irene Rd

6.3 Security and Resiliency

Planning for transportation system security involves considering the potential for both man-made and natural threats to the system.

Security measures typically fall into one of four categories: prevention, protection, redundancy, and recovery.

- **Prevention** mainly limits access to ensure the safety of the transportation system.
- **Protection**—in coordination with prevention elements—focuses on vulnerable components of the roadway system such as bridges and major corridors.
- **Redundancy** within the transportation network creates identifiable alternative routes in the event of an incident. Redundancy most often refers to an interconnected street network, though similar methods should be extended to the bicycle and pedestrian network, transit system, and rail corridors.
- **Recovery** refers to both the initial response during an emergency and long-term activities that aid in the return of normal operations.

Through the adoption of MAP-21 and subsequently the FAST Act, the federal government established security and resiliency as independent planning factors for consideration in long-range transportation plans. The section that follows provides an overview of existing transportation security and resiliency and identifies needs for future improvements.

The KYOVA 2050 MTP is an important part of the region's attempt to deliver secure and resilient transportation for people and goods. The MPO has the advantage of considering these issues at a regional level and across state boundaries, which is a logical first step to ensuring protection at the local level. While general strategies can be formulated at the regional level and the MPO can create multimodal recommendations that enhance security and resiliency, implementation for many strategies may be the responsibility of local organizations. In the KYOVA area, key considerations include evacuation routes for communities potentially affected by flooding, failure of sensitive facilities (including many of the industrial sites within the KYOVA area), protection and maintenance of bridges and other transportation infrastructure, and the safeguard of highway transit and freight operations.

It is also important to note that at the national level, the U.S. Department of Homeland Security (USDHS) is the overarching agency whose responsibilities include security planning for the transportation system. Its mission is to protect the United States from attacks through border and transportation security; emergency preparedness and response; chemical, biological, radiological, and nuclear countermeasures; information analysis; and infrastructure protection. The USDHS provides guidance and support for transportation security through the National Response Plan, which establishes protocols for the federal government's coordination with state, local, and tribal governments, and with the private sector, for security events.

At the statewide level, the West Virginia Emergency Operations Plan developed by the West Virginia Department of Homeland Security and Emergency Management, the Kentucky Emergency Operations Plan, and the State of Ohio Emergency Operations Plan provide for state-level emergency operations in response to any type of disaster or large-scale incident affecting West Virginia, Kentucky, and Ohio. These assign duties and responsibilities to departments, agencies and support organizations for disaster preparedness, response and recovery, and mitigation. They also provide the needed framework within which more detailed emergency plans and procedures can be developed and maintained by both state agencies and local governments.

6.3.1 Emergency Response

Natural or man-made community emergencies can occur at any time. The Emergency Management Departments of Wayne County and Cabell County, West Virginia, Boyd and Greenup County, Kentucky, and Lawrence County, Ohio are primarily responsible for overall coordination of county, state, and volunteer agencies before, during, and after an emergency. In addition to the county EMS departments, elements of emergency response and fire protection in the KYOVA area include

municipal and county fire departments, county sheriff offices, county commissions, public works departments, health departments, county Red Cross organizations, and police departments for local cities and major universities (such as Marshall University).

6.3.2 Evacuation Routes

Natural emergencies such as floods, fires, and major storms potentially could affect the KYOVA MPO area. Although no evacuation routes have been formally designated, all freeways, expressways, and arterials within the planning area are critical for area access.

The major bridges and viaducts within the planning area also serve as critical access points. Bridges crossing the Ohio, Big Sandy, and Guyandotte Rivers are particularly critical elements of the regional roadway network. Some of the largest roadway bridges include:

- Oakley Clark Collins Memorial Bridge across the Ohio River in Ironton
- 12th Street across the Ohio River (Ben Williamson Memorial Bridge / 12th Street Bridge) in Ashland
- US 60/13th Street across the Ohio River (Simeon Willis Memorial Bridge) in Ashland
- US 52 across the Ohio River (West Huntington Bridge / West End Bridge / West 17th Street Bridge / Nick Joe Rahall II Bridge)
- 6th Street (SR 527) across the Ohio River (Robert C. Byrd Bridge) in Huntington
- SR 775/SR 106 across the Ohio River (East Huntington Bridge) / East End Bridge / Frank Gatski Memorial Bridge / 31st Street Bridge) in Huntington
- Chestnut Street / 35th Street (US 60) across the Big Sandy River in Catlettsburg
- I-64 Eastbound across the Big Sandy River
- I-64 Westbound across the Big Sandy River
- Madison Street across the Big Sandy river between Louisa, KY and Fort Gay, WV

Numerous low-lying viaducts (roadways that temporarily drop in grade usually to go underneath a rail line) throughout the region also could become blocked during times of severe flooding. These include:

- West 14th Street near Memorial Boulevard
- 1st Street between 7th Avenue and 8th Avenue
- 8th Street between 7th Avenue and 8th Avenue
- 10th Street between 7th Avenue and 8th Avenue
- 16th Street Road between 7th Avenue and 8th Avenue
- 20th Street between 7th Avenue and 8th Avenue
- Old Guyan River Road between Price Industrial Road and Altizer Avenue
- Central Avenue in downtown Barboursville
- Main Street between Midland Trail (US 60) and Woodland Drive
- Goose Creek Road near Midland Trail (US 60)
- Dry Creek Road in Milton, WV (3 locations)

Maintaining operations of these important roadway facilities and having designated alternative routes should be a top priority during cases of natural disaster and regional emergency.

6.3.3 Bridge Conditions

A September 2003 Federal Highway Administration (FHWA) report on bridge and tunnel security (titled Recommendations for Bridge and Tunnel Security) notes that after considering the bridges and tunnels in the national highway system, the loss of a critical bridge or tunnel at one of the numerous "choke points" in the highway system could result in casualties, direct reconstruction costs, and socioeconomic costs. While the report focuses on the deliberate act of sabotaging a bridge, it shows the importance of preserving and maintaining bridges in the face of normal wear and tear.

The FHWA's National Bridge Inventory (NBI) is an annually updated data source that provides detailed information about the nation's bridges. Information from the 2021 NBI on the condition of brides in the KYOVA counties is provided below.

Cabell County, WV

- 207 bridges countywide
  - 23 bridges in good condition
  - 138 bridges in fair condition
  - 46 bridges in poor condition

Wayne County, WV

- 162 bridges countywide
  - 14 bridges in good condition
  - 112 bridges in fair condition
  - 36 bridges in poor condition

Boyd County, KY

- 88 bridges countywide
  - 28 bridges in good condition
  - 56 bridges in fair condition
  - 4 bridges in poor condition

Greenup County, KY

- 161 bridges countywide
  - 86 bridges in good condition
  - 71 bridges in fair condition
  - 4 bridges in poor condition

Lawrence County, OH

- 257 bridges countywide
  - 59 bridges in good condition
  - 171 bridges in fair condition
  - 27 bridges in poor condition

6.3.4 Planned Maintenance Projects

Proper maintenance is necessary to ensure transportation facilities are safe to use and remain open to the traveling public. Further, regular preventative maintenance is often needed to keep small problems from growing into large and costly repairs that could limit the useful life of our transportation infrastructure.

The KYOVA 2021-2024 TIP and the KYTC Six Year Highway Plan include a number of maintenance projects that are slated for implementation in the near-term, by Fiscal Year 2028. A list of the planned maintenance projects for the KYOVA MPO planning area is provided in **Table 6-10**.

Table 6-10 - KYOVA Maintenance Projects

Project ID	Route	Location and Description	Phase	Total Cost
Cabell County, WV				
S382-REC/AL-21.00 STP-2021(011)D	N/A	District wide pavement markings	CN	$231,400
S382-STR/IP-21.00 STP-2021(011)D	N/A	District wide pavement markings	CN	$1,211,836
U306-64/599 00 NHPP-00641(408)DBC	I-64	Gimlet Hollow Overpass bridge replacement located at milepost 5.99 on I-64 0.47 mile west of US 52 – 0.64 mile west of US 52	ENG RW CN	$3,200,000 $1,600,000 $32,000,000
U306-10/795 00 STP-0010(299)D	WV 10	Heath Creek Slab +2 bridge replacement located at 0.71 mile north of CR 42 Family Dollar Store bridge 0.04 mile south of CR 42 Nidas Used Car bridge 0.14 mile south of CR 42	RW CN	$50,000 $960,000
S306-64/027.92.00 NHPP-0641(406)D	I-64	Milton – US 35 3" micro on pavement joints 0.38 mile east of CR 13 overpass – CR 29 overpass	CN	$800,000
S306 60 0002 00 NHPP0060(353)D	US 60	Col. Justice Chambers bridge replacement of bridge 0.74 mile west of US 52 – 0.86 mile west of US 52	RW	$50,000
S306 10 00793 00 STP-0010293D	WV 10	Sarah – Melissa Rd resurfacing 0.97 mile south of CR 10/3 – WV Alternate 10	CN	$1,049,000
T606 CENTR 1 00 STBG2018(196)D	N/A	County Route 31 – Central Avenue Drainage System Study – CSX Underpass Hockenburry Lane – College Avenue	ENG	$125,000
S306 052 101 00 HWIB0052(339)DTC	US 52	James River Road Overpass Replacement of superstructure 0.29 mile north of Interstate 64 – 0.37 mile north of Interstate 64	CN	$10,600,000
S306 60 00900 00 STP-0060367DTC	US 60	29th Street – Peyton Street resurfacing 29th Street – CR31/1	CN	$2,083,000
S306 101 00000 00 STP-0101004D	WV 101	29th Street Road resurfacing 8th Avenue – 5th Avenue	CN	$439,000
S306 527 001 00 NHPP-0527(010)D	US 527	Robert C Byrd Bridge Clean and paint bridge milepost 0.01 – milepost 0.40	RW CN	$10,000 $14,346,855

Project ID	Route	Location and Description	Phase	Total Cost
Wayne County, WV				
S350-37/13-1.97 00 STP-3713(001)D	CR 37/13	Peter Cave Arch Bridge replacement 0.03 mile south of WV 37 - 0.05 mile south of WV 37	ENG	$150,000
S350-22/002 00 NFA-2317(343)D	C 22	East Lynn Route 22 Bridge (GO Bond 2/3 in FY 2022) bridge replacement 0.01 – 0.02 mile east of WV 37	CN	$1,135,000
S350-37/2058 00 NFA-2317(296)D	CR 37	Armilda Bridge (in FY 2022) bridge replacement 0.06 – 0.07 mile west of CR 24	CN	$1,834,000
S350 152 00103 00 STP-0152(064)D	WV 152	Moses Fork Mountain resurfacing US 52 – CR 152/18	CN	$626,400
Boyd County, KY				
09-8400.00	US-60	Replacement of 3 functionally and/or obsolete bridges	C	$22,600,000
09-10070.00	KY-3	Bridge Project in Boyd County on (010B00007N) KY-3 at Bolts Fork	C	$308,000
09-10071.00	US-60	Bridge Project in Boyd County on (010B00017N) US-60 at CSX railroad	C	$6,963,000
09-10074.00	US-23S	Bridge Project in Boyd County on (010B00058N) US-23S at CSX Ohio River, CSX, Streets	C	$2,200,000
9-10075.00	Straight Creek	Bridge Project in Boyd County on (010C00018N) Straight Creek at Straight Creek	C	$1,034,000
9-20015.00	US-23	Address pavement condition on US-23 from Milepoint 10.67 to Milepoint 16.95	C	$2,365,000
9-22308.00	US-23	Address condition of US-23 from Milepoint 0 to Milepoint 2.921	C	$1,950,000
9-4306.00	KY-1012	Install guardrail on KY-1012 in Boyd County	C	$70,000
9-4310.00	KY-5	Install guardrail on KY-5 in Boyd County	C	$31,000
9-4328.00	KY-3294	Install guardrail on KY-3294 in Boyd County	C	$52,000
Greenup County, KY				
9-10087.00	KY-8S	Bridge Project in Greenup County on (045B00064N) KY-8S at Ohio RVR-CSX RR-CO.RD.	C	$3,630,000
9-4314.00	KY-827	Install guardrail on KY-827 in Greenup County	C	$19,000
9-4316.00	KY-7	Install guardrail on KY-7 in Greenup County	C	$53,000

Project ID	Route	Location and Description	Phase	Total Cost
9-4317.00	KY-7	Install guardrail on KY-7 in Greenup County	C	$32,000
Lawrence County, OH				
LAW-243-12.79 / PID 91549	SR 243	Bridge replacement of deficient structure on SR 243 1.2 miles east of intersection of SR 378 and SR 243	CO	$1,691,405
LAW-CR169-0.41 / PID 96289	CR 169	Off SR 93 on CR 169 (Ellisonville-Smoky Row Road) it is proposed to replace the structure (SFN 4401425).	CO	$514,847
LAW SR 7.058 / PID 99761	SR 7	Landslide remediation project to protect the integrity of the roadway.	CO	$1,300,023
LAW-7-6.86 PV / PID 100492	SR 7	Roadway/Minor Rehab	CO	$1,060,599
LAW-775(15.45)(15.70) / PID 102181	SR 775	Bridge replacement	CO	$1,915,389
LAW CR 104 2.40 / PID 103781	CR 104	Replace bridge (SFN 445082) on Boothe Eaton Road.	CO	$1,577,000
LAW-243/378-11.59/0.00	SR 243	Roadway/Minor Rehab	CO	$2,266,145
LAW-52-18.61 / PID 111041	US 52	Culvert preservation	CO	$275,000
LAW SR 7 2.00 / PID 111129	SR 7 & SR 527 Interchange	Replace highway lighting system	CO	$906,250
LAW-5th Street Municipal Bridge / PID 111479	5th Street	Replacement of the 5th Street Bridge (SFN 4460057) within Ironton as a part of the Municipal Bridge Program.	CO	$1,980,402
LAW US 17.57 / PID 111653	US 52	Slide repair	CO	$715,770
LAW-Ironton-3rd Street / PID 112147	3rd Street	Reconstruct 3rd Street in Ironton	CO	$718,311
LAW-52-15.00 PV / PID 112921	US 52	Roadway/Minor Rehab	CO	$3,165,173
LAW-52-5.00 PV / PID 112994	US 52	Roadway/Minor Rehab	CO	$2,120,854

Source: KYOVA FY 2021-2024 TIP; KYTC Six Year Highway Plan, FY 2022 – FY 2028

6.4 Systems Management

Transportation systems management (TSM) and intelligent transportation systems (ITS) are additional tools available to alleviate traffic congestion and improve safety. A description of the existing systems deployed in the KYOVA region as well as planned systems follows.

KYOVA relies on the West Virginia, Kentucky, and Ohio Statewide ITS Architectures and coordinates with WVDOT, KYTC, and ODOT and other stakeholders to help ensure that information for ITS elements within the MPO is kept up to date with the corresponding Statewide ITS Architecture. KYOVA facilitates cooperation among local ITS stakeholders in determining the roles and responsibilities of each stakeholder and informs the state DOTs whenever it becomes aware of any changes to stakeholder information including changes in roles and responsibilities and the establishment, amendment, or abolishment of agreements between stakeholders that would affect the Statewide ITS Architecture. The MPO also keeps the state DOTs informed of potential new ITS projects so that these projects can be incorporated into the Statewide ITS Architecture.

6.4.1 Existing Systems Management Approaches

In the KYOVA planning area, several systems management approaches are currently in use:

- WVDOH intelligent transportation system (ITS) deployment along I-64 throughout the planning area
- Phase I of the City of Huntington Computerized Signal System Upgrade
- Closed loop signal system in the Burlington area of Lawrence County
- Ironton computerized signal system

Additional details are provided about these approaches in the following sections.

West Virginia DOH ITS Deployment

The WVDOH commenced operations in fall 2008 of its Statewide Smart Traffic Center, which was identified in the 2006 Statewide ITS Architecture and Strategic Deployment Plan. This center, located in the DOH headquarters in the Capitol Complex, provides monitoring, situational awareness, traffic management, incident management and coordination, and traveler information capabilities for major roadways throughout the state. The ITS functionality includes:

- Closed Circuit Television (CCTV) monitoring of roadway facilities
- Road weather information (RWIS) data collection stations
- Real time travel speeds
- En-route traveler information via dynamic message signs
- Voice response 511
- Incident management coordination

City of Huntington Computerized Signal System

Incorporating the recommendations of the City of Huntington Signal Optimization study, the City of Huntington designed and implemented an upgrade of its computerized signal system, which was brought on-line in the first quarter of 2012. The system upgrade included:

- New, more functional local traffic signal controller equipment;
- Revised local intersection phasing (including left turn treatments, right turn overlaps, and pedestrian signals);
- Emergency signal preemption;
- Enhanced, higher throughput communications; and
- New central software.

The first phase encompassed approximately 50 intersections in the Huntington core from 1st Street

to 29th Street and from the floodwall to the railroad tracks. This system is operated by the Rahall Transportation Institute, and its operations center is collocated with the WVDOH satellite TMC. The system improves intersection safety for turning vehicles and pedestrians and signal coordination resulting in reduced travel times. It permits safer passage of emergency vehicles through intersections resulting in more timely emergency response. The system can adjust signal timing in real time to respond to unexpected changes in traffic and can improve the ability to prepare for planned activities such as construction events and special events.

Burlington Closed-Loop Signal System

In the Burlington area of Lawrence County, US 52 serves both as a major mobility route for the county as well as a major access point for several regional commercial and industrial sites. This confluence of roles has created safety and mobility issues with high truck volumes and high-speed interregional trips conflicting with traffic seeking to access local commercial, industrial, and retail destinations. In response, ODOT installed a closed loop traffic signal system to improve signal coordination in the segment and to permit the remote monitoring and management of the segment.

Ironton Computerized Signal System

The City of Ironton completed a Traffic Flow Study in 2009. The city has since implemented signal system enhancements including signal, poles, and light upgrades at six locations and development of a centralized computerized signal system.

6.4.2 Planned Projects

Systems management approaches are in place throughout the region with a focus on I-64, the City of Huntington, the City of Ironton, and the Burlington area. Given the multi-state planning area, a coordinated regional system will need to be deployed to truly provide regional traveler information, regional incident management, and regional arterial and freeway management. This system would:

- Improve monitoring of the region's workhorse east-west corridors (I-64, US 60, and US 52) and permit the improved management of and traveler information to detouring traffic due to incidents, construction, and/or special events
- Improve arterial flow in urbanized areas
- Improve monitoring of heavy vehicles
- Improve safety at queuing locations

The recommended deployments are summarized below.

I-64/US 60 Integrated Corridor Management (ICM)

- I-64: increased DMS, increased CCTV, vehicle detection
- US 60: CCTV, responsive/adaptive signal control, trailblazing DMS, vehicle detection
- Static "I-64 Alternate" signage on US 60

I-64/US 60/US 52/US 23 Incident Management Corridor

- US 60 CCTV and detection (Kentucky/West Virginia line to I-64)
- I-64 CCTV and detection (Kentucky line to US 60/exit 181)
- I-64 DMS at US 23 and KY 180
- US 23 CCTV and detection I-64 (Kentucky to Ironton/Russell Bridge)

US 52 Freight Management/Incident Management Corridor (Prichard to I-64)

- CCTV, vehicle detection, RWIS, weigh in motion sensors

Back of Queue Detection and CCTV Surveillance

- 31st Street Bridge (Huntington/Proctorville)
- 5th Street Bridge (Huntington/Chesapeake)
- West 17th Street Bridge (Huntington/Lawrence County)
- Ashland Bridge – 12th /13th Streets (Ashland/Coal Grove)

6.5 Transit

Public transit is a necessary service that grants freedom of movement to those without access to a private vehicle, disabled populations, and choice riders. Transit in the KYOVA area is primarily served by four providers, the Tri-State Transit Authority (TTA) in the Huntington area, the Ashland Bus System (ABS) in the Ashland area, Lawrence County Transit (LCT) in the Ironton area and southern Lawrence County, and Tri-River Transit (TRT) which serves five counties in West Virginia including Wayne. While all four transit providers are separate entities, they provide regional connectivity via overlap on some route alignments between systems. The routes of each service can be found in **Exhibit 6-10[1].**

6.5.1 Tri-State Transit Authority

The Tri-State Transit Authority (TTA) serves the urban portions of the Huntington, WV, Milton, WV, Barboursville, WV, Ceredo, WV, and Kenova, WV areas. The TTA operates 14 fixed bus routes and provides dial-a-ride paratransit service for eligible residents. The TTA fare for fixed routes within the City of Huntington is $1.00 and $1.25 for trips that occur outside of Huntington city limits.

Customers with a Medicare card ride for one-half the basic fare and "Dial-A-Ride" customers ride for double the basic bus fare.

TTA routes and paratransit services run from 5:45 am to 11:30 pm, Monday through Sunday. TTA bus routes are schedule-based, meaning there are designated times when busses arrive at TTA stops. The TTA operates as a flag-stop system. While there are designated stops, riders can flag a bus for boarding or alighting anywhere along the route alignment. Most TTA routes have a frequency of 60 or more minutes, save for the Marshall Shuttle which has a frequency of 20-30 minutes. TTA connects to Lawrence County Transit via LCT route 2 and to Greyhound service at the Huntington Greyhound bus terminal, which also houses the TTA customer service center. TTA has an informational mobile application which provides real-time arrival bus arrival data. Passengers can pay fares at electronic fare boxes via cash or a pass card. TTA bus routes are listed in **Table 6-11.**

Table 6-11 – TTA Routes

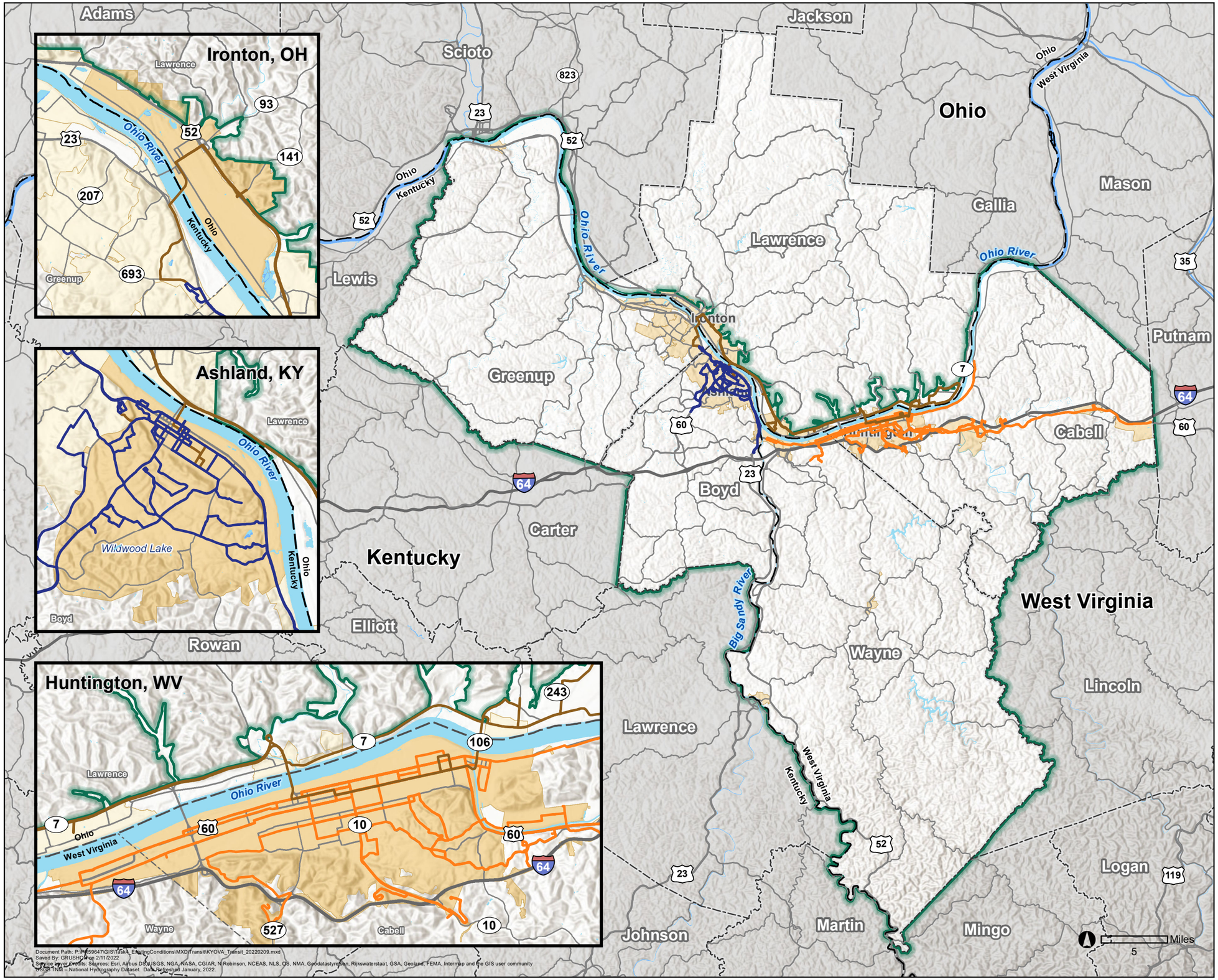
TTA Route	Days	Weekday Start	Weekday End
1 – Ceredo/Kenova	Mon - Sat	6:45 am	7:10 pm
2 - Southside	Mon - Sat	6:10 am	7:15 pm
3 – Third Avenue	Mon - Sat	5:45 am	7:00 pm
4 – 9th Avenue/ Harveytown	Mon - Sat	7:45 am	6:10 pm
5 – Walnut Hills	Mon - Sat	6:45 am	8:10 pm
6 – Madison Avenue	Mon - Sat	6:45 am	7:10 pm
7 – Barboursville/ Altizer	Mon - Sat	6:45 am	8:15 pm
8 – Hal Greer Blvd./ 18th St	Mon - Sat	6:45 am	7:15 am
9 – Milton	Mon - Sat	5:45 am	8:50 pm
10 – Marshall Shuttle	Mon - Fri	10:25 am	10:00 pm
10.1 – Marshall Shuttle (Saturday)	Sat	3:00 pm	6:30 pm
20 – PM South Late Service	Mon - Sat	7:15 pm	11:15 pm
30 – PM North Late Service	Mon - Sat	7:15 pm	11:05 pm
40 – PM West Late Service	Mon - Sat	7:15 pm	11:15 pm

[1] Map-based data for the Tri-River Transit Authority routes is unavailable at this time.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-10

Transit



Legend

- Ashland Bus System
- Lawrence County Transit
- Tri-State Transit Authority

Document Path: P:\HS9647\GIS\Task 4_ExistingConditions\MXD\Transit\KYOVA_Transit_20220209.mxd
Saved By: GRUSH on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS NHD – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/11/2022

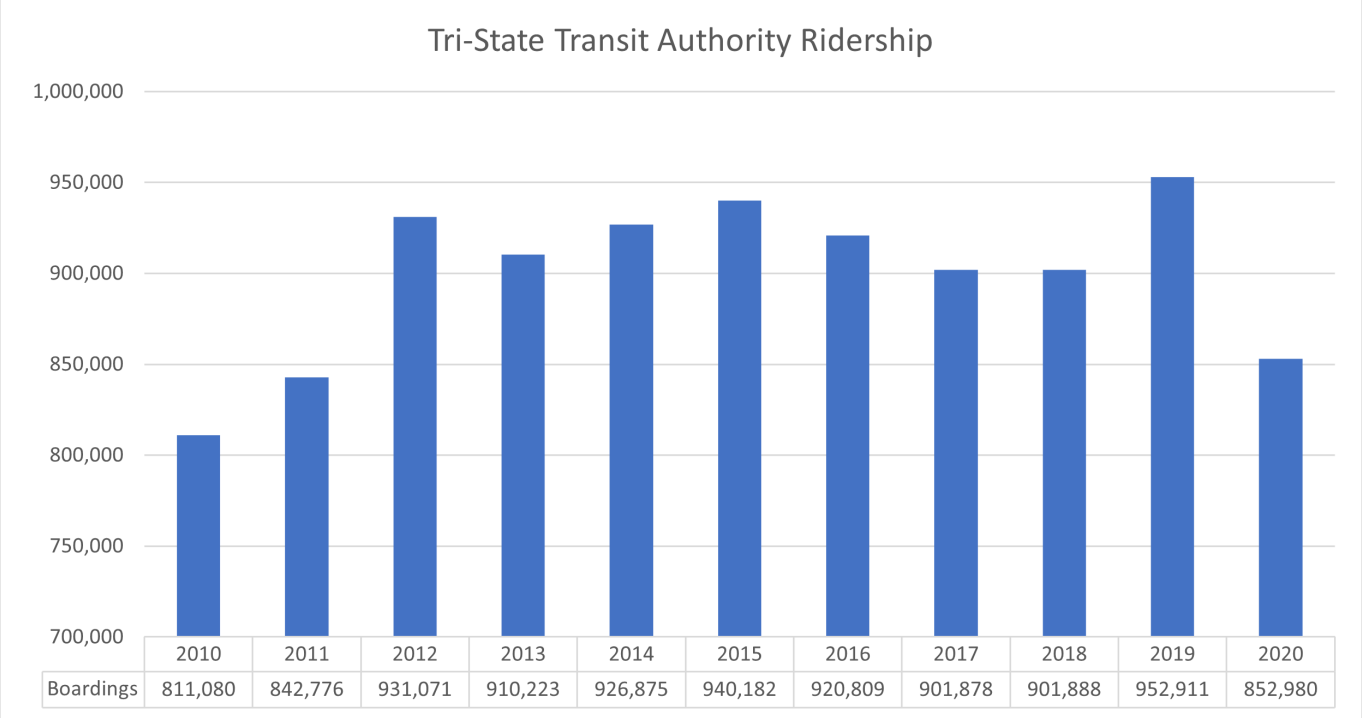
TTA Ridership

From 2010 to 2012, the TTA saw a roughly 15% increase in ridership to 931,071 boardings in 2012. From 2012 to 2019, annual ridership oscillated between 900,000 and just over 950,000. In 2020, ridership dropped to just over 850,000 boardings in large part due to the COVID-19 pandemic (**Exhibit 6-11**).

Ridership in 2020 took a sharp decline during the onset of the COVID-19 pandemic in March before stabilizing at roughly 50,000 boardings per month across all fixed routes for the remainder of 2020 (**Exhibit 6-12**).

During 2020, the median ridership for routes in the TTA system was 45,084. Routes 5 and 1 saw the highest ridership, with 129,339 and 115,672 boardings respectively, while route 4 saw the lowest ridership with 7,011 boardings (**Exhibit 6-13**).

Exhibit 6-11 – TTA Annual Ridership (2010 - 2020)



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Boardings	811,080	842,776	931,071	910,223	926,875	940,182	920,809	901,878	901,888	952,911	852,980

Exhibit 6-12 – TTA 2020 Ridership

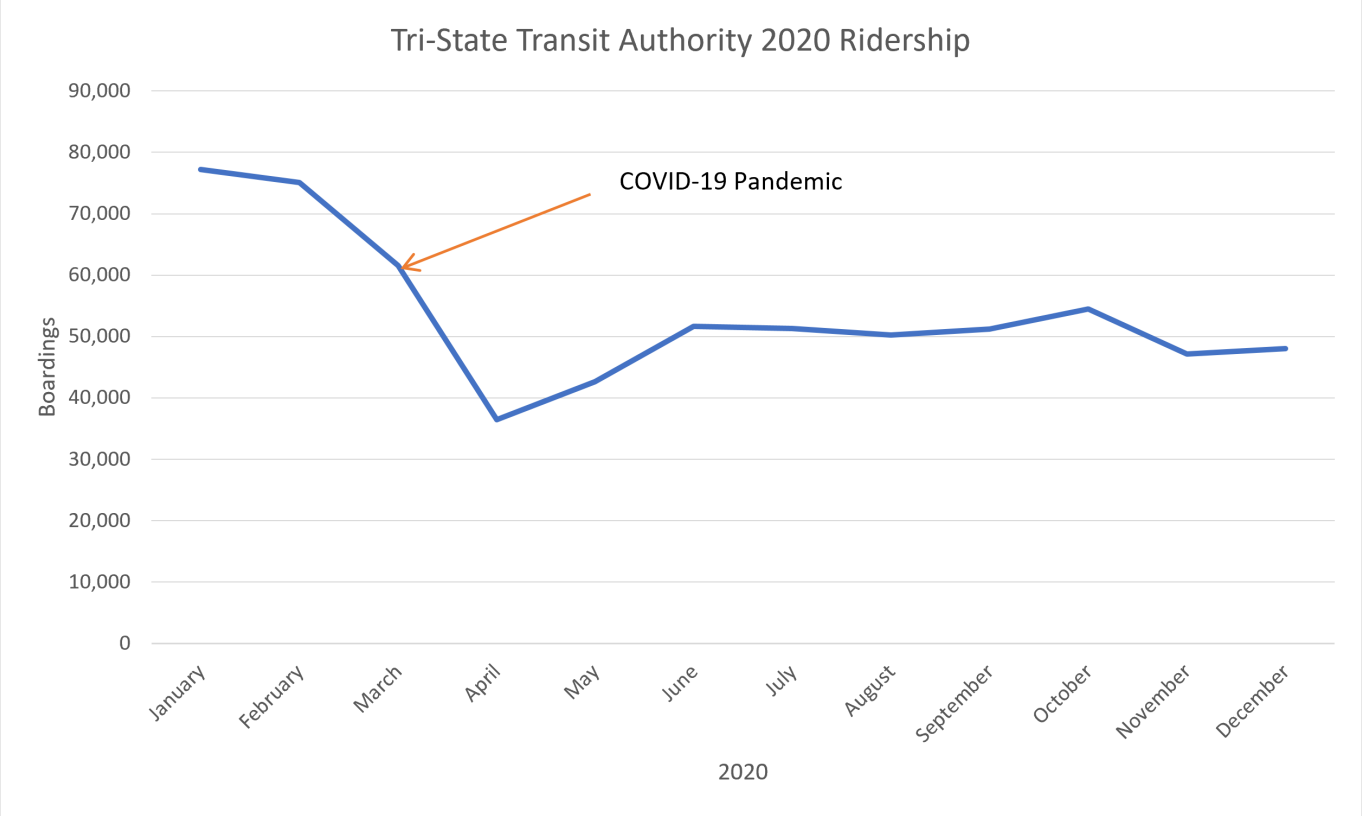
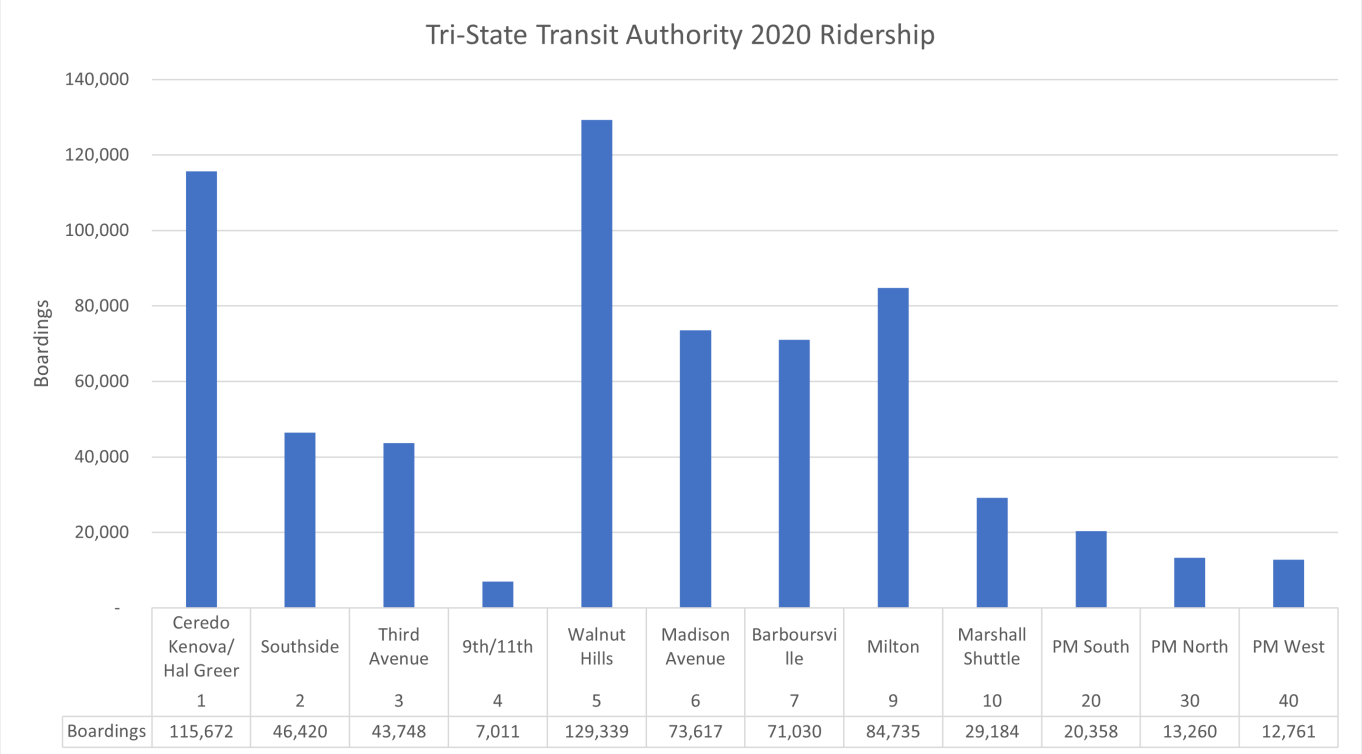


Exhibit 6-13 – TTA 2020 Route Ridership



	Ceredo Kenova/ Hal Greer	Southside	Third Avenue	9th/11th	Walnut Hills	Madison Avenue	Barboursville	Milton	Marshall Shuttle	PM South	PM North	PM West
	1	2	3	4	5	6	7	9	10	20	30	40
Boardings	115,672	46,420	43,748	7,011	129,339	73,617	71,030	84,735	29,184	20,358	13,260	12,761

Vehicle Inventory

The TTA currently has 32 vehicles to service the system with capacities varying from 14 to 32 riders. 21 of the 32 vehicles were produced in 2014 or later, with only one of those vehicles registering mileage above 200,000, representing a stable outlook on fleet capacity over the next several years.

Table 6-12 – TTA Vehicles

License Plate	Year	Capacity	Odometer
TA-520	1984	24	41,590
TA-519	1984	24	44,227
TA-1397	2008	32	427,440
TA-1396	2008	32	415,954
TA-467	2009	26	358,129
TA-483	2009	26	353,823
TA-481	2009	32	296,998
TA-480	2009	32	293,525
TA-479	2009	32	282,123
TA-485	2009	32	269,743
TA-478	2009	32	252,843
TA-846	2014	26	193,138
TA-847	2014	26	196,539
TA-848	2014	26	195,765
TA-849	2014	26	193,083
TA-844	2014	26	181,552
TA-845	2014	26	231,295
TA-820	2015	32	138,623
TA-818	2015	32	120,230
TA-819	2015	32	128,818
TA-1440	2018	26	41,166
TA-1558	2018	26	42,351
TA-1556	2018	26	40,871
TA-1557	2018	26	39,051
TA-1662	2019	26	
TA-1559	2019	26	
TA-1560	2019	26	
TA-1740	2020	26	
TA-1742	2020	26	
TA-1739	2020	26	
TA-1741	2020	26	
TA-1650	2019	14	

6.5.2 Ashland Bus System

The Ashland Bus System (ABS) serves and is provided by the City of Ashland, KY. ABS provides five fixed bus routes and call-ahead paratransit service. All of the fixed lines run on scheduled routes Monday-Saturday from 7:00 am to 5:30 pm, with a break for lunch between 12:00 pm and 12:30 pm. Fares for ABS fixed routes are $0.75 and $0.35 for reduced fares. Children under 12 years old, seniors over 62 years old, Medicare recipients, and disabled veterans are eligible for reduced fares. ABS offers packages for unlimited monthly and weekly ride passes, as well as 30 and 10 ride passes. Every paratransit ride costs $1.50 per ride with 30 and 10 ride pass packages available as well. The ABS connects to Lawrence County Transit via LCT Route 1. ABS routes are listed in **Table 6-13.**

Table 6-13 – ABS Routes

ABS Route	Days	Weekday Start	Weekday End
13th Street	Mon - Sat	7:00 am	5:35 pm
Crosstown	Mon - Sat	7:00 am	5:30 pm
29th Street	Mon - Sat	8:00 am	5:30 pm
Catlettsburg	Mon - Sat	7:00 am	5:30 pm
Downtown	Mon - Sat	9:00 am	5:30 pm

6.5.3 Lawrence County Transit

Lawrence County Transit (LCT) is a service of the Lawrence County Port Authority and provides transit service to the greater Ironton, OH area as well as connections to the neighboring urban communities of Ashland, KY and Huntington, WV. LCT provides four fixed shuttle routes and deviated shuttle service for riders living within a three-quarters mile radius of one of the fixed bus routes. Each LCT fixed shuttle route runs Monday through Friday and has different hours, the earliest starting at 6:30 am and the latest ending at 5:41 pm. The full fare for fixed shuttle routes is $1.00 and the reduced fare is $.50, with monthly passes also available for purchase. LCT also provides deviated shuttle service, also called LCT Demand Response

Service. Any resident is eligible to use Demand Response Service and the cost is generally $2.00 per mile. Demand Response Service must be scheduled 24 hours ahead of a given ride and is generally offered on weekdays from 6:30 am to 5:30 pm. LCT fixed routes connect to the Ashland Bus System via the ABS Downtown route and to the Tri-State Transit Authority via the Ceredo/Kenova, Marshall, and Third Avenue routes. LCT finances its operations primarily through funds from the Congestion Mitigation and Air Quality Improvement Program. The LCT Routes are listed in **Table 6-14.**

Table 6-14 – LCT Routes

LCT Route	Days	Weekday Start	Weekday End
Route 1	Mon - Fri	7:00 am	5:30 pm
Route 2	Mon - Fri	7:15 am	4:52 pm
Route 3	Mon - Fri	6:30 am	12:00 pm
Route 4	Mon - Sat	9:20 am	5:41 pm

6.5.4 Tri-River Transit

Tri River Transit (TRT) is a transit agency that serves Boone, Lincoln, Logan, Mason, and Wayne Counties, with additional connections to points of interest in Cabell, Putnam, Kanawha, and Mingo Counties, all in West Virginia. TRT operates seven fixed routes, two of which serve the KYOVA area (see **Table 6-15**). The routes that serve the counties in the KYOVA planning area begin at approximately 7:15 am and end at approximately 7:48 pm and operate solely on weekdays. TRT has a fleet of 32 vehicles dedicated to fixed route service, 26 of which are handicap accessible. Fares on TRT fixed routes are $1.00, unless the rider crosses the designated zone line in the route, in which case the fare is $2.00. TRT offers a deviated route service, which allows riders to pay an additional $1.00 ($2.00 total) to be picked up or dropped off within a ¾ mile of a route's alignment. Reservations for route deviation service must be arranged 24 hours prior to the trip. Additionally, TRT has a reasonable modification policy which states passengers with disabilities may request modifications to current service procedures to access the service within 24 hours of a desired trip. No additional fees are required for reasonable modifications.

Table 6-15 - TRT Routes

TRT Route	Days	Weekday Start	Weekday End
Logan – Ranger – Barboursville	Mon - Fri	7:10 am	7:48 pm
Wayne to Huntington Mall	Mon - Fri	8:30 am	6:10 pm

6.5.5 Human Services Agency Transportation

Cabell-Wayne Association of the Blind, Inc.

Cabell-Wayne Association of the Blind, Inc. is a private non-profit agency that provides assistance to the blind and visually impaired. The client assistance includes free transportation, orientation and mobility training, rehabilitation aids, the loan of closed-circuit television and computers, in-home assistance with shopping and other daily errands, instruction in basic and intermediate computing, support groups, recreational activities, and many seasonal events. The agency is located in Huntington, WV.

This agency provides transportation service utilizing four vehicles, one of which is lift-equipped. One of the vehicles was procured with Section 5310 funds while the remaining vehicles were obtained with private funds donated to the agency. The agency owns three vehicles in full and the remaining vehicles are maintained by Penske Truck Leasing. The transportation service is provided only for the visually impaired for such purposes as employment, education, eye care, medical appointments, and social needs.

Transportation service is provided from 8:00 a.m. to 4:30 p.m., Monday through Friday. The agency serves about 500 individuals and provides transportation for approximately 75 to 100

individuals per month. Transportation is also provided by taxi and through the purchase of tickets for the TTA dial-a-ride service.

The services are provided fare free. Clients are advised to call the Transportation Supervisor for trip reservations one day before the requested trip. The Cabell-Wayne Association of the Blind, Inc. receives no federal or state operating funds. The agency is self-supporting from private donations, receiving funds from local organizations including the United Way.

Cabell County Community Services Organization

Cabell County Community Services Organization, Inc. (CCCSO) is a private non-profit agency whose purpose is to plan, develop, finance, and provide programs for elderly, low income, and disabled residents in areas of economic development, health care, education, welfare, and transportation. The agency is primarily involved with aging services, through the operation of five service centers. The main office is located in Huntington.

The agency's transportation program is operated using nine vehicles, three of which are lift-equipped. Three of the vehicles are assigned to senior centers. It has a peak-hour demand of seven vehicles. The agency employs five drivers (two full-time, three part-time). Many of the trips provided are medical related. Transportation service also is provided to nutrition sites, medical facilities, shopping and banking, adult day care, and recreational and social activities. The agency is an authorized nonemergency Medicaid transportation provider.

Transportation service is provided within Cabell County on weekdays from 7:00 a.m. to 5:00 p.m. Local vendors are used for vehicle maintenance. There is no fare for senior riders but donations are encouraged. For persons needing assistance, the agency provides an accessible vehicle on a sliding fee scale. Rides must be requested at least one week ahead of the trip in order to guarantee service; however, many trips are provided with much less advance time. This agency uses the TTA paratransit service as much as possible to serve their clients.

Of the agency's nine vehicles, two were purchased through the transit authority using Section 5310 funds and one was obtained with local funds. The agency receives local support through a levy from the Board of County Commissioners. Medicaid, along with Title III-B and Title-E funds, are used for operating expenses.

Lawrence County Jobs and Family Services

Lawrence County Jobs and Family Services (JFS) provides transportation for clients in two ways—gas vouchers as a form of reimbursement and contracting with local taxi companies—mostly for trips to medical facilities in Ashland and Huntington. It also owns one van and employs a driver to provide non-emergency medical transportation to a variety of medical facilities, many of which are out-of-county destinations in locations such as Cincinnati and Columbus.

Lawrence County Developmental Disabilities

The Lawrence County Developmental Disabilities provides transportation to children and adults with developmental disabilities. Its transportation services can be divided in two categories. Lawrence County Developmental Disabilities also funds private providers who transport individuals to other locations, including hospitals, medical and mental health centers and Women, Infants, and Children (WIC) programs.

6.5.6 Intercity Bus Service

Greyhound serves the KYOVA area in Huntington, WV at 1251 4th Avenue and in Ashland, KY at 99 15th Street. Both of these stops are located at the intermodal centers of the respective cities, with easy transfer to local bus services and Amtrak.

Both stops are served on the Greyhound Route that travels between Charleston, WV and Bowling Green, OH.

6.5.7 Intercity Rail Service

Amtrak serves the KYOVA area via the Cardinal Line which runs New York-Washington-Charlottesville-Cincinnati-Indianapolis-Chicago and stops in both Huntington, WV and Ashland, KY. The Cardinal Line offers reserved coach and business class seats as well as sleeper rooms and is renowned for the beautiful natural scenery along the route.

The Huntington Amtrak station is located at 1050 8th Avenue in Huntington. The station consists of a platform on the south side of the east-west tracks, a small parking lot just beyond the 10th Street viaduct and a small building in between. The Huntington station is owned by Amtrak and was built in 1983. Stakeholders have noted that improving ADA access and extending the platform would improve accessibility and functionality of the Huntington Amtrak station.

The Huntington station is located six blocks south and two blocks west of the TTA Transit Center. Passengers arriving on the eastbound train from Chicago can easily transfer to any TTA route that serves the Transit Center, with most bus routes not starting until the train departs. Except for the few PM routes, most TTA routes stop running hours before the westbound train arrives, limiting options for any passengers who are either boarding or alighting from the train.

The Ashland station was originally built in 1906 as a Chesapeake & Ohio Railway freight depot. It has since been restored by the City of Ashland and it now serves as the City's intermodal center and includes an events space.

6.5.8 Gohio Commute Rideshare

Gohio Commute is a free interactive tool that helps connect people to ridesharing opportunities. Gohio Commute serves the entire KYOVA planning area and provides an online platform where people can plan rides and match up and connect with other nearby commuters to save money and reduce single-occupancy vehicle trips on the region's roadways.

6.5.9 Transit Issues and Needs

Major transit issues and needs identified by stakeholders, secondary source data, and the literature review include:

- Better coordination between transit providers in the region;
- Improved reliability on some TTA routes (5, 6, 8, and 9);
- Expanded transit service operating hours;
- Increase the coverage and frequency of transit service in Boyd and Greenup Counties;
- Improve transit service and frequency along US 60 in Barboursville; and
- Improve pedestrian access to bus stops.

In general, a need for additional funding to support transit service operations was identified as an overarching need that continues to limit the ability of the transit providers to address the other specific needs identified.

6.6 Bicycle and Pedestrian Facilities

Since the KYOVA 2040 Integrated Metropolitan Transportation Plan was last updated in 2017, several bicycle and pedestrian plans and studies have been commissioned by KYOVA. The project team reviewed these plans and studies as part of the process of updating the KYOVA MTP. A summary of all of the plans and studies reviewed by the project team is provided at the end of this chapter.

6.6.1 Bicycle Conditions

There is very little designated bicycle-specific infrastructure in the KYOVA area. The largest bicycle network within the KYOVA area is the Paul Ambrose Trail for Health (PATH) which was created in 2006 and last master planned in 2016. Much of the PATH plan includes off-street multi-use paths, some of which exist, some of which have been constructed as part of the short-term recommendations of the plan, and some long-term segments which have yet to be constructed. As of 2021, the PATH was made up of 14.4 miles of off-road multi-use paths, and 3.7 miles of on-street facilities. Huntington is the only place in the KYOVA planning area that currently has on-street bicycle facilities. Additionally, Huntington is the only city in the area that has a bike-share program, the Rolling Thunder Bike Share Program launched in 2018.

There is no dedicated bicycle infrastructure in the KYOVA planning area outside of Huntington, but there are "shared roads" in Kenova where there are painted sharrows on the roadway and there are designated "Bicycle Routes" in Ohio and Kentucky, indicating the roads in which bicycle users are likely to have the best experience while cycling in mixed traffic. The existing cycling network can be seen in **Exhibit 6-14.**

6.6.2 Bicycle Connections to Transit

Cycling can be a popular mode for starting or finishing a trip taken with transit, commonly known as the first or last mile of a transit trip. In order to

accommodate and encourage these types of blended, multimodal trips many communities choose to create connections between their dedicated bicycle network and their transit systems. In the KYOVA area, there are few connections between bicycle facilities and transit stops in Huntington, Ironton, and Lawrence County. It should be noted that this is not necessarily an accurate representation of the overall capacity for blended mode trips, as many experienced and more confident cyclists will take trips outside of the designated bicycle network.

6.6.3 Pedestrian Conditions

Pedestrian conditions in the KYOVA planning area are generally adequate with many proposed improvements coming from KYOVA area plans produced from 2016 to 2019. Over the past five years, area-specific plans that deal with pedestrian issues have been prepared for Barboursville, WV,

Ironton, OH, Lawrence County, OH, and Milton, WV.

Many of these plans recognized pedestrian areas of need, especially gaps in the sidewalk networks and connections to key places of interest in each of the studied areas. Some studies observed informal walkways or "goatpaths" to better inform where pedestrian infrastructure is needed. Additionally, planned crosswalk improvements at essential intersections were proposed in each plan.

There are sidewalk networks in the urbanized portions of the KYOVA area, especially along commercial and mixed-use corridors. Some urban and suburban residential neighborhoods have sidewalks and those neighborhoods that do not have sidewalks typically have low enough traffic volumes and street activity that sidewalks are not necessary for safe pedestrian travel. The only bridges in the KYOVA area with dedicated space for cyclists or pedestrians are WV 527/OH 7 bridge from Huntington to Chesapeake, OH and the 12th Street bridge from Ashland to Coal Grove, OH. Additionally, the PATH system in Huntington is part of the pedestrian network.

6.6.4 Bicycle and Pedestrian Issues and Needs

Major bicycle and pedestrian issues and needs identified by stakeholders, secondary source data, and the literature review include:

- Improve connections between local bicycle network and designated state bicycle routes;
- Improve first-mile/last-mile connections between bicycle/pedestrian and transit networks;
- Fill in gaps in sidewalk network and address areas that are not ADA compliant to improve pedestrian safety, access, and mobility;
- Improve multimodal access, mobility, and safety in the vicinity of Marshall University;
- Consider providing more mid-block crossings where appropriate; and
- Enhance multimodal connectivity between the urbanized communities within the KYOVA region and between KYOVA and the Charleston area.

In addition to the general needs listed above, numerous location-specific projects and recommendations were identified in KYOVA's previous MTP and the other bicycle and pedestrian plans prepared in the region. Additional information about these recommendations is provided in **Chapter 8**.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-14

Bicycle Routes and Facilities

Legend

- Bike Lane
- Bike Route
- Paved Shoulder
- Shared Use Path
- Proposed Bike Lane
- Proposed Bike Route
- Proposed Shared Use Path
- Proposed Bike Lane or Shared Use Path

Ironton, OH

Ashland, KY

Huntington, WV

Adams, Scioto, Jackson, Ohio, Lewis, Greenup, Lawrence, Gallia, Mason, Putnam, Kentucky, Carter, Boyd, Elliott, Rowan, West Virginia, Wayne, Lincoln, Cabell, Martin, Mingo, Logan, Johnson

Miles 0 5

Last Updated: 2/11/2022

Document Path: P:\HS9647\GIS\Task4_ExistingConditions\MXD\Ped_Bike\KYOVA_Bike_20220209.mxd
Saved By: GRUSHOW on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS NHD – National Hydrography Dataset. Data Refreshed January, 2022.

6.7 Freight

This section provides an overview and analysis of freight conditions in the KYOVA MPO planning area. The project team reviewed existing freight-related studies in the region as well as available freight data from a variety of sources. This included a review of the most recent freight plans for West Virginia, Kentucky, and Ohio (see **Table 6-16**) to ensure that the MTP is consistent with these statewide plans. Stakeholder input, provided through interviews and the Economic Development and Freight Focus Group, also contributed to the freight review and analysis.

Freight planning differs from planning other transportation modes in that a significant portion of the main facilities are privately controlled. Public information typically available for other modes often is considered proprietary and held confidential by private entities. As a result, information and analysis conducted for freight is less extensive than that of other modes.

These difficulties do not undermine the importance of freight planning but rather underscore the need for coordination. Different elements operate in unique organizational and governing environments. Local zoning boards dictate the location of trucking facilities while the operation of the trucks is controlled by state departments of transportation. Rail primarily is regulated at the federal level, but private corporations determine the use or abandonment of railroad right-of-way. Local or regional jurisdictions typically operate airports and maritime facilities, but actual freight service is provided by private corporations operating under federal regulation.

6.7.1 Trucking and Highway Operations

The primary mode of freight transportation in the United States is truck, moving over 70% of the value of all goods shipped in the United States in 2017. Trucks offer flexibility and connectivity between other transportation modes, including airports intermodal facilities, distribution centers, and ports, which helps explain their dominance.

KYOVA's highway system connects the region to points in West Virginia, Kentucky, and Ohio as well as critical infrastructure along the Big Sandy and Ohio Rivers. The major truck routes in the region include I-64, US 52, WV 152, US 23, US 60, WV 2, SR 7, and WV 10.

- I-64 is the workhorse corridor for east-west through traffic.
- US 52 is a critical north-south route that crosses into Ohio via the West Huntington Bridge. The corridor is designated as part of the proposed I-73/I-74/I-75 corridor. US 52 provides the critical connection to the Norfolk Southern railroad site, and the Prichard Intermodal Facility.
- WV 152 extends 45 miles as a north-south route running through Wayne County, WV.
- US 23 parallels US 52 on the Kentucky side of the Big Sandy River and serves the Marathon facility in Catlettsburg, KY.
- US 60 runs parallel to I-64 and links Huntington to Charleston, WV.
- WV 2 connects Huntington with current and developing industrial areas in Lesage, WV and Athalia, OH as well as Mason County, WV.
- SR 7 is the longest state route in Ohio, at 292 miles. It connects Lawrence County with six US routes and six Interstate Highways.

Distribution and Warehousing

Warehousing and distribution are a critical element of the regional economy. Distribution, warehouses, and third-party logistics firms transport and distribute finished and intermediate goods for businesses and are closely connected to the transportation infrastructure.

All of the major trucking and warehousing firms in the region are located along major routes with close access to downtown Huntington I-64. The major

wholesale firms are located along I-64 and relatively close to downtown Huntington.

Kentucky Coal Haul System

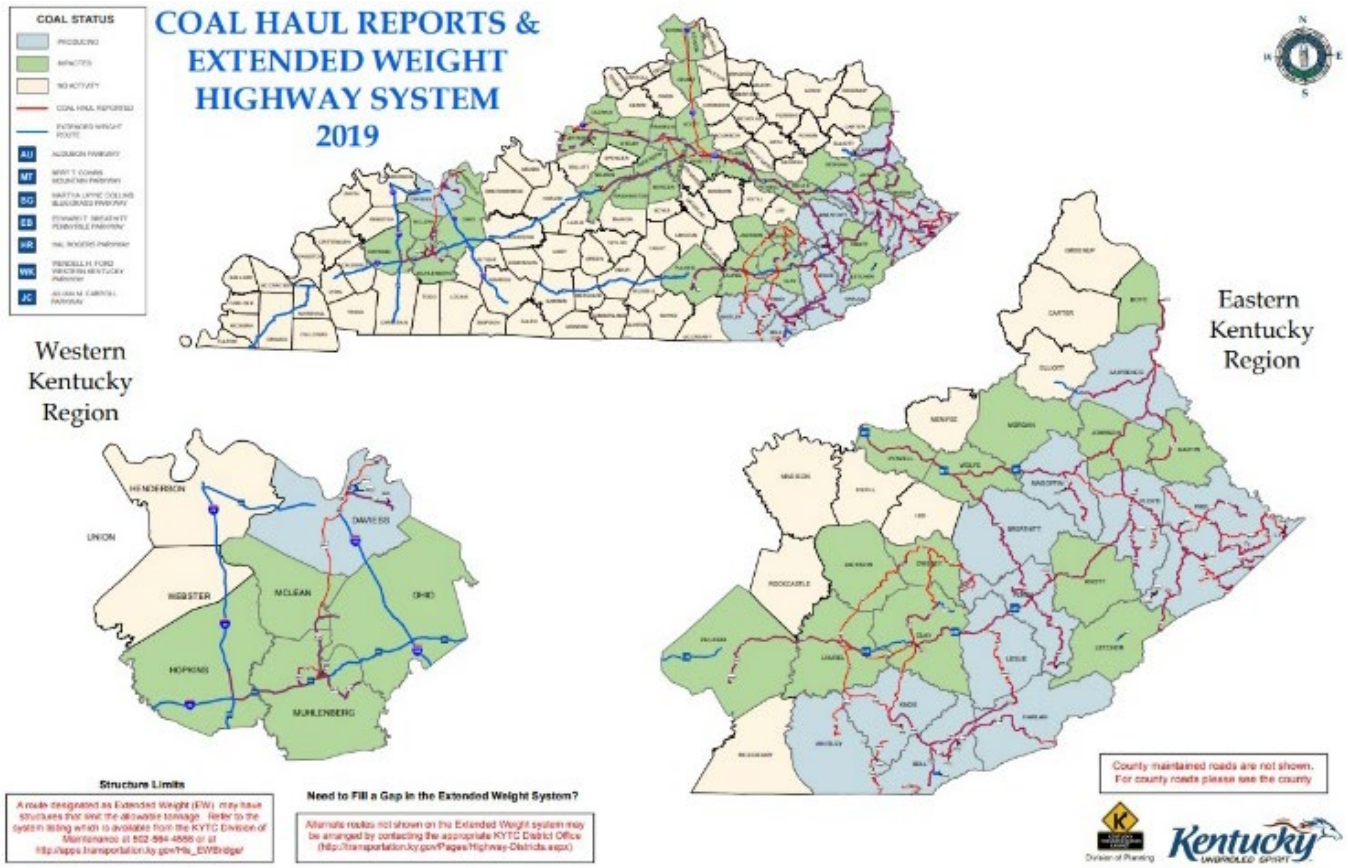
Numerous unloading docks for coal can be found along US 23, a major highway connecting southeast Kentucky to the Ohio River. Trucks entering and leaving these facilities cause traffic congestion. The 2019 Kentucky Coal Haul System Map is illustrated in **Exhibit 6-15.**

Trucking Issues and Needs

Major trucking issues and needs identified by stakeholders,secondary source data, and the literature review include:

- Road maintenance and highway safety improvements;
- Truck stop and service areas along I-64;
- Designated truck routes and congested roadways;
- Need to improve truck access through downtown Ironton from the new bridge to the US 52/SR 93 Interchange;
- Overweight permits for trucking;
- Oversized freight is an issue at Point Industrial park;
- There are some old industrial sites that could be redeveloped, but there are challenges related to ingress and egress to the properties; and
- Consider how emerging technology could influence the new generation of trucks (i.e. electric, automated, etc.) and related infrastructure needs.

Exhibit 6-15 - Kentucky Coal Haul System Map



6.7.2 Rail

Typically, rail ships heavier bulk commodities over long distances. Goods or commodities shipped via rail benefit from the low cost of transport, high efficiencies, and capacities for heavier goods. Rail efficiency is increasing due to new investments to boost capacity and speed as well as reduce transit times. Access to large Class I carriers (e.g. Norfolk Southern and CSX) offers a significant advantage to the region. While the majority of rail traffic is through shipments of coal, the current large bulk shipments and potential for expanding containerized traffic are opportunities for KYOVA. Their potential for success may be enhanced by the presence of these large rail carriers. **Exhibit 6-16** shows the location of railroads in the KYOVA planning area.

Rail Corridors

The KYOVA region has access to several major rail corridors. The Heartland Rail Corridor extends from the port region of Norfolk, Virginia to Columbus, Ohio and Chicago, Illinois. KYOVA's closest operational intermodal facility on the Heartland Corridor is the Rickenbacker intermodal terminal in Columbus, Ohio.

The National Gateway Corridor connects the Midwest to Mid Atlantic seaports. Major investments on this corridor have focused on removing height restrictions to allow double stack trains.

CSX maintains two major lines in Huntington, connecting the region to the east coast container market and the Midwest.

Investment Partnerships and Economic Development

The KYOVA region has access to major container and bulk rail markets; however, rail transportation remains underutilized. Despite access to rail and container markets, the infrastructure for containerized rail operations is not available in the region. Economic development tools like Tax Increment Financing (TIFs) could enable local businesses to invest in onsite rail infrastructure. The existing freight rail infrastructure is a significant regional asset that should be further developed and could provide cost effective access to the Mid-Atlantic ports and the Chicago market.

Rail Issues and Needs

Major rail issues identified by stakeholders, secondary source data, and the literature review include:

- The need for investment partnerships for projects like the Prichard facility and connecting infrastructure; and
- There is a need to look more at rail to truck transloading.
- Economic development opportunities for businesses to utilize rail.

6.7.3 Intermodal Connections

KYOVA's major intermodal facility is in South Point, Ohio. The Heartland Intermodal Gateway was a new intermodal facility that opened in 2015 in Prichard but has since closed. There are still discussions about a potential future reopening of the facility. The South Point site transfers bulk freight from truck to barge, while the Prichard facility would transfer containerized goods from truck to rail. In addition, improvements have been identified near the Huntington Tri-State Airport to enhance intermodal connections. The lack of intermodal customers and private investment limits

local rail utilization. The level of demand for a new intermodal facility must exist first and, like other successful facilities, requires wider support and private sector commitment. The intermodal facilities are described in more detail in the following section.

South Point Intermodal Facility

South Point began as a superfund site adjacent to US 52. The site's redevelopment began in 2001, through collaboration, and was deemed ready for reuse in 2004. The South Point site now spans 610 acres, 504 of which are owned by the Lawrence Economic Development Corporation[2]. The South Point Intermodal facility handles various bulk commodities (including coal) and transfers are from truck to barge. The Ohio River is wide enough to accommodate up to one-15 barge tow. The bridges providing truck access to South Point via SR 7 and US 52 from Huntington include the Nick J. Rahall bridge (US 52), Robert C Byrd bridge (WV 527), and the East Huntington bridge.

Connections between Ohio and Kentucky are served by the Ben Williamson Memorial bridge (connecting Coal Grove, OH to Ashland, KY) and the Oakley Clark Collins Memorial bridge (connecting Ironton, OH with Russell, KY).

Prichard Facility Development

The Prichard intermodal facility site is on Norfolk Southern property in Wayne County, West Virginia. The facility would connect local industries via truck to the Prichard facility, providing rail service to Columbus, Ohio and points west as well as the Port of Virginia via the Heartland Corridor. The location has easy access to mainline trackage and I-64 via US 52. Although the Prichard site is located near the Big Sandy River, it does not have water access due to silt covered banks.

The facility could offer significant benefits to local shippers by allowing them access to the intermodal rail network and significantly lower shipping costs. The transportation and economic benefits of diverting truck freight to rail also include fewer truck miles, lower highway maintenance costs, improved safety, and lower emissions.

Huntington Tri-State Airport Intermodal Facility

Historically, air transport has not been a compatible intermodal link to rail and barge service. Proliferation of containerized shipping has changed that, yielding opportunity for offloading of containers for fulfillment operations and warehousing. In those instances, ready access to air service is of critical value. Proximity of the Prichard Intermodal Rail Ramp to the Tri-State Airport, the presence of a well-established FedEx hub, and an air industrial park, present prospects for new development with the establishment of fulfillment centers and short-term warehousing, which rely on air service available at the Tri-State Airport.

The Huntington Tri-State Airport Master Plan examined landside constraints for the airport. With the anticipated jump in passenger and commercial traffic, the plan noted that improvements are needed to the supporting roadway infrastructure (see **Section 6.7.4**).

Issues and Constraints

Major intermodal issues and needs identified by stakeholders, secondary source data, and the literature include:

- Adequate funding to construct and improve intermodal facilities;
- Adequate funding to construct and improve connecting (i.e. last mile) infrastructure; and
- Intermodal investment opportunities for businesses to further utilize port, rail, and airport facilities.
- For the Prichard facility, upgrades are needed to the US 52 alignment to take advantage of connections to the river and airport.

[2] Region 5 Success Story South Point Plan: South Point, Ohio

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-16

Railroads, Airports, and Maritime Ports

Legend

- KYOVA Airports
- River Port
- Railroad

Ironton, OH

Ashland, KY

Huntington, WV

Adams, Lawrence, Scioto, Jackson, Ohio, Mason, Gallia, Lewis, Greenup, Kentucky, Carter, Boyd, Elliott, Rowan, Lawrence, Wayne, West Virginia, Lincoln, Putnam, Cabell, Logan, Martin, Mingo, Johnson

Ohio River, Ohio, Kentucky, West Virginia, Big Sandy River

Ironton, Ashland, Huntington

Miles 0 5

Document Path: P:\HS9647\GIS\Task4_ExistingConditions\MXD\Freight\KYOVA_Freight_Ports Intermodal_20220208.mxd
Saved By: GRUSHOVSKI on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS NHD – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/11/2022

6.7.4 Maritime

The United States Department of Transportation is identifying major Marine Highway Corridors for investment that would divert containerized freight from truck to Marine Highways. The Ohio River has been designated as Marine Highway 70.

The Port of Huntington, located on the Ohio River and its major tributary, the Big Sandy River, is one of the largest inland ports in the United States. The port moved 36.8 million short tons of freight in 2019. Freight is shipped by barge through the port and typically consists of heavy bulk commodities including petroleum products, coal, minerals, and chemicals.

The Port of Huntington has numerous private freight terminal facilities located along the Ohio River. The private facility infrastructure includes barge mooring facilities and wharfs with access to open storage areas, pipeline infrastructure, and bulk silo storage. Additionally, some parcels have space for truck hoppers and rail car storage yards.

The Greenup-Boyd County Riverport Authority port is a 29-acre facility located at mile 332 of the Ohio River in Wurtland, Kentucky. Approximately 14 of the 29 acres are currently developed. Services provided at this facility include barge discharge to truck, truck to storage, and rail service to industries on-site. The facility is located one mile from US 23 and rail service is provided by CSX at the port.

6.7.5 Pipelines

Pipelines are used to transport a variety of commodities including water, sewage, and energy products. Within the study region, the principal uses of pipeline transport are the introduction of the region's natural gas production into the national distribution system and the acquisition of petroleum products for distribution. A large volume of petroleum products is moved by pipeline from the Ashland Petroleum refinery facility in eastern Kentucky to a transport location near Kenova, West Virginia for subsequent barge transport. **Exhibit 6-17** shows the general location of the major petroleum, crude oil, and natural gas pipelines crossing the KYOVA planning area.

6.7.6 Aviation

Huntington Tri-State Airport (HTS) is a primary commercial service airport that serves Huntington, West Virginia, Ashland, Kentucky, and Ironton, Ohio. The airport is located southwest of Huntington near the cities of Kenova and Ceredo. Other airports nearby include:

- Lawrence County Airpark (on the north side of the Ohio River opposite Huntington)
- Robert Newlon Field (northeast of Huntington along the Ohio River)
- Ona Airpark (east of Huntington off I-64)
- Ashland Regional Airport (in Worthington, KY)

Lawrence County Airpark and Ashland Regional Airport are general aviation facilities. The NPIAS does not list the other two airports. Five heliports are located at medical facilities in the KYOVA region—Cabell Huntington Hospital, St. Mary's Medical Center, the VA Medical Center, and King's Daughters Medical Center.

Huntington Tri-State Airport

Huntington Tri-State (HTS) Airport is served by Allegiant Air and American Airlines in addition to being heavily used for general aviation. The single runway at HTS is designated as 12/30 with an

asphalt surface measuring 7,016 feet in length and 150 feet in width.

After Yeager Airport in Charleston, Tri-State Airport is the second-busiest airport in West Virginia by passenger enplanements with just under 100,000 passengers enplaned in 2019. This places Tri-State Airport in the FAA's nonhub airport category, which are commercial service airports with annual enplanements between 10,000 and 400,000.

The security checkpoint at the airport consists of a single screening lane and the baggage claim area consists of one carousel. Currently, the airlines' ground equipment is stored outside and unprotected. The National Guard facility located to the south of the airfield on airport property is at risk for a security breach. A total of 402 paved parking spaces and approximately 100 spaces in an unpaved overflowlot are provided, though parking demand at the airport continues to exceed this supply.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 6-17

Freight: Pipelines

Legend

- Petroleum Pipelines
- Crude Oil Pipelines
- Interstate Natural Gas Pipleines

Ironton, OH

Ashland, KY

Huntington, WV

Document Path: P:\PE59647\GIS\Task 4_ExistingConditions\MXD\Freight\KYOVA_Freight_Pipelines_20220208.mxd
Saved By: GRUSHOVSKI on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS NHD – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/11/2022

Huntington Tri-State Airport Master Plan

The Huntington Tri-State Airport Master Plan included a series of improvements that would allow the airport to meet long-term air transportation needs. The Master Plan forecasted 24,673 aircraft operations and 189,106 enplanements in 2030, an increase of 44.3% and 63.8% respectively from 2010. Of the aircraft operations, 7,661 are passenger carrier operations, 1,040 are cargo carrier operations, 15,205 are general aviation operations, and 767 are military operations. Additionally, the number of aircraft serving the Tri-State Airport is expected to increase to 56 by 2030.

The Master Plan recommended the following improvements for the Huntington Tri-State Airport:

- Expand passenger terminal building to 63,000 square feet
- Remove existing terminal hold room and provide passenger boarding bridges
- Expand parking facilities to provide 600 to 850 parking spaces
- Plan for 1,000-foot extension to Runway 12-30
- Plan for full-length parallel taxiway A
- Develop taxiways to Group-IV
- Provide hold aprons on both ends of therunway
- Relocate the General Aviation and Operations Terminal to the south side of the airfield
- Construct a General Aviation apron on the south side of the airfield providing 28,000 square yards of space
- Construct additional ten-unit T-hangers and group hangars
- Obtain positive control of land within RPZs
- Install ODALS on the Runway 30 end
- Improve fueling and aircraft de-icing facilities
- Expand maintenance and storage buildings
- Improve access signage

Land-side constraints for the HTS airport also were examined through the Master Plan. With the increase in passenger and commercial traffic expected at the airport in coming years, improvements are needed to the supporting roadway infrastructure. The KYOVA Interstate Planning Commission understands the airport infrastructure needs and has applied for grants in the past to fund improvements. See the Intermodal Connections section earlier in this chapter for more information.

6.8 Previous Plans and Studies

This section provides a summary of other transportation and land use planning studies that were reviewed and used as resources in the development of this MTP. The project team reviewed the plans listed and summarized in **Table 6-16** to identify transportation system needs for consideration in the KYOVA 2050 MTP and to ensure that that this planning effort is consistent with other local, regional, and statewide planning efforts.

Table 6-16 - Previous Plans and Studies Reviewed

Study Name	Summary
Greenup and Boyd County Freight Plan, 2021	This plan reviews and analyzes the freight network in Greenup and Boyd Counties in Kentucky. Based on that analysis, the plan identifies specific recommendations to improve freight mobility in the region.
Congestion Management Process for the KYOVA/Huntington, WV-KY-OH Urbanized Area, 2014	As a designated Transportation Management Area (TMA), KYOVA must develop a regional Congestion Management Process (CMP) for the Huntington, WV-KY-OH urbanized area. The CMP establishes a systematic process that provides for a safe and effective integrated management and operation of the multimodal transportation system. The process consists of: development of regional congestion management objectives; establishment of multimodal transportation system performance measures; collection of data and monitoring of system performance; identification of congestion management strategies; identification of implementation activities; and evaluation of the effectiveness of implemented strategies.
WVDOT 2050 Multimodal Long-Range Transportation Plan, 2021	The WVDOT 2050 LRTP will help guide future transportation investments for the state. Completed in July 2021, the plan was developed around four guiding principles: 1. Deliver a transparent and accessible planning process for the public; 2. Engage stakeholders for policy and technical direction; 3. Meet MAP-21 and FAST Act requirements and establish best practices for long-range planning; and 4. Coordinate across WVDOT Divisions to ensure a multimodal plan.
Ashland Downtown Transportation/Feasibility Study, 2021	The Downtown Ashland Transportation Feasibility Study was initiated by the KYTC and KYOVA to review Winchester Avenue (US-60/US-23X) and Greenup Avenue (US-23). The study examined the feasibility of reducing the number of lanes on Winchester Avenue from four lanes to two, implementing angled parking between 13th Street and 18th Street, and intersection improvements including roundabouts.
ODOT Access 2045 Statewide Long-Range Transportation Plan, 2020	In December 2020, ODOT completed the update of its statewide multimodal long-range transportation plan, Access Ohio 2045 (AO45). Described as a “Plan of Plans”, AO45 serves as an umbrella over other individual modal plans and studies developed for the state. The plan establishes a framework for transportation-related investments and policies in Ohio for the next 25 years and was developed around the following vision statement: “All Ohio will be connected by a safe, smart and collaborative transportation system that moves people and freight efficiently and reliably and supports community visions.”
WV State Rail Plan, 2020	The West Virginia State Rail Plan was completed December 2020. This plan discusses the importance of rail to the West Virginia economy and summarizes rail facilities in state. The plan highlights the fact that freight rail currently employs over 2,100 people in West Virginia and over 164 million tons of freight were moved by rail through West Virginia in 2018. The plan also notes that rail freight flows are forecasted to decline within the state through 2040 due to reduced domestic coal use.

Study Name	Summary
Hal Greer Boulevard Corridor Management Plan, 2019	Initiated by KYOVA and the city of Huntington, the Hal Greer Boulevard Corridor Management Plan is intended to serve as a guide for redesign of Hal Greer Boulevard and a restructuring of policies that control development in order to meet the vision of "a boulevard for everyone, a gateway to the city, and the heart of a community." The plan proposes solutions to improve traffic flow, lower traffic speed, create better connectivity, improve pedestrian and cyclist safety, and encourage development.
Marshall University Bicycle Plan, 2019	The Marshall University Bicycle Plan was completed in August 2019 and is intended to be an actionable document to be used by decision makers to execute specific projects that facilitate safer, easier commuting and crossings between Marshall University's main campus and satellite locations and enhance the attractiveness of campus locations. This Plan recommends an east-west bicycle track in Huntington as well as more dedicated facilities, resources and education for biking, clear wayfinding, and safe bicycle parking.
City of Huntington Pavement Management Study, 2019	The Pavement Management Plan was completed in 2019 and is the first step for KYOVA and the city of Huntington to take inventory of roadways and their condition. The pavement management program prioritizes and provides estimated costs for more than 200 miles of roadway and 57 miles of sidewalk. The recommended budget is 5% preventative maintenance, 20% light rehabilitation, 50% rehabilitation, and 25% reconstruction.
Ohio Statewide Freight Plan, 2019	The Ohio Statewide Freight Plan was updated March 2019, it is intended to serve as a guide for future investments in the state's multi-modal freight network. The plan discusses existing freight infrastructure by mode and future freight forecasts out to 2040. Currently, the Ohio multimodal transportation system carries approximately $1.9 trillion worth of goods. Most freight growth for the state is expected in trucking, with a 67% increase anticipated by 2040. Additionally, the plan identifies opportunities and challenges for the multi-modal freight network moving forward, including shale petroleum development and the capacity of the Ohio River. Other considerations included demographic shifts, environmental trends, and technological advancements. The plan recommends completing an Ohio Maritime Study and Ohio Transportation System Management and Operations (TSMO) Plan and deploying Truck Parking Information Management System (TPIMS).
Arlington Park Mobility Study, 2019	The Arlington Park Mobility Study was completed in 2019 in partnership with the city of Huntington and KYOVA. The study recommends safety and mobility improvements for the suburb of Arlington Park. Recommended improvements include signage, lighting, restriping, intersection modifications, and traffic signal warrants. Recommended improvements are split over short-, mid-, and long-term implementation over the next 10 years.
5th Street West Bridge Study, 2019	The purpose of the 5th Street West Bridge Study was to evaluate rehabilitation and replacement alternatives for the single span, simply supported bridge. The study determined that the no-build and replacement alternatives would not meet WVDOH criteria and standards and recommends the replacement alternative. The replacement alternative exists on the same alignment and implements a longer span and wider bridge width with sidewalks, shoulders, and 11-foot lanes.

Study Name	Summary
WVDOT Freight Plan, 2018	The West Virginia Department of Transportation Freight Plan was updated September 2018 to guide freight planning and implementation activities throughout the state. The plan describes the existing and future freight planning network through 2040, including I-77 in Wood County and the aging lock and dam infrastructure on the Ohio River. West Virginia domestic freight flows are expected to increase from 72 million tons to 95 million tons by 2045.
Nonmotorized Transportation Plan for the City of Milton, West Virginia, 2018	The Nonmotorized Transportation Plan for the City of Milton is a sister plan to the KYOVA Nonmotorized Transportation Plan. and focuses on the needs of city of the Milton, WV. To meet the vision of a healthy transportation network that meets the needs of the people, the plan identifies four goals: Increasing safety; Better connectivity; Encouraging walking and biking; and A sense of place.
Activate Ironton: Bicycle and Pedestrian Master Plan, 2018	The Activate Ironton Bicycle and Pedestrian Master Plan is a result of the KYOVA nonmotorized study for Lawrence County. The plan is a comprehensive plan that examines the city's existing bicycle and pedestrian needs and opportunities and recommends infrastructure, policy, and program actions to achieve a more active Ironton. Recommendations include formalizing informal pedestrian pathways and creating dedicated bicycle facilities, especially north-south bicycle boulevards.
Barboursville Nonmotorized Transportation Plan, 2018	The Nonmotorized Transportation Plan is a Master Plan for the Village of Barboursville, WV, initiated by KYOVA as part of its efforts to expand multi-modal transportation options throughout its service area. The plan recommends adding bicycle and pedestrian facilities to increase safety, placemaking, improve connectivity, and encourage physical activity. The plan highlights the need in Barboursville for sidewalks, crosswalks, and dedicated bicycle facilities.
Ironton Truck Study, 2018	The Ironton Truck Study examines the impact of the closure of Russell-Ironton Bridge and the subsequent rerouting of traffic, particularly truck freight, to the new Oakley C. Collins Memorial Bridge. The study found that truck turning movements at 2nd Street and Park Avenue and 4th Street and Park Avenue significantly impede traffic and have poor intersection geometry. The study recommends intersection improvements, such as curb radii modifications, relocation of stop bars, dedicated right turn lanes, and possible relocation of driveways in nearby businesses.
Ironton Central Business District Sidewalk Inventory and Assessment, 2018	The Ironton Central Business District Sidewalk Inventory and Assessment was completed in March 2018 and surveyed sidewalk and curb ramp facilities within Ironton's central business district (CBD). The survey identified a number of facilities in need of improvement to meet the Americans with Disabilities Act (ADA) standards, in addition to condition improvement and repairs. The assessment includes a suggested prioritization of improvements based on location and need.
Downtown Huntington Access Study, 2012	The Downtown Huntington Access Study is a sister study to the Downtown Huntington Accessibility and Mobility Study for the central business district and is focused on the transportation elements that provide connection between transportation infrastructure and the built environment. The plan is structured as an inclusive planning process and is intended to provide supportive framework for continued investment and improvements in downtown and the surrounding environs. The plan prioritizes recommended improvements and identifies the next step of incorporating the improvement into the KYOVA 2050 MTP.

Study Name	Summary
Lawrence County Bicycle and Pedestrian Plan, 2018	The Lawrence County Bicycle and Pedestrian Plan is a sister plan to the Ironton Bicycle and Pedestrian Plan and is a result of the KYOVA nonmotorized study for Lawrence County. The plan is a comprehensive plan that examines the city's existing bicycle and pedestrian needs and opportunities and recommends infrastructure, policy, and program actions to achieve a connected active transportation network. The plan identifies near-, mid-, and long-term projects and identifies policies and programs to encourage residents to walk or cycle.
Heritage Farm Museum and Village Access Road Study, 2017	The Heritage Farm Museum and Village Access Road Study was completed in 2017 and evaluated the most suitable location for an access road from CR 9 to WV Route 152 and to realign the existing switch back situated on CR 9 near the CR 152/15 intersection. The study assessed three access road alternatives, one switch back alignment, and a No-Build option, and determined that the first alternative should move forward. The first access road alternative would intersection CR 9 approximately 0.2 miles south of Heritage Farm and would follow the existing contours until intersection WV 152 at 1.5 miles south of I-64 Exit 8 interchange.
Huntington Street Flooding Mitigation Plan, 2017	The Huntington Street Flooding Mitigation Plan is a multi-disciplinary study related transportation, stormwater management, and emergency services provisions to address mobility issues caused by flooding. The plan identified key locations affected by flooding and recommends development of nine unique projects that can be broken down into subsections for phasing purposes. The projects are multimodal to allow the movement of public transit, bicycles, pedestrians, and vehicles through the problem areas.
The Huntington Brownfields Innovation Zone, 2017	The city of Huntington and the Huntington Municipal Development Authority (HMDA) have created a master plan for the transformation of old factory properties in the Highlawn neighborhood into the Huntington Brownfields Innovation Zone, or H-BIZ. H-BIZ is a planned major, mixed-use development on 75 acres between Marshall University and downtown and will include a new hotel and conference center, advanced manufacturing expansion, retail, parks, open space, and a baseball stadium. The master plan will serve as a resource as HDMA seeks investors and business partners.
Kentucky Freight Plan, 2017	The Kentucky Transportation Cabinet (KYTC) updated the Kentucky Freight Plan (KFP) in 2017 as a supplement to the 2014 Long-Range Statewide Transportation Plan (LRSTP), and is intended to provide a long-term perspective to serve the needs of the KYTC and its partners to improve freight transportation. The plan describes the existing and future freight planning network through 2035, including the highway bottlenecks on the I-71/I-75 interchange and aging rail infrastructure in western Kentucky. In 2015, Kentucky ranked second in the nation for export growth at 11.3% in five years, and exports are expected to continue to increase over the next decade.

Study Name	Summary
Kentucky Long-Range Statewide Transportation Plan, 2014	In May 2014, the KYTC completed the update of its Kentucky LRSTP. The LRSTP provides a basis for meeting the vision of Kentucky's transportation system over the next 20 years, and serves as a resource for statewide organizations, policymakers, and local communities to understand the initiatives, priorities, and strategies needed. The LRSTP was developed around the vision where the state's transportation system serves as "a well-maintained, multimodal transportation system that delivers safe and reliable trips which improve Kentucky's quality of life."
Nonmotorized Transportation Plan for Boyd and Greenup Counties, KY, 2014	The Nonmotorized Transportation Plan for Boyd and Greenup Counties is intended to be a guiding document for walking and biking improvements. The plan outlines policies and framework for a connected multimodal network, from infrastructure improvements to education and encouragement campaigns. The plan also identifies projects from the 2016 KYOVA transportation improvement program (TIP) which will help meet the goals of the plan.
Multimodal Economic Impact Study for Huntington Tri-State Airport, 2018	The Multimodal Economic Impact Study for Huntington Tri-State Airport was completed in 2018 and was conducted to determine the economic impact of the airport on the study area. The airport provides 1,275 jobs and has a total economic output of $108.4 million. The airport brings in 16,600 visitors annually who spend $14 million with the study area. The airport also serves the National Guard. Continued development and improvement of the Tri-State airport is recommended to remain a competitive option.
Ironton Multimodal Parking Study, 2015	The Ironton Multimodal Parking Study was conducted to evaluate multimodal transportation needs in Downtown Ironton. The study took an inventory and assessment of parking facilities and multimodal features and recommends a series of planning-level recommendations to accommodate future parking demand and transportation needs. Recommendations include adding bike racks and lockers, adding "shared space corridors," and adding park wayfinding.
Park Avenue Traffic Study, 2017	The Park Avenue Traffic Study was completed in 2017 and was developed to evaluate conceptual improvements for traffic congestion and safety on Park Avenue from 6th Street to US 52 Off Ramp in Ironton, Ohio. Recent developments along the corridor have resulted in increased traffic volume, which has corresponded to an increase in delay and injury crashes. The study recommends installing new traffic signals at 8th Street and Park Avenue and 9th Street and Park Avenue, updating signal timing on existing traffic signals, installing pedestrian push buttons and countdown signals, and redefining driveways, turn lanes, and signage to improve pedestrian and vehicle safety.
Milton Traffic Mobility Study, 2019	The Milton Traffic Mobility Study evaluates the mobility and circulation of traffic in the city of Milton to aid in traffic management due to the construction of the Grand Patrician Resort. To best maintain a safe, efficient, and effective roadway network, the study recommends improving the Culloden interchange to avoid congestion from the Resort construction; widen John Morris Road to increase traffic capacity; and improve the sight distance east of John Morris Road on US-60.

Study Name	Summary
Exit 8/I-64 Mixed Use Development and Traffic Mobility Study, 2018	The purpose of the Exit 8/I-64 Mixed Use Development and Traffic Mobility Study was to evaluate and maximize various land uses around the interchange and integrate uses with transportation mobility. The study identified several policies which may improve conditions, as well as identifying roadway improvements such as widening rock cuts, adding shoulders, and improving bicycle connectivity.
Ohio River Bridge Crossing Feasibility Study	The purpose of the Ohio River Bridge Crossing Feasibility Study is to provide documentation for the engineering and environmental evaluation for alternatives for a crossing between Ohio SR-7 and Big Ben Bowen Highway/Merritts Creek Connector (WV-193). Three corridor alternatives and a no-build alternative were evaluated, and Corridors 1 and 2 were considered the most feasible for further consideration in a subsequent NEPA study. The study notes Corridor 1 would provide the most direct connection between SR-7 and WV-193 and is most favored by the public.
Cabell and Wayne Counties Safety Study, 2020	The Cabell and Wayne Counties Safety Study was conducted as part of West Virginia's vision of Zero Fatalities and evaluated infrastructure and behavioral countermeasures to create a safer transportation network. Recommended countermeasures include updating clearance intervals, installing new signing, constructing turning lanes, and converting left-turn phasing to protected only.
Boyd-Greenup Small Urban Area Study, 2020	The KYTC and KYOVA initiated a Small Urban Area Study for Boyd and Greenup counties to identify and examine transportation issues related to safety and congestion. The study completed an inventory of existing conditions and proposed future conditions and developed recommendations for the short- and long-term. Recommendations include addition of turn lanes, median removal, signal optimization, improving lighting, and improving driver sight distance.
Harvey Road Connector: Planning and Environmental Linkages Study, 2021	KYOVA initiated the Harvey Road Connector: Planning and Environmental Linkages Study to examine the need for a connecting roadway between Harvey Road and WV-152. Building a connector roadway will improve east-west accessibility, mobility, and connectivity in the area, and seven alternatives were evaluated. Alternatives 3, 4, and 5 were selected for advancement for the next step of process, as these alternatives have the fewest environmental impacts with higher public support and lower proposed cost.
US 52 Interchange Study: From CR 120 to CR 144, 2019	The US 52 Interchange Study was initiated by KYOVA to improve existing and future safety concerns, improve accessibility and efficiency, and eliminate crossing conflicts on US 52 from CR 120 to CR 144. The proposed Tri-State Metro Outerbelt is expected to increase traffic flow on US 52 in the study area. To alleviate the future congestion and improve safety, the study recommends the construction of two interchanges: at Burlington-Macedonia Road; and at the Lowes and Wal-Mart.

Study Name	Summary
TTA Transit Impact Study Final Report, 2018	This study served as a system-wide redesign of TTA's transit system with the goal of all recommendations being cost-neutral. The study analyzed places of need through population density, jobs, and transit-prone population centers and made recommendations to change alignments and service on all of the TTA routes. Additional recommendations included investigating innovative Demand-Response Service, expanding current service (at cost), improving passenger amenities and facilities, improve regional transit connections, improve branding efforts, begin a commuter service to Charleston, and launch a comprehensive fare study.
Boyd and Greenup County Transit Study, 2017	This study includes a transit services gap analysis that highlights areas in the two-county region with high propensity for transit, but no fixed route services. These gap areas are concentrated in Greenup County and follow US 23 along the cities of Wurtland, Flatwoods, and Raceland. The 2017 study recommended new transit routes for the following areas: • Raceland, Flatwoods, and Russell • South Shore, Greenup, and Ashland • North-south connections along KY 5, KY 67 (Industrial Parkway), and KY 1
Regional Intergovernmental Council Metropolitan Transportation Plan Draft, 2021	The Regional Intergovernmental Council (RIC) is the MPO for the Charleston, WV region. The RIC 2050 Metropolitan Transportation Plan (MTP) serves as the comprehensive guide for Kanawha and Putnam counties in developing a regional transportation system that not only accommodates the current mobility needs of the area's residents, but also looks to the future to anticipate where new needs will arise. The MTP addresses priorities and needs for all modes of transportation including automobiles, freight, bicycles, pedestrians, and transit.

7.0 KYOVA System Performance

7.1 Background

The KYOVA Interstate Planning Commission (KYOVA) 2050 MTP examines the future transportation needs for the residents within Cabell and Wayne Counties in West Virginia, Greenup and Boyd Counties in Kentucky, and portions of Lawrence County, OH. The Plan makes recommendations for enhanced transportation efficiency and functionality, including construction of new facilities, improved connectivity to other modes and the enhancement of existing facilities. The Plan also identifies available federal, state, and local funding levels and sources, as well as recommendations for future programming and implementation of proposed projects. The Plan was developed in accordance with the planning requirements in the Fixing America's Surface Transportation (FAST) Act of 2015. This legislation expands upon previous legislation, including performance management requirements and new planning factors.

This chapter documents transportation performance for the federally-required performance measures. KYOVA, West Virginia DOT (WVDOT), Kentucky Transportation Cabinet (KYTC), Ohio DOT (ODOT), and public transportation agencies in the KYOVA planning area are required to monitor and report on recent and current performance, and must apply a transportation performance management (TPM) approach when carrying out their planning and programming activities. TPM requires agencies to use a coordinated, performance-based approach to make transportation decisions that support national goals established in transportation legislation for the federal-aid highway and public transportation programs. These national goals are:

- **Safety:** To achieve a significant reduction in traffic fatalities and serious injuries on all public roads and public transportation systems
- **Infrastructure Condition:** To maintain the highway infrastructure and transit capital asset systems in a state of good repair
- **Congestion Reduction:** To achieve a significant reduction in congestion on the National Highway System (NHS)
- **System Reliability:** To improve the efficiency of the surface transportation system
- **Freight Movement and Economic Vitality:** To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- **Environmental Sustainability:** To enhance the performance of the transportation system while protecting and enhancing the natural environment
- **Reduced Project Delivery Delays:** To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practice

The US Department of Transportation (USDOT) established performance measures to track progress toward achievement of the national goals through a series of federal rulemakings that require states, MPOs, and public transportation agencies to establish performance targets for each measure, monitor performance, and report to USDOT on performance and progress toward meeting the targets.

The federal performance measure rules cover highway safety, highway asset management, highway system performance, transit asset management, and public transportation safety (**Table 7-1**).

KYOVA has crafted a vision for the 2050 MTP, which states "We envision a growing region serviced by a safe, equitable, and sustainable transportation system that provides real choice among modes of travel. Our transportation system will contribute to an enhanced quality of life by providing attractive connections between destinations for motorists, bicyclists, pedestrians, and transit users without compromising air quality or cultural and environmental resources, and it will support the efficient movement of people and goods at both the local and regional scale". KYOVA has also created goals and objectives to support the vision statement. The supporting goals align with the federal performance measures, as seen in **Table 7-2**.

Table 7-1 - Federal Performance Measures

Performance Area	What is Measured	Where it is Measured
Highway Safety	Vehicle, bicycle, and pedestrian fatalities and serious injuries	All public roads
Highway Asset Management	Physical condition of pavement and bridges	All National Highway System (NHS) roads
Highway System Performance	Reliability of highway passenger travel	All Interstate and non-Interstate NHS roads
	Reliability of highway truck freight travel	Interstate System only
	Highway congestion and emissions	NHS roads in some air quality nonattainment and maintenance areas
Transit Asset Management	Physical condition of transit vehicles, equipment, and facilities	Assets maintained by transit providers in KYOVA planning area
Transit Safety	Transit related fatalities, serious injuries, and incidents	Transit providers in KYOVA planning area

Table 7-2 – KYOVA 2050 MTP Goals and Federal Performance Measures

Federal Performance Measure	KYOVA 2050 MTP Goals
Highway Safety	Goal 4 – Enhance the safety of the transportation system for all users
Highway Asset Management	Goal 1- Preserve, maintain, and enhance the existing transportation system
	Goal 5 – Enhance the security of transporation system for all users
Highway System Performance	Goal 7 – Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
	Goal 3 – Improve the operational efficiency of the transportation network
Transit Asset Management	Goal 3 – Improve the operational efficiency of the transportation network
	Goal 6 – Protect and enhance the environment and promote energy conservation
Transit Safety	Goal 4 – Enhance the safety of the transportation system for all users

7.2 Performance Targets

KYOVA works closely with WVDOT, KYTC, ODOT, and local public transportation providers to incorporate TPM requirements into planning and programming activities. West Virginia, Kentucky, and Ohio have each adopted statewide performance targets for the performance measures, consistent with Federal requirements.

West Virginia, Kentucky, Ohio, KYOVA, and the transit providers in the region establish performance targets on an ongoing basis, as follows:

- For the highway safety performance measures, WVDOT, KYTC, and ODOT establish statewide safety targets and report them to FHWA annually by August 31st. All data herein was gathered from the FHWA State Performance Dashboard (https://www.fhwa.dot.gov/tpm/reporting/state/) in February 2022.
- For the highway asset management and highway system performance measures, WVDOT, KYTC, and ODOT established statewide targets by May 20, 2019. All data herein was gathered from the FHWA State Performance Dashboard in February 2022.
- For the transit asset management, the Tri-State Transit Authority (TTA) has chosen to be included in the West Virginia statewide Group Transit Asset Management (TAM) Plan. The Ashland Bus System (ABS) and Lawrence County Transit (LCT) were not included in their states' group TAM plans and completed their own. Data related to the KYOVA group TAM plan was gathered from KYOVA's 2021-2024 Transportation Improvement Plan (TIP).

- For the transit safety targets, applicable transit providers in the KYOVA region were required to establish initial targets by July 2021. KYOVA was then required to establish targets within 180 days after receiving the transit safety targets.KYOVA has the flexibility to establish targets by either:
  - Agreeing to plan and program projects in KYOVA's TIP that contribute toward the accomplishment of the WVDOT, KYTC, ODOT, or transit provider targets or;
  - Committing to quantifiable targets for the KYOVA planning area. The target for KYOVA will be different than the WVDOT, KYTC, ODOT, or transit provider targets, and KYOVA will plan and program projects that contribute to the MPO targets

  At the time of the adoption of the KYOVA 2050 MTP, KYOVA opted for the option to plan and program projects in KYOVA's TIP that contribute toward the accomplishment of the WVDOT, KYTC, ODOT, or transit provider targets. Data was aquired from each of the the transit providers' Public Transportation Agency Safety Plan (PTASP).

7.3 System Performance Report

States and MPOs must include a description of the federal performance measures and targets as well as a System Performance Report in their MTPs. The System Performance Report evaluatess the condition and performance of the transportation system with respect to the federal performance targets, including progress achieved in meeting those targets.

KYOVA's 2050 MTP System Performance Report documents the federal performance measures, baseline and recent performance, performance targets, and progress made towards achieiving those targets.Highway Safety

7.3.1 Background

FHWA established the following five highway safety performance measures:

1. Number of fatalities

2. Rate of fatalities per 100 million vehicle miles traveled

3. Number of serious injuries

4. Rate of serious injuries per 100 million vehicle miles traveled

5. Number of combined non-motorized fatalities and non-motorized serious injuries.

The federal safety performance measures are aligned with Goal 4 of KYOVA's 2050 MTP – Enhance the safety of the transportation system for all users.

7.3.2 Highway Safety Performance

West Virginia, Kentucky, and Ohio statewide safety performance for 2016 through 2019 are presented in **Table 7-4, Table 7-5** and **Table 7-6** along with safety targets for calendar year 2021, which is shown in **Table 7-**3. Performance is expressed as an annual five-year rolling average, which is the average of five individual, consecutive annual points of data. A five-year rolling average provides a smoothing effect for variations in safety data from year to year and helps to better evaluate performance over time. Performance targets for each state were set in their respective Highway Safety Improvement Program (HSIP), which is completed and submitted to FHWA by August 31st every year.

Each year, FHWA completes an assessment of progress for each state toward achieving previous statewide safety targets. FHWA determines that a state made significant progress toward its statewide safety targets when at least four of the five targets were met, or the actual outcome was better than the baseline performance. In spring 2021, FHWA assessed West Virginia, Kentucky and Ohio's progress toward achieving its 2019 statewide safety targets. Based on FHWA's review, West Virginia

demonstrated significant progress toward achieving its safety targets. Ohio and Kentucky did not demonstrate significant progress.

Currently, 2020 safety performance data and 2022 statewide targets are being reviewed by West Virginia, Kentucky, and Ohio as part of the annual process to submit targets within each state's Highway Safety Plan (HSP) and the HSIP. Each state will submit it's HSIP to FHWA by August 31, 2022, which will include 2022 targets for the five federally required highway safety measures. KYOVA agreed to support West Virginia, Kentucky, and Ohio's statewide safety targets via resolution on February 23rd, 2018.

Table 7-3 2021 Safety Targets

2021 Highway Safety Performance Targets	West Virginia	Kentucky	Ohio
Number of fatalities	267.3	720	1084
Rate of fatalities per 100 million vehicle miles traveled (VMT)	1.457	1.5	.93
Number of serious injuries	1002.4	2590	8101
Rate of serious injuries per 100 million VMT	5.023	5.4	6.97
Number of non-motorized fatalities and non-motorized serious injuries	86.2	285	811

7.3.3 West Virginia Safety Performance

As shown in **Table 7-4**, in West Virginia the five-year rolling average for all five safety measures in 2019 was below 2016 levels. West Virginia has experienced four consecutive years of decreases in fatalities, fatality rate, serious injuries, and serious injury rate. Combined non-motorized fatalities and serious injuries decreased from 2016 to 2017 but rose in 2018 and again in 2019. These trends reflect improved performance over this time period.

Table 7-4 West Virginia Safety Performance

Performance Measures (five-year rolling averages)	2016 WV	2017 WV	2018 WV	2019 WV	2021 WV Target
Number of fatalities	296	289	281.4	279	263.7
Rate of fatalities per 100 million vehicle miles traveled (VMT)	1.54	1.49	1.45	1.43	1.457
Number of serious injuries	1431.6	1270	1171.8	1081.4	1002.4
Rate of serious injuries per 100 million VMT	7.39	6.56	6.04	5.57	5.023
Number of non-motorized fatalities and non-motorized serious injuries	103.6	94.8	97	97.2	86.2

7.3.4 Kentucky Safety Performance

In Kentucky, as shown in **Table 7-5**, the number of fatalities and fatality rate has slowly, but steadily, risen between 2016 and 2019. Serious injury crashes on Kentucky's roadways have seen decreases from year-to-year, and the number of non-motorized fatalities and serious injuries in Kentucky has increased from year-to-year.

Table 7-5 Kentucky Safety Performance

Performance Measures (five-year rolling averages)	2016 KY	2017 KY	2018 KY	2019 KY	2021 KY Target
Number of fatalities	730.2	737.4	754.6	766.6	720
Rate of fatalities per 100 million vehicle miles traveled (VMT)	1.518	1.520	1.540	1.556	1.5
Number of serious injuries	3288.6	3124.8	3039.0	2954.4	2590
Rate of serious injuries per 100 million VMT	6.850	6.454	6.210	6.000	5.4
Number of non-motorized fatalities and non-motorized serious injuries	269.2	277.2	285.6	287.2	285

7.3.5 Ohio Safety Performance

In Ohio, as shown in **Table 7-6**, the number of fatalities and fatality rate has slowly, but steadily, risen between 2016 and 2019, on the basis of the five-year rolling average. Serious injury crashes on Ohio's roadways have seen substantial decreases from year-to-year, and the number of non-motorized fatalities and serious injuries in Ohio has decreased slightly from year-to-year.

Table 7-6 Ohio Safety Performance

Performance Measures (five-year rolling averages)	2016 OH	2017 OH	2018 OH	2019 OH	2021 OH Target
Number of fatalities	1072.0	1083.2	1099.0	1128.4	1084.0
Rate of fatalities per 100 million vehicle miles traveled (VMT)	0.94	0.94	0.95	0.97	0.93
Number of serious injuries	9216.0	9013.0	8692.2	8434.2	8101.0
Rate of serious injuries per 100 million VMT	8.08	7.81	7.51	7.25	6.97
Number of non-motorized fatalities and non-motorized serious injuries	854.6	851.6	846.0	846.8	811.1

7.4 Highway Asset Management

7.4.1 Background

FHWA established six performance measures to assess pavement condition and bridge condition for the National Highway Performance Program:

1. Percent of Interstate pavements in good condition

2. Percent of Interstate pavements in poor condition

3. Percent of non-Interstate National Highway System (NHS) pavements in good condition

4. Percent of non-Interstate NHS pavements in poor condition

5. Percent of NHS bridges by deck area classified as in good condition

6. Percent of NHS bridges by deck area classified as in poor condition

The federal highway asset management measures are aligned with Goal 1 of KYOVA's 2050 MTP – Preserve, maintain, and enhance the existing transportation system.

The four pavement condition measures represent the percentage of lane-miles on the Interstate or non-Interstate NHS that are in good and poor condition based on an assessment of roughness and cracking, rutting, faulting, or serviceability. The bridge condition measures represent the percentage of bridges on the NHS, by deck area, that are in good or poor condition based on an assessment of primary bridge components. Pavement and bridges in good condition do not require major investment, while those in poor condition will need substantial reconstruction or replacement.

7.4.2 Highway Asset Performance

West Virginia, Kentucky, and Ohio each collect and report pavement and bridge condition data to FHWA each year. This data is used as the basis for establishing two-year and four-year targets and for tracking performance and progress toward the targets.

Tables 7-7, 7-8, and **7-9** present West Virginia, Kentucky, and Ohio statewide pavement and bridge performance for the 2017 baseline year and for 2019, the most recent year of available data. The 2019 and 2021 statewide targets are also shown.

KYOVA agreed to support West Virginia, Kentucky, and Ohio's statewide highway asset management targets. By doing so, KYOVA agreed to plan and program projects that will help WVDOT, KYTC, and ODOT make progress toward achieving the targets.

7.4.3 West Virginia Asset Management

As shown in **Table 7-7**, West Virginia's pavement condition on the Interstate system improved between 2017 and 2019, with the percent in good condition increasing and the percent in poor condition remaining almost the same. On the non-Interstate NHS system, the results were mixed, with a higher percentage of pavement in good condition in 2019 but also with slightly more pavement in poor condition. Although the percentage of pavement in poor condition increased slightly, the value is well below the two-year target. West Virginia made progress toward achieving the two-year targets for non-Interstate NHS pavement condition. Two-year targets were not required for Interstate pavements.

Table 7-7 West Virginia Asset Management

Performance Measures	WV Baseline (2017)	WV 2019 Actual	WV 2-year Target	WV 4-year Target
Percent of Interstate pavements in good condition	73.4%	80.6%	n/a	75.0%
Percent of Interstate pavements in poor condition	0.1%	0%	n/a	4.0%
Percent of non-Interstate NHS pavements in good condition (full distress + IRI)	40.9%	43.0%	40.0%	45.0%
Percent of non-Interstate NHS pavements in poor condition (full distress + IRI)	1.2%	2.0%	5.0%	5.0%
Percent of NHS bridges (by deck area) in good condition	13.9%	11.6%	14.0%	11.0%
Percent of NHS bridges (by deck area) in poor condition	11.9%	13.5%	10.0%	13.0%

For NHS bridges in West Virginia in good condition, performance declined from the 2017 baseline of 13.9% to 11.6% in 2019. NHS bridges in poor condition increased from the 2017 baseline of 11.9% to 13.5% in 2019, however 2019 did show a significant improvement from 2018. As a result, progress toward the two-year bridge targets was not achieved. WVDOT received notification of this determination from FHWA in January 2021 and is continuing to develop documentation detailing investment and management strategies to address bridge condition trends. As a result of recent bridge performance trends, WVDOT adjusted its 2021 targets in October 2020. The new targets of 11.0% for bridges in good condition (previously 16%) and 13.0% for bridges in poor condition (previously 10.0%) reflect a goal of stabilizing the downward trend experienced during 2018-2019 and is consistent with the most recent bridge condition data, project schedules, and asset management principles.

7.4.4 Kentucky Asset Management

Table 7-8 shows Kentucky's recent asset management performance. As of 2019, Kentucky's Interstate Pavement conditions are good, with 68.1% of interstate roadways in good condition versus only 1.1% in poor condition. Both metrics exceed the targets set for 2021. Kentucky also exceeded its 2019 targets for non-Interstate pavement condition.

The percentage of Kentucky's bridges in good condition has been decreasing over the past several years. The actual 2-year statewide percentage of deck area of bridges on the NHS classified as in Good condition (29.7%) was less than the 2-year target (35.0%). The 2-year year target was not met, in part, because funding priorities for the ongoing Bridging Kentucky Program targets improvements on non-NHS bridges, and has reduced the available funds for NHS bridge improvements. NHS bridge conditions are expected to improve overall in coming years as KYTC has planned actvities that include interstate bridge replacement projects and various other rehabilitation projects for 2021 and 2022.

Table 7-8 Kentucky Asset Management

Performance Measures	KY Baseline (2017)	KY 2019 Actual	KY 2-year Target	KY 4-year Target
Percent of Interstate pavements in good condition	n/a	68.1%	n/a	50.0%
Percent of Interstate pavements in poor condition	n/a	1.1%	n/a	4.0%
Percent of non-Interstate NHS pavements in good condition (full distress + IRI)	n/a	48.9%	35.0%	35.0%
Percent of non-Interstate NHS pavements in poor condition (full distress + IRI)	n/a	1.4%	6.0%	6.0%
Percent of NHS bridges (by deck area) in good condition	34.8%	29.7%	35.0%	27.0%
Percent of NHS bridges (by deck area) in poor condition	3.8%	3.7%	3.7%	3.6%

7.4.5 Ohio Asset Management

In Ohio, as shown in **Table 7-**9, Interstate pavements are in good shape as of 2019. The percentage of pavements in good condition has been steadily increasing in recent years. The percentage of Ohio's Interstate pavement in poor condition as of 2019 is low, and is well below the 2021 target. Ohio also exceeded its 2019 targets for non-Interstate pavement condition. The percentage of Ohio's non-Interstate NHS pavements rated good has gradually increased in recent years, while the percent in poor condition has remained steady.

The percentage of Ohio's bridges in good condition has been steadily increasing over the past several years and achieved a 10-year high in 2019. Ohio is currently exceeding its 2019 target of 50 percent of NHS bridges in good condition. Conversely, the percentage of NHS bridges rated as poor has steadily decreased over the last decade. In 2019, 1.7 percent of bridges were classifed as being in poor condition, well under Ohio's 2019 target. Ohio made significant progress toward it's 2019 highway asset targets.

Table 7-9 Ohio Asset Management

Performance Measures	OH Baseline (2017)	OH 2019 Actual	OH 2-year Target	OH 4-year Target
Percent of Interstate pavements in good condition	n/a	73.0%	n/a	50.0%
Percent of Interstate pavements in poor condition	n/a	0.1%	n/a	1.0%
Percent of non-Interstate NHS pavements in good condition (full distress + IRI)	n/a	46.0%	35.0%	35.0%
Percent of non-Interstate NHS pavements in poor condition (full distress + IRI)	n/a	1.7%	3.0%	3.0%
Percent of NHS bridges (by deck area) in good condition	59.0%	59.9%	50.0%	50.0%
Percent of NHS bridges (by deck area) in poor condition	1.6%	1.7%	5.0%	5.0%

7.5 Highway System Performance

7.5.1 Background

FHWA established six measures to assess performance of the National Highway System, freight movement on the Interstate system, and the Congestion Mitigation and Air Quality Improvement (CMAQ) Program:

National Highway System Performance

1. Percent of person-miles on the Interstate system that are reliable

2. Percent of person-miles on the non-Interstate NHS that are reliable

Freight Movement on the Interstate

3. Truck Travel Time Reliability Index (TTTR)

Congestion Mitigation and Air Quality Improvement (CMAQ) Program

4. Annual hours of peak hour excessive delay per capita (PHED)

5. Percent of non-single occupant vehicle travel (Non-SOV)

6. Cumulative two-year and four-year reduction of on-road mobile source emissions for CMAQ funded projects (CMAQ Emission Reduction)

The highway system performance measures are aligned with Goal 7 of the KYOVA 2050 MTP – Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

The two system performance measures assess the reliability of travel times on the Interstate and non-Interstate NHS system. Reliability is a measurement of the extent to which travel times on a given route differ from day to day. Travel that is reliable will take about the same amount of time on any given day, while travel that is unreliable means the time required to complete a trip will vary widely from day to day due to non-recurring bottlenecks, crashes, other incidents, or weather. These measures are expressed in person-miles, which considers the number of people traveling in vehicles on these roads. A higher percentage for these measures means better performance than a lower percentage.

The freight movement performance measure assesses reliability for trucks traveling on the Interstate. A TTTR index is generated based on the ratio of actual truck travel times to normal travel times. A lower TTTR value means better performance, i.e., more reliable truck travel.

The CMAQ Emission Reduction measure assesses performance of the CMAQ Program through measurement of total cumulative reductions of on-road mobile source PM2.5 and PM10 emissions resulting from CMAQ funded projects. The PHED measure quantifies the hours of delay resulting from excessive traffic congestion on the NHS during peak travel times, on a per capita basis. The non-SOV travel measure quantifies the percent of travel that occurs by any mode other than driving alone in a motorized vehicle. The CMAQ-related performance measures are not applicable to the KYOVA region and KYOVA is therefore not required to set targets for these measures.

7.5.2 System Performance

West Virginia, Kentucky, and Ohio collect and report performance data for the system performance measures to FHWA each year. This data is used as the basis for establishing two-year and four-year targets and for tracking performance and progress toward the targets. Current targets represent expected performance at the end of 2019 and 2021, respectively.

Tables 7-10, 7-11, and **7-12** present statewide performance for the 2017 baseline year and for 2019, the most recent year of available data, for West Virginia, Kentucky, and Ohio. Also shown are the 2019 and 2021 statewide targets that all three states established in May 2018.

KYOVA has agreed to support West Virginia, Kentucky, and Ohio's statewide targets and by doing so, KYOVA agreed to plan and program projects that will help WVDOT, KYTC, and ODOT make progress toward achieving the system performance targets.

7.5.3 West Virginia Highway System Performance

The percent of person-miles traveled in reliable conditions has remained stable and high throughout the performance period across the entire Interstate and non-Interstate NHS in West Virginia, as shown in **Table 7-10**. Travel time is very reliable statewide, and trends have held steady between 2017 and 2019. The State experienced a slight decline in the statewide percent of person-miles traveled on the Interstate that are reliable, from the 2017 baseline of 99.8 percent reliable to 99.1 percent in 2019. This is due to extensive work zones on the NHS as a result of implementation of the Roads to Prosperity program. Even with this slight decline, performance in 2019 was above the two-year target of 98.0 percent, showing progress toward achieving the target. A two-year target was not required for reliability on the non-Interstate NHS.

Truck travel on the West Virginia Interstate system is also generally reliable. Since 2017, the TTTR index increased slightly, primarily as a result of the spread of new work zones on the Interstate system. Although Interstate truck travel is generally reliable, the state did not make progress toward achieving the two-year target for TTTR. Performance declined slightly from a TTTR of 1.21 in 2017 to 1.28 in 2019, exceeding the 2019 target of 1.25. The increase in TTTR is primarily tied to work zones associated with ongoing asset management or capacity activities. WVDOT is actively managing these work zones to minimize disruptions, particularly during peak travel periods.

Because the 2019 TTTR target was not achieved, WVDOT reviewed committed projects and work zones planned for 2021 and estimated 2021 TTTR based on 2019 indices in work zones. Given the level of programmed construction through 2021 across the Interstate system and recovery in traffic in 2021 after decreased volumes in 2020 due to the COVID-19 pandemic, there is a risk that TTTR in 2021 may increase. As a result, on October 1, 2020, WVDOT reported and adjusted 2021 TTTR target to FHWA of 1.40, up from the initial target of 1.30.

Table 7-10 - West Virginia Highway Performance

Performance Measure	WV Baseline (2017)	WV 2019 Actual	WV 2-year Target (2019)	WV 4-year Target (2021)
Percent of person-miles on the Interstate system that are reliable	99.8%	99.0%	98.0%	96.0%
Percent of person-miles on the non Interstate NHS that are reliable	91.9%	93.7%	n/a	87.0%
Truck Travel Time Reliability Index	1.21	1.28	1.25	1.40

7.5.4 Kentucky Highway System Performance

Table 7-11 shows Kentucky's highway performance metrics. Kentucky's interstate highways have remained very relaible in recent years, with 95.6% of all interstate roadways graded as reliable in 2017 and 95.3% of all interstate roadways graded as reliable in 2019- both of which exceeded the 2-year and 4-year target of 93%. Improvements across the interstate system in Kentucky are reflected in the Level of Travel Time Reliability (LOTTR) metric.

Kentucky is also has relatively reliable non-Interstate NHS, roadways, although with 91.5% of those roadways graded reliable, it scores slightly below the counterpart states of West Virginia and Ohio in KYOVA in this area. That said, the 2019 actual conditions exceed the 2021 target. The 2021 target was formed using a 6-year average of data from the 2012-2017 period.

The original target was based on data from 2012 to 2017, which showed a trend of Kentucky's TTTR values improving from 1.4 to 1.24 in 2017. TTR in Kentucky was measured at 1.24 in both 2017 and 2019, although it did not remain flat in 2018, briefly jumping to 1.33. A value of 1.3 is therefore a more attainable but still challenging goal, compared to the 2019 target of 1.25.

Table 7-11 Kentucky Highway Performance

Performance Measure	KY Baseline (2017)	KY 2019 Actual	KY 2-year Target (2019)	KY 4-year Target (2021)
Percent of person-miles on the Interstate system that are reliable	95.6%	95.3%	93.0%	93%
Percent of person-miles on the non Interstate NHS that are reliable	n/a	91.5%	n/a	82.5%
Truck Travel Time Reliability Index	1.24	1.24	1.25	1.30

7.5.5 Ohio Highway System Performance

In Ohio, as shown in **Table 7-12**, Interstate travel time reliability dropped slightly between 2017 and 2019, but still remains high and well above the 2019 target of 85.0 percent.

Ohio's non-Interstate NHS roadways have seen a drastic improvement in reliability in recent years, increasing from the mid to upper 60 percent range to almost 93 percent in 2019. Through continued investment in its non-Interstate NHS roadways, Ohio expects this trend of highly reliable travel times to continue going forward.

Ohio's TTTR index was essentially flat between 2017 and 2019, increasing from 1.33 to 1.36. However, this level is below TTTR values from a few years ago, and is expected to continue to hold steady and to continue to hold steady and to meet the four-year target. Ohio made significant progress toward it's 2019 system performance targets.

Table 7-12 Ohio Highway Performance

Performance Measure	OH Baseline (2017)	OH 2019 Actual	OH 2-year Target (2019)	OH 4-year Target (2021)
Percent of person-miles on the Interstate system that are reliable	90.8%	90.0%	85.0%	85.0%
Percent of person-miles on the non Interstate NHS that are reliable	n/a	92.8%	n/a	80.0%
Truck Travel Time Reliability Index	1.33	1.36	1.5	1.5

7.6 Transit Assets

7.6.1 Background

FTA requires that public transportation providers that receive federal transit funding develop and implement Transit Asset Management (TAM) plans to maintain transit assets in a state of good repair (SGR). FTA created TAM performance measures for four transit asset categories:

- Rolling Stock: percent of revenue vehicles exceeding useful life benchmark (ULB)
- Equipment: percent of non-revenue service vehicles exceeding ULB
- Facilities: percent of facilities rated under 3.0 on FTA's Transit Economic Requirements (TERM) scale
- Infrastructure: percent of track segments under performance restrictions

Useful life benchmark (ULB) is defined as the expected lifecycle of a capital asset, or the acceptable period of use in service, for a particular transit provider's operating environment.

FTA defines two tiers of public transportation providers for TAM purposes and categorizes providers based on size parameters. Tier I providers are those that operate rail service or more than 100 vehicles in all fixed route modes, or more than 100 vehicles in one non-fixed route mode. Tier II providers are those that are a subrecipient of FTA 5311 funds, or an American Indian Tribe, or have 100 or less vehicles across all fixed route modes or have 100 vehicles or less in one non-fixed route mode.

A Tier I provider must establish its own TAM Plan and transit asset targets. A Tier II provider has the option to establish its own TAM plan and targets, or to participate in a Group TAM Plan with other Tier II providers. A plan sponsor, typically a state DOT develops a group plan for Tier II providers. The Tri-State Transit Authority (TTA), the Ashland Bus System (ABS), and Lawrence County Transit (LCT) are all considered Tier II transit providers.

7.6.2 Transit Asset Performance Targets

Public transportation providers set and report TAM targets annually for the following fiscal year. They are required to provide their asset conditions and TAM targets to each MPO in which the transit provider's projects and services are programmed in the MPO's TIP. MPOs must then establish transit asset targets within 180 days of the date that the provider of public transportation established initial targets. Unlike with the highway safety, highway asset, and system performance measures developed by FHWA, FTA does not require MPOs to establish new transit asset targets annually each time the public transportation provider establishes targets. Instead, subsequent MPO targets must be established when the MPO updates its LRTP.

MPOs must either agree to program projects that will support the transit provider's targets or set their own separate regional targets for the MPO's planning area. Regional TAM targets may differ from agency TAM targets, especially if there are

multiple transit agencies in the MPO's planning area, or in the event that one or more transit agencies have not provided TAM targets to the MPO.

West Virginia Division of Public Transit provided the option to TTA to be included in the West Virginia State TAM Plan. The Kentucky Transportation Cabinet's Office of Transportation Delivery chose not to include Tier II providers in their State Plan. Therefore, ABS was required to complete their own. Additionally, Lawrence County Transit completed a TAM Plan as Ohio did not elect to include Tier II providers in their state TAM Plan. After the review of documentation received from the three transit providers, KYOVA elected to set regional transit targets rather than adopting individual targets from each agency (**Table 7-13**).

Table 7-13 KYOVA Transit Asset Performance Targets

Asset Category	Assets	Current Condition	KYOVA 2018 Baseline/Target
Rolling Stock (Revenue vehicles)	BU – Buses =34	2 Buses exceed default ULB	No more than 50% of bus fleet exceed ULB
	CU – Cutaway Buses = 15	0 Cutaway buses exceed default ULB	No more than 50% of cutaway bus fleet exceed ULB
	MB – Minibus = 2	1 Minibus exceed default ULB	No more than 50% of minibus fleet exceed ULB
	MV – Minivans = 9	0 Minivans exceed default UBI	No more than 50% of minivan fleet exceed ULB
Equipment (Non-revenue vehicles)	Truck = 2	0 Trucks exceed default ULB	No more than 50% of truck fleet exceed ULB
	SUV = 5	3 SUVs exceed the default ULB	No more than 60% of SUV fleet exceed ULB
Facilities	Administration Buildings = 4	3 rated in Good Condition, but no longer new; 1 rated Marginal; Moderately defective or deteriorated components	No more than 50% rated below a 3.0 on the FTA TERM Scale
	Maintenance = 2	1 rated in Good Condition, but no longer new; and 1 rated in Adequate Condition with Moderately Defective or deteriorated components	No more than 50% rated below a 3.0 on the FTA TERM Scale
	Passenger Facility = 3	3 rated in Excellent Condition; no visible defects, near new condition	No more than 50% rated below a 3.0 on the FTA TERM Scale

7.7 Transit Safety

7.7.1 Background

FTA's Public Transportation Agency Safety Plan (PTASP) rule requires certain operators of public transportation systems that receive federal financial assistance to develop and implement a PTASP based on a safety management systems approach. Development and implementation of PTASPs is anticipated to help ensure that public transportation systems are safe nationwide. Transit providers subject to the rule set targets in the PTASP annually based on the following safety performance measures established by FTA:

1. Total number of reportable fatalities and rate of reportable fatalities per total vehicle revenue miles by mode.

2. Total number of reportable injuries and rate of reportable injuries per total vehicle revenue miles by mode.

3. Total number of reportable safety events and rate of reportable events per total vehicle revenue miles by mode.

4. System reliability - Mean distance between major mechanical failures by mode.

Providers initially were required to certify a PTASP and targets by July 20, 2020. However, on April 22, 2020, FTA extended the deadline to December 31, 2020, to provide regulatory flexibility due to the extraordinary operational challenges presented by the COVID-19 public health emergency. On December 11, 2020, FTA extended the PTASP deadline for a second time to July 20, 2021.

Under the PTASP rule, a state will draft and certify a PTASP on behalf of any small transit provider (fewer than 101 vehicles in peak revenue service and does not operate rail) unless that provider develops its own plan. There are eight providers in West Virginia that are subject to the PTASP requirements. Each provider opted to develop its own PTASP and establish transit safety targets.

7.7.2 Transit Safety Performance Targets

Public transportation providers set transit safety targets annually for each mode they operate. As with TAM targets, transit agencies are required to provide their safety targets to each MPO in which the transit provider's projects and services are programmed in the MPO's TIP. TTA submitted its PTASP on August 17th, 2020, ABS submitted its PTASP on September 3rd, 2020, and LCT submitted its PTASP on September 15th, 2020. The target metrics designated in **Table 7-14** reflect those set by each transit provider. KYOVA opted to defer to the targets of each provider and did not set overall transit safety goals for the region. Every project in the KYOVA TIP works towards the individual targets of each transit provider.

Table 7-14 KYOVA Transit Safety Performance Targets

Provider	Target Metric	Fatalities	Injuries	Safety Events	System Reliability
TTA Bus Service	Total Number of NTD-reportable events	0 Annually	Less than 9 Annually	Less than 9 Annually	Distance between Major Failures: Greater than 80,000 miles Distance between Minor Failures: Greater than 3,200 miles
	Rate per total VRM	Less than .05 per 1,000,000 VRM	Less than 10 major/minor injuries per 1,000,000 VRM	Less than 10 major/minor events per 1,000,000 VRM	
TTA On-Demand Service	Total Number of NTD-reportable events	0 Annually	Less than 2 Annually	Less than 2 Annually	Distance between Major Failures: Greater than 80,000 miles Distance between Minor Failures: Greater than 3,800 miles
	Rate per total VRM	Less than .05 per 1,000,000 VRM	Less than 5 injuries per 1,000,000 VRM	Less than 5 major/minor events per 1,000,000 VRM	
ABS Bus Service	Total Number of NTD-reportable events	0 Annually	0 Annually	0 Annually	No Major Failures
	Rate per total VRM	0 per 1,000,000 VRM	0 major/minor injuries per 1,000,000 VRM	0 per 1,000,000 VRM	
ABS On-Demand Service	Total Number of NTD-reportable events	0 Annually	Less than 2 Annually	0 Annually	No Major Failures
	Rate per total VRM	0 per 1,000,000 VRM	0 injuries per 1,000,000 VRM	0 per 1,000,000 VRM	
LCT Bus Service	Total Number of NTD-reportable events	0 Annually	0 Annually	0 Annually	No Major Failures
	Rate per total VRM	0 per 1,000,000 VRM	0 major/minor injuries per 1,000,000 VRM	0 per 1,000,000 VRM	
LCT On-Demand Service	Total Number of NTD-reportable events	0 Annually	Less than 2 Annually	0 Annually	No Major Failures
	Rate per total VRM	0 per 1,000,000 VRM	0 injuries per 1,000,000 VRM	0 per 1,000,000 VRM	

8.0 Multimodal Recommendations

This chapter presents the recommendations for the KYOVA 2050 MTP. The proposed recommendations were developed in collaboration with the KYOVA MPO; Cabell, Wayne, Boyd, Greenup, and Lawrence Counties; WVDOT, KYTC, and ODOT; and the Tri-State Transit Authority (TTA), Ashland Bus System, and Lawrence County Transit (LCT). The recommendations included in this chapter have been identified to address the transportation needs of the KYOVA planning area through 2050. The plan considers a multimodal range of transportation issues and service needs and offers recommendations for enhanced transportation efficiency and functionality that include:

- Construction of new facilities;
- Network improvement needs that address congestion and safety;
- Improved services for alternative modes; and
- Enhancement of existing facilities.

Recommendations were developed based on public feedback and stakeholder outreach as well as a review of KYOVA's previous MTP, available congestion and safety data, the West Virginia, Kentucky, and Ohio statewide plans, and other applicable planning efforts. Additional information about the MTP projects, including cost estimates, and proposed implementation timelines, is provided in the following chapter (**Chapter 9 – Financial Plan**) and on the Project Sheets provided in **Appendix C**.

8.1 Project Prioritization

Once recommendations were established, they were further evaluated to prioritize the projects for funding and implementation. The process evaluated the preliminary projects based on criteria that were directly tied to the goals and objectives established for the KYOVA 2050 MTP. This evaluation considered technical outputs from the regional travel demand and crash analysis as well as qualitative factors related to Advisory Group feedback, public input, and anticipated project cost and feasibility.

Figure 8-1 shows the eight goals developed for the KYOVA 2050 MTP. More information about the goals, their supporting objectives, and the process used to develop them is provided in **Chapter 3** of this report. **Table 8-1** shows the relationship between the project evaluation measures and criteria and the KYOVA 2050 MTP goals.

Figure 8-1 – KYOVA 2050 MTP Goals

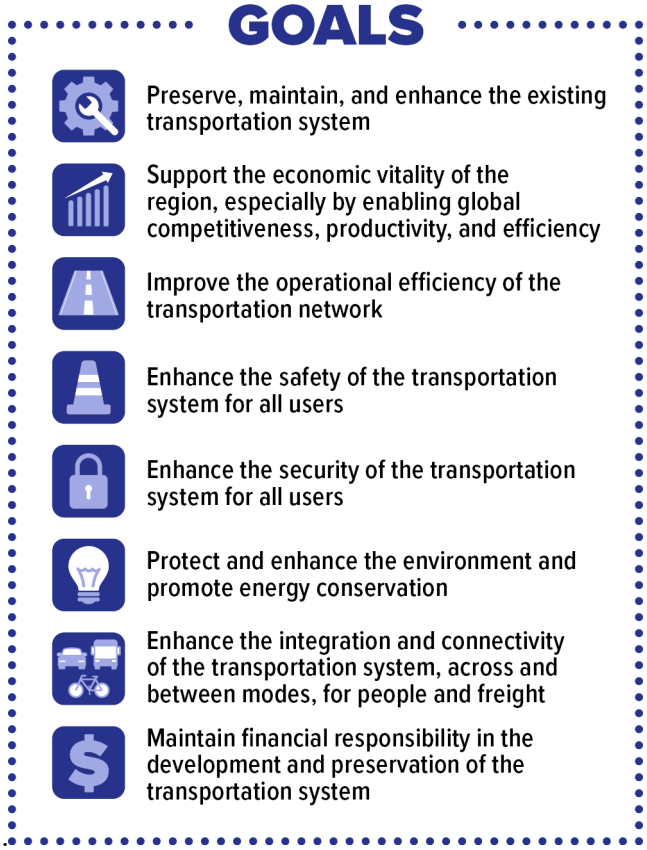


Table 8-1 - Prioritization Measures, Criteria, and Goals

Measure	Criteria	Related Goals
System Preservation	Improve the condition of the existing transportation system or upgrade existing transportation facilities.	
Support Multimodal Transportation Options	Improve connections between modes of transportation. Provide equitable modal options to carry out essential daily activities and support access to the region's opportunities. Encourage initiatives that promote transit and other transportation modes as alternatives to the single occupancy vehicle. Improve facilities for bicyclists and pedestrians.	
Level of Service (LOS) Deficiency	Project serves locations with high peak hour congestion. Improve mobility of strategic corridors.	
Freight Mobility	Improve access to intermodal facilities (ports, aviation, inland terminals). Integrate into the planning process the aviation needs of the region, whether general aviation or commercial, as a way to attract additional economic activity.	
Economic Development	Improve access to regional attractions including recreation and entertainment facilities. Improve access to existing or planned major employment centers.	
Operational Efficiency	Promote operational efficiency through technological improvements. Identify opportunities to integrate Intelligent Transportation Systems (ITS), smart streets, and other emerging technologies as part of an overall transportation management strategy.	
Safety Enhancements	Address high-priority locations for safety improvements. Give priority to construction projects that eliminate roadway hazards, which would improve safety.	
Access to Services	Improve access to providers of social services and healthcare.	
Resiliency	Protect the capacity of I-64, strategic bridges and other regional corridors that serve as evacuation routes for natural disasters. Give priority to projects that improve the resiliency and reliability of the transportation network. Uphold cost-effective operating strategies for all transportation services.	
Quality of Life	Integrate land use and transportation policies to limit impacts to sensitive land, focus development in prime locations, encourage trips by modes other than personal automobiles, and enhance the region's quality of life. Minimize any detrimental impacts of proposed transportation improvements upon neighborhoods. Provide equitable access to homes, parks, community activity centers, employment hubs, and other key destinations to one another.	

8.2 Candidate MTP Projects

The candidate projects are presented in matrix form, showing the outcome of the prioritization process described in the preceding section. The candidate projects are sorted into three priority tiers, with Tier 1 being highest priority and Tier 3 being the lowest priority. Projects are grouped by county.

The matrix (**Table 8-2** through **8-4**) provides the following information:

- Project number
- Project description
- Priority tier based on project evaluation

The prioritization process directly informed the development of the financial plan shown in **Chapter 9**.

Table 8-2 – Cabell and Wayne Counties, WV Candidate MTP Projects

Project Number	Description	Priority Tier
CAB-01	Streetscaping improvements on Bridge Street from WV 106 to 39th Street and Main Street from Riverside Drive to Water Street in Guyandotte.	3
CAB-02	Intersection safety improvements at Eighth Avenue and 31st Street (US 60) in Huntington.	2
CAB-03	Eighth Avenue improvements and intersection beautification from Hal Greer Boulevard to US 60 in Huntington.	2
CAB-04	Retrofit Third Avenue from US 52 to 31st Street and Fifth Avenue from 17th Street to 31st Street in Huntington as complete streets.	1
CAB-05	Downtown Huntington Streetscaping Improvements, Phase 1	1
CAB-06	Intersection safety improvements at First Street and Seventh Avenue in Huntington.	3
CAB-07	Intersection Safety Improvements at First Street and Fifth Avenue in Huntington.	3
CAB-08	Improve First Street from Fourth Avenue to Seventh Avenue in Huntington.	2
CAB-09	Multimodal, aesthetic, safety, and drainage improvements on Hal Greer Boulevard from Third Avenue to Washington Boulevard in Huntington.	1
CAB-10	Multimodal, aesthetic, safety, and drainage improvements on Hal Greer Boulevard from Washington Boulevard to Highlander Way in Huntington.	2
CAB-11	Construct new interchange at I-64 and Benedict Road (CR 60/21) in Culloden.	1
CAB-12	Widen Jones Branch Road/Mason Road to a four-lane boulevard from US 60 to I-64 in Milton.	3
CAB-13	Intersection safety improvements at Midland Trail (US 60) and E Pea Ridge Road in Barboursville.	2
CAB-14	Improve Midland Trail (US 60) from Bonnie Boulevard to Cyrus Creek Road in Barboursville.	3
CAB-15	Improve US 60 from Eighth Avenue to Bonnie Boulevard in Huntington.	3
CAB-16	Downtown Huntington Streetscaping Improvements, Phases 2-5	1
CAB-17	Improve Fifth Street (WV 527) from I-64 to Eighth Avenue in Huntington.	3
CAB-18A	Intersection enhancements and truck pull-out lanes on WV 2 from Huntington to Point Pleasant.	2

Project Number	Description	Priority Tier
CAB-18B	Widen WV to a four-lane divided roadway from Huntington to Point Pleasant.	3
CAB-19	Replace the Fifth Street West Bridge over Fourpole Creek.	2
CAB-21	14th Street West bike route from levee to Memorial Boulevard.	1
CAB-22	Intersection safety improvements at Adams Avenue (US 60) and 19th Street West.	1
CAB-24	Retrofit 20th Street as a complete, livable street from Third Avenue to 12th Avenue.	3
CAB-25	Improve College Avenue/Martha Road (CR 30/2) from Squire Valley Road to Main Street in Barboursville	3
CAB-26A	Washington Boulevard and Midland Trail (US 60) Intersection Safety Improvements.	2
CAB-28	Widen WV 10 to a four-lane divided roadway with wide shoulders from Melissa Road to Salt Rock.	3
CAB-29	Ohio River Bridge Crossing	3
CAB-30	Improve WV 152 from Wood Lane to Skyview Drive	3
CAB-31	Streetscaping improvements on Buffington Street from the flood wall to CSX rail and Fifth Avenue from WV 106 to Buffington Street in Guyandotte.	3
CAB-32A	Washington Avenue (US 60) and W 17th Street (US 52) Safety Improvements	2
WAY-01	Oak Street (US 60) and 21st Street Intersection Safety Improvements	2
WAY-02	WV 152 and WV 75 Intersection Safety Improvements	1
WAY-03	Eighth Street (CR 11) and Fifth Street Road (WV 152) Connector Intersection Safety Improvements	2
WAY-04	Spring Valley Drive and Goodwill Road Intersection Safety Improvements	2
WAY-05	Widen Centerville-Prichard Road and Lynn Creek Road from Prichard to Lavalette in Wayne County, West Virginia.	3
WAY-06	Widen Spring Valley Drive to a 3-lane roadway with a two-way left-turn lane from WV 75 to I-64 in Wayne County, West Virginia.	3
WAY-07	Spring Valley Drive Connector - Construct new two-lane roadway with wide shoulders from Sherwood Drive to I-64 in Wayne County, West Virginia	3
WAY-08	Widen US 52 to four-lane divided highway from Kermit to Hubbardstown.	3
WAY-09	Widen Docks Creek Road to a four-lane divided roadway from US 52 to WV 75.	3
WAY-10	Widen Darling Lane to a four-lane divided roadway from WV 75 to the Tri-State Airport.	2
WAY-11	Widen WV 152 to a four-lane divided roadway with bike lanes from Lavalette to Huntington.	3
WAY-12	Widen WV 152 to a four-lane divided (where feasible) roadway with wide shoulders from Wayne to Lavalette.	3
WAY-13	Widen Walkers Branch Road to a four-lane divided (where feasible) roadway from Walkers Branch Road Bridge to I-64 in Ceredo.	3

Project Number	Description	Priority Tier
WAY-14	Realign the access road to the Tri-State Airport and provide a new parking structure.	3
WAY-15	Beech Fork Lake Lodge access road	3
WAY-16	Beech Fork connector road	3
WAY-17	Widen Goodwill Road to a four-lane undivided roadway from Walkers Branch Road to Spring Valley Drive	3
WAY-18	Fifth Street Road (US 152) and Food Fair Plaza Intersection Safety Improvements	2
WAY-19	German Ridge Road and WV 152 Intersection Safety Improvements	1
WAY-20	Harvey Road Connector - Construct new access road between CR 9 and WV 152 beginning on CR 9 approximately 0.2 miles south of Heritage Farm.	2
WAY-21	WV 152 from Bloss Branch Road to Big Creek Road ("All Day Curve") Safety Improvements	2
WAY-22	WV 152 at German Ridge Hill Safety Improvements	2
WAY-23	WV 152 from CR 11 Access to Eighth Street Intersection Safety Improvements	2
WAY-24	WV 75 and Spring Valley Drive Intersection Safety Improvements	2

Table 8-3 – Boyd and Greenup Counties, KY Candidate MTP Projects

Project Number	Description	Priority Tier
BOY-01	Eliminate a conflict point on Winchester Avenue (US 23) near Blackburn Avenue and 42nd Street.	1
BOY-02	Reconstruct KY 716 from MP 0.0 (US 60) to MP .560 (KY 3293) to improve safety and decrease congestion.	1
BOY-03	Reconstruct the intersection of US 60 and Old 13th Street	1
BOY-04	Reconstruct intersection at KY 5 and KY 1458 to improve safety and mobility and to address geometrics.	1
BOY-05	Improve alignment of KY 766 with KY 1134	1
BOY-06	Improve intersection sight distance at South Belmont Street near Ashland	1
BOY-07	Improve operational efficiency and system connectivity on KY 3 beginning at PV 1215 to KY 180.	1
BOY-08	Improve width deficiencies from KY 773 to KY 854.	1
BOY-09	Improve operational efficiency on KY 168 from Hoods Creek Road to US 23.	1
BOY-10	Improve operational efficiency on Segment 2 of KY 168 from US 60 (MP 5.8) to Hood Creek Road (MP 7.4) in Ashland	1
BOY-11	Improve operational efficiency on KY 168 from KY 1012 to US 60.	2
BOY-12	Correct deficiencies on KY 1937 from KY 707 in Lawrence County to KY 3 at Mavity.	2

Project Number	Description	Priority Tier
BOY-13	Study congestion issues at US 23 and River Hill Drive and adjust signal timings and/or add turn lanes as needed.	3
BOY-14	Perform a corridor study and make improvements along US 23 between US 60 in Catlettsburg to KY 207 in Russell.	1
BOY-15	Improve safety along US-23X (Winchester Ave) from 14th to 18th St by replacing existing signalized intersections with mini roundabouts, reducing the Roadway from 4 lanes to 2 and installing angled back in parking.	1
BOY-16	Install solar LED "signal ahead" signs on US 23 and KY 168, replace signals with double reds and reflective backplates.	1
BOY-17	US 60 from SR 538 to bi-directional split. R-cut conversion between KY 538 to Rose Hill Cemetery (5.3 miles) and continuous two-way left-turn lanes from Rose Hill north.	1
BOY-18	US 60: Bi-directional split to county line (1 mile) safety improvements	1
BOY-19	I-64 Safety Improvements: county line to county line (10.7 miles), climbing lanes and additional ramp merge	3
BOY-20	SR 752 (Durbin Road): US 23 to SR 1937 (Bear Creek Road) widening and shoulder addition	3
BOY-21	I 64/US 23 interchange south of Catlettsburg. Optimize traffic signals and safety in interchange. 1. Optimize traffic signal timing 2. Interchange alternatives study	3
BOY-22	Construct intersection improvements at US 60 and Berry Street.	1
BOY-23	I-64/US 60 (29th Street) interchange improvements. Make right turn movement from I-64 eastbound to US 60 eastbound signal controlled. Reconstruct intersection to remove clover-leaf configuration and allow trucks greater acceleration and deceleration off tight curves.	3
BOY-24	Improve access management on 35th Street (west leg) approach to US 23 / US 60 intersection in Catlettsburg.	2
BOY-25	Remove raised median sections on Greenup Avenue between 12th Street and 32nd Street.	3
BOY-26	Construct a center turn lane, right turn lanes where needed, and replace three functionally obsolete bridges along US 60 between MP 2.0 (Princess Drive) to MP 4.02 at intersection with KY 180 and Cannonsburg Road.	3
BOY-28	Address deficiencies on the I-64 Perry Gentry bridges over the Big Sandy River.	1
BOY-29	Improve last mile roadway connections along US 23 (MP 19.5 to MP 20.9)	3
BOY-30	Improve last mile roadway connections along US 23 (MP 15.5 to MP 16.9)	3
BOY-31	Improve last mile roadway connections along US 23 (MP 9.1 to MP 11.2)	3
BOY-32	Install solar LED "signal ahead" signs on US 60, replace signals with double reds, add reflective backplates, close Marathon's entrance closest to intersection	3
BOY-33	Construct intersection improvements at KY 5 and US 23 including turn lanes on KY 5 approach.	3
BOY-34	Realign US 23/US 23X intersection for better sight distance, shifting Eighth Street/Greenup Avenue as needed.	3
BOY-35	Remove concrete median and construct two-way left-turn lane beginning at Palmer Street to McKinley Street at US 60 divergence point.	3

Project Number	Description	Priority Tier
BOY-36	Safety improvements US 60 60/13th Street from KY 168 to Algonquin Avenue	1
BOY-37	Lexington Avenue (CS 2492) at 12th Street and 13th Street (US 60) safety improvements	3
BOY-38	Safety improvements at US 60 and Summitt Road	3
BOY-39	Construct shared-use path (SUP) along US 23/US 60 from Railroad Avenue to Center Street	2
BOY-40	Reconstruct KY 168 and US 23 intersection with pedestrian signal; upgraded sidewalk ramp to pedestrian tunnel under rail tracks to Catlettsburg.	2
BOY-41	Establish shared-use path connection along US 23 between Boyd and Greenup Counties	3
BOY-43	US 23 from 15th Street to 16th Street: Install bulb-outs and/or crosswalk to shorten distance and reduce pedestrian exposure to traffic.	1
BOY-44	Intersection safety improvements along Central Avenue (CS 2350) from MP 1.0 to MP 1.7	1
BOY-45	15th Street from Lexington Avenue to Riverfront Park: Add minimum four-foot bike lane where feasible, add sharrows between bike lane segments.	1
BOY-46	29th Street from Greenup Avenue to Blackburn Avenue: Paint four-foot (minimum) bike lanes between Holt Street and Newman Street; Paint sharrows and add signage between Newman Street and Greenup Avenue; Add bike lanes in conjunction with 29th Street expansion between Herman and Belmont streets; Reconstruct intersection to better accommodate pedestrians and bicyclists using design best practices	1
BOY-49	Intersection safety improvements at Winchester Avenue and 12th Street	2
BOY-50	Dawes Street restoration and rehabilitation from Beech Street to Blackburn Avenue to safely accommodate pedestrian and bicycle traffic	1
GRE-01	Improve connectivity for truck/freight movement from the Greenup Riverport via KY 3105 to KY 67 (Industrial Parkway).	1
GRE-02	Reconstruct KY 1 to improve horizontal and vertical alignment deficiencies and improve clear zones. Correct sight distance and visibility on KY 1 near West Hollow Road. Construct left and right turn lanes at the entrance of Argillite Elementary School to provide safety and efficiency for school ingress.	1
GRE-03	Improve operational efficiency on KY 2541 at the junction with US 23	1
GRE-04	Reconstruct/repairs to KY 750 (Kenwood Drive) from Tower Road toward US 23 for .3 miles. Roadway needs minor repairs, resurfacing, and upgraded striping/thermo.	1
GRE-05	Improve sight distance through curve on KY 7 near Allen Church Road.	1
GRE-06	Rehabilitate KY 1458 between Boyd/Greenup County line and KY 693.	1
GRE-08	Reconstruct KY 7 from intersection with KY 827 to Rakes Mill Road. Reconstruct KY 7 from Rakes Mill Road to US 23 in South Shore. Reconstruct KY 7 from KY 2 to KY 827.	2
GRE-09	Improve Riverside Drive between the cities of Wurtland and Worthington.	2
GRE-10	Improve KY 244 between the cities of Raceland and Worthington to allow two-way traffic.	3

Project Number	Description	Priority Tier
GRE-11	Improve KY 750 from Pond Run to KY 207. Improve safety and operational efficiency of KY-750 from Pond Run (MP 0.37) to KY-207 (MP 1.595)	2
GRE-12	KY 693 at KY 1172 Operational Improvement	2
GRE-13	US-23 at Caroline Road Intersection Improvements	3
GRE-14	KY 5 at KY 1093 Intersection Improvements	1
GRE-15	KY 693 at KY 1725 Signage and Signal Improvements	1
GRE-16	KY 693 at US 23 Signage and Signal Improvements	1
GRE-17	Caroline Road approaching US-23 Intersection Improvements	2
GRE-18	KY 693 at Espy Lane Signage and Signal Improvements	1
GRE-19	Replace bridge on CS 1023 (MP 0.121) over Town Branch; 100' south Jct. KY 2541	3
GRE-20	US 23 Safety improvements from SR 67 to the county line	1
GRE-21	KY 207 Operational Improvements from MP 10.9 to MP 15.9	1
GRE-22	Reconstruct KY 2 from MP 13.2 to US 23 (MP 17.2)	2
GRE-23	KY 693 at KY 1172 intersection improvements	3
GRE-27	KY 67 safety improvements from MP 6.2 to MP 9.1	2
GRE-28	Improve last mile roadway connections along US 23 (MP 23.4 to MP 25.6)	3
GRE-29	Improve last mile roadway connections along US 23 (MP 0.0 to MP 1.7)	2
GRE-30	Improve last mile roadway connections along KY 67 (MP 1.1 to MP 1.4)	2
GRE-31	Improve last mile roadway connections along KY 67 (MP 0.2 to 0.8)	2
GRE-35	Study-Design from Lewis Greenup connector road connecting KY 8 to KY 10 at Scaffold Lick	2
GRE-36	Phase II - Lloyd sidewalk construction of 1,500 linear feet of 4-foot wide sidewalk along Ohio River Road.	1

Table 8-4 – Lawrence County, OH Candidate MTP Projects

Project Number	Description	Priority Tier
LAW-01	Chesapeake Bypass - Purchase right-of-way and construct the bypass, including portions with four lanes divided and two of the eventual four lanes, a roundabout, and an interchange at OH 775 between Chesapeake and Proctorville in Lawrence County, Ohio.	1
LAW-02	Construct interchange improvements at US 52 and OH 243 near South Point.	1
LAW-03	Construct interchange improvements at US 52 and Park Avenue (OH 93) in Ironton.	2

Project Number	Description	Priority Tier
LAW-04	Construct a new interchange on US 52 in the vicinity of Burlington-Macedonia Road (CR 120), adjacent access enhancements, and remove at-grade access at Wal-Mart Way (CR 410).	2
LAW-05	Construct a new interchange on US 52 in the vicinity of Sandusky Road (CR 276) and provide access to adjacent frontage roads and development.	2
LAW-06	Construct a new interchange on US 52 near Grandview Avenue.	2
LAW-07	Construct turn lanes at the US 52 and CR 15 intersection.	1
LAW-08	Construct Ohio approach ramps and interchange at OH 7 leading up to the Merritt's Creek crossing of the Ohio River, and provide a contribution toward construction of the bridge itself.	3
LAW-09	Close Vernon Street to auto traffic and construct improvements to make it a comfortable pedestrian environment between Bobby Bare Boulevard and S Seventh Street, and between S Ninth and S 10th streets.	1
LAW-10	Construct a trail connection between Ironton Gateway (S 9th and Vernon streets) and proposed Sports and Recreation Complex north of Ironton Hills Shopping Center.	2
LAW-11	Support efforts to construct a trail connection between Ironton and Vesuvius Lake, outside of the KYOVA MPO Boundary.	3
LAW-14	Interim intersection safety, congestion, and economic development improvements. Realign the intersection, implement safety improvements, and construct an access road south of US 52 to allow further development.	1
LAW-15	Interim Intersection Safety Improvements at the US 52 and Sandusky Road (CR 276) intersection	1
LAW-17	On Park Avenue (OH 93) from Second Street to Coryville Road construct intersection signal and traffic control optimization, safety, complete streets, ADA/sidewalk, and resurfacing improvements. See studies for full recommendations.	1
LAW-18	Lawrence Union Rome Trails and walkways Phase I. Proposed is the construction of a comprehensive trail system throughout the Union and Rome Township areas of Lawrence County, inclusive of the Village of Chesapeake and Proctorville, along with interconnections with other tri-state trail systems.	1
LAW-19	Construct a multimodal parking facility and garage adjacent to the Ironton Transit Center in downtown Ironton. Reconfigure streets around the transit center as needed to support its use.	2
LAW-20	Construct interchange safety and access improvements at the US 52 and CR 1A interchange west of Ironton.	2
LAW-21	Construct interchange safety and operational improvements at the US 52 and Campbell Drive (OH 141) intersection and adjacent intersections.	2
LAW-22	Improve ramp terminals and intersection capacity and safety where the 12th Street and 13th Street bridges intersect US 52.	2
LAW-23	Improve CR 410 from Old US 52 to US 52 in Burlington, Ohio. The project includes access management and restriping along CR 410.	2
LAW-26	Replace the Fifth Street bridge (SFN 4460057) within Ironton as part of the municipal bridge program.	1
LAW-27	Construct intersection safety and operation improvements along OH 775 corridor, including the intersections at OH 7 and State Street (CR 107), OH 7 and OH 775 (south, at bridge terminus), and OH 7 and Irene Road (CR 403).	2

Project Number	Description	Priority Tier
LAW-28	Close Bobby Bare Boulevard to auto traffic and provide pedestrian accommodations and connection to Vernon Street in Ironton.	1
LAW-29	On Center Street between Bobby Bare Boulevard and the east end of Center Street, replace existing pavement with brick, remove angled parking and lane markings, reduce speed limits, and install traffic calming, landscaping, and bike parking amongst other improvements.	2
LAW-30	Improve and extend a shared-use path along former railroad right-of-way from the Railroad Street Cycle Track to Ironton Hills Shopping Center.	2
LAW-31	Construct sidewalk with ADA compliant curb ramps and bike lanes along Solida Road from Fourth Street East (CR 1) east through the US 52 interchange.	2
LAW-32	Construct remaining portion of Chesapeake Bypass in Phases 1C and 2 to provide a four-lane divided facility, with interchanges at all access points between US 52 and the proposed Merritt's Creek Ohio River Crossing.	3

8.3 Additional Recommendations

Identified transportation needs currently exceed the anticipated availability of funding in the KYOVA region through 2050. Anticipating priorities for smaller projects such as filling in sidewalk gaps or implementing minor safety improvements in the outer years of the MTP horizon can be difficult. Also, priorities for these types of projects can quickly shift. For this reason, in addition to identifying specific candidate project recommendations, the MTP will also include recommendations for flexible funding that can be applied to specific types of projects in the mid-term and long-term (active transportation, signal and operations, and safety improvements).

Potential recommendations that could be implemented have been identified through a review of KYOVA's previous plans and studies, including the 2040 MTP, as well as stakeholder and public involvement conducted for this MTP update. These recommendations are listed in **Table 8-5** through **Table 8-7.**

There will likely not be adequate funding to construct all of the additional recommendations identified in, so it is recommended that KYOVA continue to review these lists as necessary when updating its TIP and MTP in the future.

Table 8-5 - Additional Cabell and Wayne County, WV Recommendations

Location	Description	Source
Cabell County Additional Safety Recommendations		
8th Avenue and 20th Street	Intersection safety improvements	Wayne and Cabell Counties Safety Study
5th Avenue and 29th Street	Intersection safety improvements	Wayne and Cabell Counties Safety Study
5th Avenue and 20th Street	Intersection safety improvements	Wayne and Cabell Counties Safety Study
First Street and Eighth Avenue	Intersection safety improvements	City of Huntington
Morris Memorial Road	Install curve warning signs and advisory speed plates.	Milton Traffic Mobility Study

Location	Description	Source
Norway Avenue from Norwood Road to Arlington Boulevard	Use pavement markings and surface-mounted delineators to better control traffic. Coordinate potential sidewalk/curb improvements with church at southeast corner; Add warning signs with advisory speed plaques for intersections and curves. Locate stop signs a minimum of 4 feet behind any pedestrian crossing; paint corresponding stop bars; Improve the crosswalk along Arlington Boulevard at Norway Avenue.	Arlington Park Mobility Study
Piedmont Road and Camden Road	Intersection safety improvements	City of Huntington
Saltwell Road	Supplement "No Trucks" sign with advance and/or additional signs. Add additional warning signs with advisory speed plaques for the horizontal reverse curves plus electronic speed minder signs with radar display. Add "radar enforced" plaques if allowable. Upgrade street lighting. Realign Saltwell Road by the cemetery to straighten horizontal reverse curve and provide sidewalk on east side. Fill missing sidewalk gaps from Sumner Avenue to Washington Boulevard on the west side. Fill missing sidewalk gaps from Norway Avenue to Sumner Avenue on the east side.	Arlington Park Mobility Study
Washington Boulevard and Parkway Drive	Intersection safety improvements	Arlington Park Mobility Study
Saltwell Road and Washington Boulevard	Intersection safety improvements	Arlington Park Mobility Study
12th Street and 13th Avenue	Intersection safety improvements including bicycle and pedestrian improvements.	City of Huntington
Cabell County Additional Active Transportation Recommendations		
Guyandotte River Bridge	Construct ADA-compliant crosswalks across Washington Boulevard and the west side of US 60; add sidewalk and curb along the east side of Washington from US 60 to Parkway Drive (to also prevent cut-through traffic at gas station).	Arlington Park Mobility Study
Eighth Street	Pavement marking and signage to provide bike lanes on Eighth Street from Veterans Memorial Boulevard to Ritter Park.	2040 MTP - Bike/Ped Chapter
Sixth Avenue	Bike lane markings and crosswalks on Sixth Avenue from W Fifth Street to 20th Street	2040 MTP - Bike/Ped Chapter
US 60	Construction of a shared-use pathway and a sidewalk along US 60	Barboursville and Milton Non-Motorized Transportation Plans
Veterans Memorial Boulevard	Bicycle and pedestrian improvements on Veterans Memorial Boulevard from David Harris Riverfront Park to W Third Street	2040 MTP - Bike/Ped Chapter

Location	Description	Source
1st, 8th, and 10th Streets	Crosswalks on north and south side of viaducts at 1st, 8th, and 10th Streets.	2040 MTP - Bike/Ped Chapter
Fifth Street West	Bike route on Fifth Street West to connect West End to existing paths at Memorial Park and Ritter Park	2040 MTP - Bike/Ped Chapter
Walkers Branch Road (WV 75)	Signed route from I-64 to Spring Valley Road via Walkers Branch Road and WV 75	2040 MTP - Bike/Ped Chapter
Washington Boulevard	Bike lane markings along Washington Boulevard from Hal Greer Boulevard to US 60	2040 MTP - Bike/Ped Chapter
Barboursville	Provide direct non-motorized connection between the Barboursville Village Center and the Tanyard Station development	Barboursville Non-Motorized Transportation Plan
US 60	Bike lane markings from Carson Street in Huntington to B Street in Ceredo to connect proposed PATH to existing bike routes in Ceredo/Kenova	2040 MTP - Bike/Ped Chapter
Woodmire Drive	Provide paved shared use pathway(s) to connect Woodmire Drive neighborhood off Stewart Street with middle school. There are currently paths worn in the grass reflecting actual pedestrian and bicycle travel to the school.	Milton Non-Motorized Transportation Plan
WV 2	Bike lane markings along WV 2 from Guyandotte to Big Ben Bowen Hwy (SR 193)	2040 MTP - Bike/Ped Chapter
Milton	Pedestrian Improvements from Downtown Milton to Pumpkin Park	Milton Non-Motorized Transportation Plan
W 14th Street and Memorial Boulevard	Construct sidewalks along the west side of W 14th Street and south of the intersection to connect the existing sidewalk north of the study intersection to the PATH south of the study intersection. To provide a safe crossing at Memorial Boulevard for pedestrians, the concept includes installation of high-visibility crosswalks across the southbound slip lane and across the west leg of the intersection, as well as construction of a pedestrian refuge island along the southbound slip lane.	Huntington Strategic Non-Motorized Connections Study
24th Street	24th Street bicycle/pedestrian improvements from Oley Street to Fifth Avenue. Improvements include pavement markings and signs to improve connection to Marshall University and Huntington Hospital.	2040 MTP Bike/Ped Chapter
31st Street	Install bicycle lanes on both sides of 31st Street from 3rd Avenue to 5th Avenue. Install new high-visibility crosswalks across all legs of the intersections of 31st Street with 4th Avenue and 4th Avenue.	Huntington Strategic Non-Motorized Connections Study
Guyandotte River Bridge	Provide bicycle path on railroad bridge over Guyandotte River	2040 MTP Bike/Ped Chapter
Adams Avenue and Washington Avenue	Multimodal and safety improvements on Adams Avenue and Washington Avenues in the West End	City of Huntington
Dailey Lane	Install sidewalks or shared use path to connect to shopping center on Dailey Lane and Joy Lane.	Milton Non-Motorized Transportation Plan

Location	Description	Source
First Street	Retrofit 1st Street as a complete, livable street from 3rd Avenue to 12th Avenue.	2040 MTP Bike/Ped Chapter; Huntington Street Flooding Mitigation Plan
Fourth Avenue	Bike lane markings on Fourth Avenue from W First Street to 16th Street	2040 MTP Bike/Ped Chapter
I-64 Exit 8	Bicycle network improvements - signage, pavement markings, transition improvements (no new facilities)	Exit 8/I-64 Mixed Use Development and Traffic Mobility Study
Madison Avenue	Provide multimodal facilities on Madison Avenue from 21st Street West to Carson Street.	2040 MTP Bike/Ped Chapter; Huntington Strategic Non-Motorized Connections Study
Jackson Avenue	Provide multimodal connection on Jackson Avenue under US 52.	2040 MTP Bike/Ped Chapter
Mason Street	Install sidewalks on Mason Street and Pike Street to aid children in walking to school.	Milton Non-Motorized Transportation Plan
Merrick Creek Road	Signed bike route to connect WV 2 to Barboursville	2040 MTP Bike/Ped Chapter
Barboursville and Milton	Signed bike route along US 60 from Barboursville to Milton to connect to the Charleston to Huntington Greenway in Milton	2040 MTP Bike/Ped Chapter
Huntington and Barboursville	Bike lane markings on US 60 from Washington Boulevard to Barboursville to connect proposed PATH to Barboursville	2040 MTP Bike/Ped Chapter
Ninth Avenue	Provide bike route on Ninth Avenue from Eighth Street to 20th Street	2040 MTP Bike/Ped Chapter
Riverside Drive	Signed bike route along Riverside Drive from Washington Boulevard to Guyan River Road	2040 MTP Bike/Ped Chapter
Saltwell Road	Pedestrian and safety improvements from Washington Boulevard to Norway Avenue	Arlington Park Mobility Study
Seventh Avenue	Bike lane markings from W Fifth Street to 20th Street as part of PATH	2040 MTP Bike/Ped Chapter
Highlawn Neighborhood – US 60 from Third to Fifth Avenue; 29th Street from Sixth to Merrill Avenue; and 26th Street from Fifth to First Avenue	Conduct study to improve pedestrian connectivity and safety in the Highlawn Neighborhood of Huntington	Highlawn Community Alliance
Madison Avenue	Construct green street with bicycle and pedestrian facilities on Mason Avenue from 15th Street West to 13th Street West in Huntington	Resilient by Design Huntington Charette Final Report
Abandoned CSX rail line in Huntington	Construct PATH connection along the rail line that is being abandoned in Huntington from CSX (from around 1st to 24th street along the floodwall)	City of Huntington
Harveytown Trail	Construct PATH connection from Harveytown trail west to Animal Shelter along James River Road	City of Huntington
Levee Bridge	Provide PATH connection along levee bridge from 28th Street West to 31st Street West (multiuse trail)	City of Huntington

Location	Description	Source
US 60 from 16th Street to 1st Street	US 60 Corridor Management Plan considering complete streets elements and how corridor interacts with Huntington neighborhoods	City of Huntington
US 60 from 1st Street to Camden Park	US 60 Corridor Management Plan considering complete streets elements and how corridor interacts with Huntington neighborhoods	City of Huntington
Wayne County Additional Safety Recommendations		
Court Street and US 52	Intersection safety improvements	Wayne and Cabell Counties Safety Study
Waverly Road and Camden Road/Auburn Road	Intersection safety improvements	Wayne and Cabell Counties Safety Study
Waverly Road (US 60) and Carson Street	Intersection safety improvements	Wayne and Cabell Counties Safety Study
Waverly Road (US 60) and Burlington Road	Intersection safety improvements	Wayne and Cabell Counties Safety Study
Wayne County Additional Active Transportation Recommendations		
WV 152	Bike lane markings along WV 152 from I-64 to Lavalette.	2040 MTP Bike/Ped Chapter
Harvey Road	Multi-use trail along Harvey Road from Johnstown Road to German Ridge Road (CR 6) to Orchard Drive (CR 6) at WV 152	2040 MTP Bike/Ped Chapter
Wayne County	Signed route from Huntington via Spring Valley Road (CR 7), WV 75, WV 152, CR 43, WV 10, and Davis Creek Road.	2040 MTP Bike/Ped Chapter

Table 8-6 – Additional Boyd and Greenup County, KY Recommendations

Location	Description	Source
Greenup County Additional Safety Recommendations		
US 23	Establish shared-use path connection along US 23 between Boyd and Greenup Counties	2040 MTP Bike/Ped Chapter
EK Bikeway	Add bike route signage along popular EK Bikeway route to Greenbo Lake State Resort Park	2040 MTP Bike/Ped Chapter
Riverside Boulevard	Reconstruct shoulder of Riverside Boulevard to add bike lanes between Worthington and Russell; add official bike signage along EK bikeway route between Wurtland and Worthington.	2040 MTP Bike/Ped Chapter
Route 503 and US 23	Reconstruct Route 503 and US 23 intersection with tighter turning radii; add bike crossing push button (coordinate with future signal implementation)	2040 MTP Bike/Ped Chapter
EK Bikeway	Add bike route signage along popular EK Bikeway route between Raceland to Wurtland	2040 MTP Bike/Ped Chapter
Russell High School	Pedestrian and bicycle improvements around Russell High School. Construct contiguous sidewalk on one side of	2040 MTP Bike/Ped Chapter

Location	Description	Source
	corridor; implement bike route signage between US Highway 23 and Russell High School.	
Kenwood Drive and US 23	Add rectangular rapid flash beacon (RRFB) signal; upgrade sidewalks; construct ADA ramps and continental crosswalk across US 23	2040 MTP Bike/Ped Chapter
Greenup County Additional Operations and Signal Improvements Recommendations		
KY 693 and KY 207	Check warrant to convert intersection to all-way stop.	Greenup Boyd Freight Plan

Table 8-7 – Additional Lawrence County, OH Recommendations

Location	Description	Source
Lawrence County Additional Safety Recommendations		
SR 7 and CR 15	Intersection safety improvements	2040 MTP
SR 7 and SR 243	Intersection operations and safety improvements	2040 MTP, Lawrence County Crash Analysis
SR 7 and Willow Street	Intersection safety improvements	Lawrence County Crash Analysis
SR 7 and Eaton Road/Elm Street	Intersection safety improvements	Lawrence County Crash Analysis
Railroad Street and North Fourth Street	Intersection safety improvements	Lawrence County Crash Analysis
State Street and Irene Road	Intersection safety improvements	Lawrence County Crash Analysis
State Street/Market Street and Cedar Street	Intersection safety improvements	Lawrence County Crash Analysis
Market Street and Demaria Street	Intersection safety improvements	Lawrence County Crash Analysis
Lorain Street and South Third Street	Intersection safety improvements	Lawrence County Crash Analysis
Jefferson Street and Davidson Street	Intersection safety improvements	Lawrence County Crash Analysis
Jefferson Street and Court Street	Intersection safety improvements	Lawrence County Crash Analysis
Old US 52 and Grandview Avenue	Intersection safety improvements	Lawrence County Crash Analysis
CR 1 and Nancy Street/Harbour Drive	Intersection safety improvements	Lawrence County Crash Analysis
Lawrence County Additional Operations Recommendations		
US 52 and Third Street (SR 7/CR 1)	Intersection operations improvements	KYOVA 2040 MTP

8.4 Transit

Chapter 6 outlined the transit systems and services available within the KYOVA planning area and identified transit system needs. The transit system needs were identified through a review of transit studies prepared for the region, a review of public survey data, and stakeholder input provided through the Diversity, Equity, and Inclusion Focus Group. These needs were then reviewed and discussed with the MTP Advisory Group, which included representatives from the various transit providers in the region, to identify the recommendations included in this section.

8.4.1 Service Improvements

Improve Regional Transportation Connections

As of February 2022, LCT's four routes operate primarily in Ohio and Kentucky; however, Route 2 provides weekday service to the TTA Transit Center and Marshall University. The Ashland Bus System (ABS) operates five fixed routes in Ashland, Catlettsburg, and Summit, Kentucky. All five routes begin and end service at the Ashland Transportation Center, located on Front Street in downtown Ashland. Additionally, LCT's Route 1 provides service to/from the Ashland Transit Center between 7:00 AM and 5:30 PM on weekdays.

To improve regional connectivity, TTA and ABS should study the impact of a regional weekday commuter route, operating peak-period service between the Ashland Transit Center and the TTA Center. The route should be timed to provide passengers with an adequate window to transfer to LCT Route 1. Another recommendation for improving regional transportation connections is to continue coordination between the three service providers to align schedules as much as possible at the major transfer points between the different operators.

Increase TTA Service Frequency

Most TTA routes have a frequency of 60 or more minutes, save for the Marshall Shuttle which has a frequency of 20-30 minutes. The TTA Transit Impact Study notes that routes operating less than twice per hour are perceived as inconvenient by the public. The Transit Impact Study recommended that, if additional resources become available, the agency should work towards offering more routes twice per hour, prioritizing Routes 5 and 6 first and Routes 1, 2, and Route 8 second.

Improve Transit Access and Amenities

Transit service is an important link in a multimodal transportation system that includes pedestrians, bicyclists, motorists, and transit users. Passenger amenities, such as bus shelters, bus pull-offs, lighting, bicycle racks, and sidewalks should be planned in a way that supports multimodal corridors. Transit can provide a vital connection that makes walking and cycling an integral part of multimodal trips and allows non-motorized travel to become more than a recreational activity. Likewise, as walking and biking facilities are improved, transit becomes a more viable option for travel. TTA should identify high usage bus stops that would be appropriate for enhanced features, including shelters.

Restructure ABS Routes

Several of the routes within Boyd and Greenup Counties are fairly circuitous. This makes it challenging for anyone who is less familiar with the system to feel comfortable riding it, since it is not clear where the route travels. The routes in Boyd and Greenup Counties also operate in one-way loops. This service makes it challenging for those that are traveling a shorter distance in the opposite direction to that of the route. As resources are available, restructure routes to be more direct and minimize deviations. If loop route structures cannot be avoided, add bi-directional service so that customers can reach their destinations more efficiently.

Expand Transit Service in Greenup and Boyd Counties

The 2017 Boyd and Greenup Counties Transit Study stated that there are areas within Boyd and Greenup Counties that have high demand potential

for transit riders. The plan also identified the following short-term, mid-term, and long-term service expansion recommendations:

- Short-term - Extend service to the Raceland, Flatwoods, and Russell area.
- Mid-term – Consider service from South Shore, connecting through Greenup and Ashland.
- Long-term – Provide north-south connections along KY 5, KY 67, and KY 1.

Innovative Demand Response Service

Traditional fixed route transit service can be difficult and prohibitively expensive to operate in lower density areas. Often, demand-response service is utilized instead to serve these areas. As discussed in **Chapter 6**, demand-response transportation services are currently provided by TTA, LCT, and ABS as well as several human service agencies in the KYOVA planning area.

The TTA Transit Impact Study recommended continuing to explore innovative approaches to providing demand response service, such as through partnerships with Transportation Network Companies (TNCs) such as Uber and Lyft. TNCs connect privately operated vehicles with passengers using smartphone applications. The TTA Transit Impact Study noted that some cities and transit agencies have begun subsidizing specific TNC trip types, such as late-night service, or first/last mile connections to and from fixed-route transit hubs. These subsidies can make TNC trip costs comparable to transit fares.

The study also noted the following benefits and potential barriers of partnering with TNCs:

- The transit agency would only be responsible for subsidizing trips that occur.
- The transit agency would not be responsible for the procurement and maintenance of additional vehicles, or for the salaries and benefits of drivers.
- Subsidized TNC service could be explored as a precursor to fixed-route service expansion in growing areas, testing out demand for transit service before committing to the substantial capital and operational expenses associated with expanded fixed-route service.
- Regulatory requirements related to vetting TNC drivers and ensuring that adequate numbers of drivers exist to handle the demand for trips.

The application of this recommendation is limited to areas where TNCs are currently operating and the Transit Impact Study recommendations were developed specifically for TTA. However, as TNCs expand into more communities, innovative demand response service could be explored as a way to efficiently provide additional service in other parts of the KYOVA planning area.

8.4.2 Management Improvements

Continue and Expand Coordination Between Transit Providers

The local coordinated transportation committee meets regularly to discuss potential Section 5310 Program grant applications, cost allocation strategies, and other relevant topics. This committee could provide the forum for implementing the improved regional transit connections recommended under service improvements earlier in this chapter. Also, as recommended in the KYOVA 2019 Coordinated Public Transit-Human Services Transportation Plan (Coordinated Plan), expanding the committee to include more non-profit, for profit, faith-based, and public organizations could help identify additional opportunities for cost savings, trip-sharing, and addressing service gaps in the region.

Improve Information Sharing with the Public

With so many service providers in the region, it can be challenging for people to know where to start when trip planning. Trips that involve transferring from one system to another are even more complicated. The Coordinated Plan recommends a two-phase strategy to help improve access to information about available transit services in the

region. Phase 1 includes development of a Ride Guide that includes information about all public, private, and non-profit transportation resources in the region. Phase 2 recommends development of a One-Call/One Click application or call center for coordinating ride sharing and multi-county trips. Ultimately, the goal would be to allow passengers to schedule trips through the application or call center. Trip scheduling could involve multiple modes of transportation (e.g., transit, ride-sharing, bike-share) as well as partnerships between public, private and non-profit transportation operators.

In addition to the information sharing strategy identified in the Coordinate Plan, it is recommended that transit providers in the KYOVA region share their General Transit Feed Specification (GTFS) detailing the stop, alignment, and schedule information of their routes with Google to allow passengers to find potential transit options and plan trips via Google Maps.

8.5 Planning Strategies

Additional planning or policy solutions may be required to address some of the needs identified during the development of the KYOVA 2050 MTP. The planning strategies described in this section are intended to help guide KYOVA's planning efforts during the five-year period until the next MTP update. Information about leadership, potential partners, next steps, and recommended timeframes for implementation are provided for each strategy.

8.5.1 Transportation Demand Management

KYOVA is well-positioned to bring together a number of stakeholders, both public and private, to discuss potential strategies for Transportation Demand Management (TDM). TDM strategies aim to reduce and/or redistribute trips in order to reduce overall congestion, reduce peak period congestion, and address environmental and public health objectives related to air quality and active transportation. Providing the region's workforce with more transportation options, such as carpooling, vanpooling, and ride-matching, would help to alleviate congestion and supplement the transit system. In addition to expanding rideshare options in the region, KYOVA could facilitate a regional conversation and provide guidance on additional TDM strategies such as transit incentives, flexible/compressed work weeks, or telecommuting.

Leadership: KYOVA

Potential Partners: Local communities, Marshall University, private employers

Next Steps: Establish regional TDM working group

Timeframe: Rideshare Expansion - Begin 2022; Regional TDM Strategies – Begin 2023

8.5.2 Public Transit Local Funding Strategy

The Coordinated Plan highlights limited funding as one of the most significant barriers to expanding services in the region. This is consistent with stakeholder input that was provided during the development of the KYOVA 2050 MTP. The Coordinated Plan goes on to outline a strategy to educate local and state officials, businesses, and agencies about the true cost of transportation and the need for additional operating assistance in the Region.

Leadership: Local Coordinated Transportation Committee

Potential Partners: TTA, LCT, ABS, KYOVA

Next Steps: The Coordinated Plan identified the following five action items to implement this strategy:

- Work to lift the cap on FTA Section 5307 funding – Solicit State Public Transit Associations for assistance.
- Solicit economic development assistance for employee transportation services.

- Solicit for dedicated transit funding.
- Investigate Green Grants for Bicycle Rental, Golf Cart Rental, Car Charging, and Park-and-Ride.
- Support the parking garage for LCT that will generate project income.

Timeframe: Begin 2022

8.5.3 Smart Transportation Working Group

Smart Transportation, also referred to as Intelligent Transportation Systems (ITS), are tools that promote mobility and safety by enhancing communications and collecting data among various transportation systems. Current examples of Smart Transportation applications in the region include computerized signal systems, dynamic message signs, CCTV monitoring, and incident management coordination. These tools can help manage traffic at intersections and provide roadway users with real-time information about weather, accidents, traffic, and anticipated travel times. In addition to considering current applications of Smart Transportation, the working group should also consider how the region can adapt and plan for emerging technology including electric vehicles, connected vehicles, autonomous vehicles, big data, drone technology, and growing e-commerce.

Leadership: KYOVA

Potential Partners: Local communities, WVDOT, KYTC, ODOT

Next Steps: Form Smart Transportation Working Group and develop a Regional Smart Transportation Plan with goals and objectives for technology adoption and promotion.

Timeframe: Begin 2023

8.5.4 Local Funding Guidance

Form a Local Funding Working Group to develop guidance to increase knowledge on local transportation funding sources in the region. The guidance should consider new opportunities for funding made available through the recent federal Bipartisan Infrastructure Law as well as strategies for identifying local funding matches required to draw down federal funds. The working group should include representatives from local agency representatives, elected officials, interested citizens, and public finance experts.

Leadership: KYOVA

Potential Partners: Local communities, WVDOT, KYTC, ODOT

Next Steps: Establish working group

Timeframe: Begin 2022

8.5.5 Transportation Resiliency Planning

The FAST Act required MPO's to consider resiliency in the long-range transportation planning process. This emphasis has since been reiterated and strengthened under the BIL, which directs $50 billion in federal funds toward making our nation's infrastructure more resilient against droughts, heat, and floods. In addition to supporting applicable statewide resiliency planning efforts led by WVDOT, KYTC, and ODOT, this strategy recommends development of a regional Transportation Resiliency Plan that will identify capital investments and other strategies to reduce the vulnerability of the KYOVA region's existing transportation infrastructure to natural disasters.

Leadership: KYOVA

Potential Partners: Local communities, WVDOT, KYTC, ODOT, FHWA, EPA, FTA

Next Steps: Establish working group

Timeframe: Begin 2022

9.0 Financial Plan

In accordance with both state and federal requirements, the KYOVA 2050 MTP is a fiscally constrained plan. The purpose of fiscal constraint in a long-range transportation plan is to demonstrate how projects that have been recommended and prioritized can be realistically implemented by the plan's horizon year. A fiscally constrained plan allows KYOVA, member jurisdictions, and supporting agencies to focus on near-term opportunities while also conducting preliminary project development activities necessary to continue advancing longer-term projects.

This chapter provides an overview of revenue assumptions and project cost estimates. Since this is a planning level funding exercise, all funding programs, projects, and assumptions will have to be reevaluated in subsequent plan updates.

9.1 Revenue Forecasts

Revenue forecasts were developed after a review of previous state and local expenditures, current funding trends, and likely future funding levels. The revenue forecasts involved consultation with KYOVA, WVDOT, KYTC, ODOT, TTA, Ashland Bus System, and LCPA.

9.1.1 Implementation Phases

The financial plan shows the proposed investment over the life of the plan that are reasonably anticipated based on future revenues over a series of funding periods. The funding periods for KYOVA 2050 are as follows:

- Phase 1 (Short-Term) – FY 2022 – 2029
- Phase 2 (Mid-Term) – FY 2030 – 2040
- Phase 3 (Long-Term) – FY 2041 – 2050

The Phase I period includes the committed projects from the KYOVA TIP and the WV, KY, and OH state TIPs. The Phase I period also includes improvement projects that would be considered during the next TIP update cycle, through FY 2029.

9.1.2 Anticipated Funding

Tables 9-1 through **9-3** reflect the forecasted revenues for the KYOVA based on current funding sources. Revenues reflect 2022 dollars. An estimated $203 million, $839 million, and $425 million will be available for improvements (capacity, safety, operations, bicycle, and pedestrian) within the West Virginia, Kentucky, and Ohio portions of the KYOVA area, respectively, in the funded plan.

WVDOT, KYTC, and ODOT place an emphasis on maintaining the existing transportation system. Based on unique factors within each state related to the age and condition of existing infrastructure, each state sets aside a portion of the total anticipated funding to be dedicated to maintenance. Maintenance funding in the KYOVA region primarily is used for roadway maintenance and paving of dirt roads, though pedestrian and bicycle facilities also are maintained with these funds. Based on current projections, estimated funding anticipated to be available for maintenance is approximately $966 million for Cabell and Wayne Counties, $388 million for Boyd and Greenup Counties, and $142 million in Lawrence County. The maintenance costs generated annually are assumed to equal the maintenance revenue available.

Based on current projections, estimated funding anticipated to be available for transit capital expenditures is $57 million in West Virginia (TTA), $17 million in Kentucky (ABS), and $11 million in Ohio (LCT). Estimated funding anticipated to be available for transit operations is $57 million in West Virginia (TTA), $27 million in Kentucky (ABS), and $31 million in Ohio (LCT).

The total estimated funding anticipated to be available through the 2050 horizon year is approximately $1.3 billion for Cabell and Wayne Counties, $1.3 billion for Boyd and Greenup Counties, and $609 million for Lawrence County.

Table 9-1 – West Virginia Revenue Forecast

Funding Period	Transportation Improvements	Maintenance	Transit Capital	Transit Operations	Total
1 (2022 – 2029)	$56,008,000	$266,360,000	$18,464,000	$15,672,000	$356,504,000
2 (2030 – 2040)	$77,011,000	$366,245,000	$25,388,000	$21,549,000	$490,193,000
3 (2041 – 2050)	$70,010,000	$332,950,000	$23,080,000	$19,590,000	$445,630,000
Total	**$203,029,000**	**$965,555,000**	**$56,786,000**	**$56,811,000**	**$1,282,181,000**

Table 9-2 - Kentucky Revenue Forecast

Funding Period	Transportation Improvements	Maintenance	Transit Capital	Transit Operations	Total
1 (2022 – 2029)	$234,811,000	$106,994,912	$4,816,000	$7,384,000	$354,005,912
2 (2030 – 2040)	$318,733,000	$147,118,004	$6,622,000	$10,153,000	$482,626,004
3 (2041 – 2050)	$285,491,000	$133,743,640	$6,020,000	$9,230,000	$434,484,640
Total	**$839,035,000**	**$387,856,556**	**$17,458,000**	**$26,767,000**	**$1,271,116,556**

Table 9-3 - Ohio Revenue Forecast

Funding Period	Transportation Improvements	Maintenance	Transit Capital	Transit Operations	Total
1 (2022 – 2029)	$117,111,000	$39,037,000	$5,360,000	$3,088,000	$164,596,000
2 (2030 – 2040)	$161,353,500	$53,784,500	$7,370,000	$4,246,000	$226,754,000
3 (2041 – 2050)	$146,685,000	$48,895,000	$6,700,000	$3,860,000	$206,140,000
Total	**$425,149,500**	**$141,716,500**	**$11,194,000**	**$30,595,000**	**$608,655,000**

9.2 Fiscal Constraint

Once the funding levels have been established, the next step is to consider what projects can be implemented within the three phases of the plan. To do this, recommendations and prioritization shown in **Chapter 8** have been consulted. While it would be ideal to implement all of these projects, only a portion can be accommodated in the funded plan. As a result, higher priority tier projects (Tier 1 and 2) were considered for implementation prior to lower Tier 3 projects. Projects that cannot be funded within the 2050 fiscally constrained plan are considered aspirational and are included as part of the Vision Plan for the region. If additional funding becomes available, these projects can be reviewed and considered for incorporation in the future MTP updates or programmed into future TIP updates.

All dollar figures discussed in this section initially were analyzed in current year dollars and then inflated to reflect projected year of funding or implementation. With fluctuations in construction costs and inflation in general, determining year of expenditure costs ten or twenty years in advance is challenging. Due to the imprecise nature of this exercise, project cost estimates are inflated to the midpoint of each implementation phase. This rationale assumes that some of the projects within the phase would be implemented prior to the midpoint year and some after, resulting in the total

expenditure in that phase balancing out over the period. Based on current national standards and applicable local forecasts, an annual inflation rate of 4% was used to forecast costs and revenues for KYOVA projects. **Tables 9-4**, **9-5,** and **9-6** list the recommended Phase 1, Phase 2, and Phase 3 fiscally constrained projects. Additional information about each of the fiscally constrained projects can be found on the Project Sheets in **Appendix C. Table 9-7** shows the relationship between the anticipated revenues and project costs included in the fiscally constrained plan and **Table 9-8** lists the Vision Plan projects.

The map displayed in **Figure 9-1** shows the projects organized by funding horizon year. **Figure 9-2** shows the projected congestion in the KYOVA area by the 2050 MTP horizon year with all of the financially constrained projects in place. The cost of unfunded roadway improvement projects (referred to as the Vision Plan) is $2.5 billion for the KYOVA planning area.

9.2.1 Bicycle and Transportation Improvements

Bicycle and pedestrian improvements are primarily funded utilizing state and federal funding. These funding sources have historically included the Transportation Alternatives Program (TAP), National Recreational Trails (NRT), Highway Safety Improvement Program (HSIP), and other state and federal funding sources.

The revenue projections provided by WVDOT, KYTC, and ODOT considered these funding sources in the review of historic funding levels that was used to determine anticipated future funding. For this reason, separate forecasts were not developed for bicycle and pedestrian revenues for the 2050 MTP. Instead, it is assumed that a portion of the overall funding available for improvements will be directed specifically to bicycle and pedestrian improvements. To achieve this, standalone bicycle and pedestrian improvement projects are recommended in the fiscally constrained plan and several of the fiscally constrained roadway projects also incorporate multimodal improvements where applicable and appropriate.

9.2.2 Transit

Unlike the bicycle and pedestrian funding levels, anticipated transit revenues are not accounted for in the revenue projections provided by WVDOT, KYTC, and ODOT. For this reason, transit funding and costs are broken out and shown separately. **Tables 9-9, 9-10, and 9-11** reflect the proposed costs and revenues for transit capital and operations in the KYOVA planning area.

The desired fleet expansion and replacement schedule currently outpaces the revenues available. As a result, transit capital costs are assumed equal to available revenue levels. Transit operations funds are anticipated to increase with inflation. Over the planning period, a total of $104 million in maintenance and operations costs are assumed for the TTA system, $49 million for ABS, and $20 million for LCPA.

Table 9-4 – Phase 1 Project Recommendations (FY 2022 - 2029)

ID	Description	Project Cost (in 2025$)
West Virginia Phase 1 Projects		
CAB-04	Third and Fifth Avenue Complete Streets	$13,000,000
CAB-05	Downtown Huntington Streetscaping Improvements, Part 1	$12,000,000
CAB-09	Hal Greer Boulevard Complete Street - Third Avenue to Washington Boulevard	$11,000,000
CAB-11	Construct a new interchange at I-64 and Benedict Road (CR 60/21) in Culloden, WV	$37,000,000*
CAB-16	Downtown Huntington Streetscaping Improvements, Part 2	$10,700,000
CAB-19	Replace the Fifth Street West Bridge over Fourpole Creek	$1,200,000
CAB-21	PATH Connections - 14th Street West	$110,000
CAB-22	Safety improvements at Adams Avenue and West 19th Street	$190,000
WAY-02	WV 152 and WV 75 intersection safety improvements.	$370,000
WAY-08A	Design, environmental clearance, and right-of-way acquisition for US 52 widening to four lanes from Kermit to Hubbardstown.	$2,000,000
WAY-19	Intersection safety improvements at German Ridge Road and WV 152.	$200,000
Total West Virginia Phase 1 Project Costs *Note: CAB-11 is 100% funded with WV General Obligation (GO) Bonds and not reflected in the WV Phase I total for MTP fiscal constraint purposes.		**$50,770,000**
Kentucky Phase 1 Projects		
BOY-01	Eliminate a conflict point on Winchester Avenue (US 23) near Blackburn Avenue and 42nd Street. This project will provide safety and operational improvements.	$2,800,000
BOY-02	Reconstruct KY 716 from MP 0.0 (US 60) to MP .560 (KY 3293) to improve safety and decrease congestion.	$15,000,000
BOY-03	Install a two-way left turn lane (TWTL) on US 60 from just south of Old 13th Street (CS 2232) to Cumberland Avenue to decrease the number/risk of rear-end crashes and backups.	$4,200,000
BOY-04	Reconstruct intersection at KY 5 and KY 1458 to improve safety and mobility and to address geometrics.	$8,500,000
BOY-05	Improve alignment of KY 766 with KY 1134 to improve safety and operations.	$4,900,000
BOY-06	Improve intersection sight distance at KY 168 and South Belmont Street near Ashland to improve safety.	$1,700,000
BOY-07	Improve operational efficiency and system connectivity on KY 3 from PV 1215 to KY 180.	$24,000,000
BOY-08	Improve KY 1945 from KY 773 to KY 854 to address width deficiencies and improve operations.	$40,000,000
BOY-09	Improve operational efficiency on KY 168 from Hoods Creek Road to US 23.	$7,900,000

ID	Description	Project Cost (in 2025$)
BOY-10	Improve operational efficiency on Segment 2 of KY 168 from US 60 (MP 5.8) to Hoods Creek Road (MP 7.4) in Ashland	$580,000
BOY-14	Perform a corridor study and make improvements along US 23 between US 60 in Catlettsburg to KY 207 in Russell.	$5,600,000
BOY-15	Improve Winchester Avenue (US 23 BUS) from 13th Street to 18th Street to provide enhanced pedestrian and bicycle facilities and downtown revitalization.	$4,700,000
BOY-16	Intersection safety improvements at US 23 and KY 168	$106,000
BOY-17	Safety and operational improvements on US 60 from SR 538 to bi-directional split	$9,300,000
BOY-18	Safety improvements on US 60 from the bi-directional split to the county line (1 mile).	$9,900,000
BOY-22	Intersection safety improvements at US 60 and Berry Street	$960,000
BOY-25	Remove raised median sections on Greenup Avenue (US-23) from MP 17.078 to MP 18.640 and add a continuous two way turn lane from 20th Street to 21st Street.	$530,000
BOY-28	Address deficiencies on the I-64 Perry Gentry bridges over the Big Sandy River.	$1,600,000
BOY-33	Intersection safety improvements at KY 5 and US 23	$1,600,000
BOY-34	Realign the US 23/US 23X intersection for better sight distance, shifting Eighth Street/Greenup Avenue as needed.	$8,300,000
BOY-35	Operations improvements on US 60 from Palmer Street to McKinley Street	$2,400,000
BOY-36	Intersection safety improvements at US 60 and KY 168	$5,500,000
BOY-40	Pedestrian safety and mobility improvements at KY 168 and US 23	$150,000
BOY-44	Safety improvements on Central Avenue (CS 2350) from 14th to 17th Street, at 22nd Street, and at 24th Street.	$130,000
BOY-45	Provide bicycle facilities on 15th Street from Lexington Avenue to Riverfront Park.	$43,000
BOY-46	Provide bicycle facilities on 29th Street from Greenup Avenue to Blackburn Avenue.	$43,000
BOY-49	Pedestrian safety improvements at intersection of Winchester Avenue and 12th Street.	$85,000
BOY-50	Dawes Street restoration and rehabilitation from Beech Street to Blackburn Avenue to safely accommodate pedestrian and bicycle traffic for safe routes to school in Ashland, KY.	$280,000
GRE-01	Improve connectivity for truck/freight movement from the Greenup Riverport via KY 3105 to KY 67 (Industrial Parkway).	$2,800,000
GRE-02	Reconstruct KY 1 to improve horizontal and vertical alignment deficiencies and improve clear zones.	$9,000,000
GRE-03	Improve operational efficiency on KY 2541 at the junction with US 23.	$1,600,000
GRE-04	Reconstruct/repairs to KY 750 (Kenwood Drive) from Tower Road toward US 23 for .3 miles.	$2,500,000
GRE-05	Improve sight distance through curve on KY 7 near Allen Church Road to improve safety.	$2,800,000

ID	Description	Project Cost (in 2025$)
GRE-06	Rehabilitate KY 1458 between Boyd/Greenup County line and KY 693 to improve the condition of the roadway.	$22,000,000
GRE-14	Intersection safety and operation improvements at KY 5 and KY 1093.	$24,000
GRE-15	KY 693 at KY 1725 signal improvements.	$110,000
GRE-16	Intersection improvements at KY 693 and US 23.	$47,000
GRE-18	Intersection safety and operation improvements at KY 693 and Espy Lane.	$35,000
GRE-20	US 23 safety improvements from SR 67 to the county line.	$5,300,000
GRE-21	Improve KY 207 from the Industrial Parkway to the KY 693 intersection in Flatwoods.	$2,000,000
GRE-22	Reconstruct KY 2 from MP 13.2 to US 23 (MP 17.2).	$47,000,000
GRE-36	Phase II - Lloyd sidewalk construction of 1,500 linear feet of 4-foot wide sidewalk along Ohio River Road to improve pedestrian mobility and safety.	$200,000
Total Kentucky Phase 1 Project Costs		**$256,223,000**
Ohio Phase 1 Projects		
LAW-01	Purchase right-of-way and construct Phase 2 of the Chesapeake Bypass, including portions with four lanes divided and two of the eventual four lanes, a roundabout, and an interchange at OH 775 between Chesapeake and Proctorville in Lawrence County, OH.	$97,000,000
LAW-02	Construct interchange improvements at US 52 and OH 243 near South Point.	$3,100,000
LAW-07	Construct turn lanes at the US 52 and CR 15 intersection to improve operations and safety.	$110,000
LAW-09	Close Vernon Street to auto traffic and construct improvements to make it a comfortable pedestrian environment between Bobby Bare Boulevard and South Seventh Street, and between South Ninth and South 10th streets.	$130,000
LAW-14	Interim intersection safety, congestion, and economic development improvements at the US 52 intersection with Charley Creek Road (CR 144).	$1,500,000
LAW-15	Interim intersection safety improvements at the US 52 and Sandusky Road (CR 276) intersection.	$710,000
LAW-17	On Park Avenue (OH 93) from Second Street to Coryville Road construct intersection signal and traffic control optimization, safety, complete streets, ADA/sidewalk, and resurfacing improvements.	$1,700,000
LAW-18	Lawrence Union Rome Trails and walkways Phase I.	$1,200,000
LAW-19	Construct a multimodal parking facility and garage adjacent to the Ironton Transit Center in downtown Ironton.	$12,000,000
LAW-26	Replace the Fifth Street bridge (SFN 4460057) within Ironton as part of the municipal bridge program.	$1,800,000
LAW-28	Close Bobby Bare Boulevard to auto traffic and provide pedestrian accommodations and connection to Vernon Street in Ironton.	$280,000
Total Ohio Phase 1 Project Costs		**$118,330,000**

Table 9-5 – Phase 2 Project Recommendations (FY 2030 - 2039)

ID	Description	Project Cost (in 2035$)
West Virginia Phase 2 Projects		
CAB-02	Intersection safety improvements at Eighth Avenue and 31st Street (US 60) in Huntington, WV.	$1,070,000
CAB-03	Eighth Avenue improvements from Hal Greer Boulevard to US 60	$33,000,000
CAB-06	Intersection safety improvements at First Street and Seventh Avenue in Huntington, WV.	$500,000
CAB-07	Intersection safety improvements at First Street and Fifth Avenue in Huntington, WV.	$520,000
CAB-08	Improve First Street from Fourth Avenue to Seventh Avenue in Huntington, WV.	$6,000,000
CAB-10	Hal Greer Boulevard Complete Street - Washington Boulevard to Highlander Way	$3,300,000
CAB-13	Intersection safety improvements at Midland Trail (US 60) and E Pea Ridge Road in Barboursville, WV.	$900,000
CAB-18A	Improve WV 2 from Huntington to the Cabell/Putnam County Line in West Virginia as Phase I of WV 2 Improvements.	$7,500,000
CAB-26A	Intersection safety improvements at Washington Boulevard and US 60 (Midland Trail).	$480,000
CAB-32A	Vehicular and pedestrian safety improvements at the intersection of West 17th Street (US 52) and Washington Avenue (US 60) potentially including signalization and other improvements.	$670,000
CAB-34	Cabell County Signal and Operational Improvements	$5,000,000
CAB-35	Cabell County Safety Improvements	$5,000,000
CAB-36	Cabell County Active Transportation Improvements	$5,000,000
WAY-01	Oak Street (US 60) and 21st Street intersection safety improvements.	$520,000
WAY-03	Eighth Street (CR 11) and Fifth Street Road (WV 152) Connector intersection safety improvements in Lavalette, WV.	$520,000
WAY-04	Spring Valley Drive and Goodwill Road intersection safety improvements.	$550,000
WAY-10	Widen Darling Lane to a four-lane divided roadway from WV 75 to the Tri-State Airport in Wayne County, WV.	$15,000,000
WAY-18	Intersection safety improvements at Fifth Street Road (US 152) and Food Fair Plaza.	$470,000
WAY-20	Harvey Road Connector - Construct a new access road to provide a direct connection between CR 9 and WV 152 beginning on CR 9 approximately 0.2 miles south of Heritage Farm.	$22,000,000
WAY-21	Safety improvements on WV 152 from Bloss Branch Road to Big Creek Road ("All Day Curve").	$280,000
WAY-22	Safety improvements on WV 152 at German Ridge Hill.	$1,120,000
WAY-23	Safety improvements on WV 152 from CR 11 Access to Eighth Street.	$650,000
WAY-24	WV 75 and Spring Valley Drive intersection safety improvements.	$280,000

ID	Description	Project Cost (in 2035$)
WAY-25	Wayne County Active Signal and Operational Improvements	$3,000,000
WAY-26	Wayne County Safety Improvements	$3,000,000
WAY-27	Wayne County Active Transportation Improvements	$3,000,000
Total West Virginia Phase 2 Project Costs		**$116,330,000**
Kentucky Phase 2 Projects		
BOY-11	Improve operational efficiency on KY 168 from KY 1012 to US 60.	$32,000,000
BOY-12	Correct deficiencies on KY 1937 from KY 707 in Lawrence County, KY to KY 3 at Mavity.	$127,000,000
BOY-24	Improve access management on 35th Street (west leg) approach to US 23/US 60 intersection in Catlettsburg.	$680,000
BOY-51	Boyd County Active Transportation Improvements	$5,000,000
BOY-52	Boyd County Safety Improvements	$5,000,000
BOY-53	Boyd County Active Signal and Operational Improvements	$5,000,000
GRE-08	Reconstruct KY 7 from intersection with KY 827 to Rakes Mill Road. Reconstruct KY 7 from Rakes Mill Road to US 23 in South Shore. Reconstruct KY 7 from KY 2 to KY 827.	$250,000,000
GRE-09	Improve Riverside Drive between the cities of Wurtland and Worthington.	$70,000,000
GRE-11	Improve safety and operational efficiency on KY 750 from Pond Run (MP 0.37) to KY 207 (MP 1.595).	$27,000,000
GRE-12	Operational improvements at the intersection of KY 693 and KY 1172.	$1,130,000
GRE-17	Intersection safety and operation improvements at Caroline Road approaching US 23.	$1,570,000
GRE-27	Improve safety on KY 67 from MP 6.2 to MP 9.1.	$5,200,000
GRE-29	Improve last mile roadway connections along US 23 from MP 0.0 to MP 1.7.	$8,700,000
GRE-30	Improve last mile roadway connections along KY 67 from MP 1.1 to MP 1.4.	$1,570,000
GRE-31	Improve last mile roadway connections along KY 67 from MP 0.2 to 0.8.	$3,200,000
GRE-35	Study-Design from Lewis Greenup connector road connecting KY 8 to KY 10 at Scaffold Lick.	$4,200,000
GRE-37	Greenup County Active Transportation Improvements	$5,000,000
GRE-38	Greenup County Safety Improvements	$5,000,000
GRE-39	Greenup County Active Signal and Operational Improvements	$5,000,000
Total Kentucky Phase 2 Project Costs		**$562,250,000**

ID	Description	Project Cost (in 2035$)
Ohio Phase 2 Projects		
LAW-03	Construct interchange improvements at US 52 and Park Avenue (OH 93) in Ironton.	$20,000,000
LAW-04	Construct a new interchange on US 52 in the vicinity of Burlington-Macedonia Road (CR 120), adjacent access enhancements, and remove at-grade access at Wal-Mart Way (CR 410).	$50,000,000
LAW-05	Construct a new interchange on US 52 in the vicinity of Sandusky Road (CR 276) and provide access to adjacent frontage roads and development.	$42,000,000
LAW-06	Construct a new interchange on US 52 near Grandview Avenue.	$25,000,000
LAW-10	Construct a trail connection between Ironton Gateway (South Ninth and Vernon Streets) and proposed Sports and Recreation Complex north of Ironton Hills Shopping Center.	$2,000,000
LAW-12	A new two-lane roadway is proposed between Proctorville and the Gallia County Line in Lawrence County, OH.	$85,000,000
LAW-20	Construct interchange safety and access improvements at the US 52 and CR 1A interchange west of Ironton.	$6,800,000
LAW-21	Construct interchange safety and operational improvements at the US 52 and Campbell Drive (OH 141) intersection and adjacent intersections.	$1,000,000
LAW-22	Improve ramp terminals and intersection capacity and safety where the 12th Street and 13th Street bridges intersect US 52.	$8,300,000
LAW-23	Improve CR 410 from Old US 52 to US 52 in Burlington, OH. The project includes access management and restriping along CR 410.	$5,000,000
LAW-27	Construct intersection safety and operation improvements along OH 775 corridor, including the intersections at OH 7 and State Street (CR 107), OH 7 and OH 775 (south, at bridge terminus), and OH 7 and Irene Road (CR 403).	$4,300,000
LAW-29	On Center Street between Bobby Bare Boulevard and the east end of Center Street, replace existing pavement with brick, remove angled parking and lane markings, reduce speed limits, and install traffic calming, landscaping, and bike parking amongst other improvements.	$830,000
LAW-30	Improve and extend a shared-use path along former railroad right-of-way from the Railroad Street Cycle Track to Ironton Hills Shopping Center.	$1,250,000
LAW-31	Construct sidewalk with ADA compliant curb ramps and bike lanes along Solida Road from Fourth Street East (CR 1) east through the US 52 interchange.	$3,300,000
LAW-33	Lawrence County Active Transportation Improvements	$5,000,000
LAW-34	Lawrence County Safety Improvements	$5,000,000
LAW-35	Lawrence County Active Signal and Operational Improvements	$5,000,000
Total Ohio Phase 2 Project Costs		**$269,780,000**

Table 9-6 – Phase 3 Project Recommendations (FY 2040 - 2050)

ID	Description	Project Cost (in 2045$)
West Virginia Phase 3 Projects		
CAB-01	Streetscaping improvements on Bridge Street from WV 106 to 39th Street and Main Street from Riverside Drive to Water Street in Guyandotte neighborhood of Huntington, WV.	$22,000,000
CAB-12	Widen John Morris Road to a four-lane boulevard in Milton, WV.	$35,000,000
CAB-14	Improve Midland Trail (US 60) from Bonnie Boulevard to Cyrus Creek Road in Barboursville, WV.	$7,600,000
CAB-15	Improve US 60 from Eighth Avenue to Bonnie Boulevard in Huntington, WV.	$5,400,000
CAB-17	Improve Fifth Street (WV 527) from I-64 to Eighth Avenue in Huntington, WV.	$8,600,000
CAB-34	Cabell County Signal and Operational Improvements	$7,000,000
CAB-35	Cabell County Safety Improvements	$7,000,000
CAB-36	Cabell County Active Transportation Improvements	$7,000,000
WAY-14	Realign the access road to the Tri-State Airport in Wayne County, WV and provide a new parking structure.	$59,000,000
WAY-25	Wayne County Active Signal and Operational Improvements	$5,000,000
WAY-26	Wayne County Safety Improvements	$5,000,000
WAY-27	Wayne County Active Transportation Improvements	$5,000,000
Total West Virginia Phase 3 Project Costs		**$173,600,000**
Kentucky Phase 3 Projects		
BOY-13	Study congestion issues and adjust signal timings and/or add turn lanes as needed.	$1,010,000
BOY-19	Safety improvements on I-64 in Boyd County from county line to county line (10.7 miles). The project includes climbing lanes and an additional ramp merge.	$27,000,000
BOY-20	Widen SR 752 (Durbin Road) from US 23 to SR 1937 (Bear Creek Road) and add shoulders.	$25,000,000
BOY-21	Safety and traffic signal optimization improvements at the I-64/US 23 interchange south of Catlettsburg.	$25,000,000
BOY-23	I-64/US 60 (29th Street) interchange improvements.	$25,000,000
BOY-26	Construct a center turn lane, right turn lanes where needed, and replace three functionally obsolete bridges along US 60 between MP 2.0 (Princess Drive) to MP 4.02 at intersection with KY 180 and Cannonsburg Road.	$59,000,000
BOY-29	Improve last mile roadway connections along US 23 (MP 19.5 to MP 20.9).	$11,100,000
BOY-30	Improve last mile roadway connections along US 23 (MP 15.5 to MP 16.9).	$10,800,000
BOY-31	Improve last mile roadway connections along US 23 (MP 9.1 to MP 11.2).	$16,300,000

ID	Description	Project Cost (in 2045$)
BOY-32	Construct safety and access management improvements at the US 60/KY 538 intersection.	$128,000
BOY-37	Safety and access management improvements at the intersection of Lexington Avenue (CS 2492) and 12th and 13th Streets (US 60).	$250,000
BOY-38	Intersection safety improvements at US 60 and Summitt Road.	$104,000
BOY-39	Construct shared-use path (SUP) along US 23/US 60 from Railroad Avenue to Center Street.	$3,700,000
BOY-41	Establish shared-use path connection along US 23 from Seventh Street to the Greenup county line	$5,400,000
BOY-51	Boyd County Active Transportation Improvements	$7,000,000
BOY-52	Boyd County Safety Improvements	$7,000,000
BOY-53	Boyd County Active Signal and Operational Improvements	$7,000,000
GRE-10	Improve KY 244 between the cities of Raceland and Worthington to allow two-way traffic.	$108,000,000
GRE-13	Assess signal warrants and construct right-turn lanes on US-23 for Caroline Drive; if unsignalized, construct acceleration lanes on US-23 for turning busses.	$10,600,000
GRE-19	Replace bridge on CS 1023 (MP 0.121) over Town Branch, 100' south of Jct. KY 2541.	$3,500,000
GRE-23	Improve safety and decrease congestion at the KY 693 (Diederick Boulevard) and KY 1172 (Red Devil Lane) intersection.	$3,900,000
GRE-28	Improve last mile roadway connections along US 23 from MP 23.4 to MP 25.6.	$17,000,000
GRE-37	Greenup County Active Transportation Improvements	$7,000,000
GRE-38	Greenup County Safety Improvements	$7,000,000
GRE-39	Greenup County Active Signal and Operational Improvements	$7,000,000
Total Kentucky Phase 3 Project Costs		**$394,792,000**
Ohio Phase 3 Projects		
LAW-08	Partner with West Virginia DOT to help fund a proposed bridge across the Ohio River at Merritt's Creek and construct an interchange connecting the new bridge to OH 7.	$185,000,000
LAW-32	Construct remaining portion of Chesapeake Bypass in Phases 1C and 2 to provide a four-lane divided facility, with interchanges at all access points between US 52 and the proposed Merritt Creek Ohio River Crossing.	$197,000,000
Total Ohio Phase 3 Project Costs		**$382,000,000**

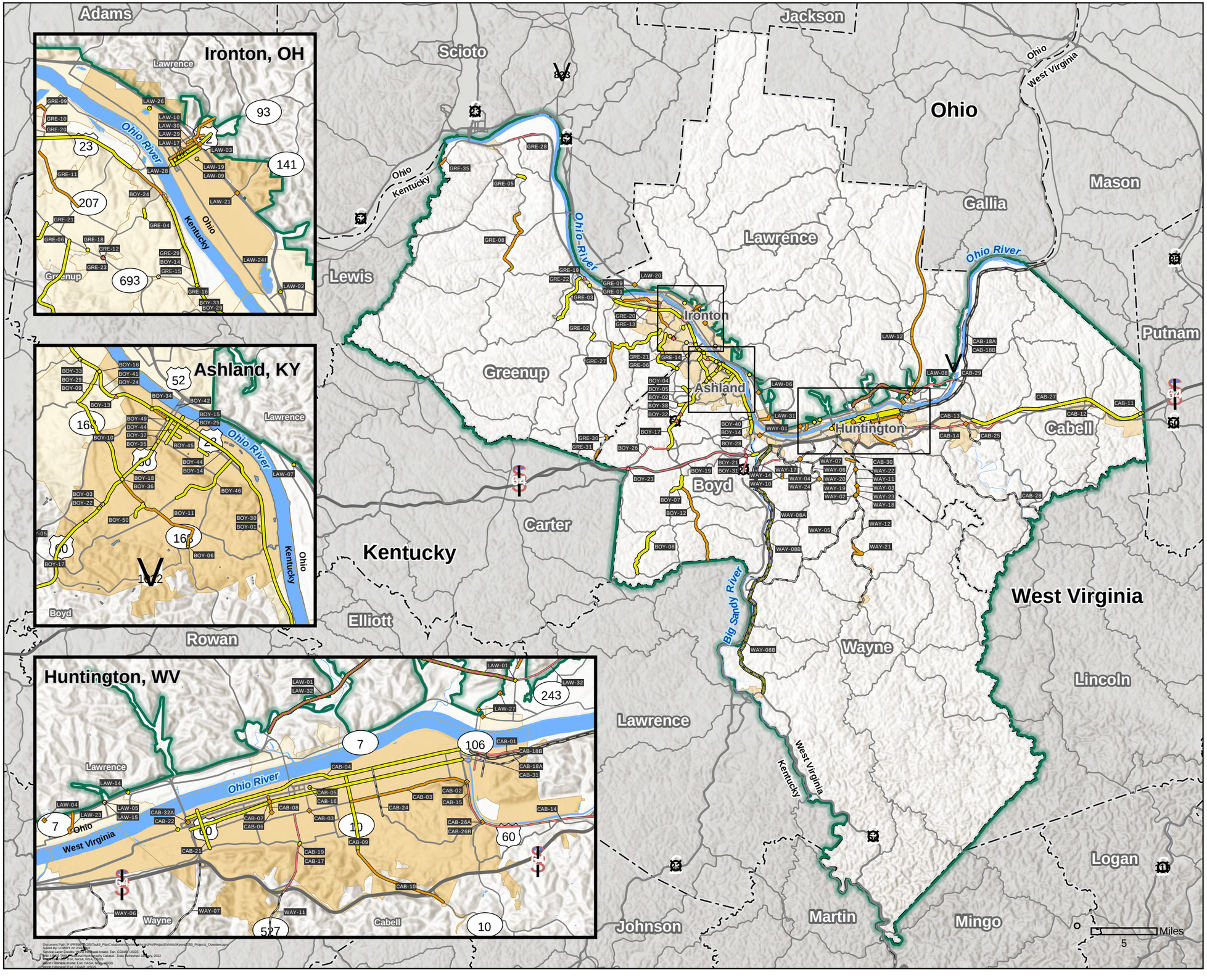
Table 9-7 – Vision Plan

ID	Description	Project Cost (in 2050$)
West Virginia Vision Plan Projects		
CAB-18B	Widen WV 2 to a 4-lane divided roadway from Huntington to the Cabell/Putnam County Line in West Virginia as Phase II of WV 2 Improvements.	$1,110,000,000
CAB-24	Retrofit 20th Street as a complete, livable street from Third Avenue to 12th Avenue, incorporating green infrastructure, complete streets principles, and placemaking to develop a sense of identity and maximize function of the corridor.	$6,000,000
CAB-25	Improve College Avenue and Martha Road in Barboursville, WV.	$108,000,000
CAB-28	Widen WV 10 a 4-lane divided roadway with wide shoulders from Melissa Road to Salt Rock in Cabell County, WV. Widening this roadway will create a viable alternate route for regional traffic.	$2,100,000,000
CAB-29	Ohio River Bridge Crossing at Merritt's Creek	$240,000,000
CAB-30	Widen WV 152 from Wood Lane south to Skyview Drive to provide a two-way left turn lane (TWLTL) and 4-foot paved shoulders.	$10,200,000
CAB-31	Streetscaping improvements on Buffington Street from the flood wall to CSX rail and Fifth Avenue from WV 106 to Buffington Street in Guyandotte.	$21,000,000
WAY-05	Widen Centerville-Prichard Road and Lynn Creek Road from Prichard to Lavalette in Wayne County, WV.	$750,000,000
WAY-06	Widen Spring Valley Drive to a 3-lane roadway with a two-way left-turn lane from WV 75 to I-64 in Wayne County, WV.	$150,000,000
WAY-07	Construct a new 2-lane roadway with wide shoulders is proposed from Sherwood Drive to I-64 in Wayne County, WV.	$210,000,000
WAY-08B	Widen US 52 to a 4-lane divided highway from Kermit to Hubbardstown, WV. US 52 has been identified as the future alignment for the proposed I-73/I-74 corridor through the KYOVA region. Improving this roadway will serve regional mobility and goods movement needs. This project has been identified as a high-priority project regionally for its potential economic development benefits.	$450,000,000
WAY-11	Widen WV 152 to a 4-lane divided roadway with bike lanes from Lavalette to Huntington in West Virginia.	$240,000,000
WAY-12	Widen WV 152 to a 4-lane divided (where feasible) roadway with wide shoulders from Wayne to Lavalette in Wayne County, WV.	$720,000,000
WAY-13	Widen Walkers Branch Road to a 4-lane divided (where feasible) roadway from Walkers Branch Road Bridge to I-64 in Ceredo, WV.	$660,000,000
WAY-15	New Roadway Location for Beech Fork Lake Lodge Access Road	$6,000,000
WAY-16	New Roadway Location for Beech Fork Connector Road	$18,000,000
WAY-17	Widen Goodwill Road to a 4-lane undivided roadway from Walkers Branch Road to Spring Valley Drive in Wayne County, WV.	$510,000,000
Total West Virginia Vision Plan Project Costs		**$7,309,200,000**
Ohio Vision Plan Project		
LAW-11	Support efforts to construct a trail connection between Ironton and Vesuvius Lake, outside of the KYOVA MPO Boundary.	$3,600,000

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 9-1

KYOVA 2050 MTP Projects



Legend

Projects by Implementation Phase

- Phase I (Short-Term, 2022-2029)
- Phase II (Mid-Term, 2030-2040)
- Phase III (Long-Term, 2041-2050)
- Vision Plan (Not Fiscally Constrained)

Last Updated: 2/18/2022

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 9-2

Level of Service (with 2050 MTP Projects)

Legend

- LOS A - C (less than or equal to 0.70)
- LOS D (0.71 - 0.85)
- LOS E (0.86 - 1.00)
- LOS F (greater than 1)

Ironton, OH

Ashland, KY

Huntington, WV

Adams, Scioto, Jackson, Ohio, Mason, Gallia, Lawrence, Lewis, Greenup, Putnam, Cabell, Boyd, Carter, Kentucky, Elliott, Rowan, Wayne, Lincoln, Logan, Martin, Johnson, Mingo, West Virginia

Ohio River, Ohio, Kentucky, West Virginia, Big Sandy River

Miles 0 5

Document Path: P:\65964?\GIS\Task4_ExistingConditions\MXD\LevelOfService\KYOVA_2050LRTP_VOC_20220211.mxd
Saved By: GRUSHOW on 2/11/2022
Service layer credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS NHD – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/11/2022

Table 9-8 – KYOVA 2050 MTP Projected Revenues and Costs by Phase

Phase	Transportation Improvements	Maintenance	Transit Capital	Transit Operations	Total
West Virginia Revenue Forecast					
2022 – 2029	$66,130,502	$314,499,971	$21,266,434	$18,050,669	$419,947,576
2030 – 2040	$132,465,912	$629,974,431	$42,598,763	$36,157,269	$841,196,375
2041 – 2050	$181,542,623	$863,370,882	$58,380,991	$49,553,016	$1,152,847,512
Total	**$380,139,037**	$1,807,845,284	**$122,246,189**	**$103,760,955**	**$2,413,991,463**
West Virginia MTP Costs					
2022 – 2029	$50,770,000*	$314,499,971	$21,266,434	$18,050,669	$404,587,074
2030 – 2040	$116,330,000	$629,974,431	$42,598,763	$36,157,269	$825,060,463
2041 – 2050	$173,600,000	$863,370,882	$58,380,991	$49,553,016	$1,144,904,889
Total	**$340,700,000**	$1,807,845,284	**$122,246,189**	**$103,760,955**	**$2,395,552,426**
Kentucky Revenue Forecast					
2022 – 2029	$283,108,668	$128,779,961	$5,546,964	$8,504,731	$425,940,324
2030 – 2040	$567,094,559	$257,958,952	$11,111,116	$17,035,814	$853,200,441
2041 – 2050	$777,194,923	$353,529,027	$15,227,624	$23,347,338	$1,169,298,912
Total	**$1,627,398,151**	**$740,267,940**	**$31,885,704**	**$48,887,882**	**$2,448,439,677**
Kentucky MTP Costs					
2022 – 2029	$256,223,000	$128,779,961	$5,546,964	$8,504,731	$399,054,656
2030 – 2040	$562,250,000	$257,958,952	$11,111,116	$17,035,814	$848,355,882
2041 – 2050	$394,792,000	$353,529,027	$15,227,624	$23,347,338	$786,895,989
Total	**$1,213,265,000**	**$740,267,940**	**$31,885,704**	**$48,887,882**	**$2,034,306,527**
Ohio Revenue Forecast					
2022 – 2029	$139,429,672	$46,476,557	$6,173,532	$3,556,691	$195,636,452
2030 – 2040	$279,291,372	$93,097,124	$12,366,192	$7,124,403	$391,879,091
2041 – 2050	$382,764,801	$127,588,267	$16,947,688	$9,763,892	$537,064,648
Total	**$801,485,844**	**$267,161,948**	**$35,487,412**	**$20,444,987**	**$1,124,580,191**
Ohio MTP Costs					
2022 – 2029	$118,330,000	$46,476,557	$6,173,532	$3,556,691	$174,536,780
2030 – 2040	$269,780,000	$93,097,124	$12,366,192	$7,124,403	$382,367,719
2041 – 2050	$382,000,000	$127,588,267	$16,947,688	$9,763,892	$536,299,847
Total	**$770,110,000**	**$267,161,948**	**$35,487,412**	**$20,444,987**	**$1,093,204,346**

*Note: The Culloden interchange project (CAB-11) is 100% funded with WV General Obligation (GO) Bonds and not reflected in the WV Phase I total for MTP fiscal constraint purposes.

10.0 Environmental Screening

The FAST Act requires MPOs to consider and include a discussion of the potential impacts of recommended transportation projects on the environment, both natural and human. This chapter analyzes the fiscally constrained MTP projects in order to assess their potential impacts to the natural and human environment so that the discussion of avoidance, minimization, or mitigation of project impacts can be initiated early. When project impacts cannot be entirely avoided, mitigation strategies are considered to offset the impacts. Federally funded projects must go through a more detailed review process required by the National Environmental Policy Act (NEPA).

Early review and analysis of project impacts, mitigation actions, and alternatives determined through consultation and coordination with the resource agencies can enable the development of successful transportation projects. Mitigation measures can include preservation, treatment, or repair, rehabilitation, or restoration of the affected resources or compensating for impacts by providing equivalent or better replacement on- or off-site.

A formal environmental analysis is not required for this level of planning study. However, preliminary project development and scoping activities based on projects proposed in this plan sought to consider practical environmental implications.

10.1 Ecological Resources Analysis

10.1.1 Screening Process

The screening process involved conducting spatial analysis using GIS by first identifying and locating known ecological resources within the MPO boundary, including:

- Waterways
- Wetlands
- 100-year floodplain areas
- Threatened and endangered species
- Wildlife and waterfowl refuge areas
- Parks and recreational areas
- Cultural resources

Next, information on the 127 fiscally constrained projects was collected. Since most of the projects are still in the planning process, their specific limits and footprints are not yet finalized; therefore, a quarter-mile buffer was applied to each of the projects for this analysis. (As each of the projects are further developed, their footprints will continue to be refined, and potential impacts will be more specific.).

Last, the projects and their buffers were overlaid on GIS mapping with the ecological resources to determine which fiscally constrained projects may potentially impact an ecological resource.

10.1.2 Waterways

The primary waterways in the KYOVA region are the Ohio River and Big Sandy River. Additional streams are located throughout the region, and most flow into one of the two major rivers.

These waterways are shown in **Exhibit 10-1**, where the fiscally-constrained projects are overlaid in order to identify potential impacts to waterways. Based on this mapping, all proposed projects are located within a quarter mile of a waterway and impact the larger watershed, so during project development for each project, the design should try to avoid, minimize, or mitigate waterway impacts.

10.1.3 Wetlands

The U.S. Environmental Protection Agency (USEPA) defines a wetland as an area where water covers the soil or is present either at or near the surface of the soil all year, or for varying periods of time during the year, including the growing season. All wetlands in the region are fresh water, receiving

their water supply from groundwater or surface water. Wetlands perform valuable functions of flood mitigation and water quality improvement, along with providing habitat for many plant and animal species.

The U.S. Fish and Wildlife Service maintains the National Wetland Inventory, which provides a national database of wetlands. The wetlands within the KYOVA region are shown in **Exhibit 10-1,** where the fiscally-constrained projects are overlaid in order to identify potential impacts to wetlands. Based on this mapping, large wetlands are present along the main channel of the Ohio and Big Sandy rivers. Due to the extensive tributary network throughout the watershed and the number of waterways that exist in the region, riverine and isolated wetlands may be impacted by all projects within the KYOVA MTP. During project development for each project, the design should try to avoid, minimize, or mitigate wetland impacts.

10.1.4 100-Year Floodplain

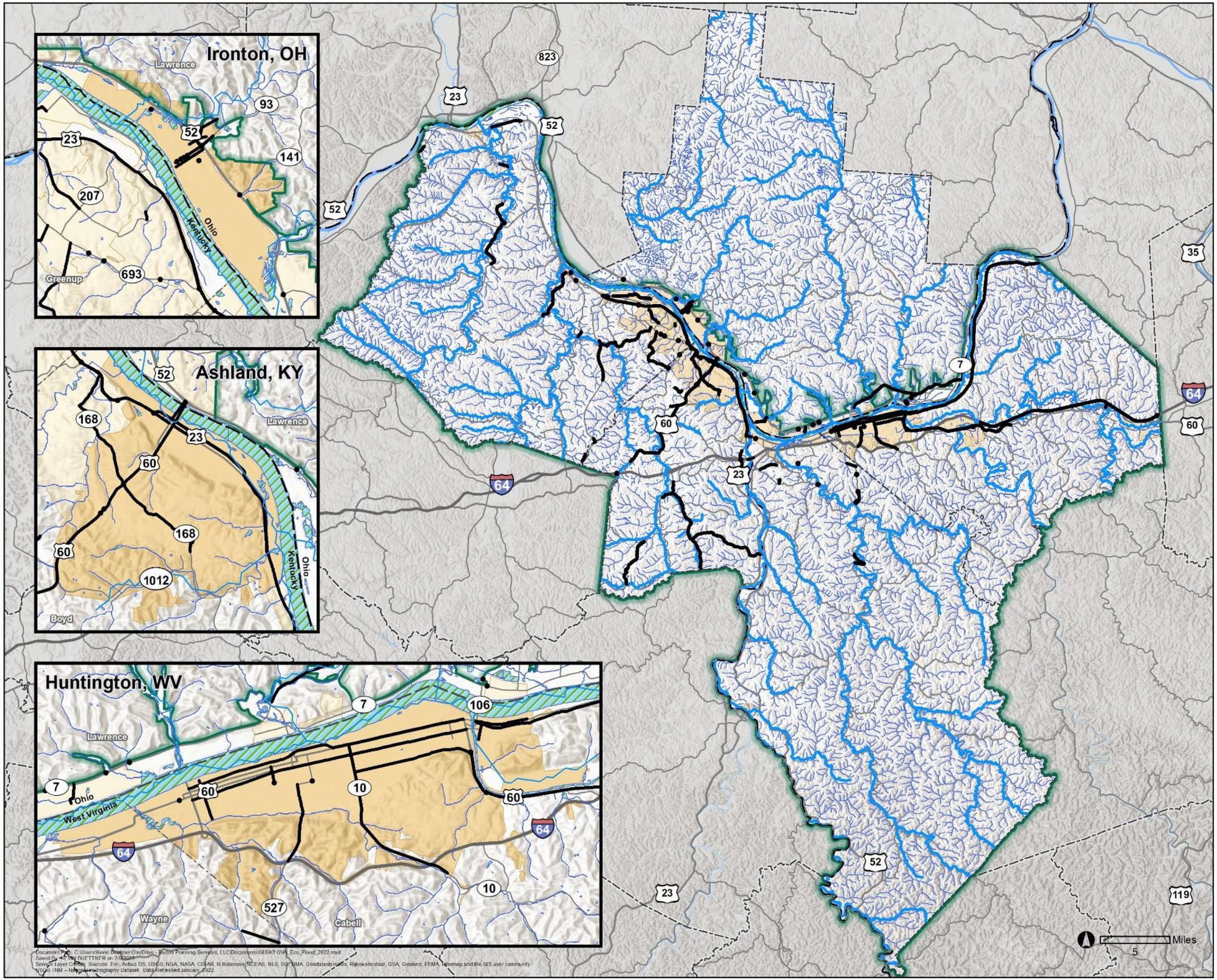
Natural floodplains collect water upstream and convey it downstream during flood events, so development within the 100-year floodplain can create obstructions that impede water flow and can increase impervious surface area that increases water runoff during a flood event. The 100-year floodplain is defined by the Federal Emergency Management Agency (FEMA) as an area that will be inundated by a flood event having a 1 percent chance of being equaled or exceeded in a given year.

The 100-year floodplain areas are shown in **Exhibit 10-2** where the fiscally-constrained projects are overlaid in order to evaluate potential floodplain impacts. Based on the evaluation, projects located near the Ohio and Big Sandy rivers are near the 100-year floodplain, especially projects in the Ashland, Huntington, and Ironton urbanized areas. Other projects along Interstate (I) 64, U.S. Routes (US) 23 & 60, Ohio State Route (OH) 7, and West Virginia State Route (WV) 2 are also located near or within the 100-year floodplain. As a result, during project development for each project, the design should try to avoid, minimize, or mitigate impacts to the 100-year floodplain.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 10-1

Wetlands & Waterways



Legend

- KYOVA Projects - Points
- KYOVA Projects - Linear
- Waterways
- Wetlands

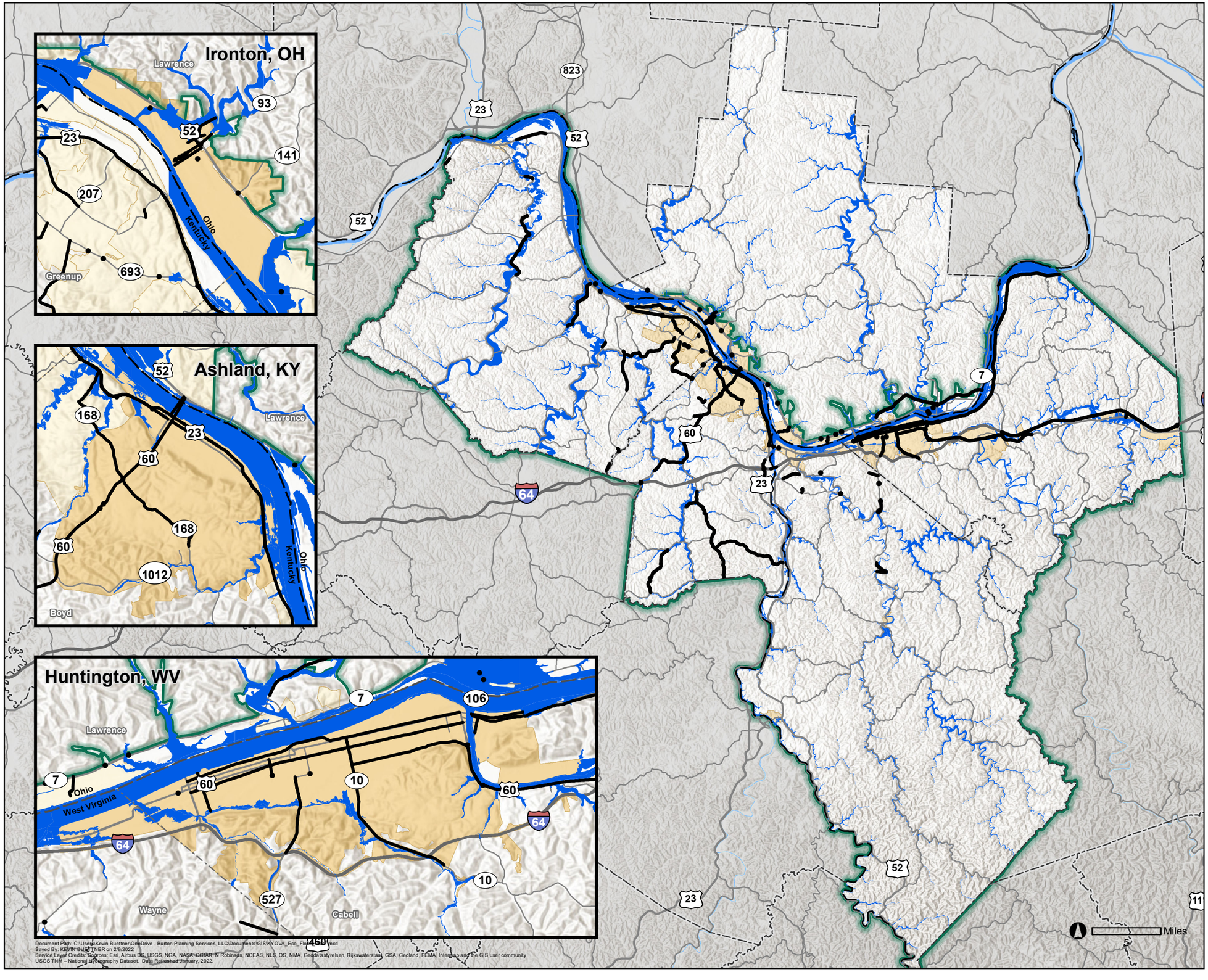
Last Updated: 2/9/2022

Document Path: C:\Users\Kevin Bratton\OneDrive - Burton Planning Services, LLC\Documents\GIS\KY OWI_Eco_Flood_2022.mxd
Saved By: KEVIN.BUETTNER on 2/9/2022
Service Layer Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS NM – National Hydrography Dataset. Data Refreshed January, 2022

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 10-2

100-Year Floodplain



Legend

- KYOVA Projects - Points
- KYOVA Projects - Linear
- 100-Year Flood Zone

Document Path: C:\Users\Kevin Buettner\OneDrive - Burton Planning Services, LLC\Documents\GIS\KYOVA_Eco_Flood.mxd
Saved By: KEVIN BUETTNER on 2/9/2022
Service Layer Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS TNM – National Hydrography Dataset Data Refreshed January, 2022.

Last Updated: 2/9/2022

10.1.6 Threatened and Endangered Species

Plant and animal species listed as "threatened" or "endangered" by the U.S. Fish and Wildlife Service are protected under the Federal Endangered Species Act and other related statutes. An endangered species is any species that is in danger of extinction throughout all or a significant portion of its range A threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (The Endangered Species Act of 1973).

Potential impacts to threatened and endangered species were reviewed, however, due to the lack of location-specific data for threatened and endangered species, a spatial analysis was not performed, instead a qualitative evaluation is included below.

There are 14 birds of particular concern in the KYOVA region that warrant special attention in a project location (**Table 10-1).** There are 21 Threatened and Endangered Species and one candidate species that could potentially be impacted by projects in the KYOVA region (**Table 10-2**).

Critical Habitat for the endangered Indiana Bat covers all of Greenup County.

Changes in land use and loss of forests and wetlands have been the primary cause for decline in species range and diversity. Water-borne species suffer a loss of habitat due to contamination and degradation of natural waters. Projects involving building of new roads or roadway expansions have the greatest impact on threatened and endangered species due to encroachment causing loss of habitat. For example, some widening projects that have been proposed are on I-64, US-52, OH-752, and WV-152.

In general, all projects have the potential of impacting species due to the presence of noise, dust, and other forms of pollution. If a threatened or endangered species is suspected of existing within the project area, a specific survey is often undertaken to determine presence. Further study is warranted for each project as it progresses into planning and design phases to identify the actual impacts on the identified species. Specialists should be consulted to examine the impacts due to construction and other project activities.

Table 10-1 – Birds of Conservation in the KYOVA Region

Species	Birds of Conservation Concern List	Vulnerability	Breeding Season
Bald Eagle	Non-BCC	Vulnerable	Breeds Sep 1 to Aug 31
Black-billed Cuckoo	BCC	Rangewide	Breeds May 15 to Oct 10
Black-capped Chickadee	BCC	BCR	Breeds Apr 10 to Jul 31
Bobolink	BCC	Rangewide	Breeds May 20 to Jul 31
Canada Warbler	BCC	Rangewide	Breeds May 20 to Aug 10
Cerulean Warbler	BCC	Rangewide	Breeds Apr 27 to Jul 20
Eastern Whip-poor-will	BCC	Rangewide	Breeds May 1 to Aug 20
Henslow's Sparrow	BCC	Rangewide	Breeds May 1 to Aug 31
Kentucky Warbler	BCC	Rangewide	Breeds Apr 20 to Aug 20
Prairie Warbler	BCC	Rangewide	Breeds May 1 to Jul 31

Species	Birds of Conservation Concern List	Vulnerability	Breeding Season
Prothonotary Warbler	BCC	Rangewide	Breeds Apr 1 to Jul 31
Red-headed Woodpecker	BCC	Rangewide	Breeds May 10 to Sep 10
Rusty Blackbird	BCC	BCR	Breeds elsewhere

Vulnerability Key:

1. *Birds found throughout its range in the continental USA and Alaska are designated to have "Rangewide" vulnerability.*
2. *Birds that are not in the BCC list but warrant attention due to certain protection Acts or for potential susceptibilities in offshore areas from certain types of development or activities, are designated as "Vulnerable".*
3. *Birds found only in particular Bird Conservation Regions (BCRs) in the continental USA as designated to have "BCR" vulnerability.*

Table 10-2 – Endangered Species in the KYOVA Region

Species	Status
Mammals	
Gray Bat (Myotis grisescens)	Endangered
Indiana Bat (Myotis sodalist)	Endangered
Northern Long-eared Bat (Myotis septentrionalis)	Threatened
Virginia Big-eared Bat (Corynorhinus (Plecotus) townsendii virginianus)	Endangered
Clams	
Clubshell (Pleurobema clava)	Endangered
Fanshell (Cyprogenia stegaria)	Endangered
Northern Riffleshell (Epioblasma torulosa rangiana)	Endangered
Orangefoot Pimpleback (pearlymussel) (Plethobasus cooperianus)	Endangered
Pink Mucket (pearlymussel) (Lampsilis abrupta)	Endangered
Rabbitsfoot (Quadrula cylindrica cylindrica)	Threatened
Rayed Bean (Villosa fabalis)	Endangered
Ring Pink (mussel) (Obovaria retusa)	Endangered
Rough Pigtoe (Pleurobema plenum)	Endangered
Sheepnose Mussel (Plethobasus cyphyus)	Endangered
Snuffbox Mussel (Epioblasma triquetra)	Endangered
Spectaclecase (mussel) (Cumberlandia monodonta)	Endangered
Tubercled Blossom (pearlymussel) (Epioblasma torulosa torulosa)	Endangered

Species	Status
Insects	
Monarch Butterfly *(Danaus plexippus)*	Candidate
Crustaceans	
Big Sandy Crayfish *(Cambarus callainus)*	Threatened
Flowering Plants	
Northeastern Bulrush *(Scirpus ancistrochaetus)*	Endangered
Small Whorled Pogonia *(Isotria medeoloides)*	Threatened
Virginia Spiraea *(Spiraea virginiana)*	Threatened
Critical Habitats	
Indiana Bat *(Myotis sodalist)*	Final

Status Key:

1. *Candidate: A species under consideration for official listing for which there is sufficient information to support listing.*
2. *Threatened: A species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.*
3. *Endangered: A species in danger of extinction throughout all or a significant portion of its range.*
4. *Final: Potential effects to critical habitat(s) in the region must be analyzed along with the endangered species themselves.*

10.1.7 Wildlife and Waterfowl Refuge Areas

Upon research it was determined that there is one nature preserve – Jesse Stuart State Nature Preserve – that potentially serves as wildlife and waterfowl refuges in the study area, which is analyzed in the Parks and Recreational Areas section.

10.1.8 Parks and Recreational Areas

Section 4(f) of the Department of Transportation Act of 1966 states that it is the policy of the federal government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Parks and other recreational facilities are integral to the quality of life for residents in urban, suburban, and rural areas. Transportation projects have the potential to impact parks and recreational facilities, especially when the transportation corridor is widened. Projects planned near these areas may warrant additional environmental scrutiny during the NEPA process.

A comprehensive regional dataset of parks and recreational areas is not available; therefore, during project development for each project, the NEPA process should identify specific areas, and design should try to avoid, minimize, or mitigate impacts to them.

Table 10-3 indicates the main parks and recreational areas located near roads with upcoming projects in the KYOVA MTP.

Table 10-3 – Major Parks and Recreational Areas in the KYOVA Region

Location	Park and Recreational Areas	Nearby Highways
City of Huntington	St. Cloud's All-Inclusive Park	I-64/US 52
City of Huntington	Guyan Golf & Country Club	I-64/US 52
City of Huntington	Kiwanis Park	I-64/US 52
City of Huntington	Kennedy Center Field	WV 2
Cities of Greenup & Wurtland	Jesse Stuart State Nature Preserve	US 23
City of Ironton	Wayne National Forest	US 52

10.1.9 Cultural Resources

A cultural resource is a prehistoric or historic site, district, building, structure, or object. Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act of 1966 require historic and archaeological resources to be considered during project planning.

Potential impacts to historic and archaeological resources were reviewed. The National Register of Historic Places (NRHP) lists 112 properties in the KYOVA region that include buildings, structures, sites, objects, and districts. Nine properties are indicated as National Level of Significance, 21 as State Level of Significance, and 112 as Local Level of significance. Some properties may be a part of more than one level of significance. The National- and State-Level Significant properties are listed in **Table 10-4** and mapped in **Exhibit 10-3**.

Table 10-4 – National and State Level of Significance Cultural Resources in the KYOVA

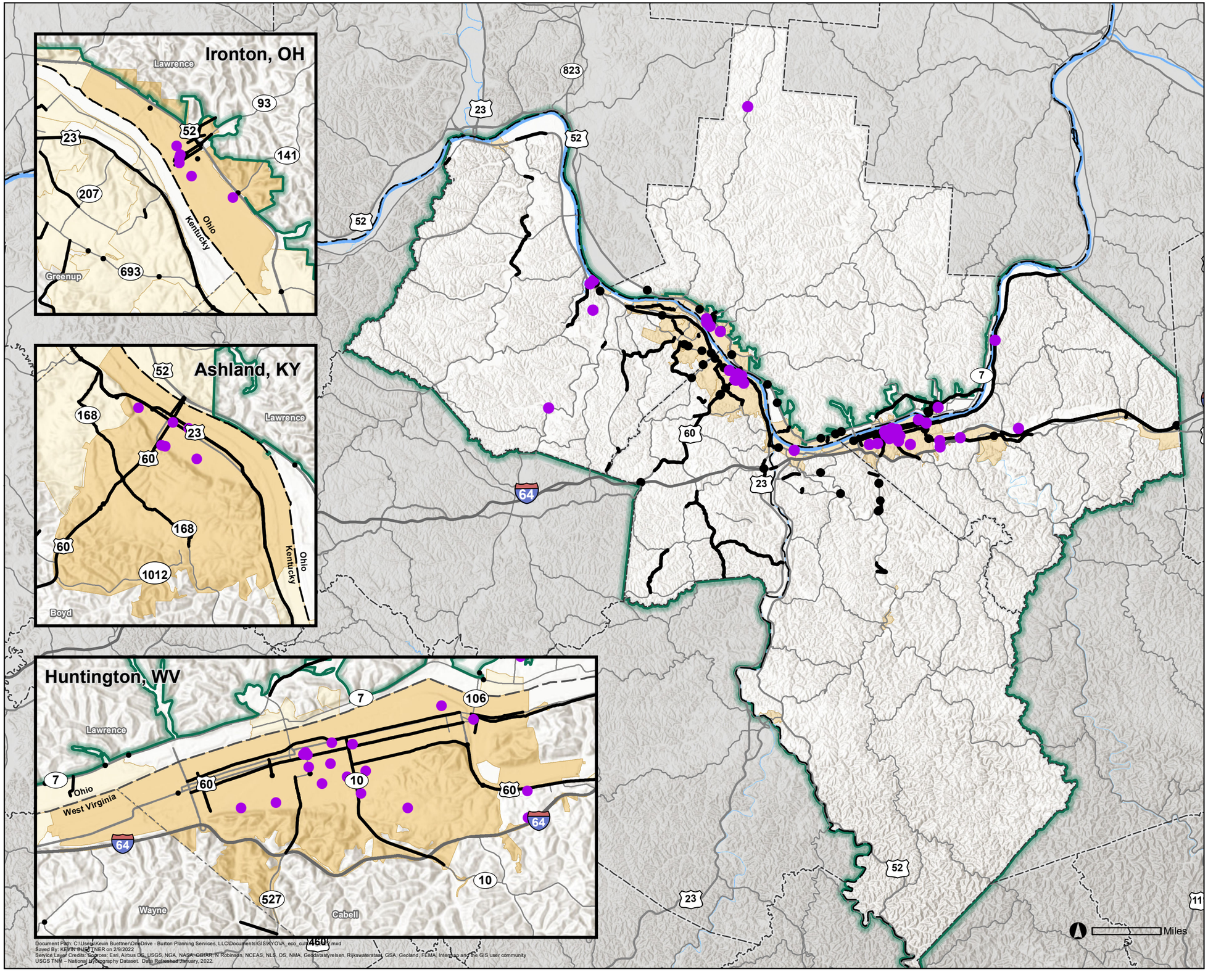
Property Name	County	State	Level of Significance
Clover Site	Cabell	West Virginia	National
Garrison, Memphis Tennessee House	Cabell	West Virginia	National
Harvey House	Cabell	West Virginia	National
Jenkins, Gen. Albert Gallatin, House	Cabell	West Virginia	National
Old Main, Marshall University	Cabell	West Virginia	National
Stone Serpent Mound	Boyd	Kentucky	National
Lower Shawneetown	Greenup	Kentucky	National
Lower Shawneetown Archeological District	Greenup	Kentucky	National
Vesuvius Furnace	Lawrence	Ohio	National
Baltimore and Ohio Railroad Depot	Cabell	West Virginia	State
Barnett Hospital and Nursing School	Cabell	West Virginia	State

Property Name	County	State	Level of Significance
Carroll, Thomas, House	Cabell	West Virginia	State
Douglass Junior and Senior High School	Cabell	West Virginia	State
Downtown Huntington Historic District	Cabell	West Virginia	State
Memorial Arch	Cabell	West Virginia	State
Ohev Sholom Temple	Cabell	West Virginia	State
Ricketts House	Cabell	West Virginia	State
Ritter Park Historic District	Cabell	West Virginia	State
Miller, Joseph S., House	Wayne	West Virginia	State
Wildcat Branch Petroglyphs	Wayne	West Virginia	State
Culbertson House	Boyd	Kentucky	State
Hilton, Martin, House	Boyd	Kentucky	State
Paramount Theatre	Boyd	Kentucky	State
Bennett's Mill Covered Bridge	Greenup	Kentucky	State
Oldtown Covered Bridge	Greenup	Kentucky	State
Portsmouth Earthworks, Group A	Greenup	Kentucky	State
Stuart, Jesse, House	Greenup	Kentucky	State
Fifth and Lawrence Streets Residential District	Lawrence	Ohio	State
Olive Furnace	Lawrence	Ohio	State
Rankin Historic District	Lawrence	Ohio	State

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 10-3

Cultural Resources



Legend

- KYOVA Projects - Points
- KYOVA Projects - Linear
- Cultural Resources

Last Updated: 2/9/2022

Document Path: C:\Users\Kevin Buettner\OneDrive - Burton Planning Services, LLC\Documents\GIS\KYOVA_eco_cultural.mxd
Saved By: KEVIN BUETTNER on 2/9/2022
Service Layer Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS TNM – National Hydrography Dataset. Data Refreshed January, 2022.

10.1.10 Summary of Potential Impacts

The screening of the MTP's fiscally-constrained projects show a range of potential impacts to ecological resources. Since the project types and footprints vary, the extent of their potential impacts will need to be further determined during the project development of each project.

During project development, the extent of impacts will be determined through the NEPA process and project-specific environmental studies.

Table 10-5 below lists the MTP's fiscally constrained projects that are potentially located at or near ecological resources.

Table 10-5 – Fiscally Constrained Projects and Ecological Resources Analysis Summary

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
CAB-01	Guyandotte Streetscaping Improvements - Bridge Street and Main Street	■	■		
CAB-02	Eighth Avenue and 31st Street (US 60) Intersection Safety Improvements	■	■		
CAB-03	Eighth Avenue Improvements and Intersection Beautification	■	■		
CAB-04	Third and Fifth Avenue Complete Streets	■	■		■
CAB-05	Downtown Huntington Streetscaping Improvements, Phase I	■	■		■
CAB-06	First Street and Seventh Avenue Intersection Safety Improvements	■	■		■
CAB-07	First Street and Fifth Avenue Intersection Safety Improvements	■	■		■
CAB-08	First Street Improvements	■	■		
CAB-09	Hal Greer Boulevard Complete Street - Third Avenue to Washington Boulevard	■	■		
CAB-10	Hal Greer Boulevard Complete Street - Washington Boulevard to Highlander Way	■	■		
CAB-11	Culloden Interchange Project	■	■		
CAB-12	Jones Branch Road/Mason Road Improvements	■	■		
CAB-13	Midland Trail (US 60) at E Pea Ridge Road Intersection Safety Improvements	■	■		
CAB-14	Midland Trail (US 60) Roadway Improvements	■	■	■	■

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
CAB-15	US 60 Roadway Improvements	■	■		■
CAB-16	Downtown Huntington Streetscaping Improvements, Phases 2 - 5	■	■		■
CAB-17	Fifth Street (WV 527) Corridor Improvements	■	■		■
CAB -18A	WV 2 Operational Improvements	■	■	■	■
CAB-19	Fifth Street West Bridge	■	■		■
CAB-21	PATH Connections - 14th Street West	■	■	■	
CAB-22	Adams Avenue and 19th Street West	■	■	■	
CAB-26A	Washington Boulevard and Midland Trail (US 60) Intersection Safety Improvements	■	■		
WAY-01	Oak Street (US 60) and 21st Street Intersection Safety Improvements	■	■		
WAY-02	WV 152 and WV 75 Intersection Safety Improvements	■	■		
WAY-03	Eighth Street (CR 11) and Fifth Street Road (WV 152) Connector Intersection Safety Improvements	■	■		
WAY-04	Spring Valley Drive and Goodwill Road Intersection Safety Improvements	■	■		
WAY-10	Widen Darling Lane to a 4-lane divided roadway from WV 75 to the Tri-State Airport	■	■		
WAY-14	Airport Road Connector / Airport Industrial Access Rd	■	■		
WAY-18	5th Street Road (US 152) and Food Fair Plaza	■	■		
WAY-19	German Ridge Road and WV 152	■	■		
WAY-20	Harvey Road Connector	■	■		
WAY-21	WV 152 from Bloss Branch Road to Big Creek Road ("All Day Curve") Safety Improvements	■	■		
WAY-22	WV 152 at German Ridge Hill Safety Improvements	■	■		

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
WAY-23	WV 152 from CR 11 Access to Eighth Street Intersection Safety Improvements	■	■		
WAY-24	WV 75 and Spring Valley Drive Intersection Safety Improvements	■	■		
BOY-01	Eliminate a conflict point on Winchester Avenue (US 23) near Blackburn Avenue and 42nd Street.	■	■		
BOY-02	Reconstruct KY 716 from MP 0.0 (US 60) to MP .560 (KY 3293) to improve safety and decrease congestion.	■	■		
BOY-03	Reconstruct the intersection of US 60 and Old 13th Street	■	■		
BOY-04	Reconstruct intersection at KY 5 and KY 1458	■	■		
BOY-05	Improve alignment of KY 766 with KY 1134	■	■		
BOY-06	Improve intersection sight distance at South Belmont Street near Ashland	■	■		
BOY-07	Improve operational efficiency and system connectivity on KY 3 beginning at PV 1215 to KY 180.	■	■		
BOY-08	Improve width deficiencies from KY 773 to KY 854.	■	■		
BOY-09	Improve operational efficiency on KY 168 from Hoods Creek Road to US 23.	■	■		
BOY-10	Improve operational efficiency on Segment 2 of KY 168 from US 60 (MP 5.8) to Hood Creek Road (MP 7.4)	■	■		
BOY-11	Improve operational efficiency on KY 168 from KY 1012 to US 60	■	■		
BOY-12	Correct deficiencies on KY 1937 from KY 707 in Lawrence County to KY 3 at Mavity	■	■		
BOY-13	Study congestion issues and adjust signal timings and/or add turn lanes as needed.	■	■		
BOY-14	Perform a corridor study and make improvements along US 23 between US 60 in Catlettsburg to KY 207 in Russell	■	■		■
BOY-15	Improve safety along US-23X (Winchester Ave) from 14th to 18th St by replacing existing signalized intersections with mini roundabouts,	■	■		

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
	reducing the Roadway from 4 lanes to 2 and installing angled back in parking.				
BOY-17	US 60 from SR 538 to bi-directional split. R-cut conversion between KY 538 to Rose Hill Cemetery (5.3 miles) and continuous two-way left-turn lanes from Rose Hill north.	■	■		
BOY-18	US 60: Bi-directional split to county line (1 mile) safety improvements	■	■		■
BOY-20	SR 752 (Durbin Road): US 23 to SR 1937 (Bear Creek Road) widening and shoulder addition	■	■		
BOY-21	I 64/US 23 interchange south of Catlettsburg. Optimize traffic signals and safety in interchange. 1. Optimize traffic signal timing 2. Interchange alternatives study	■	■		
BOY-22	Construct intersection improvements at US 60 and Berry Street.	■	■		
BOY-23	Study interchange operations and congestion issues and construct improvements at the I 64 and US 60 interchange.	■	■		
BOY-24	Improve access management on 35th Street (west leg) approach to US 23 / US 60 intersection in Catlettsburg.	■	■		■
BOY-25	Remove raised median sections on Greenup Avenue.	■	■		■
BOY-26	Construct a center turn lane, right turn lanes where needed, & replace three functionally obsolete bridges along US 60 between MP 2.0 (Princess Drive) to MP 4.02 at intersection with KY 180 and Cannonsburg Road.	■	■		
BOY-28	Address deficiencies on the I-64 Perry Gentry bridges over the Big Sandy River. Joint project with WV (010B00046L/ 010B00046R).	■	■		
BOY-29	Improve last mile roadway connections along US 23 (MP 19.5 to MP 20.9)	■	■		
BOY-30	Improve last mile roadway connections along US 23 (MP 15.5 to MP 16.9)	■	■		
BOY-31	Improve last mile roadway connections along US 23 (MP 9.1 to MP 11.2)	■	■		

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
BOY-33	Construct intersection improvements at KY 5 and US 23 including turn lanes on KY 5 approach.	■	■		
BOY-34	Realign US 23/US 23X intersection for better sight distance, shifting Eighth Street/Greenup Avenue as needed.	■	■		■
BOY-35	Remove concrete median and construct two-way left-turn lane beginning at Palmer Street to McKinley Street at US 60 divergence point.	■	■		
BOY-36	Safety improvements US 60 60/13th Street from KY 168 to Algonquin Avenue	■	■		
BOY-41	Establish shared-use path connection along US 23 between Boyd and Greenup Counties	■	■		
GRE-01	Greenup Riverport Access Improvements	■	■		
GRE-02	KY 1 Reconstruction	■	■		
GRE-03	KY 2541 and US 23 Operational Improvements	■	■	■	
GRE-04	KY 750 Reconstruction	■	■		
GRE-05	KY 7 Safety Improvements	■	■		
GRE-06	KY 1458 Rehabilitation	■	■		
GRE-08	KY 7 Reconstruction	■	■		
GRE-09	Riverside Drive Improvements	■	■		
GRE-11	KY 750 Safety and Operational Improvements	■	■		
GRE-12	KY 693 at KY 1172 Operational Improvement	■	■		
GRE-13	US-23 at Caroline Road Intersection Improvements	■	■		
GRE-14	KY 5 at KY 1093 Intersection Improvements	■	■		
GRE-15	KY 693 at KY 1725 Signage and Signal Improvements	■	■		
GRE-16	KY 693 at US 23 Signage and Signal Improvements	■	■		

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
GRE-17	Caroline Road approaching US-23 Intersection Improvements	■	■		
GRE-18	KY 693 at Espy Lane Signage and Signal Improvements	■	■		
GRE-19	CS 1023 Town Branch Bridge Replacement	■	■		■
GRE-20	US 23 Safety Improvements	■	■		
GRE-21	KY 207 Operational Improvements	■	■		
GRE-22	KY 2 Reconstruction	■	■	■	■
GRE-23	KY 693 at KY 1172 intersection improvements	■	■		
GRE-27	KY 67 Safety Improvements	■	■		
GRE-28	US 23 last mile connection from 23.4 to 25.6	■	■		
GRE-29	US 23 last mile connection from 0 to 1.7	■	■		
GRE-30	KY-67 last mile connection from 1.1 to 1.4	■	■		
GRE-31	KY 67 last mile connection from 0 to 0.8	■	■		
GRE-35	Study-Design from Lewis Greenup connector road connecting KY 8 to KY 10 at Scaffold Lick	■	■		
LAW-01	Chesapeake Bypass	■	■		■
LAW-02	Lawrence US 52/State Route 243 Interchange Improvement	■	■		
LAW-03	Construct interchange improvements at US 52 and Park Avenue (OH 93) in Ironton.	■	■		■
LAW-04	New Interchange at US 52 and Burlington Retail Area/Burlington-Macedonia Road (CR 120)	■	■		
LAW-05	New Interchange at US 52 and Sandusky Road (CR 276)	■	■		
LAW-06	Construct a new interchange on US 52 near Grandview Avenue.	■	■		
LAW-07	Construct turn lanes at the US 52 and CR 15 intersection.	■	■		
LAW-08	Construct Ohio approach ramps and interchange at OH 7 leading up to the	■	■		

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
	Merritt's Creek crossing of the Ohio River and provide a contribution toward construction of the bridge itself.				
LAW-09	Close Vernon Street to auto traffic and construct improvements to make it a comfortable pedestrian environment between Bobby Bare Boulevard and S Seventh Street, and between S Ninth and S 10th streets.	■	■		
LAW-10	Construct a trail connection between Ironton Gateway (S 9th and Vernon streets) and proposed Sports and Recreation Complex north of Ironton Hills Shopping Center.	■	■		
LAW-14	US 52 Intersection with Charley Creek (CR 144)	■	■		
LAW-15	US 52 and Sandusky Road (CR 276)	■	■		
LAW-17	On Park Avenue (OH 93) from Second Street to Coryville Road construct intersection signal and traffic control optimization, safety, complete streets, ADA/sidewalk, and resurfacing improvements.	■	■		
LAW-19	Transit Multimodal Parking Facility	■	■		■
LAW-20	US 52 Safety and Access Improvements (CR 1A to CR 15)	■	■		
LAW-21	Construct interchange safety and operational improvements at the US 52 and Campbell Drive (OH 141) intersection and adjacent intersections.	■	■		■
LAW-23	Improve CR 410 from Old US 52 to US 52 in Burlington, Ohio. The project includes access management and restriping along CR 410.	■	■		
LAW-26	Lawrence Fifth Street Municipal Bridge	■	■		
LAW-27	Construct intersection safety and operation improvements along OH 775 corridors, including the intersections at OH 7 and State Street (CR 107), OH 7 and OH 775 (south, at bridge terminus), and OH 7 and Irene Road (CR 403).	■	■		■

Project	Description	Waterways and Wetlands	100-Year Floodplain	Parks and Recreation Areas	Cultural Resources
LAW-30	Improve and extend a shared-use path along former railroad right-of-way from the Railroad Street Cycle Track to Ironton Hills Shopping Center.	■	■		
LAW-31	Construct sidewalk with ADA compliant curb ramps and bike lanes along Solida Road from Fourth Street East (CR 1) east through the US 52 interchange.	■	■		
LAW-32	Construct remaining portion of Chesapeake Bypass in Phases 1C and 2 to provide a 4-lane divided facility, with interchanges at all access points between US 52 and the proposed Merritt's Creek Ohio River Crossing.	■	■		■

10.2 Environmental Justice Analysis

Title VI of the Civil Rights Act of 1964 is a non-discrimination statute. Specifically, Title VI provides that "no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits or, or be subjected to discrimination under any program or activity receiving federal financial assistance" (42 U.S.C. Section 2000d).

On February 11, 1994, President Clinton signed Executive Order 12898, which mandated that federal agencies address environmental justice (EJ) by working to identify and respond to any disproportionately high and adverse human, health, or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

The U.S. EPA's Office of Environmental Justice defines Environmental Justice as follows:

"The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies."

KYOVA Interstate Planning Commission operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987 and related statutes and regulations, such as Executive Order 12898. In planning transportation improvements, EJ populations must be treated fairly, with effort made to ensure that they do not receive a disproportionate amount of adverse impacts from the development of proposed transportation projects. In addition to the EJ populations defined above, additional groups can experience a disproportionate amount of adverse impacts from transportation projects due to their specific mobility needs and limitations, including elderly populations, zero-vehicle households, and persons with disabilities. Therefore, these groups were also included in this analysis.

This EJ analysis evaluates those projects identified as "fiscally constrained" in order to assess their potential impacts to these groups.

10.2.1 Environmental Justice Analysis Process

To start the process, 2020 U.S. Census data was gathered for the KYOVA region for all of the population groups. The U.S. Census data was collected at the Census Tract level because that was the smallest unit of geography at which the 2020 U.S. Census datasets were available, except for persons with disabilities, which was gathered at the County level because that was the smallest unit of geography available. The KYOVA regional census data was also collected so that it could serve as the area baseline. The population data was then compared to the KYOVA region, and Census Tracts with higher EJ population percentages than the region were identified.

Next, details on the 127 fiscally constrained MTP projects were collected. Since many of the projects are still in the preliminary planning process, their specific limits and footprints are not yet finalized; therefore, a quarter-mile buffer was applied to each of the projects for this EJ analysis. (As each of the projects are further developed, their footprints will continue to be refined and potential impacts will be more specific.). Last, the projects were overlaid on the Census Tracts with the EJ populations identified to determine which fiscally constrained project(s) are located in or near a Census Tract with a high EJ population percentage.

10.2.2 Low-Income Households

A low-income household is defined as one whose median household income is at or below the Department of Health and Human Services poverty

guidelines. The 2020 Census data indicates that 19.9% of the households in the MPO area are living below the poverty level.

Table 10-6 shows the percentage of low-income households in each county of the MPO area. **Table 10-7** and **Exhibit 10-4** show the fiscally constrained projects that are located in or near to census tract areas where the percent of low-income households is 10% or higher than the regional average of 19.9%.

Table 10-6 - Percent Minority Population in the MPO Area

County/Area	Total Population	Minority Population	Percent Minority Population
Cabell County, WV	90,373	8,838	9.8%
Wayne County, WV	40,112	973	2.4%
Boyd County, KY	45,701	2,830	6.2%
Greenup County, KY	35,041	1,058	3.0%
Lawrence County, OH	59,272	2,826	4.8%
KYOVA Region	270,499	16,525	5.2%

Table 10-7 - Percent Minority Population by Race/National Origin in the MPO Area

County/Area	White	Black/ African American	Hispanic or Latino	Asian	American Indian / Alaskan Native	Native Hawaiian / Pacific Islander	Some Other Race	Two or More Races
Cabell County, WV	91.5%	5.3%	1.7%	1.5%	0.2%	0.0%	0.7%	5.1%
Wayne County, WV	93.1%	0.4%	0.8%	0.2%	0.1%	0.0%	0.3%	3.0%
Boyd County, KY	96.9%	2.9%	1.6%	0.6%	0.3%	0.0%	0.7%	4.3%
Greenup County, KY	99.2%	0.6%	0.9%	0.7%	0.2%	0.0%	0.4%	3.4%
Lawrence County, OH	94.5%	0.4%	1.0%	0.4%	0.1%	0.0%	0.2%	0.4%
KYOVA Region	95.0%	1.9%	1.2%	0.7%	0.2%	0.0%	0.5%	3.3%

Table 10-8 - Percent Low-Income Households in the MPO Area

County/Area	Total Households	Low-Income Households	Percent Low-Income Households
Cabell County, WV	90,373	20,153	22.3%
Wayne County, WV	40,112	9,323	23.2%
Boyd County, KY	45,701	8,622	18.9%
Greenup County, KY	35,041	5,909	16.9%
Lawrence County, OH	59,272	10,712	18.1%
KYOVA Region	270,499	54,719	19.9%

Table 10-9 - Projects Located in or near Areas with High Concentration of Minority and Low-income Populations

Project	Description
CAB-01	Guyandotte Streetscaping Improvements - Bridge Street and Main Street
CAB-02	Eighth Avenue and 31st Street (US 60) Intersection Safety Improvements
CAB-03	Eighth Avenue Improvements and Intersection Beautification
CAB-06	First Street and Seventh Avenue Intersection Safety Improvements
CAB-18A	WV 2 Operational Improvements
CAB-21	PATH Connections - 14th Street West
CAB-22	Adams Avenue and 19th Street West
CAB-26A	Washington Boulevard and Midland Trail (US 60) Intersection Safety Improvements
WAY-01	Oak Street (US 60) and 21st Street Intersection Safety Improvements
WAY-02	WV 152 and WV 75 Intersection Safety Improvements
WAY-04	Spring Valley Drive and Goodwill Road Intersection Safety Improvements
WAY-18	5th Street Road (US 152) and Food Fair Plaza
BOY-03	Reconstruct the intersection of US 60 and Old 13th Street
BOY-04	Reconstruct intersection at KY 5 and KY 1458

Project	Description
BOY-05	Improve alignment of KY 766 with KY 1134
BOY-11	Improve operational efficiency on KY 168 from KY 1012 to US 60.
BOY-14	Perform a corridor study and make improvements along US 23 between US 60 in Catlettsburg to KY 207 in Russell
BOY-17	US 60 from SR 538 to bi-directional split. R-cut conversion between KY 538 to Rose Hill Cemetery (5.3 miles) and continuous two-way left-turn lanes from Rose Hill north.
BOY-22	Construct intersection improvements at US 60 and Berry Street.
BOY-24	Improve access management on 35th Street (west leg) approach to US 23 / US 60 intersection in Catlettsburg.
BOY-25	Remove raised median sections on Greenup Avenue.
BOY-36	See Boyd-Greenup Small Urban Study. 1. Conduct study to eliminate Algonquin Avenue approach leg 2. Signal timing optimization. Intersection improvements at US 60 and KY 168, including closing the Algonquin Avenue approach to optimize signal phasing.
GRE-04	KY 750 Reconstruction
GRE-05	KY 7 Safety Improvements
GRE-06	KY 1458 Rehabilitation
GRE-08	KY 7 Reconstruction
GRE-11	KY 750 Safety and Operational Improvements
GRE-28	US 23 last mile connection from 23.4 to 25.6
GRE-35	Study-Design from Lewis Greenup connector road connecting KY 8 to KY 10 at Scaffold Lick
LAW-02	Lawrence US 52/State Route 243 Interchange Improvement
LAW-03	Construct interchange improvements at US 52 and Park Avenue (OH 93) in Ironton.
LAW-06	Construct a new interchange on US 52 near Grandview Avenue.
LAW-07	Construct turn lanes at the US 52 and CR 15 intersection.
LAW-10	Construct a trail connection between Ironton Gateway (S 9th and Vernon streets) and proposed Sports and Recreation Complex north of Ironton Hills Shopping Center.
LAW-17	On Park Avenue (OH 93) from Second Street to Coryville Road construct intersection signal and traffic control optimization, safety, complete streets, ADA/sidewalk, and resurfacing improvements. See studies for full recommendations.
LAW-19	Transit Multimodal Parking Facility
LAW-20	Construct interchange safety and access improvements at the US 52 and CR 1A interchange west of Ironton.

Project	Description
LAW-21	Construct interchange safety and operational improvements at the US 52 and Campbell Drive (OH 141) intersection and adjacent intersections.
LAW-26	Replace the Fifth Street bridge (SFN 4460057) within Ironton as part of the municipal bridge program.
LAW-30	Improve and extend a shared-use path along former railroad right-of-way from the Railroad Street Cycle Track to Ironton Hills Shopping Center, including decorative lighting, public art, and landscaping would enhance this route and attract more users.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 10-4

Environmental Justice Focus Areas

Includes Census Tracts with populations >10% of Regional Averages for Poverty and Minority

Legend

- Environmental Justice Focus Areas
- KYOVA Projects - Points
- KYOVA Projects - Linear

Ironton, OH

Ashland, KY

Huntington, WV

Miles

Last Updated: 2/8/2022

Document Path: C:\Users\Kevin Buettner\OneDrive - Burton Planning Services, LLC\Documents\GIS\KYOVA_EJ_2022.
Saved By: KEVIN BUETTNER on 2/8/2022
Service Layer Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS TNM – National Hydrography Dataset. Data Refreshed: January, 2022.

10.2.3 Elderly Population

The 2020 census data indicates that 19.5% of the population in the MPO area is 65 years or older. **Table 10-10** shows the percentage of elderly population in each county of the MPO area. **Exhibit 10-5** shows the locations of areas where the percent of elderly population is greater than 10% of the regional average of 19.5%.

Table 10-11 lists the fiscally constrained projects that are located in or near to census tract groups with high elderly population concentrations.

Table 10-10 - Percent Elderly Population in the MPO Area

County/Area	Total Population	Elderly Population	Percent Elderly Population
Cabell County, WV	90,373	17,200	19.03%
Wayne County, WV	40,112	8,211	20.47%
Boyd County, KY	45,701	9,014	19.72%
Greenup County, KY	35,041	7,213	20.58%
Lawrence County, OH	59,272	11,076	18.69%
KYOVA Region	270,499	52,714	19.5%

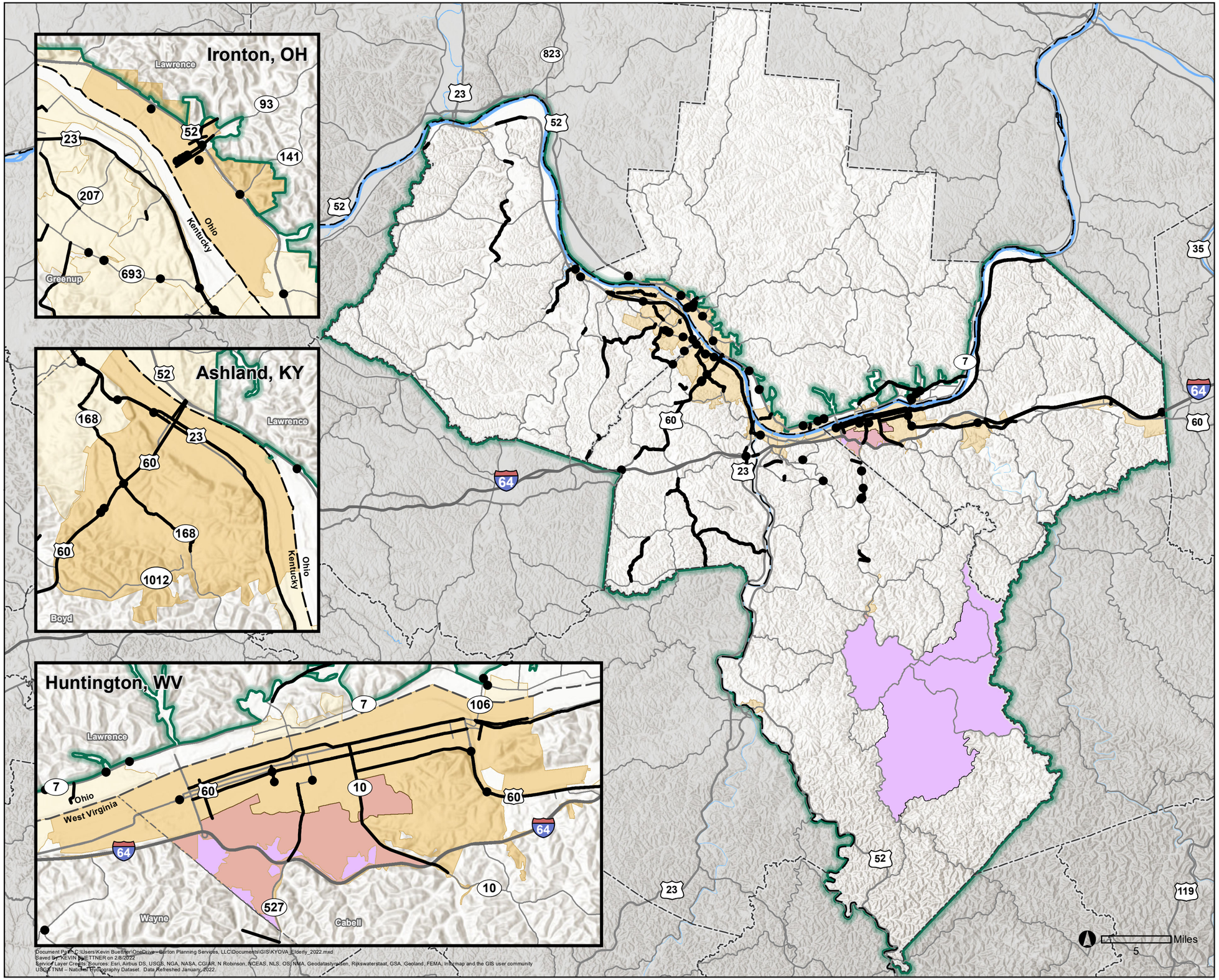
Table 10-11 - Projects Located in or near Areas with a High Percentage of Elderly Population

Project	Description
CAB-10	Multimodal, aesthetic, safety, and drainage improvements on Hal Greer Boulevard from Washington Boulevard to Highlander Way in Huntington.

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 10-5

Areas with High Elderly Populations



Legend

- Areas with High Elderly Populations
- KYOVA Projects - Points
- KYOVA Projects - Linear

Document Path: C:\Users\Kevin Buettner\OneDrive - Burton Planning Services, LLC\Documents\GIS\KYOVA_Elderly_2022.mxd
Saved by KEVIN BUETTNER on 2/8/2022
Service Layer Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS TNM – National Hydrography Dataset. Data Refreshed January, 2022.

Last Updated: 2/8/2022

10.2.4 Zero-Vehicle Households

The 2020 census data indicates that 8.1% of the households in the MPO area do not have a vehicle. **Table 10-12** shows the percentage of households in each county of the MPO area that do not have a vehicle. **Exhibit 10-6** shows the locations of areas where households do not own a vehicle is 10% or higher than the regional average of 8.1%.

Table 10-13 lists the fiscally constrained projects that are located in or near to census tracts with a high percentage of zero-vehicle households.

Table 10-12 - Percent Zero-Vehicle Households in the MPO Area

County/Area	Total Households	Zero-Vehicle Households	Percent Zero-Vehicle Households
Cabell County, WV	39,064	4,784	12.3%
Wayne County, WV	15,124	1,488	9.8%
Boyd County, KY	18,210	1,552	8.4%
Greenup County, KY	14,056	705	5.0%
Lawrence County, OH	23,221	1,508	6.5%
KYOVA Region	109,675	10,007	8.1%

Table 10-13 - Projects located in or near areas with high concentration of zero-vehicle households

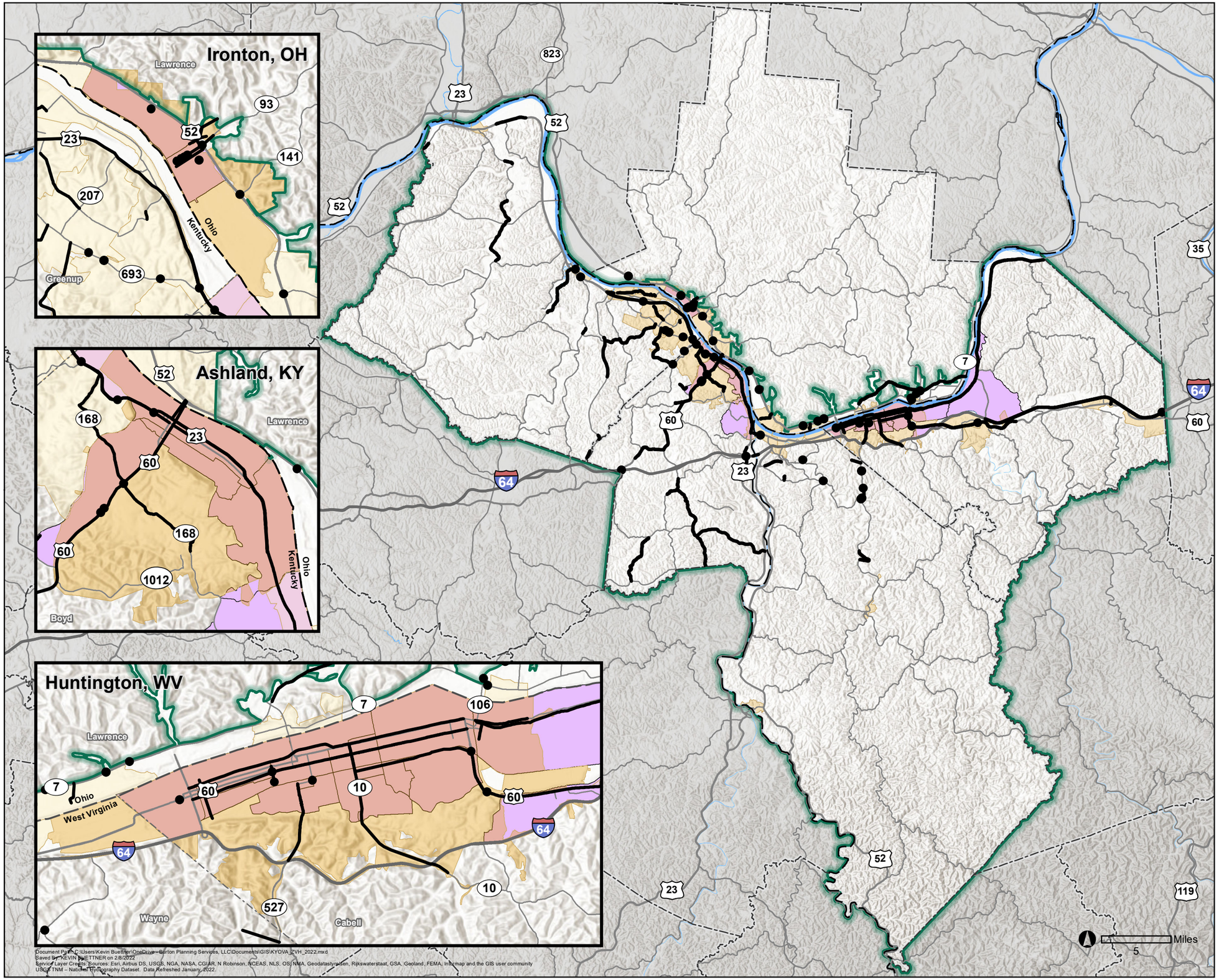
Project	Description
CAB-01	Guyandotte Streetscaping Improvements - Bridge Street and Main Street
CAB-03	Eighth Avenue Improvements and Intersection Beautification
CAB-04	Third and Fifth Avenue Complete Streets
CAB-06	First Street and Seventh Avenue Intersection Safety Improvements
CAB-07	First Street and Fifth Avenue Intersection Safety Improvements
CAB-10	Hal Greer Boulevard Complete Street - Washington Boulevard to Highlander Way
CAB-15	US 60 Roadway Improvements
CAB-18A	WV 2 Operational Improvements
CAB-21	PATH Connections - 14th Street West

Project	Description
CAB-22	Adams Avenue and 19th Street West
CAB-26A	Washington Boulevard and Midland Trail (US 60) Intersection Safety Improvements
WAY-01	Oak Street (US 60) and 21st Street Intersection Safety Improvements
BOY-03	Reconstruct the intersection of US 60 and Old 13th Street
BOY-09	Improve operational efficiency on KY 168 from Hoods Creek Road to US 23.
BOY-13	Study congestion issues and adjust signal timings and/or add turn lanes as needed.
BOY-14	Perform a corridor study and make improvements along US 23 between US 60 in Catlettsburg to KY 207 in Russell.
BOY-15	Improve safety along US-23X (Winchester Ave) from 14th to 18th St by replacing existing signalized intersections with mini roundabouts, reducing the Roadway from 4 lanes to 2 and installing angled back in parking.
BOY-24	Improve access management on 35th Street (west leg) approach to US 23 / US 60 intersection in Catlettsburg.
BOY-27	Painting and preventative maintenance on Catlettsburg Kenova Bridge on 35th Street over the Big Sandy River. Joint project with WV (010B00062N)
BOY-34	Realign US 23/US 23X intersection for better sight distance, shifting Eighth Street/Greenup Avenue as needed.
BOY-36	Safety improvements US 60 60/13th Street from KY 168 to Algonquin Avenue

KYOVA 2050 Metropolitan Transportation Plan

Exhibit 10-6

Areas with Zero Vehicle Households



Legend

- Areas with Zero Vehicle Households >10% of Regional Average
- KYOVA Projects - Points
- KYOVA Projects - Linear

Last Updated: 2/8/2022

Document Path: C:\Users\Kevin Buettner\OneDrive - Burton Planning Services, LLC\Documents\GIS\KYOVA_ZVH_2022.mxd
Saved By: KEVIN BUETTNER on 2/8/2022
Service Layer Credits: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
USGS TNM – National Hydrography Dataset. Data Refreshed January, 2022.

10.2.5 Disabled Population

The 2020 census data indicates that 22.3% of the population in the MPO area has at least one form of disability. Census Tract level data for persons with a disability is not available, so the analysis for this population group uses county level data.

Persons with a disability include people who suffer from blindness, deafness, or a severe vision or hearing impairment (sensory disability) and/or people who suffer from a condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying (physical disability). **Table 10-14** shows the percentage of the population with a disability in each county of the MPO area.

Due to the limited data available (only county-level data), it was not useful to map this population because the county areas are too large. Since Boyd County and Wayne County have the highest average percentages of persons with disabilities, additional scrutiny of accessibility may be helpful for projects in these counties.

Table 10-14 - Percent Disabled Population in the MPO Area

County/Area	Total Population	Disabled Population	Percent Disabled Population
Cabell County, WV	90,373	17,398	19.25%
Wayne County, WV	40,112	10,045	25.04%
Boyd County, KY	45,701	10,766	23.56%
Greenup County, KY	35,041	7,203	20.56%
Lawrence County, OH	59,272	13,521	22.81%
KYOVA Region	270,499	58,933	22.34%

10.2.6 EJ Analysis Summary

The EJ Analysis identified which of the recommended fiscally constrained projects may have potential impacts to EJ populations, including the minority population, low-income households, elderly population, zero-vehicle households, and disabled population. This analysis provides a foundation for future studies to assess impacts and develop measures to minimize impacts to specific EJ populations.

It is important to note that long-term impacts from transportation projects can be either positive or negative. For instance, positive impacts could be improved traffic conditions, crash reductions, and new or improved transportation infrastructure. Negative impacts could be the displacement of people due to property acquisition for right-of-way, disruption to residents and businesses during the construction period, as well as creating effects on property values. As the projects in the KYOVA MTP progress through the planning and design stages, EJ population impacts should be further evaluated and addressed.

If a project identified in the 2050 MTP will utilize federal funding, documentation in compliance with the National Environmental Policy Act (NEPA) will be required. During the NEPA process, environmental resources and features will be evaluated for impacts, including EJ populations,

pursuant to EO 12898. In addition, the development of the NEPA document will require public participation and local coordination with EJ populations.

Table 10-15 below lists the fiscally constrained transportation projects that are located in or near areas with high percentages of EJ populations, as compared to the total KYOVA MPO area.

The table includes the EJ populations that were mapped. (Persons with disabilities were not mapped because only county-level data was available.)

Table 10-15 - Fiscally Constrained Projects and Environmental Justice Populations Analysis Summary

Project	Minority Population	Low-Income Households	Elderly Population	Zero-Vehicle Households
CAB-01	■	■		■
CAB-02	■	■		
CAB-03	■	■		■
CAB-04				■
CAB-06	■	■		■
CAB-07				■
CAB-10			■	■
CAB-15				■
CAB-18A	■	■		■
CAB-21	■	■		■
CAB-22	■	■		■
CAB-26A	■	■		■
WAY-01	■	■		■
WAY-02	■	■		
WAY-04	■	■		
WAY-18	■	■		
BOY-03	■	■		■
BOY-04	■	■		
BOY-05	■	■		
BOY-09				■
BOY-11	■	■		
BOY-13				■
BOY-14	■	■		■
BOY-15				■
BOY-17	■	■		
BOY-22	■	■		

Project	Minority Population	Low-Income Households	Elderly Population	Zero-Vehicle Households
BOY-24	■	■		■
BOY-25	■	■		
BOY-34				■
BOY-36	■	■		■
GRE-04	■	■		
GRE-05	■	■		
GRE-06	■	■		
GRE-08	■	■		
GRE-11	■	■		
GRE-28	■	■		
GRE-35	■	■		
LAW-02	■	■		
LAW-03	■	■		
LAW-06	■	■		
LAW-07	■	■		
LAW-10	■	■		■
LAW-14				■
LAW-17	■	■		■
LAW-19	■	■		■
LAW-20	■	■		
LAW-21	■	■		
LAW-26	■	■		■
LAW-30	■	■		

11.0 Air Quality Conformity

11.1 Introduction

The federal Clean Air Act (CAA) established health-based National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ozone, nitrogen dioxide, carbon monoxide, particulate matter, lead, and sulfur dioxide. The CAA also requires that states conduct ongoing air quality monitoring to determine whether areas are meeting the NAAQS. The U.S. Environmental Protection Agency (EPA) designates areas as either "attainment" or "nonattainment" for each NAAQS based on the results of air quality monitoring. States and local agencies in areas that are nonattainment to a NAAQS must work together to develop a State Implementation Plan (SIP) to bring the area into attainment through a series of emission control measures and planning activities. Once air quality in a nonattainment area improves to the point where it meets the standard, EPA redesignates the area as a "maintenance" area and continues to require certain emission measures and planning steps for a period of time to ensure that the area does not slide back into nonattainment.

The CAA also requires that federally-funded highway and transit projects contained in MPO MTPs and TIPs in nonattainment and maintenance areas be consistent with the air-quality goals established in a SIP for the area. The process for demonstrating this consistency is called transportation conformity. The purpose of conformity is to ensure that projects in the MTP or TIP will not cause new air quality violations, worsen any existing violations, or delay timely attainment of NAAQS. EPA's conformity regulations establish the criteria and procedures transportation agencies must follow to demonstrate conformity of MTPs, TIPs, and transportation projects. Conformity must be demonstrated before an MPO in a nonattainment or maintenance area can adopt a MTP or TIP.

11.2 Eight Hour Ozone

The KYOVA MPO is situated in the Huntington-Ashland airshed for 8-hr Ozone, which includes Cabell and Wayne counties in West Virginia and Boyd County in Kentucky. In February 2018 a court ruling (South Coast II) struck down portions of EPA's implementation rule for transition from the 1997 ozone standards to the more stringent 2008 standards. The court ruled that those areas that were non-attainment or maintenance areas for the 1997 standard were required to continue to demonstrate conformity for the 1997 standard even though the area may be in attainment for the 2008 standards. Due to KYOVA being a maintenance area for 1997 standards, a conformity analysis and determination is required.

As a result of the February 2018 South Coast II court ruling, in November 2018, EPA issued Transportation Conformity Guidance (EPA-420-B-18-050) that addresses how transportation conformity determinations can be made in areas affected by the court decision. The guidance states that in these areas, transportation conformity for MTPs and TIPs can be demonstrated without a regional emissions analysis. Conformity can be demonstrated by showing that the other requirements in EPA's conformity regulation for using the latest planning assumptions, consultation, timely implementation of applicable Transportation Control Measures, and fiscal constraint have been met.

11.3 Interagency Consultation

Interagency consultation was conducted with WVDOH, KYTC, ODOT, FHWA, FTA Regions 3, 4 and 5, US EPA Regions 3, 4 and 5, WVDEP, KYDEP, and OEPA. Interagency consultation began with convening the Interagency Consultation Group via email on October 25, 2021. KYOVA met with the Interagency Consultation Group via

conference call on March 11, 2022 to obtain concurrence on the latest planning assumptions discussed in Section 4.2. Interagency consultation was conducted consistent with the West Virginia, Kentucky, and Ohio Conformity SIPs.

11.4 Public Review

KYOVA followed all procedures for updating the 2050 MTP (which included the Air Quality Chapter/Conformity Report) as outlined in the KYOVA Participation Plan. Online public meetings were held on November 17th, 2021, February 1st, 2022, and March 1st, 2022 and a 30-day public review of the draft plan occurred from February 22nd, 2022 to March 23rd, 2022. No public comments were submitted during the 30-day public comment period.

11.5 Transportation Control Measures

There are no Transportation Control Measures for this area.

11.6 Fiscal Constraint

The KYOVA 2050 MTP and the KYOVA 2021-2024 TIP are financially constrained. See **Chapter 9** for additional information on the assumptions and findings of the demonstration of fiscal constraint.

11.7 Transportation Conformity Statement

KYOVA conducted a conformity determination for the 2050 MTP according to the requirements in EPA's November 2018 Transportation Conformity Guidance. KYOVA determined that the 2050 MTP meets the CAA and transportation conformity rule requirements for the 1997 ozone NAAQS. The Transportation Conformity Determination Report for the 1997 Ozone NAAQS and the associated interagency consultation documentation can be found in **Appendix D**.

CRITERIA FOR EVALUATING CONFORMITY DETERMINATIONS

Evaluation of the Conformity Determination for the KYOVA 2050 Metropolitan Transportation Plan (MTP)

Section of 40 CRF Part 93	Criteria	Y/N	Comments
93.106(a)(1)	Are the horizon years correct?	Y	The horizon year of the model is 2050. The model interim years are 2030 and 2040.
93.106 (a)(2)(i)	Does the plan quantify and document the demographic and employment factors influencing transportation demand?	Y	The plan includes all the projects, current and future population, employment, travel pattern, and congestion information available from the Census, socioeconomic projections, and the travel demand model. Refer to Chapter 4 for more information.
93.106 (a)(2)(ii)	Is the highway and transit system adequately described in terms of the regionally significant additions or modifications to the existing transportation network which the transportation envisions to be operational in the horizon years?	Y	Yes, the recommended plan includes all regionally significant changes expected to the transportation network. The KYOVA 2050 MTP recognizes the relationship between transportation facilities, population, employment, goods movement, and land use. The KYOVA 2050 MTP emphasizes maintaining and increasing operating efficiency.
93.108	Is the Transportation Plan Financially Constrained?	Y	Projected revenues are based upon past expenditures for individual funding categories (WVDOT, KYTC, ODOT, FHWA, and FTA) as well as revenue projections provided by WVDOT, KYTC, and ODOT. The individual projects and travel modes are part of a financially constrained plan. See Chapter 9 for more information.
93.110	Are the conformity determinations based upon the latest planning assumptions?	Y	The requirement to use the latest planning assumptions generally applies to conducting a regional emissions analyses, including modeling inputs, but also includes assumptions about transportation control measures (TCMs) if any are included in an approved and applicable SIP. As orphan areas do not require regional emission analyses, and the SIP for the KYOVA region did not include TCMs, the use of latest planning assumptions is not applicable for the regional conformity determinations for the KYOVA 2050 MTP.

Section of 40 CRF Part 93	Criteria	Y/N	Comments
93.110	(a) Is the conformity determination, with respect to all other applicable criteria in tt 93.111 – 93.119, based upon the most recent planning assumptions in force at the time of the conformity determination?	Y	See above response.
	(b) Are the assumptions derived from the estimates of current and future populations, employment travel, and congestion most recently developed by the MPO or other designated agency? Is the conformity determination based upon the latest assumptions about current and future background concentrations?	Y	Yes. KYOVA's travel demand model is now validated in version 7.0, build 12430 (64-bit) of TransCAD, based on an updated forecast and traffic counts for 2015.
	(c) Are any changes in the transit operating policies (including fares and service levels) and assumed transit ridership discussed in the determination.	N	No substantial changes in operations or ridership are expected. Refer to Chapters 6 and 8 of the KYOVA 2050 MTP.
	(d) The conformity determination must include reasonable assumptions about transit service and increases in transit fares and road and bridge tolls over time.	N/A	There are no plans to increase fares or implement bridge tolls at this time in the MPO coverage area. Refer to Chapters 6 and 8 of the KYOVA 2050 MTP.
	(e) The conformity determination must use the latest existing information regarding the effectiveness of the TCMs and other implementation plan measures which have already been implemented.	N/A	There are no TCMs in West Virginia. Therefore, this is not applicable.
	(f) Key assumptions shall be specified and included in the draft documents and supporting materials used for the interagency and public consultation required by t93.105.	Y	The KYOVA 2050 MTP with Air Quality Conformity documentation was subjected to a 30-day public comment period prior to approval by the KYOVA board. Interagency consultation procedures were followed. Prior to the development of the KYOVA 2050 MTP, notices were placed in KYOVA's local newspapers, and a mailing list of all known interested parties was maintained by the KYOVA staff. The list included the KYOVA Policy Board and Technical Advisory Committee, private providers of transportation, and representatives of transportation agency employees and social service agencies (particularly those that serve the minority population).

Section of 40 CRF Part 93	Criteria	Y/N	Comments
			For comments received during the Public Involvement Process or the interagency consultation process required under the US EPA's conformity regulations, a summary, analysis, and report on the disposition of the comments will be made part of the final documents. Refer to Chapter 2 of the KYOVA 2050 MTP.
93.111	Is the conformity determination based upon the latest emissions model?	N/A	As stated earlier, no regional modeling analysis is required.
93.112	Did the MPO make the conformity determination according to the consultation procedures of the conformity rule or the state's conformity SIP?	N/A	Interagency coordination between KYOVA, WVDEP, WVDOT, KYTC, ODOT, EPA, and FHWA took place during the MTP development process. No regional conformity modeling is required.
93.113 (b)	Are TCMs being implemented in a timely manner?	N/A	There are no TCMs in West Virginia. Therefore, this is not applicable.
93.118	For areas with SIP Budgets: Is the Transportation Plan, TIP, or Project consistent with the motor vehicle emissions budget(s) in the applicable SIP?	N/A	A regional emissions analysis was not required for the MTP.

KYOVA Interstate Planning Commission

Plan prepared by

BURGESS & NIPLE