KYOVA 2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION

KYOVA
INTERSTATE PLANNING COMMISSION

400 Third Avenue
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Kimley-Horn and Associates, Inc.

November 2013

KYOVA 2040 Metropolitan Transportation Plan (MTP)

KYOVA Interstate Planning Commission

400 Third Avenue
Huntington, West Virginia 25701

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The contents of this report reflect the view of KYOVA Interstate Planning Commission, which is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the West Virginia Division of Highways, the Ohio Department of Transportation, or the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration. This report does not constitute a standard, specification, or regulation.

November 2013

Abstract

TITLE: **KYOVA 2040 Metropolitan Transportation Plan**[1]

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

SUBJECT: The development of the year KYOVA 2040 Metropolitan Transportation Plan (MTP) was accomplished by the means of a qualitative and quantitative analysis of all factors required by the Moving Ahead for Progress in the 21st Century Act (MAP-21)—signed into law on July 6, 2012—and in cooperation with the West Virginia Department of Transportation, Ohio Department of Transportation, Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Tri-State Transit Authority (TTA), and Lawrence County Public Transit System.

DATE: **November 2013**

SOURCE: **KYOVA Interstate Planning Commission**

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ABSTRACT: This document describes the process of the development of the KYOVA 2040 MTP. The KYOVA 2040 MTP recommends the region's transportation system needs through 2040, based on best analysis of current conditions and projected needs and guided by the complex requirements of the Moving Ahead for Progress in the 21st Century Act (MAP-21) and Clean Air Act Amendment (CAAA). The KYOVA 2040 MTP recognizes the relationship between transportation facilities, employment, population, goods movement, land use, and air quality. The KYOVA 2040 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 $6.7 billion in WVDOT, ODOT, FTA and FHWA funds will be available through 2040 to fund capital, maintenance, and operation projects.

[1] **KYOVA 2040 MTP Development Schedule**

- 03/01/2013—First Draft KYOVA 2040 MTP✓
- 05/03/2013—Final Draft✓
- 11/25/2013—Final KYOVA 2040 MTP✓

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RESOLUTION **# 2013-004**

KYOVA INTERSTATE PLANNING COMMISSION

2040 METROPOLITAN TRANSPORTATION PLAN AND 2014-2017 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) CONFORMITY DETERMINATION WITH 1990 CLEAN AIR ACT AMENDMENTS

WHEREAS, the KYOVA Interstate Planning Commission (KYOVA) is the officially designated Metropolitan Planning Organization (MPO) for transportation planning in the Huntington, West Virginia, Ashland, Kentucky and Ironton, Ohio Metropolitan Area.

WHEREAS, KYOVA is responsible for developing 2040 Metropolitan Transportation Plan and a four-year Transportation Improvement Program for the Huntington, Ashland, Ironton, and completed the modeling process for the purposes of air quality analysis/conformity Analysis.

WHEREAS 40 CFR Parts 51 and 93 of the Final Rule under the Clean Air Act Amendments of 1990 requires the MPO to use latest and most current information and data to determine Air Quality Conformity for the 2040 Metropolitan Transportation Plan for the Huntington-Ironton MSA, and;

WHEREAS, the KYOVA Interstate Planning Commission has, in coordination with the West Virginia Department of Transportation, Division of Highways; the West Virginia Department of Environmental Protection, Division of Air Quality; Kentucky Transportation Cabinet and the Ohio Department of Transportation determined that the 2040 Transportation Plan and 2014-2017 TIP is in conformity, and;

WHEREAS, the selection priorities, design concept, and scope of projects from the current TIP have not changed as a result of the adoption of this plan. Therefore, the conformity determination of the TIP is unchanged and is consistent with the conformity determination of the transportation plan. The adoption of the Air Quality Conformity Determination for the Transportation Plan reaffirms the Air Quality Conformity Determination, for the TIP.

NOW, THEREFORE BE IT RESOLVED THAT: KYOVA determines that there is conformity between the adopted FY 2040 Metropolitan Transportation Plan and the West Virginia and Ohio State Implementation Plan for the attainment of the National AirQuality Ambient Quality Standards (NAAQS), as described below.

KYOVA determines that the MetropolitanTransportation Plan and the Transportation Improvement Program as endorsed for the Huntington-Ironton MSA conforms to the West Virginia and Ohio State Implementation Plans, by supporting their intentions of achieving and maintaining NAAQS.

KYOVA assures that the adopted Transportation Plan contains no goals, directives, recommendations, or projects, which contradict any requirements or commitments of the West Virginia or Ohio State Implementation Plans.

Based upon the attached support documentation, KYOVA has determined that the adopted Transportation Plan will contribute to annual reductions in ozone emissions in the area for the maintenance -attainment area for 8 Hour ozone Standard of Ambient Air Quality and Particulate Matter (PM 2.5) Standards (NAAQS) compliance. Based upon the same support documentation, KYOVA further determined that the 2040 Metropolitan Transportation Plan and 2014-2017 Transportation Improvement Program does not increase the emissions of ozone precursors in the future, in excess of the emissions budget included in the State Implementation Plan.

Jason Stephens
KYOVA Interstate Planning Commission

Michele P. Craig, Executive Director
KYOVA Interstate Planning Commission

March 1, 2013

Resolution # 2013-005

RESOLUTION

WHEREAS, Moving ahead for progress in the 21st Century (MAP-21) requires a Transportation Improvement Program (TIP) be adopted by each Metropolitan Planning Area, and;

WHEREAS, KYOVA Interstate Planning Commission (KYOVA) is the Metropolitan Planning Organization for the Huntington, Ashland, Ironton Metropolitan Area, conducting the Huntington, Ashland, Ironton Area Transportation Study (HAIATS), and;

WHEREAS, The Huntington, Ashland, Ironton Area Transportation Study has met the provisions of the (MAP-21), in the Transportation Improvement Program (TIP) for Fiscal Years 2014-2017.

WHEREAS, The selection priorities, design concept and scope of projects from the current TIP have not changed as a result of the adoption of this plan, therefore the conformity determination of the TIP is unchanged and is consistent with the conformity determination of the transportation plan. The adoption of the Air Quality Conformity Determination for the Transportation Plan reaffirms the Air Quality Conformity Determination for the TIP.

NOW, THEREFORE BE IT RESOLVED, that the KYOVA Interstate Planning Commission adopt the Transportation Improvement Program (TIP) for the Fiscal Years 2014-2017. To become effective upon its inclusion in the State's Transportation Improvement Program (STIP) and its adoption by FHWA and FTA at the beginning of their fiscal year.

Jason Stephens, Chairman
KYOVA Interstate Planning Commission

Date: March 1, 2013

Acknowledgements

On behalf of the project team, the KYOVA Interstate Planning Commission thanks the diverse group of participants whose input was instrumental to create a blueprint for a safe and sustainable transportation system that provides real choice among modes of travel. The *KYOVA 2040 Metropolitan Transportation Plan* is the direct result of a collaborative effort between the MPO and its member jurisdictions with support from the West Virginia and Ohio Departments 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

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Steering Committee

Tom Bell – Huntington Municipal Development Authority

Rich Blankenship – Mayor, City of Ironton

Jerry Brienza – Huntington Tri-State Airport

Douglas Cade – Lawrence County Engineer

Nancy Cartmill – Cabell County Commission

Randy Cheetham – CSX

Paul Davis – Tri-State Transit Authority

Bill Dingus – Lawrence County Chamber of Commerce

Greg Farley – Wayne County Sheriff

Dave Graley – Cabell Huntington Hospital Foundation

David Hagley – City of Huntington Public Works

Charles Holley – Huntington Planning Department

Dan Jeffries- Prestera Trucking

Ralph Kline – Ironton-Lawrence County Area CAO

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James Turner – Huntington Regional Chamber of Commerce

Bill Willis – Wayne County EMS

Kim Wolfe – Former Mayor, City of Huntington

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Introduction

As a central element of daily life and something that affects everyone, transportation represents a critical component of an area's social and manmade infrastructure. The *KYOVA 2040 Metropolitan Transportation Plan (KYOVA 2040 MTP)* is the Huntington region's comprehensive guide to 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. In response to federal mandates and the desires of local residents, the *KYOVA 2040 MTP* addresses all modes of transportation including automobile, bicycle, pedestrian, transit, and freight movements.

The *KYOVA 2040 MTP* is shaped by several elements, primarily federal legislation, but also the direction of state and local agencies. This plan, which updates the 2035 Plan adopted in May 2009, is governed by the Moving Ahead for Progress in the 21st Century (MAP-21) federal legislation.

Planning Process

The federal government requires a comprehensive, cooperative, and continuing process for projects to receive federal transportation funding. A variety of public outreach initiatives ensured such a process while gathering diverse opinions from residents, business owners, and various stakeholders. The planning process was spearheaded by a Steering Committee composed of representatives from Cabell County, Lawrence County, Wayne County, the West Virginia Division of Highways, the Ohio Department of Transportation, the City of Huntington, the City of Ironton, the Village of Barboursville, the Tri-State Transit Authority, and the Huntington Tri-State Airport. Also included were representatives from railroad companies, educational institutions, area hospitals, chambers of commerce, development authorities, emergency response agencies, and freight companies.

Beginning with a kick-off meeting on January 19, 2011, the Steering Committee met throughout the planning process to examine existing deficiencies and potential solutions for motorists, bicyclists, pedestrians, transit riders, and freight operators. The committee also assisted the project team in developing the necessary parameters to update the region's travel demand model and helped administer other public involvement efforts that included public workshops, stakeholder interviews, and a public questionnaire.

Previous Planning Efforts

To ensure coordination with other state, regional, county, and local plans and/or policies that impact planning efforts within the area, various previous plans were reviewed at the outset of the planning process. These plans included the *Huntington-Ironton Area Transportation Study (HIATS) – 2035 Long-Range Transportation Plan*, *Access Ohio 2040*, the *Downtown Huntington Access Study*, the *West Virginia Multimodal Statewide Transportation Plan*, and the *KYOVA Transportation Improvement Program: Fiscal Years 2012-2015*.

Vision, Guiding Principles, and Goals

The vision statement for the *KYOVA 2040 MTP* was developed in collaboration with the Steering Committee and validated through other public outreach channels. The Vision Statement, which guided the planning process, is as follows:

We envision a growing region serviced by a safe 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.

Guiding principles, goals, and objectives also were developed to help reinforce the connection between present-day trends in transportation planning and the needs and desires expressed early in the planning process for the *KYOVA 2040 MTP*. The guiding principles provide overarching themes for the development of the plan, while the goals and objectives outline specific ways to achieve the plan's vision.

Guiding Principles

The Guiding Principles, shown on the right, represent a set of value statements for six major transportation priorities identified for the *KYOVA 2040 MTP*. The principles define a series of transportation strategies that aim to guide regional growth. The guiding principles were shared with the public during the planning process and workshops. As multi-modal strategies were developed, the project team revisited the guiding principles to determine which principles a given project or strategy addressed. The result of the analysis comprised a portion of the project evaluation process.

Goals

Goals and objectives were developed to ensure the plan addresses regional transportation needs and complies with MAP-21. The goals offer a general guide to fulfill the vision statement, while objectives define results that must be achieved or actions that must be followed to reach their respective goal. Goals and objectives are not mutually exclusive of each other and often conflict with each other. For example, a project that encourages economic development could be excluded from the plan because it may endanger wetlands. 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. These goals are listed in no particular order on the following pages.

KYOVA 2040 MTP Guiding Principles

Goods Movement

Promotes freight movement and enhances intermodal connections

Congestion Mitigation

Tackles issues identified in the travel demand model through strategic capacity improvements

Barriers to Mobility

Addresses concerns related to natural and manmade obstacles to safety and mobility

Livability and Complete Streets

Enhances gateways and improves beautification while making corridors more multimodal

Multimodal Integration

Creates a coordinated network of bicycle and pedestrian facilities and transit/passenger rail services

Tourism and Recreation

Protects the character of communities and promotes economic vitality

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

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.

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.

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

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) as part of an overall transportation management strategy.

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

Objectives

- Provide a safe traveling experience for all users by implementing safety measures at high priority crash locations and improving facilities for bicyclists and pedestrians.
- Promote programs and projects that reduce the number and severity of traffic accidents, 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.

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.

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.

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

Objectives

- Connect homes, parks, community activity centers, employment hubs, and other key destinations to one another 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 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.

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.

Plan Organization

Great plans often fail to reach their potential due to the ineffective communication of the vision, process, outcome, and recommendations. Documentation of the *KYOVA 2040 Metropolitan Transportation Plan* blends the description of the vision and statement of existing conditions with a detailed list of policies, operational strategies, and projects to achieve the vision. The *KYOVA 2040 MTP* consists of a series of elements dedicated to specific modes of travel. While each element is presented in a standalone chapter, the visioning, analysis, and recommendations for the elements were created concurrently to produce a series of actions that lead to an integrated intermodal transportation system that efficiently moves people and goods within and beyond the KYOVA region.

The collective recommendations and strategies documented through the *KYOVA 2040 MTP* support the region's vision for a safe and sustainable transportation system that provides real choice among modes of travel. In addition to the introductory chapter, the following elements complete the *KYOVA 2040 MTP*:

Social and Environmental Element

Chapter 2 of the *KYOVA 2040 MTP* documents environmental and social features and includes maps that illustrate locations of natural and cultural resources as well as the distribution of minority, Hispanic, elderly, low-income, and no vehicle populations. When overlaid with proposed transportation projects, this information provides a frame of reference to help assess the relative impacts of these projects on the community.

The populations of Cabell, Lawrence, and Wayne Counties are highly concentrated along the Ohio River and I-64. Of the 201,250 people in the KYOVA MPO area, minorities make up only 5.6%. Less than 1% of the KYOVA MPO population is Hispanic. The median age for the area is 40.0 years old and 15.9% are over the age of 65. Approximately one-fifth of KYOVA MPO residents have incomes lower than the poverty line, which is higher than the national average of 14.3%.

No vehicle access populations are characterized by Census tracts with over 20% of households without access to a vehicle. In the KYOVA region, no vehicle access populations are located primarily in the City of Huntington, though this may indicate that residents are able to access daily needs via alternative transportation modes.

The KYOVA region's abundant natural resources include the Ohio, Big Sandy, and Guyandotte Rivers; Beech Fork Lake; and the Dean State, David Harris Riverfront, Beech Fork State, Kiwanis, Ritter, and Barboursville Parks. The MPO area also boasts cultural resources; popular destinations and activity centers in the area include schools, universities, libraries, community centers, hospitals, and historic buildings and districts.

Roadway Element

The Roadway Element of the *KYOVA 2040 Metropolitan Transportation Plan* is presented in **Chapter 3**. This chapter documents current and forecasted roadway conditions within the study area and builds the foundation for evaluating existing and future transportation needs at the corridor level.

The KYOVA region's major activity centers are located along the Ohio and Big Sandy Rivers, which are paralleled by major roadway corridors including US 52, SR 7, I-64, and US 60. Other key routes include WV 152, 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 many industrial communities along the Ohio and Big Sandy Rivers such as Huntington, Ironton, South Point, 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. SR 7, 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 study area.

Public feedback, stakeholder outreach, review of the 2035 LRTP, available congestion and safety data, and previous planning efforts aided the development of roadway recommendations, outlined in a series of descriptive project sheets.

These recommendations were then prioritized based on the following criteria:

- Efficiency
- Reduction in delay
- Reduction in excess demand
- Support of freight priorities
- Support of transit service
- Support of bicycle and pedestrian mobility
- Safety
- Growth management
- Economic development
- Social criteria
- Environmental criteria
- Existing deficiency
- Cost effectiveness
- State priority

This prioritization exercise, along with the Steering Committee's identification of the most important projects in the MPO area, established an overall tiered project prioritization. The projects in tier 1 consist of recommendations that scored well in the prioritization exercise as well as among members of the Steering Committee. These projects include:

- Construction of the Ohio River Bridge;
- Replacement of the W 17th Street Bridge;
- Widening of 8th Avenue;
- Widening of I-64;
- Improving operations along WV 2;
- Widening of WV 2;
- Construction of the Chesapeake Bypass;
- Widening of Park Avenue (SR 93);
- Construction of the Prichard Access Road;
- Widening of US 52;
- Widening of Darling Lane; and
- Widening of Goodwill Road.

Safety and Security Element

The *KYOVA 2040 MTP* includes an evaluation of transportation safety and security for each of the modes of the plan in **Chapter 4**. This chapter of the *KYOVA 2040 MTP* focuses on safety and security as it relates to the critical nodes—intersections, viaducts, and bridges—of the roadway network. It is emphasized that the different modes that complete the region's transportation network typically intersect, and often conflict, at these points. Recommendations identified in this chapter can be considered with those in **Chapter 3** to paint a comprehensive picture of roadway needs in the KYOVA region.

The state of West Virginia ranks 4th in the nation for fatalities per 100 million vehicle miles traveled, while Ohio ranks 37th. Specific comments from the public highlighted the need for better rail crossings in downtown Huntington, signals where US 52 crosses under Marion Pike in Coal Grove, better pedestrian accommodations at all of the viaducts in Huntington, and speed enforcement along I-64 near the West Virginia / Kentucky border.

Several priority intersections were examined as a part of the *KYOVA 2040 MTP*. Based on a detailed field review, crash history data, and existing roadway geometry characteristics, this plan recommends improvements at these priority safety intersections as well as intersections identified for improvement in the 2007 *Traffic and Safety Study for US 52 and SR 7*.

Of the 707 bridges located in Cabell, Lawrence, and Wayne Counties, 94 have sufficiency ratings of 50 or below, designated as structurally deficient or functionally obsolete.

The *KYOVA 2040 MTP* includes the consideration of congestion management / incident management and the results of the 2007 *Traffic and Safety Study for US 52 and SR 7*. Several systems management improvements have been identified in the West Virginia and Ohio STIPs and the Ironton Traffic Flow Study. Recommended systems management deployments include:

- I-64 / US 60 Integrated Corridor Management
- I-64 / US 60 / US 52 / US 23 Incident Management Corridor
- US 52 Freight Management / Incident Management Corridor
- Back of Queue Detection and CCTV Surveillance

Bicycle and Pedestrian Element

The Bicycle and Pedestrian Element, **Chapter 5**, of the *KYOVA 2040 Metropolitan Transportation Plan* emphasizes how local decisions can enhance safety and mobility for cyclists and pedestrians in the region's urban centers and rural routes. The *KYOVA 2040 MTP* blends efforts and recommendations from previous planning efforts with the other elements of the MTP, notably the roadway element. This chapter begins with an overview of the bicycle and pedestrian framework and planning context for this element. The heart of the Bicycle and Pedestrian element is a series of facility, program, and policy recommendations.

Recommendations to improve bicycle and pedestrian movements for the *KYOVA 2040 MTP* include bicycle lanes with pavement markings on the street, separated multi-use paths, signed bicycle routes, viaduct and bridge enhancements, sidewalk improvements, and discussion on water ferry service. The top priorities are improvements to the 1st Street, 8th Street and 10th Street viaducts as well as ADA compliant curb ramps and crosswalks. The viaducts create a barrier with narrow walkways, dirty conditions, dilapidated handrails, and flanking vehicular traffic. These conditions create an unpleasant environment for pedestrians. ADA compliance is recommended for all intersections, including curb ramps, crosswalks, and pedestrian countdown timers. Other priorities include:

- Bike lanes on Hal Greer Boulevard (8th Avenue to Washington Boulevard), Veteran's Memorial Parkway, 8th Street, 3rd Avenue, 4th Avenue, 5th Avenue;
- Signed route on 5th Street and 14th Street as part of the PATH;
- Improvements to 16th Street viaduct;
- Bike lanes on US 60, 29th street, WV 2, SR 7, and 1st Street;
- Trails and walkways in Ironton; and
- Signed bike routes in Barboursville and Ironton.

Transit Element

MAP-21 requires that MPOs consider all modes of transportation in the analysis of region-wide mobility and the formulation of recommended plans, programs, and policies. The collective result of the modal elements should be an integrated and balanced intermodal transportation system that safely and efficiently moves people and goods. The purpose of **Chapter 6**, the Transit Element of the *KYOVA 2040 Metropolitan Transportation Plan*, is to analyze and evaluate various aspects of the public transportation system and produce an overall program that 1) serves the existing and potential needs of the area and 2) satisfies Federal and State eligibility requirements for financial assistance.

The Tri-State Transit Authority (TTA) serves Cabell and Wayne Counties. The Ironton-Lawrence County Community Action Organization (CAO) provides management services to the Lawrence County Port Authority (LCPA) and administers the contract with the TTA who also operates fixed route and ADA paratransit service in Lawrence County. Wayne Express provides demand response service in Wayne County. The City of Ashland Bus System (ABS) offers four routes throughout the Ashland and adjoining areas, extending to Catlettsburg, Kenova and Summit. The KYOVA region is also served by several human service agencies, park-and-ride lots, Amtrak service, taxi service, the Huntington-Charleston commuter bus, and intercity bus service via Greyhound Lines.

Potential service improvements include:

- Expansion of service areas;
- Increasing existing demand response service;
- Restructuring Lawrence County routes;
- Improving fixed route frequencies;
- Adding Sunday TTA service;
- Providing TTA bus service for Ceredo and Kenova;
- Providing TTA service to Huntington Tri-State Airport;
- Improving amenities at bus stops;
- Enhancing Amtrak service;
- Increasing park-and-ride options;
- Leveraging taxi service;
- Monitoring the Huntington-Charleston commuter bus; and
- Expanding intercity bus service.

Several public transportation system management improvements are also recommended in this chapter.

Aviation, Freight, Maritime, and Rail Element

The purpose of **Chapter 7** of the *KYOVA 2040 Metropolitan Transportation Plan* is to assess the existing freight conditions in the region and recommend improvements. For this effort, the project team utilized data available from a variety of sources as well as information obtained through a series of interviews with freight stakeholders in the KYOVA region. Freight by mode, weight, and value is documented, and information related to employment by industry is provided.

A key element of the *KYOVA 2040 MTP* is to evaluate and provide recommendations to improve the existing transportation system to provide efficient and cost-effective transportation of freight and to enhance the future regional economy and trading environment. The freight analysis portion of the *KYOVA 2040 MTP* involved three inputs: 1) a review of existing freight related studies; 2) freight stakeholder interviews; and 3) an evaluation of existing conditions and future trends. The chapter also outlines existing freight flows by mode through the three-county KYOVA region. Several roadway recommendations described in **Chapter 3** and safety and security recommendations mentioned in **Chapter 4** support aviation, freight, maritime, and rail. These recommendations are reiterated in this chapter.

Land Use Considerations

The *KYOVA 2040 Metropolitan Transportation Plan* respects the variety of local smart growth planning initiatives underway—such as investment in downtowns, suburban place-making, and rural preservation—and promotes transportation improvements sensitive to the overall goals of these initiatives within the context of the regional transportation system. Land use and urban form considerations included in **Chapter 8** of the *KYOVA 2040 MTP* focus on the inherent relationship between land use (demand), urban form (design), and transportation (supply) for improving the efficiency of the regional transportation system while promoting livability within local communities.

Financial Plan

The financial plan, provided in **Chapter 9**, shows proposed investments that are realistic in the context of reasonably anticipated future revenues over the life of the plan and for future network years, set for the purpose of the *KYOVA 2040 Metropolitan Transportation Plan* as 2030 and 2040. Meeting this test is referred to as "financial constraint." The mix of transportation recommendations proposed to meet metropolitan transportation needs over the next 27 years is consistent with revenue forecasts. The Financial Plan details both proposed investments toward these recommendations and revenue forecasts over the life of the plan. **Figure 9.1** shows the highway projects organized by funding horizon.

Implementation Plan

The financial plan presented in **Chapter 9** is based on a federal requirement for fiscal constraint. As a result, the *KYOVA 2040 MTP* does not require all recommendations be completed in unison. Instead, the recommendations promote flexibility and partnership between the MPO, its member jurisdictions, the state and federal agencies providing oversight, and private entities to implement the full vision of the MTP. Completion of the *KYOVA 2040 MTP* represents an important initial step toward creating a safe, efficient multimodal transportation system. Detailed in **Chapter 10**, the Implementation Plan provides a blueprint for the necessary steps to ensure this vision is fulfilled.

Air Quality Conformity

Chapter 11 details the assumptions and procedures used in the air quality conformity analysis for the *KYOVA 2040 Metropolitan Transportation Plan* and 2014-2017 Transportation Improvement Program. This analysis was originally required to meet the 1997 eight-hour ozone National Ambient Air Quality Standard (NAAQS), and maintained within the plan once the 2008 8-hour ozone standards went into effect. The KYOVA Metropolitan Area has a base year 2010 travel demand model with a horizon year of 2040 that was developed for the *KYOVA 2040 MTP* analysis. This air quality conformity analysis seeks to update information contained in the *2035 Huntington-Ironton Area Transportation Study*. This analysis follows all the latest planning assumptions set forth by MAP-21 and applicable state and federal legislation, and included extensive coordination with the regional Interagency Consultation (IAC) group.

The results of this analysis indicates that the future area-wide mobile source emissions of the ozone precursors NOx and VOC for an average summer day will be less than the emissions budgeted in the 1997 8-hour ozone maintenance plan.

The results indicate a steady decline in NOx and VOC emissions in future analysis years. The one exception to this is a slight increase in VOCs in 2040. This can be attributed to the fact that overall improvements in the vehicle fleet are anticipated to taper off after 2030.

The projected mobile source emissions for VOC and NOx will be less than the allotted budget through the year 2040. Therefore, the *KYOVA 2040 MTP* and the corresponding 2014-2017 Transportation Improvement Program conform to the 1997 8-hour ozone NAAQS.

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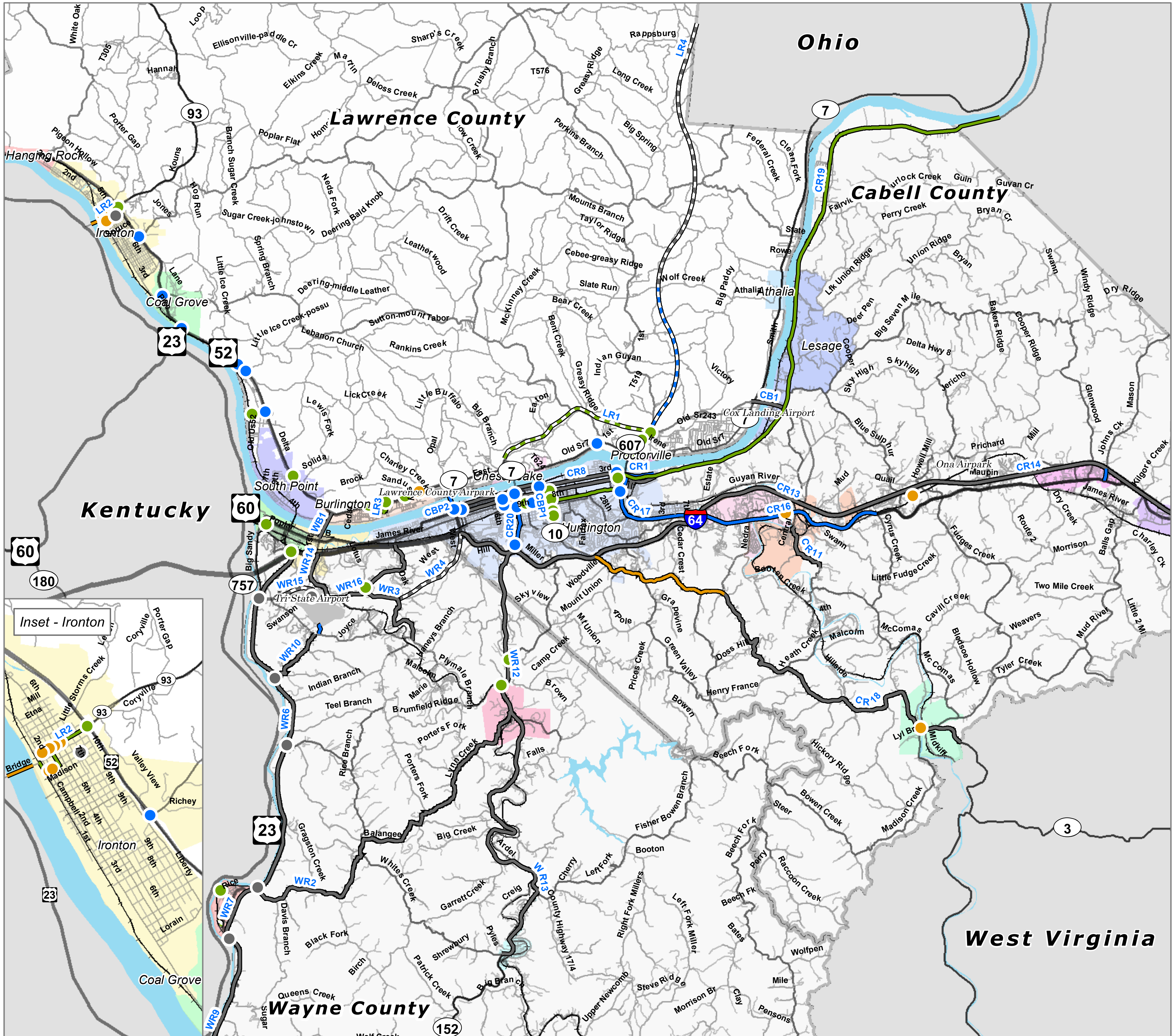
2040 Metropolitan Transportation Plan

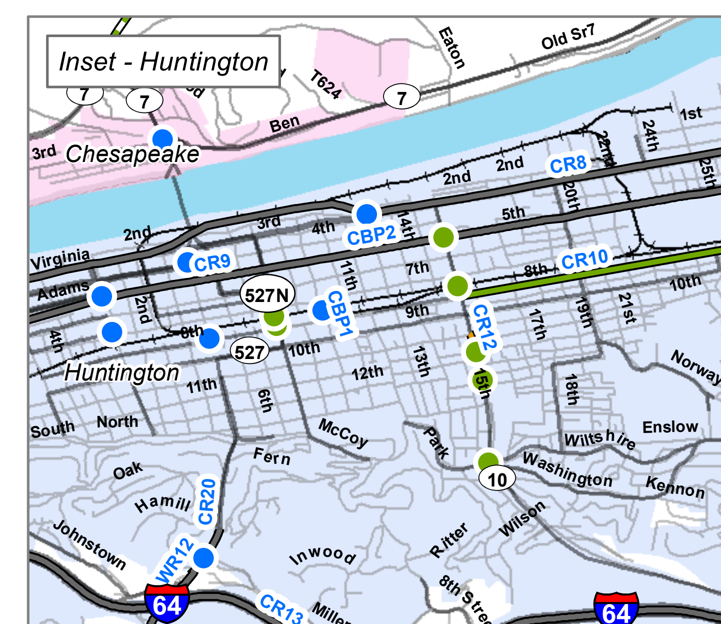
BRIDGING THE GAP IN REGIONAL TRANSPORTATION

KYOVA INTERSTATE PLANNING COMMISSION

Figure ES.1

Financially Constrained Roadway Recommendations





Intersection Projects

- Committed
- 2030 Interim Year
- 2040 Horizon Year
- Vision Plan

Roadway Projects

- Committed
- 2030 Interim Year
- 2030 Interim Year, New Location
- 2040 Horizon Year
- 2040 Horizon Year, New Location
- Vision Plan
- Vision Plan, New Location

0 1.5 3 Miles

KYOVA INTERSTATE PLANNING COMMISSION

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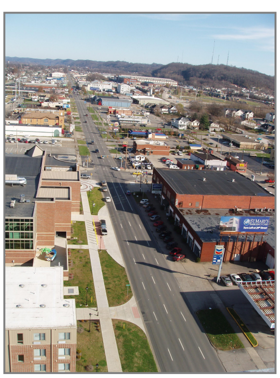
Traffic engineers and transportation planners historically have held different views on the most effective way to plan a regional transportation network. Some argue the only way to combat congestion is with additional highway capacity and constructing new thoroughfares. Others promote transit, walking, and biking combined with local connectivity. Recently, these diverging viewpoints have come to recognize the need for diversity of choice. It is now understood that transportation systems must adapt as suburban development has assumed a more urban form and urban centers have softened through a mixture of land uses, green spaces, and enhanced walkability.

The *KYOVA 2040 Metropolitan Transportation Plan* blends the need for additional highway capacity with the region's ongoing acknowledgement that connectivity and alternative modes are cost-effective ways to address existing and future concerns. In short, the *KYOVA 2040 MTP* supports a balanced transportation network built upon the premise of choice and connectivity. It's not an easy task to solicit meaningful feedback from stakeholders and the general public, understand and accurately reflect trends in population and employment growth, capture existing deficiencies, and effectively communicate a series of prioritized, workable solutions. Such a plan requires a comprehensive approach that unites design, policy, and modal alternatives. The approach—as well as the recommended plan produced therein—are described in the chapters that follow.



Background

It is essential for local leaders and citizen advocates to plan and provide appropriate transportation infrastructure to encourage and guide growth in a way that enhances the quality of life and draws people and industry to the region. From a transportation perspective, challenges to planning include deficiencies in existing roads, lack of interconnectivity between developments, natural barriers such as steep slopes and water features, and disconnects between land use and transportation decisions.

Simply stated, good transportation is the key to continuing the region's success—leaders must find a way to overcome these challenges. The conventional transportation planning approach that focused nearly all resources on major roadway improvements can help only so much. Strategic investment in major roadways must be balanced with improvements to the bicycle, pedestrian, transit, rail, and freight network to keep people and goods moving, allow better access and mobility for residents and visitors, and enhance the area's quality of life.

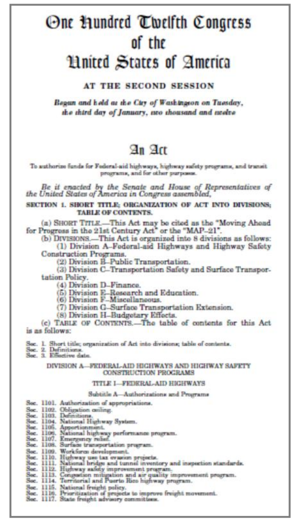
The *KYOVA 2040 MTP* addresses anticipated growth in Lawrence County in Ohio and Cabell and Wayne Counties in West Virginia. The plan focuses on the continued development of a multimodal transportation system that fosters economic growth without compromising the region's natural appeal and character. The plan picks up where the 2035 Long-Range Transportation Plan left off and looks beyond the roadway network to determine the effects of growth on the built environment and acknowledge the importance of balancing the land use and transportation equation. As a result, the *KYOVA 2040 MTP* features tools aimed at creating a successful merger between smart growth and the demands of roadway users.

The Purpose of the Updated Plan

A region's long-range transportation plan is its <u>blueprint</u> for developing a transportation system that not only accommodates the current mobility needs of the area's residents but also peers into the future to anticipate where new needs will arise. The LRTP (in this case referred to as a metropolitan transportation plan or MTP) is a financially constrained plan, meaning it identifies projects and programs that can reasonably be implemented within the years of the plan. In response to federal mandates and the desires of local residents, the *KYOVA 2040 MTP* addresses all modes of transport including automobile, bicycle, pedestrian, transit, air, rail, maritime, and freight movements.

The transportation plan is shaped by several elements, primarily federal legislation, but also the direction of state and local agencies. The *KYOVA 2040 MTP* is governed by the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was signed into law on July 6, 2012. MAP-21 is the first federal highway authorization enacted since 2005 and allocates $105 billion for surface transportation programs in its first two fiscal years (FY2013 and FY2014).

MAP-21 Planning Factors


One Hundred Twelfth Congress
of the
United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday, the third day of January, two thousand and twelve

An Act

To authorize funds for Federal-aid highways, highway safety programs, and transit programs, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; ORGANIZATION OF ACT INTO DIVISIONS; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Moving Ahead for Progress in the 21st Century Act" or the "MAP–21".
(b) DIVISIONS.—This Act is organized into 8 divisions as follows:
(1) Division A–Federal-aid Highways and Highway Safety Construction Programs.
(2) Division B–Public Transportation.
(3) Division C–Transportation Safety and Surface Transportation Policy.
(4) Division D–Finance.
(5) Division E–Research and Education.
(6) Division F–Miscellaneous.
(7) Division G–Surface Transportation Extension.
(8) Division H–Budgetary Effects.
(c) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

Sec. 1. Short title; organization of Act into divisions; table of contents.
Sec. 2. Definitions.
Sec. 3. Effective date.

DIVISION A—FEDERAL-AID HIGHWAYS AND HIGHWAY SAFETY CONSTRUCTION PROGRAMS

TITLE I—FEDERAL-AID HIGHWAYS

Subtitle A—Authorizations and Programs

Sec. 1101. Authorization of appropriations.
Sec. 1102. Obligation ceiling.
Sec. 1103. Definitions.
Sec. 1104. National Highway System.
Sec. 1105. Apportionment.
Sec. 1106. National highway performance program.
Sec. 1107. Emergency relief.
Sec. 1108. Surface transportation program.
Sec. 1109. Workforce development.
Sec. 1110. Highway use tax evasion projects.
Sec. 1111. National bridge and tunnel inventory and inspection standards.
Sec. 1112. Highway safety improvement program.
Sec. 1113. Congestion mitigation and air quality improvement program.
Sec. 1114. Territorial and Puerto Rico highway program.
Sec. 1115. National freight policy.
Sec. 1116. Prioritization of projects to improve freight movement.
Sec. 1117. State freight advisory committees.

The predecessor to MAP-21, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), addressed challenges inherent to the modern transportation system, including safety, security, traffic congestion, intermodal connectivity, freight movement, and environmental protection. SAFETEA-LU set forth eight planning factors that agencies had to consider when developing their plans. These planning factors have been carried forward into MAP-21. The legislation requires the planning process to consider projects and strategies that:

A. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

B. Increase the safety of the transportation system for motorized and non-motorized users.

C. Increase the security of the transportation system for motorized and non-motorized users.

D. Increase the accessibility and mobility of people and freight.

E. 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.

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

G. Promote efficient system management and operation.

H. Emphasize the preservation of the existing transportation system.

The *KYOVA 2040 MTP* is the culmination of a multi-level partnership between local, regional, state, and federal policy-makers and the citizens, business owners, and stakeholders who are most impacted by transportation decisions. The plan updates the region's existing long-range transportation plan. It identifies key regional transportation decisions that were based on community needs. It provides critical information to be considered in the prioritization and funding of projects in developing the Transportation Improvement Program (TIP). Finally, it fosters multimodal transportation decisions—and as a result—ensures consistency among competing modes.

The federal government requires a long-range transportation plan be updated every five years to reflect the region's changing needs and priorities. The *KYOVA 2040 MTP* builds upon the 2035 KYOVA Long-Range Transportation Plan, which was adopted in March 2009 and has a conformity determination date of August 2009. Since launching the metropolitan planning process in 1970, the federal government has required a cooperative, continuous, and comprehensive planning framework for making transportation investment decisions in metropolitan areas.

KYOVA Interstate Planning Commission

KYOVA Interstate Planning Commission is an association of local governments in southwestern West Virginia and southeastern Ohio that serves as a forum for assessing and acting upon regional transportation problems. The Commission's goal is to promote cooperation among members, the governments closest to the people, and to maximize their capabilities for solving problems that cannot be solved by any one jurisdiction. By working as a bi-state organization, the area benefits from a multi-modal transportation system linking the states.

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. To provide a recognized geographical area of activity, in 1966 the Bureau of the Census designated the urbanized area of Huntington-Ashland-Ironton as the Metropolitan Statistical Area (MSA). This area included: Cabell and Wayne Counties, WV; Ashland, KY; and Ironton, OH. In 1973 and 1981 respectively, the Bureau of the Census expanded the MSA to include the counties of Greenup and Carter, Kentucky.

In the late 1980s, the State of Kentucky elected to form a separate MPO from the Kentucky portion of the Huntington-Ashland-Ironton Transportation Study. Thereby, the responsibility of KYOVA's area changed to cover Lawrence County, OH; Cabell and Wayne County, WV; the City of Huntington, WV; and the City of Ironton, OH. Then, the Transportation Study name changed to Huntington-Ironton Area Transportation Study (HIATS, known as KYOVA).

When the U.S. Census Bureau released its 2010 urbanized area (UZA) information in March 2012, the Huntington UZA grew in terms of land area and population. The new boundary includes Hurricane and Teays Valley in Putnam County, WV and Boyd and Greenup Counties in Kentucky. The new population for the UZA exceeds 200,000. As a result of the population growth, the area has been designated a Transportation Management Area (TMA). The designation as a TMA triggers the need for a Congestion Management Plan, which must be in place within 18 months of the UZA's designation as a TMA. KYOVA will act as the lead MPO in cooperation with the Charleston UZA's MPO, the Regional Intergovernmental Council (RIC), in addressing the expanded study area and additional requirements resulting from the designation as a TMA.

Figure 1.1 illustrates the study area for the *KYOVA 2040 MTP*, which is unchanged from the 2035 Plan.

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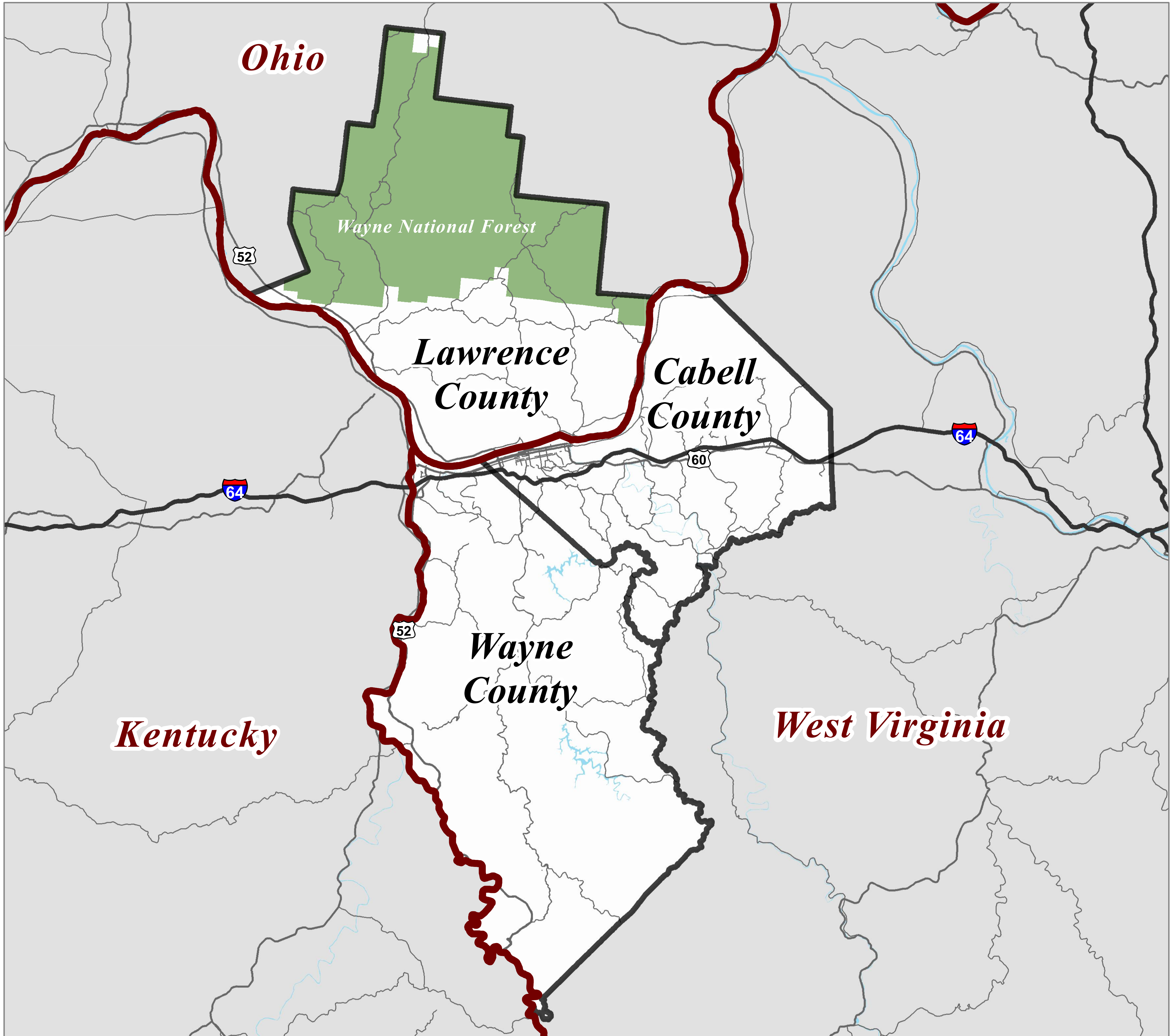
2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION

KYOVA INTERSTATE PLANNING COMMISSION

Figure 1.1

Study Area



- Interstate Highway
- US Highway
- State Highway
- Body of Water
- Wayne State Forest
- County Boundary
- State Boundary

0 3.5 7 Miles

KYOVA INTERSTATE PLANNING COMMISSION

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Planning Process

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. For the *KYOVA 2040 MTP*, the underlying principle for understanding local dynamics has been collaborative planning and consensus building. Local staff and the project team worked alongside active members of the community throughout the planning process. The underlying belief was transportation planning at its best is rooted in a coordinated public involvement platform that gathers, processes, and applies a diversity of opinions from residents, the business community, and civic groups. Two principles of public outreach were adhered to during the *KYOVA 2040 MTP*:

1. Citizens have a strong understanding of the transportation network and planning decisions have a direct impact on their daily lives.
2. Groups can share in the collective vision for a project even as they hold differing opinions on how this vision should be reached.

With respect to these two principles, the planning process for the *KYOVA 2040 MTP* was designed to create an open dialogue about the needs of current and future residents, merchants, and visitors.

Public Outreach

Collaboration provided the core strategy for understanding the shifting dynamics of the KYOVA region and building consensus throughout the planning process. Local staff, the project team, and the public began working together at the outset. Issues identified during the public outreach efforts included the shifting of regional needs and priorities, the importance of gateways to downtown areas, the need for improved freight access and mobility, the desire for a transportation system that promotes economic development, and the value of improved connectivity. The public outreach process included the following components.

Steering Committee

A Steering Committee was formed as a dedicated group of local officials, staff, stakeholders, and citizens to ensure the updated plan respected previous planning efforts, incorporated a diversity of viewpoints, and adhered to the chosen vision and goals. Beginning with its kick-off meeting, the committee held a series of work sessions to examine existing deficiencies and potential solutions for the various modes of the plan. The committee also participated in visioning and mapping exercises, provided feedback to the project team, and helped promote other public involvement efforts.

At its first meeting on January 19, 2011, the Steering Committee received an overview of the planning process, discussed the Public Involvement Plan, and identified existing conditions and major issues. The overarching issues and priorities identified by the committee provided important direction and insight as the core of the public outreach initiatives took shape.

The Steering Committee reconvened on November 1, 2011 to review and validate the vision and guiding principles for the plan and to provide feedback on the regional growth and land suitability analysis, and the Downtown Huntington Access Study.

At the third work session on October 11, 2012, the committee provided feedback on potential recommendations for each of the transportation modes and discussed adding, removing, or modifying projects. The committee also began the important process of prioritizing projects by discussing potential prioritization criteria for each recommendation type.

A fourth work session occurred December 6, 2012, at which the Steering Committee reviewed a series of exhibits that showed recommendations for the region by travel mode. The committee was then tasked with ranking projects on a scale of 1 to 5, with 1 representing lowest priority and 5 representing the highest priority.

The *KYOVA 2040 MTP* Steering Committee was an active group of stakeholders who helped identify existing issues, develop potential solutions, and prioritize recommendations. The Steering Committee included representation from the following:

- Cabell County
- Lawrence County
- Wayne County
- West Virginia Division of Highways
- Ohio Department of Transportation
- City of Huntington
- City of Ironton
- Village of Barboursville
- Tri-State Transit Authority
- Tri-State Airport
- Marshall University
- CSX Railroad
- Norfolk Southern Railroad
- Huntington Regional Chamber of Commerce
- Lawrence County Chamber of Commerce
- Rahall Transportation Institute
- Wayne County Economic Development Authority
- Huntington Municipal Development Authority
- Cabell County Sheriff's Department
- Ironton-Lawrence County Area Community Action Organization
- Lawrence County Sheriff's Department
- Wayne County Sherriff's Department
- Cabell County Emergency Medical Service
- Wayne County Emergency Medical Service
- Cabell Huntington Hospital
- St. Mary's Medical Center
- Allied Logistics
- HADCO
- Prestera Trucking
- Superior Marine

KYOVA Policy Board

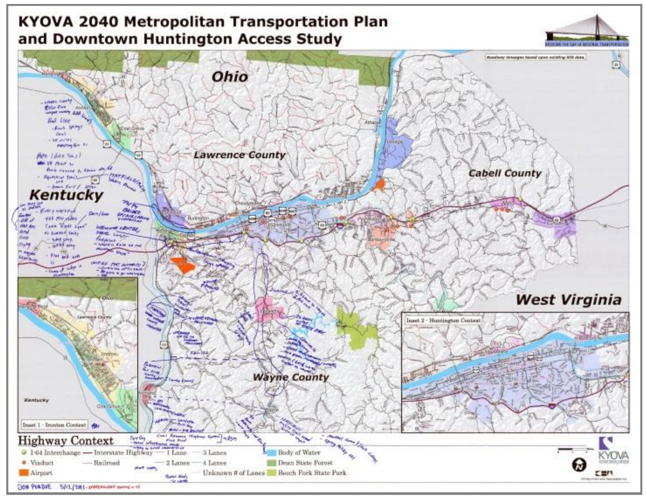
The KYOVA Policy Board is a group of elected officials, agency representatives, and citizens that provides strategic oversight and serves as the adopting body for transportation decisions in the region. The members of the board collaborate to develop priorities, build consensus, and outline direction to meet the needs of their community and the region. The KYOVA Policy Board was an important partner in the development of the *KYOVA 2040 MTP*. Several presentations and meetings were held with the Policy Board.

- **October 14, 2011**—The project team facilitated an interactive presentation that included an update on recent activities, including the Downtown Huntington Access Study charrette and open house, outreach meetings, and project documentation.
- **February 24, 2012**—At this meeting, the Policy Board was briefed on the second Steering Committee meeting and considered the final report for the Downtown Huntington Access Study. The Board also discussed air quality modeling and training and ongoing documentation for the *KYOVA 2040 MTP*.

- **April 27, 2012**—This meeting explored upcoming changes in the KYOVA planning area, population and employment growth trends, travel times between destinations in the region, and land suitability for growth. Transportation strategies for regional growth were identified using the six major focus areas in the guiding principles.
- **October 12, 2012**—This meeting of the Policy Board focused on emerging issues related to the region's designation as a Transportation Management Area. The *KYOVA 2040 MTP* project team provided updates on the travel demand model and described the recommendations development process. The project team also discussed how the six guiding principles related to the multimodal transportation recommendations and introduced the purpose and functionality of the project sheets.

Stakeholder Interviews

The project team, in consultation with KYOVA staff and the Steering Committee, identified a list of stakeholders that could offer specialized attention to specific matters affecting the *KYOVA 2040 MTP*. Meetings with the stakeholders occurred one-on-one or in larger focus groups if similar issues and needs were expected from a group of individuals. Many of the members of the Steering Committee were interviewed. The list of stakeholders included representatives from various departments and agencies within the region's municipalities and counties as well as the following:



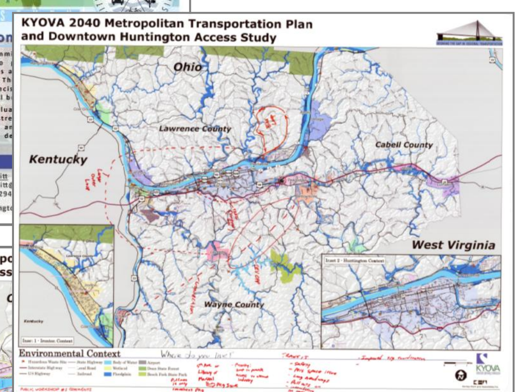
- Tri-State Transit Authority
- Tri-State Airport
- West Virginia Department of Transportation
- Ohio Department of Transportation
- Ohio Department of Natural Resources
- Huntington Regional Chamber of Commerce
- Cabell-Huntington Convention and Visitors Bureau
- St. Mary's Medical Center
- Marshall University
- Ohio University Southern
- Rahall Transportation Institute
- Huntington Municipal Development Authority
- Lawrence County Economic Development Corporation
- Lawrence County Community Action Organization
- Greater Lawrence County Chamber of Commerce
- Norfolk Southern
- CSX
- ODOT Bicycle and Pedestrian Planning
- WVDOT Bicycle and Pedestrian Planning
- ODOT Office of Maritime
- WV Public Port Authority
- Ohio Rail Development Commission
- Cabell-Wayne Port District
- Port of Huntington Tri-State
- Greater Huntington Park and Recreation District
- Huntington Area Development Corporation
- Wayne County Economic Development Authority
- South Point Industrial Park
- Allied Logistics
- Huntington Foundation
- Neighborhood Institute of Huntington
- Jeff's Bike Shop
- Various freight operators/logistics companies

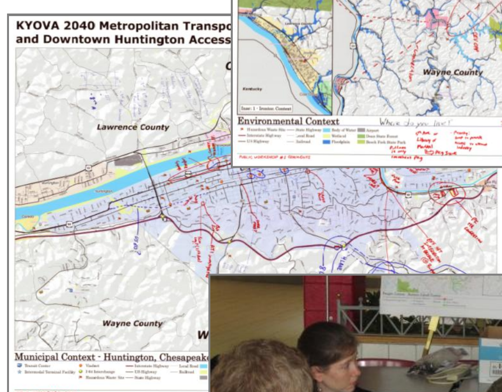
More than two dozen freight carriers and port owners also were reached through a freight-specific survey. Local issues and regional constraints identified by these stakeholders helped the project team develop a comprehensive plan and recommendations that address specific needs in the region. General issues and needs expressed through the stakeholder interviews included:

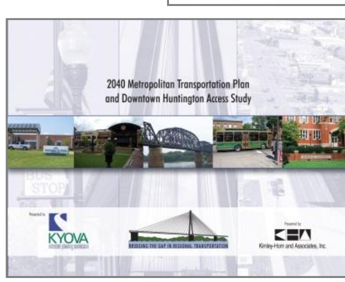
- The safe and convenient movement of goods and people should be the primary goal.
- Congestion is a problem on the region's major thoroughfares, including US 60.
- Safety needs to be improved, particularly at the viaducts and railroad crossings.
- The region needs to focus on the transportation infrastructure to attract economic development.
- Mobility should be improved by limiting egress to and from highways along commercial properties, providing good bus service, and continuing plans to provide bike trails.
- Success of the plan should be measured in part by whether recommended projects are realistic and are constructed. Success also will be evident if downtowns are strengthened and public spaces are used by pedestrians and bicyclists.
- In some cases, growth is hindering the transportation system until improvements catch up.
- Freight and passenger traffic is expected to increase at Tri-State Airport. The *KYOVA 2040 MTP* should provide feedback on airport access.

Public Workshops

Citizens understand the strengths and weaknesses of the transportation system and feel the impact of transportation decisions on a daily basis. To tap into the special knowledge of the citizenry, the project team, assisted by the Steering Committee, led a series of public workshops that spanned the project timeline.







Visioning Workshops

The first series of public interactive workshops were held to develop project goals, identify issues and concerns, and generate ideas and potential solutions. Following a brief open house in which participants viewed maps and other materials, the project team presented an overview of the planning process and discussed background information. The presentation laid the groundwork for the interactive sessions. After expressing concerns and needs in a large group Q&A setting, attendees gathered in small groups around maps to discuss specific opportunities and needs. The comments spanned all the elements of the transportation plan.

These workshops occurred on the following dates:

- **May 11, 2011** at the Greater Lawrence County Area Chamber of Commerce in South Point
- **May 12, 2011** at the KYOVA offices in Huntington
- **October 13, 2011** at the Kenova Council Chambers
- **April 26, 2012** at Cabell Midland High School

Many comments touched improved livability and increased efficiency for moving freight. The comments centered around the theme for improving quality of life and making the region more attractive for economic development. Selected comments included:

- Make all the viaducts in Huntington more people friendly, especially 8th Street
- Recommend road diets on downtown streets
- Consider how facilities connect across jurisdictions
- Shorten transit headways
- Create bike loops in rural areas
- Make intersections safer for all users

These and other comments received during the first series of workshops were used while evaluating existing conditions and developing potential recommendations for facilities, programs, and policies. As the plan took shape, the project team hosted additional workshops to refine recommendations and establish priority projects and initiatives.

Recommendations Workshop

Prior to finalizing recommendations and developing a draft report, the project team hosted another series of workshops to gather feedback to refine plans for roads, intersections, trails, bicycle facilities, sidewalks, transit service, and freight infrastructure. Attendees viewed maps and exhibits that described ways to improve safety and mobility for people and freight. The project team also gave a brief presentation that described the process by which recommendations were developed.

The recommendations presented at these meetings included roadway infrastructure, freight, intersection safety, incident management, bicycle and pedestrian, and transit. In total, more than 90 specific recommendations were presented. Multimodal recommendations were presented and assigned a combination of six project objectives (i.e. guiding principles presented later in this chapter)—goods movement, barriers to mobility, congestion mitigation, livability and complete streets, multimodal integration, and tourism and recreation.

These workshops occurred on the following dates:

- **October 11, 2012** at the Kenova Council Chambers
- **December 6, 2012** at Marshall University

Scenes from the visioning workshops are shown on the next page. Overall, some of the plan's specific recommendations were adjusted based on the information provided at the workshop. Some projects were added, including new intersection safety projects and additional roadway connections. Some of the bicycle facility recommendations also were adjusted and language was added to the transit recommendations to support online bus tracking and leveraging local taxis for accessible transportation. By the time the draft plan was completed, the regional community had devised a shared vision for the area and identified multiple ways to fulfill it.

Final Open House

A Final Open House will be scheduled once the draft report is complete. The Open House likely will be organized around a series of thematic stations, at which a member of the project team will discuss maps and exhibits related to existing conditions, recommendations, and priorities.

Downtown Huntington Access Study

As a sister study to the *KYOVA 2040 MTP*, the Downtown Huntington Access Study provided an additional vehicle through which to gain public insight for the greater Huntington area. The Access Study identified transportation needs and opportunities in the downtown Huntington area and presented transportation strategies related to access and mobility for the central business district. The planning process was led by a Core Team of local stakeholders. The Core Team spearheaded a multifaceted outreach platform that featured a three-day public design charrette and public open house.

The multiday charrette was held June 7 to 9, 2011 and provided an intensive workshop environment where engineering, planning, and design ideas were generated, filtered, and discussed openly by participants. The event included an interactive opening reception on the first evening, a pin-up session to view progress on the second evening, and a final presentation on the last day.

Following the development of summary workbook, the project team hosted an Open House on October 13, 2011 in the Huntington City Hall Lobby. Comments received at the Open House were folded into the Final Report. The Open House corresponded with the Kenova visioning workshop and a KYOVA Policy Board presentation.

Public Questionnaire

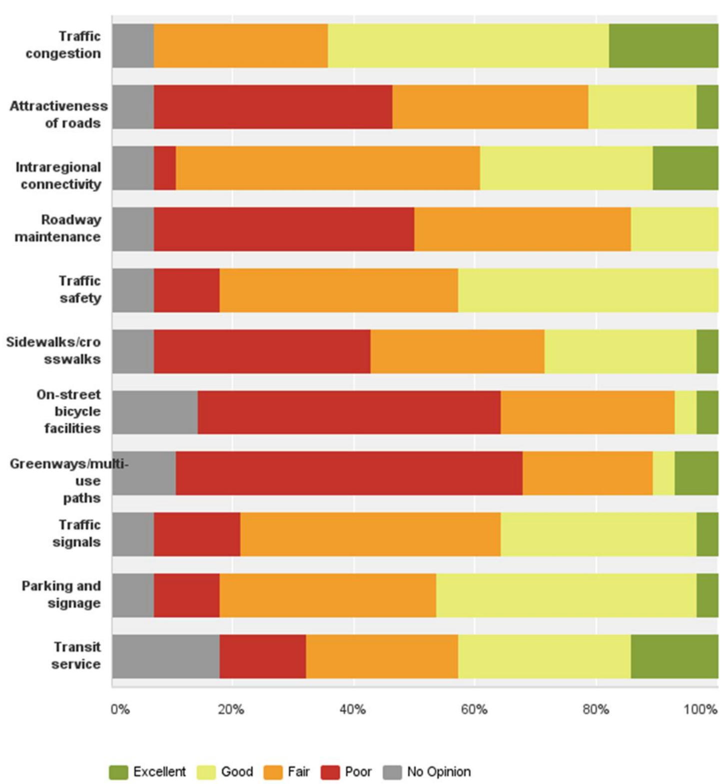
The project team in cooperation with the Steering Committee developed a public questionnaire to supplement other public outreach initiatives. The questionnaire was developed in an online format, and hard copies were distributed at public outreach events (e.g. public workshops and Steering Committee meetings) and made available at community facilities in the region.

The results of the questionnaire provided valuable information on a variety of transportation and land use topics to help gauge the community's perception of the region's transportation network. The questionnaire included general questions for the transportation system as well as questions for specific modes. Other questions challenged respondents to make choices related to transportation funding, modal elements, and priorities. The responses proved helpful in assessing the transportation system and compiling multimodal recommendations.

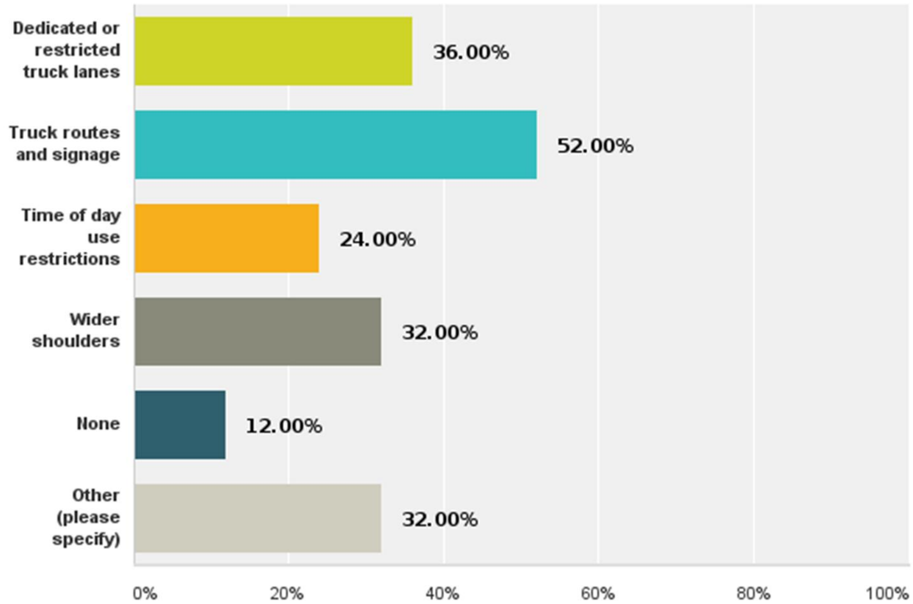
The questionnaire confirmed the trends expressed during other public outreach initiatives. More than 60% of respondents rated the transportation system as fair with only 26% rating the system excellent or good. When asked if transportation has improved, stayed the same, or worsened in the last few years, nearly half (48%) indicated conditions have stayed the same. Notably, a much higher percentage (39%) stated conditions have improved than stated conditions have worsened (13%). These responses validate the work by KYOVA staff and local leaders since the adoption of the 2035 Long-Range Transportation Plan. Likewise, the results suggest that the 2035 plan accurately reflected the needs of the community and included short-term strategies to improve the transportation network.

The graphs on the following page illustrate some of the trends as expressed through the public questionnaire. When necessary, additional results specific to individual elements are detailed in the appropriate chapters of this report.

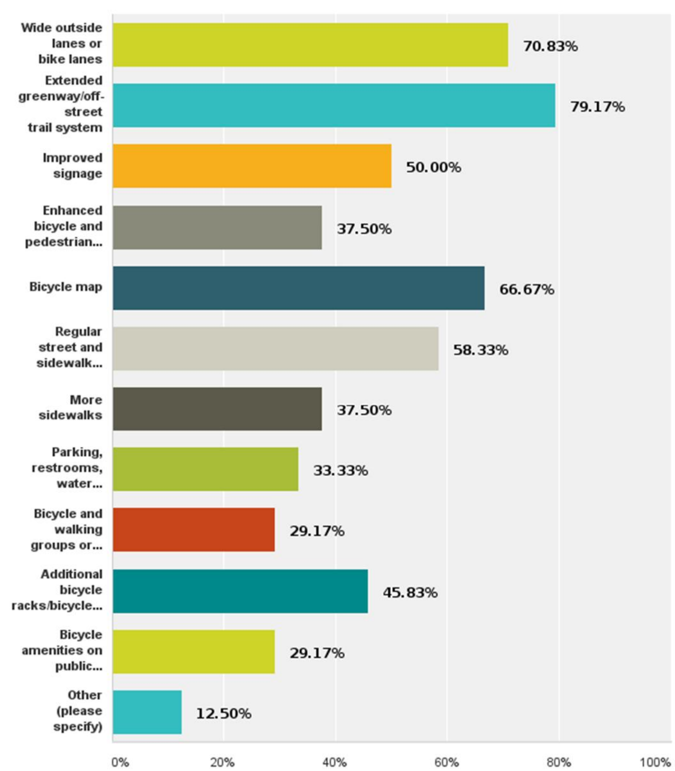
How do you rate the following in the region?



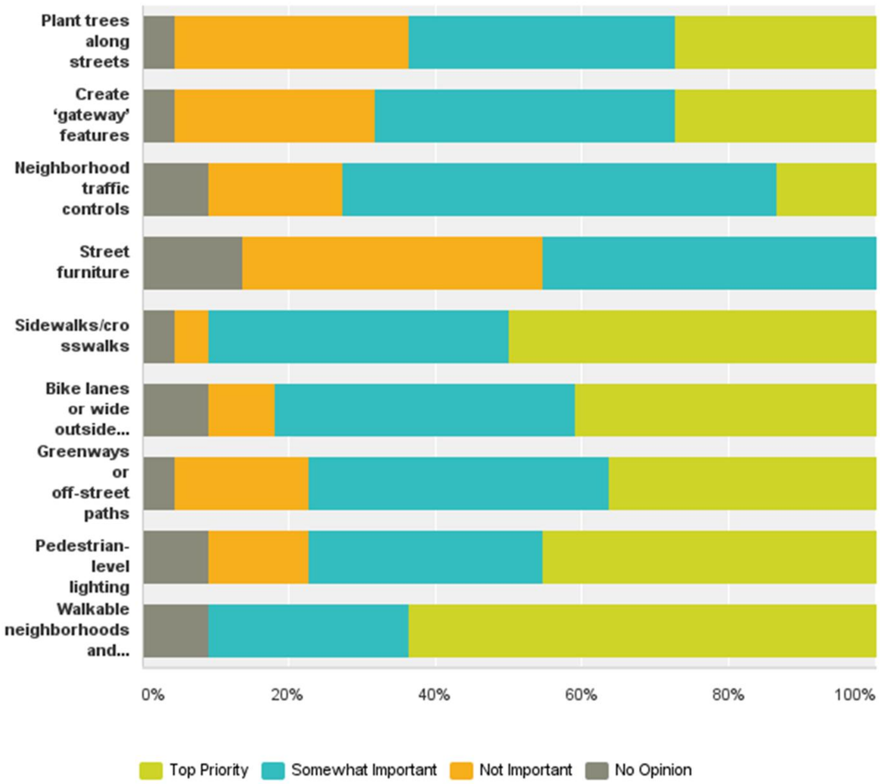
Which improvements are needed to handle truck traffic on major roads?



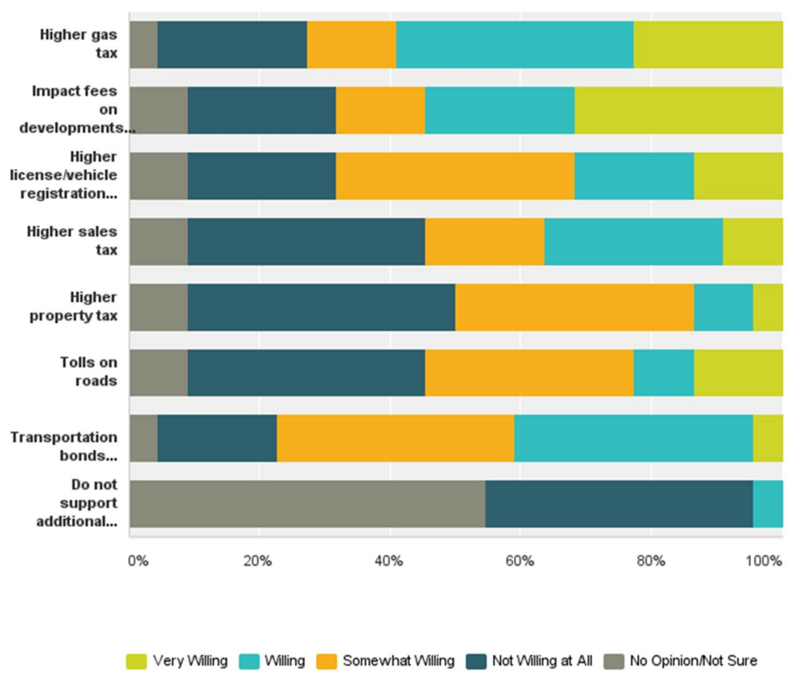
What improvements could be made to increase your use of bicycling or walking?



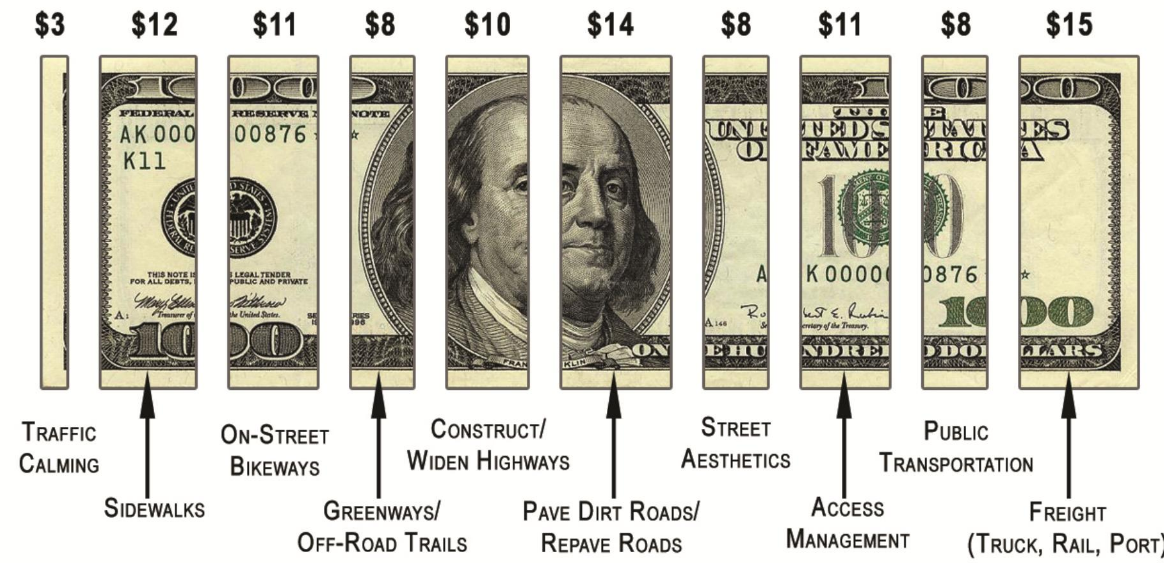
How important are the following improvements?



Would you support any of the following funding sources?



If you had $100 to spend on transportation improvements, how would you spend it?



Previous Planning Efforts

The *KYOVA 2040 MTP* should be coordinated closely with other state, regional, county, and local plans and/or policies. Most importantly, the updated plan must recognize the planning process and outcomes of the 2030 and 2035 plans. This section provides a general review of transportation plans prepared within the region that may influence potential recommendation development and reasonable implementation. The land use element (**Chapter 8**) included a review of local land use plans and policies.

Huntington-Ironton Area Transportation Study (HIATS) – 2035 Long-Range Transportation Plan

The KYOVA Year 2035 Long-Range Transportation Plan was completed in May 2009 by the KYOVA Interstate Planning Commission in coordination with WVDOT and ODOT. Building upon the 2030 Long-Range Transportation Plan adopted in April 2005, the 2035 plan outlines the regional vision for the transportation system over the next twenty-five years in accordance with the requirements of SAFETEA-LU.

The goals established to guide the development of the 2035 plan formed the basis for the goals and objectives for the *KYOVA 2040 MTP* presented later in this chapter.

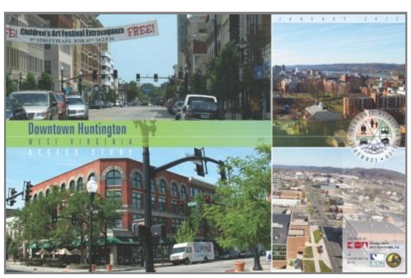
The 2035 LRTP establishes maintenance projects for existing infrastructure as the highest priority and identifies new projects that will meet emerging needs over the next twenty-five years. These projects were based on needs for highway, pedestrian, bicycle, freight, transit, and airport systems within the region identified through a multimodal analysis. Recommendations are categorized by state as well as by short range and long-range horizons. The plan estimates approximately $380 million will be available for maintenance and new projects from WVDOT, ODOT, FTA, and FHWA through 2035. The plan also included an unconstrained list of projects, which address transportation needs within the region for which current funding does not exist. These projects include new intermodal facilities, bridge replacements, transit systems, and roadway expansion and safety projects.

Access Ohio 2040

Access Ohio 2040 is an update to the state's long-range transportation plan. The Ohio Department of Transportation (ODOT) expects to complete the plan in 2013. The updated plan will inventory, forecast, and analyze transportation trends and issues in Ohio to guide ODOT transportation policies and investment strategies.

Access Ohio 2040, based on input from stakeholders and the public, will document existing conditions for all travel modes, inventory transit ridership, analyze crash data, and document environmental assets. Future conditions will be projected for ODOT roads, including pavement and bridge conditions, travel demand, and congestion. The plan also will demonstrate consistency with other ODOT plans as well as plans from metropolitan planning organizations, including the KYOVA Interstate Planning Commission. Finally, the plan will identify financial resources available for implementation.

Downtown Huntington Access Study

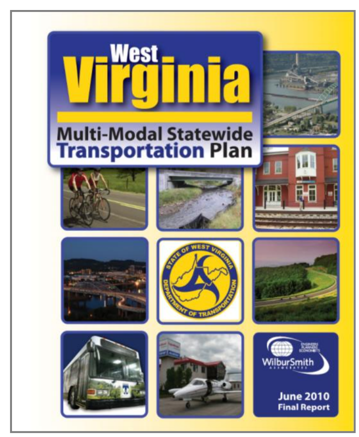


Completed in January 2012, the Downtown Huntington Access Study was a sister study to the *KYOVA 2040 MTP*. The Access Study addressed the needs for the downtown Huntington area. Using a public charrette process, this study considered the transportation and land use issues facing the downtown area with added focus on issues such as parking demand, branding and signage, redevelopment opportunities, downtown gateways and barriers, and multimodal integration.

Outreach efforts for the Downtown Huntington Access Study and the *KYOVA 2040 MTP* were coordinated and the results of the Access Study have been folded into the larger regional planning effort. The document is organized around a series of issues and recommendations. Transportation issues included one-way to two-way street conversions, intersections, corridors, green streets, parking supply and demand, bicycle and pedestrian travel, and transit service.

West Virginia Multimodal Statewide Transportation Plan

The West Virginia Multimodal Statewide Transportation Plan, a 25-year plan focusing on the preservation and expansion of the state's transportation network, was completed in June 2010. By federal law, each state is required to maintain a long-range transportation plan that meets planning requirements established in SAFETEA-LU. The West Virginia statewide plan serves as a foundation document for the West Virginia portion of the KYOVA planning area.

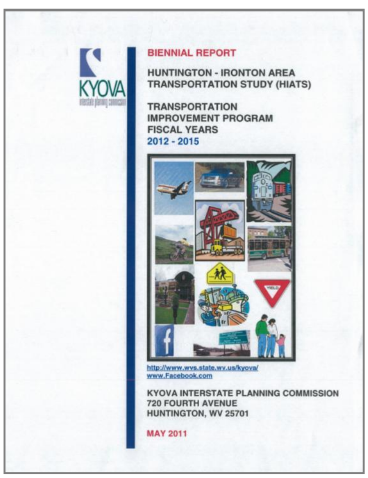


The statewide plan outlines needs for roadways, bridges, transit, rail, ports, and aviation. It includes a financial analysis covering historic funding levels and future revenue forecasting as well as detailed methodology for evaluating the costs and benefits of highway and bridge projects. While bicycle and pedestrian projects do not appear to be included in report, these and other modes were evaluated by listing specific project benefits and estimating potential future demand. A two-step prioritization process for highways and bridges included a qualitative screening base on purpose and need and a benefit/cost analysis that assigned each project one of four tiers (excellent, good, fair, and poor).

KYOVA Transportation Improvement Program: Fiscal Years 2012-2015

The Transportation Improvement Program (TIP) is a four-year schedule of federally assisted transportation projects for the three-county region as required under the SAFETEA-LU legislation. The projects cover roadway, transit, bicycle, pedestrian, and freight transportation. The TIP is revised and issued biennially by the KYOVA Interstate Planning Commission in coordination with ODOT and WVDOT. The projects are listed with cost estimates and funding sources, and the total list of projects, once compiled, must meet federal air quality conformity requirements under the 1997 $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) and the 1997 eight-hour ozone NAAQS. The development of the TIP is primarily guided by the KYOVA Year 2035 Long-Range Transportation Plan.

The TIP must be financially constrained, so a financial plan included in the TIP demonstrates that the list of projects can be implemented within 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. The current 2012-2015 total TIP program cost is $220 million including all Federal, State, and Local sources with approximately $55 million allocated to Ohio projects and $165 million allocated to West Virginia projects.



Vision, Guiding Principles, and Goals

The vision statement for the *KYOVA 2040 MTP* was developed in collaboration with the Steering Committee and validated through other public outreach channels. The Vision Statement, which guided the planning process, is as follows:

We envision a growing region serviced by a safe 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.

The eight MAP-21 planning factors described earlier in this chapter represent a way federal and state officials can assess how a transportation plan addresses the unique needs of today's complex transportation systems. Guiding principles, goals, and objectives also were developed to help reinforce the connection between present-day trends in transportation planning and the needs and desires expressed early in the planning process for the *KYOVA 2040 MTP*. The guiding principles provide overarching themes for the development of the plan, while the goals and objectives outline specific ways to achieve the plan's vision.

Guiding Principles

The Guiding Principles represent a set of value statements for six major transportation priorities identified for the *KYOVA 2040 MTP*. The principles define a series of transportation strategies that aim to guide regional growth. The guiding principles were shared with the public during the planning process and workshops. As multi-modal strategies are developed, the project team will revisit the guiding principles to determine which principles a given project or strategy addresses. The result of this analysis will provide a portion of the project evaluation process.

Goods Movement

With the passage of SAFETEA-LU and MAP-21, national policy leaders reaffirmed the importance of planning freight and aviation at a regional scale. Moving goods continues to be one of the most expensive parts of the production cycle, and a significant way to reduce costs for end users is to ensure the efficient movement of goods by highway, rail, and air. A key consideration of the *KYOVA 2040 MTP* is the movement of goods within and through the region. Changes to the transportation system in the KYOVA region—a hub of industrial activity with highway, air, maritime, and rail facilities—will impact areas beyond the KYOVA boundary. Maintaining and improving the infrastructure not only promotes economic growth across the country but also provides long-term economic stability for the KYOVA region and the surrounding area. In summary, projects fulfilling the Goods Movement guiding principle seek to:

- Promote freight movement; and
- Enhance intermodal connections.

Barriers to Mobility

The long-range transportation planning process creates the community's comprehensive guide to developing a regional transportation system that accommodates not only the current mobility needs of residents but also looks to the future to anticipate where new needs will arise. As with other areas across the nation, a transportation network ripe with mobility is critical for sustaining and extending economic development. The Ohio and Big Sandy Rivers, mountainous terrain, and network of rail corridors create a collection of natural and manmade barriers that challenge local and regional mobility. Overcoming these barriers is an important consideration of the *KYOVA 2040 MTP*. Projects fulfilling the Barriers to Mobility guiding principle seek to:

- Address concerns of existing viaducts;
- Consider bridge improvements;
- Encourage system maintenance;
- Develop intersection-level improvements; and
- Improve system connectivity.

Congestion Mitigation

Congestion occurs for numerous reasons but usually from bottlenecks (primarily at intersections) and when too many people travel on a route that already operates at or over capacity. Congestion often is the side effect of deliberate growth, and our response to congestion can make it worse. As residential, commercial, and industrial growth occurs and more vehicles use surrounding roadways, roadway improvements are needed to reduce traffic congestion and improve safety. These roadway improvements often enhance access, thus raising land values and attracting more development. The resulting cycle suggests that building additional capacity can only be a part of the answer. Best practices suggest addressing congestion through improvements to existing roads, strategic construction of new roads, interconnectivity, opportunities for safe and convenient walking and bicycling, improved transit opportunities, and mutually supportive transportation and land use initiatives. Projects identified under the Congestion Mitigation guiding principle focus on roadway improvements but are balanced by multimodal projects and initiatives. Congestion Mitigation projects seek to:

- Address issues identified in the travel demand model;
- Advocate strategic capacity improvements (i.e. widening existing roads and constructing new facilities);
- Implement access management on key corridors; and
- Improve connectivity through collector streets.

Livability and Complete Streets

As the public realm, streets need to reflect the values of the community and reinforce a unique sense of place to be enjoyed by citizens—whether in urban, suburban, or rural contexts. In recent years, municipalities across the country have started implementing "complete streets" as one way to transform transportation corridors from vehicle-dominated roadways into community-oriented streets that safely and efficiently accommodate all modes of travel—not just motor vehicles. The notion of complete streets connects the functionality of moving people and goods with the livability of the corridor and surrounding private property. Therefore, design considerations supportive of complete streets include elements in both traditional travel as well as adjacent land uses for reinforcing the desired sense of place. The hope is to maintain quality of life while balancing the mobility needs of the area and accommodating future growth. Common goals for complete streets are economic revitalization, business retention and expansion, and public safety. With this in mind, projects fulfilling the Livability and Complete Streets guiding principle seek to:

- Enhance gateways, signage, and beautification;
- Integrate land use strategies with transportation goals;
- Create corridors that serve multimodal needs;
- Enhance safety; and
- Emphasize potential growth areas.

Multimodal Integration

Planning appropriate transportation infrastructure to guide growth in a way that enhances quality of life is not an easy feat. Challenges to planning such infrastructure include deficiencies in existing roads, lack of interconnectivity between developments, natural barriers, and the disconnect between land use and transportation decisions. Decision-makers face tough choices as they develop a blueprint to overcome these challenges. In the past, transportation planning focused improvements on the network of highways and major roads. We now recognize such improvements can help only so much. Strategic investment in major roadways must be balanced with improvements to the bicycle, pedestrian, transit, rail, and freight network to keep people and goods moving, allow better access and mobility for residents and visitors, and enhance the way of life in the KYOVA region. Projects fulfilling the Multimodal Integration guiding principle seek to:

- Develop bicycle and pedestrian priorities;
- Create coordinated transit improvements and strategies for system maintenance;
- Promote the expansion of passenger rail and intercity bus; and
- Support economic vitality.

Tourism and Recreation

Tourism is not possible without travel. Likewise, recreation often takes the form of movement and often conflicts with other travel purposes (e.g. commuting to work). With abundant natural resources and rich heritage, tourism and recreation play a large role in how people identify with the region. Transportation in the KYOVA region can be discussed without considering tourism, but in no way can tourism thrive without the means to travel safely and efficiently. Transportation is an integral part of tourism and recreation, so the *KYOVA 2040 MTP* includes careful consideration of critical destinations and the way people access them. This is accomplished in part by establishing shared visions and addressing objectives without compromising the unique character of our communities. Protecting the character of our communities requires a balanced approach to accommodating future growth and preserving valued open spaces. Therefore, projects fulfilling the Tourism and Recreation guiding principle seek to:

- Promote economic vitality;
- Attract new development;
- Promote multimodal connections; and
- Enhance aesthetics.

Goals

Goals and objectives were developed to ensure the plan addresses regional transportation needs and complies with MAP-21. The goals offer a general guide to fulfill the vision statement, while objectives define results that must be achieved or actions that must be followed to reach their respective goal. Goals and objectives are not mutually exclusive of each other and often conflict with each other. For example, a project that encourages economic development could be excluded from the plan because it may endanger wetlands. 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. These goals are listed in no particular order.

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

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.

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.

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

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) as part of an overall transportation management strategy.

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

Objectives

- Provide a safe traveling experience for all users by implementing safety measures at high priority crash locations and improving facilities for bicyclists and pedestrians.
- Promote programs and projects that reduce the number and severity of traffic accidents, 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.

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.

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.

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

Objectives

- Connect homes, parks, community activity centers, employment hubs, and other key destinations to one another 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 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.

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 goals and objectives for the *KYOVA 2040 MTP* were based on a review of the previous LRTPs and updated to account for recent planning efforts and emerging transportation trends in the region. The *KYOVA 2040 MTP* goals and objectives also were developed in consideration of the SAFETEA-LU and MAP-21 planning factors. **Table 1.1** shows how the *KYOVA 2040 MTP* goals and objectives address these federal planning factors.

Table 1.1 – KYOVA 2040 MTP and MAP-21 Planning Factors

	MAP-21 Planning Factor	2040 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

Plan Organization

Great plans often fail to reach their potential due to the ineffective communication of the vision, process, outcome, and recommendations. Documentation of the *KYOVA 2040 Metropolitan Transportation Plan* blends the description of the vision and statement of existing conditions with a detailed list of policies, operational strategies, and projects to achieve the vision. The *KYOVA 2040 MTP* consists of a series of elements dedicated to specific modes of travel. While each element is presented in a standalone chapter, the visioning, analysis, and recommendations for the elements were created concurrently to produce a series of actions that lead to an integrated intermodal transportation system that efficiently moves people and goods within and beyond the KYOVA region.

The collective recommendations and strategies documented through the *KYOVA 2040 MTP* support the region's vision for a safe and sustainable transportation system that provides real choice among modes of travel. In addition to the introductory chapter, the following elements complete the *KYOVA 2040 MTP*:

Social and Environmental Element (Chapter 2) – Examines demographic trends, environmental characteristics, and social resources to provide a spatial frame of reference to assess the relative impacts of recommended projects on the community.

Roadway Element (Chapter 3) – Reviews the status of the existing roadway system as a precursor to identifying needs and priorities for planning improvements. Evaluates roadway system in terms of functional classification, corridor operations, and traffic safety and crash history. Describes roadway infrastructure recommendations, including capacity improvements, intersection enhancements, and access management strategies.

Safety and Security Element (Chapter 4) – Focuses on safety and security as it relates to the critical nodes – intersections, viaducts, and bridges – of the roadway network. Evaluates each project's impact on resources, congestion, safety, security, and benefits to the transportation system.

Bicycle and Pedestrian Element (Chapter 5) – Evaluates existing bicycle and pedestrian system and recommends facilities to expand the network of on-street bicycle facilities, off-street paths, and critical sidewalks. Recommends education, encouragement, and enforcement programs to promote safe and efficient travel by bicycle and on foot.

Transit Element (Chapter 6) – Inventories the existing public transportation system including fixed-route, demand-response, and intercity services. Analyzes existing services and provides a series of service improvement and management alternatives.

Aviation, Freight, Maritime, and Rail Element (Chapter 7) – Reviews relevant data, inventories existing facilities, and presents an overview of travel flows based on the element's four modes. Summarizes alternatives that address gaps and intermodal connectivity needs.

Land Use Element (Chapter 8) – Documents land suitability, which serves the dual purpose of supporting socioeconomic inputs for the travel demand model and blending the land use and transportation considerations for the plan. Identifies future growth areas and presents a general framework plan based on a series of Character Areas.

Financial Plan (Chapter 9) – Evaluates potential funding sources, revenues, and probable costs for recommendations. Creates a set of interim year recommendations and 2040 horizon year recommendations as well as identifies a series of unfunded needs.

Implementation Plan (Chapter 10) – Presents priorities and ways to implement the multimodal recommendations. Includes an action plan to assist local decision-makers and planning staff in taking the necessary steps to implement the plan.

Air Quality Conformity (Chapter 11) – Tests the recommendations presented in the MTP to ensure they do not negatively impact the region's air quality. Special attention is given to the performance of projects as they relate to federal particulate matter and ozone standards.

Introduction

Local decision-makers must consider the area's natural resources as well as the social and cultural elements unique to the cities and counties in the KYOVA region. Screening environmental and social resources as part of the transportation planning process is more than just good practice—it's a federal requirement. Such screenings help identify and either mitigate or avoid significant impacts that result from construction and development activities. Identifying potential impacts helps balance the often competing interests of improving mobility and preserving a community's important environmental and social features. The earlier these features are identified, the more likely sustainable solutions will arise to minimize or avoid impacts and reduce unnecessary delays and expenses throughout the implementation of the project.

This chapter of the *KYOVA 2040 MTP* documents environmental and social features and includes maps that illustrate locations of natural and cultural resources as well as the distribution of minority, Hispanic, elderly, low-income, and no vehicle populations. When overlaid with proposed transportation projects, this information provides a frame of reference to help assess the relative impacts of these projects on the community.

Planning Implications

One only needs to point to the many urban renewal roadway projects constructed in the 1960s to show how transportation projects can disrupt communities and significantly affect the natural environment. The process through which today's transportation decisions occur includes a system of checks and balances designed to mitigate unfair and disproportionate impacts of transportation projects. The federal government requires the transportation planning process be cooperative, continuous, and comprehensive to ensure that disadvantaged communities receive fair consideration regarding both the benefits and impacts of transportation projects.

In addition to the outreach efforts described in **Chapter 1**, the planning process for the *KYOVA 2040 MTP* included a screening of the environmental and social characteristics that allows for the real-time evaluation of environmental and social impacts at both system-wide and project-specific scales. This dual approach allows for a quick, side-by-side evaluation of recommendations. Having this information at multiple scales ensures that the proposed transportation projects do not lose sight of the plan's goal to minimize direct and indirect environmental impacts.

Environmental Stewardship

Environmental stewardship within the transportation planning process outlines a proactive approach to conserve natural and environmental resources during the planning, design, and construction of transportation projects. The *KYOVA 2040 MTP* encourages this kind of environmental stewardship by identifying natural areas and environmental features that need to be conserved. To be effective, the transportation plan must coordinate with local efforts to protect these resources.

Environmental Justice

Environmental justice has been a federal requirement since recipients of federal funds were required to certify nondiscrimination following the Civil Rights Act of 1964. A 1994 Presidential Executive Order required all federal agencies to make environmental justice part of their missions. The law was enacted to avoid the use of federal funds for projects, programs, or other activities that generate disproportionate or discriminatory adverse impacts on minority or low-income populations. The U.S. Department of Transportation (USDOT) promotes environmental justice as an integral part of the long-range transportation planning process as well as individual project planning and design.

According to the USDOT, environmental justice requires the understanding and incorporation of the unique needs of distinct socioeconomic groups to create transportation projects that fit within the framework of their communities without sacrificing safety or mobility. The environmental justice assessment incorporated in the *KYOVA 2040 MTP* is based on three fundamental principles derived from guidance issued by the USDOT:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- To ensure all potentially affected communities' full and fair participation in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Best Practices

Throughout the recommendation development process for the *KYOVA 2040 MTP*, data was used to avoid or minimize impacts to known environmental features. The early review of this data was intended to lessen environmental impacts and reduce potential conflicts during construction of the projects. When considering new roadway alignments and major widening projects, the following best practices should factor into the decision-making process:

- Avoid steep slopes and otherwise unsuitable topography.
- Minimize impacts to the built environment.
- Avoid or minimize impacts to neighborhoods.
- Avoid unnecessary or disproportionate impacts to minority and low-income communities.
- Avoid impacts to parks and designated open spaces.
- Minimize impacts to school sites.
- Minimize the number and size of impacts to historic features and districts.
- Be aware of existing development patterns.
- Capitalize on street connectivity opportunities such as stub streets.
- Encourage a multimodal system with the promotion of pedestrian, bicycle, and transit networks.
- Minimize the number of wetland impacts.
- Minimize the amount of each wetland impact.
- Avoid FEMA designated floodplains.
- Minimize the number and length of stream crossings.
- Minimize the number of new facilities in critical watershed areas.
- Minimize the number and size of impacts to threatened and endangered species.

These best practices were used to aid in the development of a project evaluation matrix. This matrix assesses each proposed highway recommendation for a series of criteria, including social and environmental factors. The weighted project recommendation list was then used to guide projects for inclusion in the financially constrained plan. As a result, these best practices are directly considered in the development of the financially constrained project list for the *KYOVA 2040 MTP*.

Socioeconomic Conditions

Population Characteristics

Race and Ethnicity

Based on the 2010 Census, minorities make up only 5.6% of the population within the KYOVA region, while less than 1% of the overall population was identified as Hispanic. These rates are lower than national averages. Among KYOVA counties, Cabell County has the most diverse population, with a minority population of 9.4% and Hispanic population of 1.1% and Wayne County has the least diverse population (only 2.4% minority). **Table 2.1** shows race and ethnicity population characteristics for residents within the KYOVA MPO. See **Figure 2.1** for a map showing the percent of minority population.

Age and Sex

According to the 2010 Census, the Median Age for residents within the KYOVA MPO is 40 years old, while 51.3% of the population is female and 48.7% male. Cabell County had the lowest median age of 38.7, while Wayne County had the highest median age of 41.3. The male-female ratios of all three counties in the KYOVA MPO is virtually identical as females comprised 51.2% of the population in both Cabell and Wayne Counties and 51.4% in Lawrence County.

Region-wide, 15.9% of the KYOVA population was over the age of 65 and 24.4% were under the age of 19. Wayne County had the highest percentage of people over the age of 65 with 16.6%, while Lawrence County had the highest percentage of people under the age of 19 with 26.0%. **Table 2.2** shows the population characteristics for age and sex of the KYOVA population. See **Figure 2.2** for a map showing percent elderly population.

Table 2.1 – Population Characteristics

	Cabell County		Wayne County		Lawrence County		KYOVA MPO	
	#	%	#	%	#	%	#	%
Total Population	96,319	100.0%	42,481	100.0%	62,450	100.0%	201,250	100.0%
Caucasian	88,194	91.6%	41,870	98.6%	59,864	95.9%	189,928	94.4%
Minority	8,125	9.4%	611	2.4%	2,586	4.1%	11,322	5.6%
Hispanic	1,046	1.1%	218	0.5%	445	0.7%	1,709	0.8%

Source: 2010 Census; Summary File 1 dataset

Table 2.2 – Population Characteristics

	Cabell County		Wayne County		Lawrence County		KYOVA MPO	
	#	%	#	%	#	%	#	%
Total Population	96,319	100.0%	42,481	100.0%	62,450	100.0%	201,250	100.0%
Under 19	22,222	23.2%	10,624	25.0%	16,199	26.0%	49,045	24.4%
20 to 39	27,601	28.7%	9,847	23.2%	14,901	23.8%	52,349	26.0%
40 to 64	31,132	32.3%	14,996	35.3%	21,633	34.7%	67,761	33.7%
65 and over	15,364	16.1%	7,014	16.6%	9,717	15.6%	32,095	15.9%
Median Age	38.7		41.3		40.1		40.0	
Male	46,972	48.8%	20,744	48.8%	30,361	48.6%	98,077	48.7%
Female	49,347	51.2%	21,737	51.2%	32,089	51.4%	103,173	51.3%

Source: 2010 Census; Summary File 1 dataset

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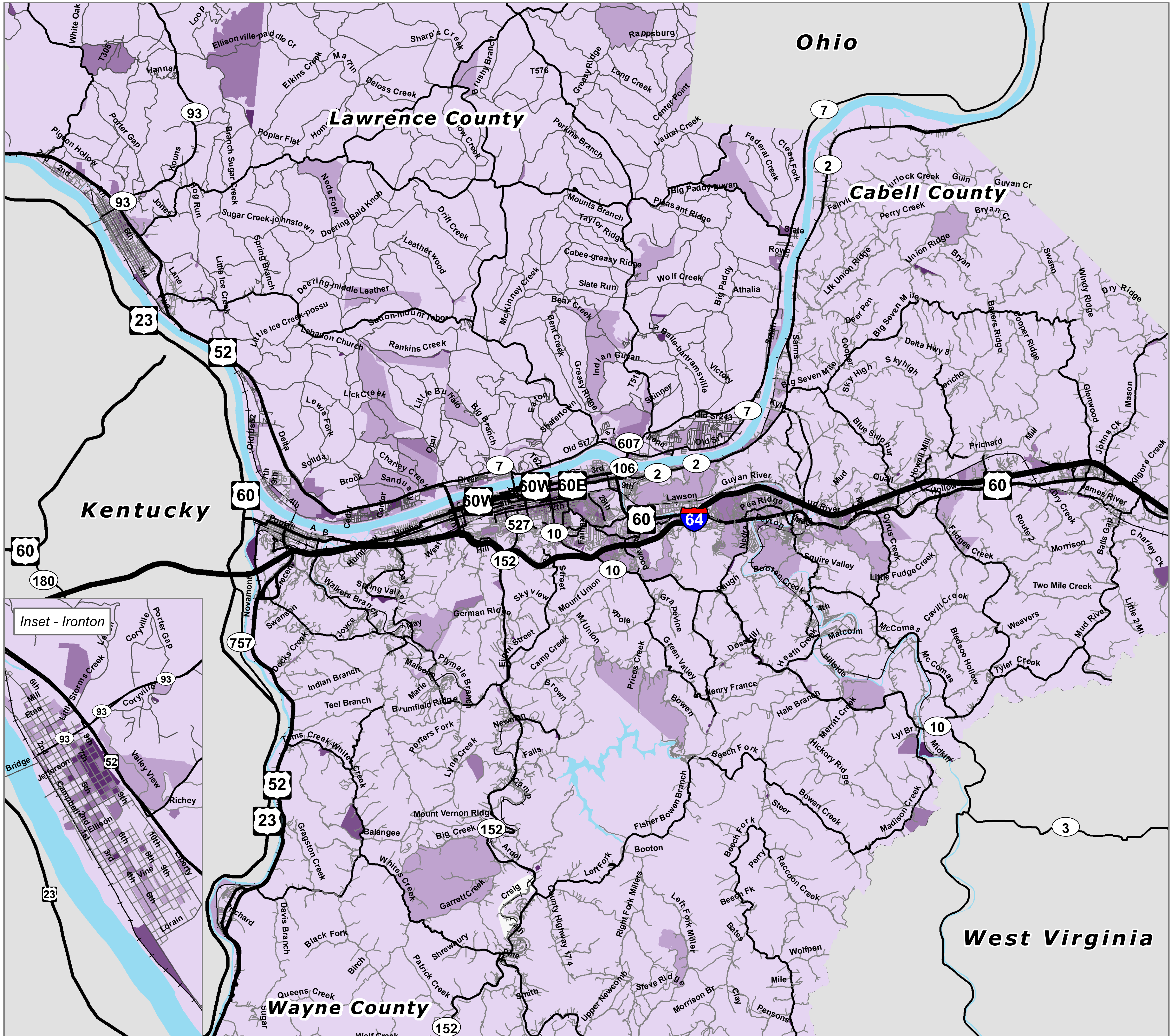
Figure 2.1



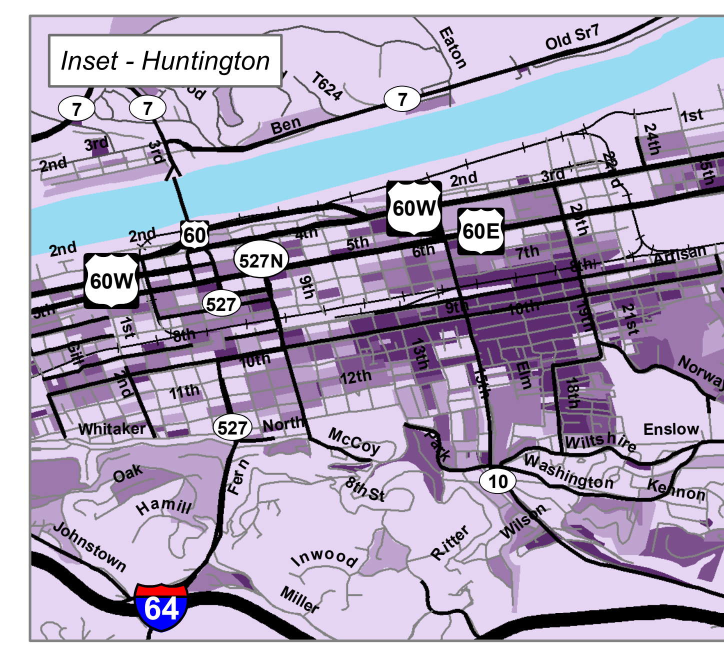
Percent Minority Population

Percent Minority Population

- Less than 5%
- Between 5% and 10%
- Between 10% and 20%
- Between 20% and 30%
- Greater than 30%

- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water

Notes:
- Data shown at the block level based on the 2010 Census.
- Percentages shown for each block are based only on the populations in each block. That is, a block with fewer people may reveal higher percentages of minorities despite having fewer minorities overall.



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KYOVA INTERSTATE PLANNING COMMISSION

Kimley-Horn and Associates, Inc.

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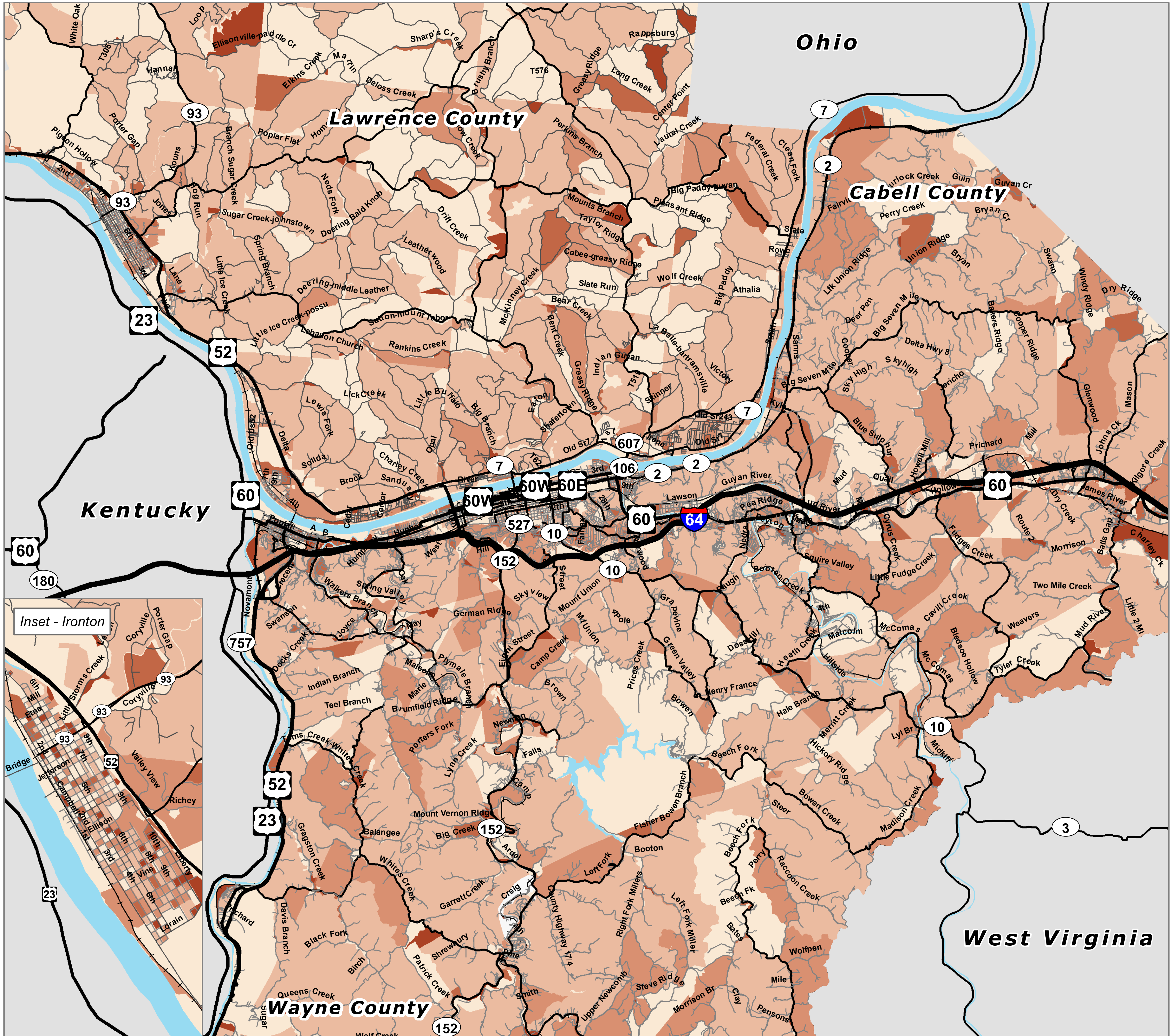


Figure 2.2

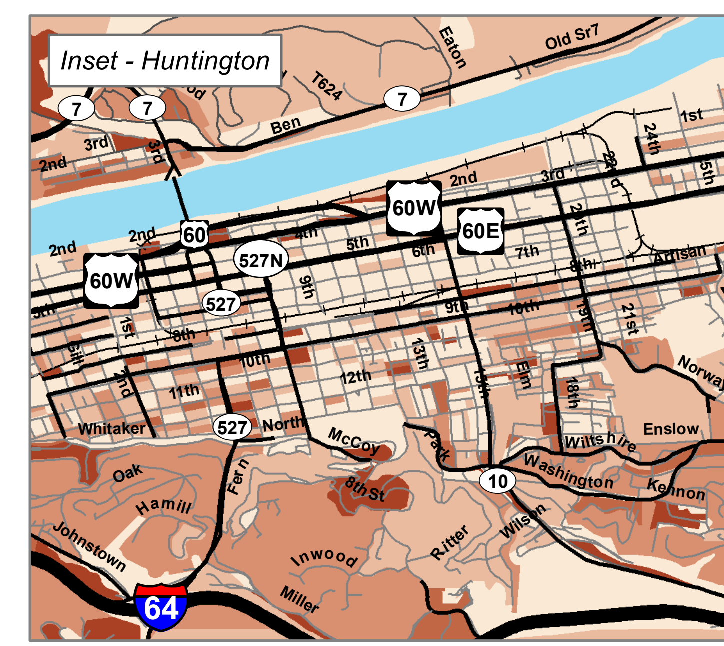
Percent Elderly Population

Percent Elderly Population (65 years or older)

- Less than 10%
- Between 10% and 20%
- Between 20% and 30%
- Between 30% and 40%
- Greater than 40%

- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water

Notes:
- Data shown at the block level based on the 2010 Census.
- Percentages shown for each block are based only on the populations in each block. That is, a block with fewer people may reveal higher percentages of elderlies despite having fewer elderlies overall.



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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 5 persons per acre are located within the City of Huntington (specifically near Marshall University) and the City of Ironton. Population densities decrease significantly moving away from the Ohio River, with these areas showing populations densities of less than 0.5 persons per acre. See **Figure 2.3** for a population density map. Employment density mostly mirrors population density with the majority of industrial centers concentrated along the Ohio and Big Sandy Rivers.

Housing Characteristics

Tenure, Household Size, and Median Household Income

According to the 2010 Census, the KYOVA area included 92,999 total housing units, 10.2% (9,455 households) of which were vacant housing units. Cabell County accounted for the most housing units (46,169), with 10.7% (4,946) being vacant. Within the KYOVA MPO, 68.4% of all occupied housing units were owner occupied units, and 31.6% were renter occupied. Among the counties, Wayne County (76.7%) and Cabell County (72.4%) had the highest and lowest owner-occupied householder percentages, respectively.

The average household size for the area was 2.38 persons, and the median household income was $34,157. Lawrence County had the highest average household size (2.47) persons and the highest median household income ($34,596). Cabell County had the lowest average household size (2.24) and lowest median household income ($33,062). **Table 2.3** shows the housing make-up and household characteristics for the KYOVA MPO.

Table 2.3 – Housing Characteristics

	Cabell County		Wayne County		Lawrence County		KYOVA MPO	
	#	%	#	%	#	%	#	%
Total Housing Units	46,169	100.0%	19,227	100.0%	27,603	100.0%	92,999	100.0%
Vacant	4,946	10.7%	1,880	9.8%	2,629	9.5%	9,455	10.2%
Owner Occupied	25,715	62.4%	13,313	76.7%	18,091	72.4%	57,119	68.4%
Renter	15,508	37.6%	4,034	23.3%	6,883	27.6%	26,425	31.6%
Average Household Size	2.24		2.43		2.47		2.38	
Median Household Income	$33,062		$34,814		$34,596		$34,157	

Source: 2010 Census; Summary File 1 dataset

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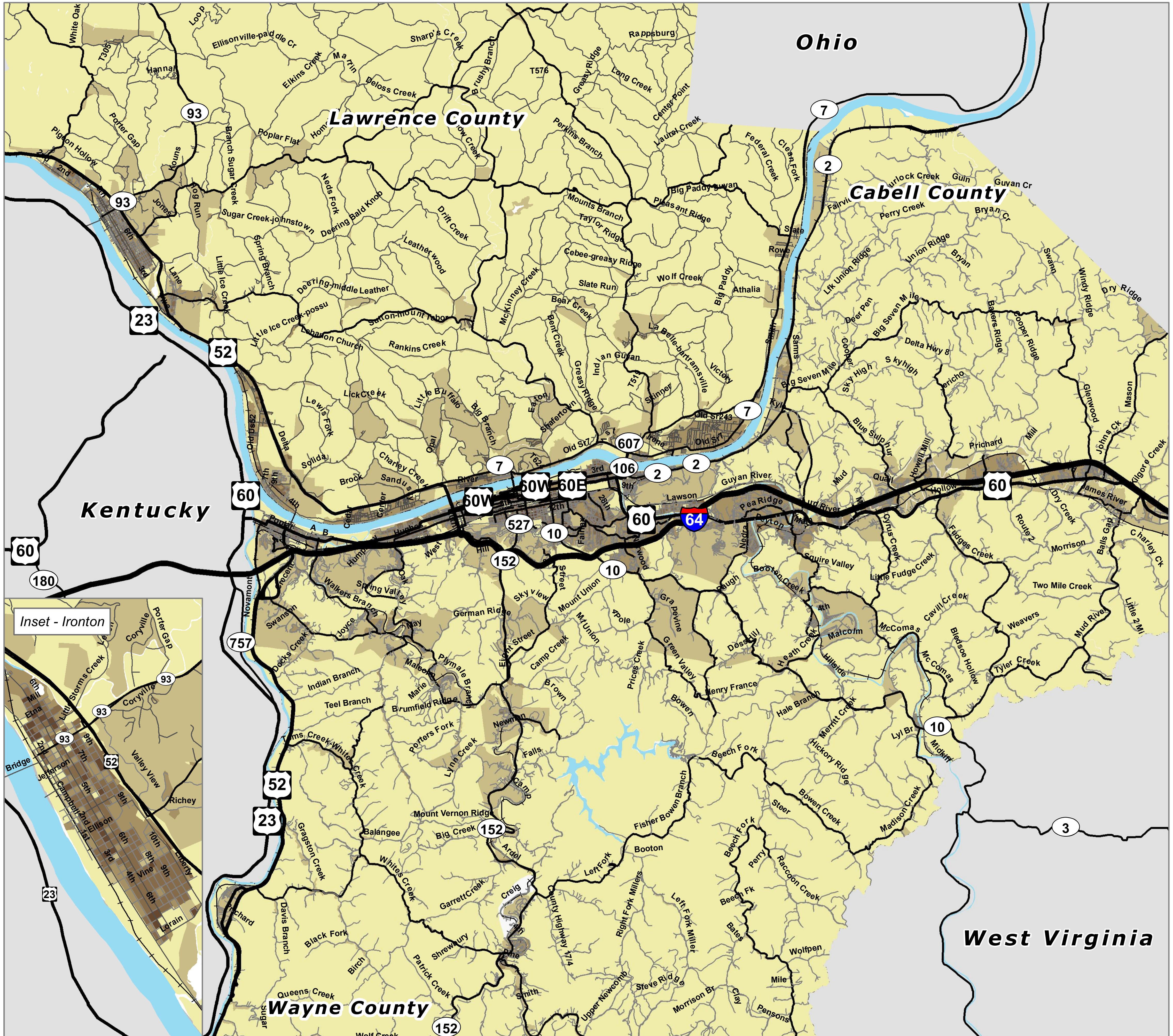
Figure 2.3



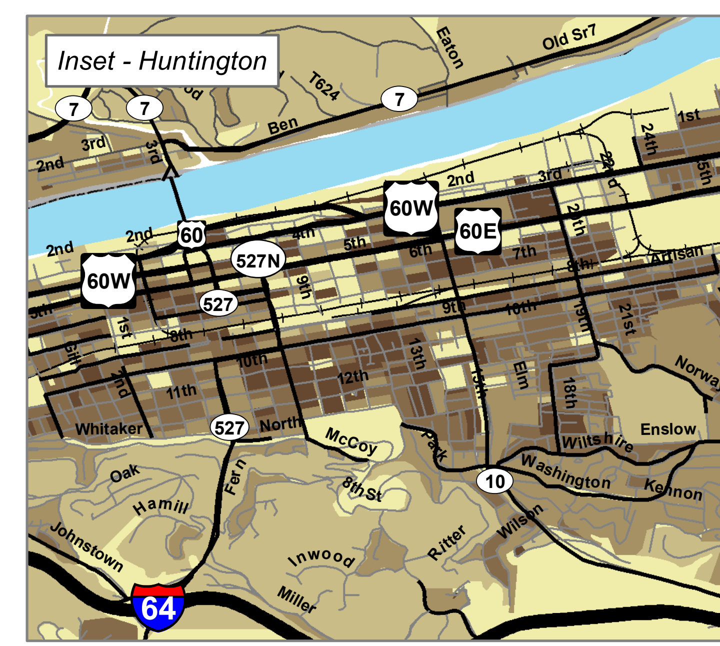
Population Density

Population Density (persons per square mile)

- Less than 200
- Between 200 and 1,000
- Between 1,000 and 5,000
- Between 5,000 and 10,000
- Greater than 10,000

- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water

Notes:
- Data shown at the block level based on the 2010 Census.



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Educational Attainment

According to the American Community Survey, educational attainment levels for persons over the age of 25 in the KYOVA region are fairly evenly distributed. Within the KYOVA region, 17.4% have less than a high school diploma, 38.8% of the population has a high school diploma or equivalent, compared to 17% of the population who have earned a bachelor's degree or higher.

Cabell County had the highest percentage of population who had earned a bachelor's degree or higher, with 21.8%. Wayne County had the lowest percentage, as only 12.7% of the Wayne County population, over the age of 25, had earned at least a bachelor's degree. **Table 2.4** shows the educational attainment within the KYOVA MPO for the population over the age of 25.

Low Income Population

On a regional basis, approximately 20.5% of KYOVA MPO residents were found to have incomes below the poverty line based on the 2009 American Community Survey. Poverty rates within the KYOVA region are higher than the national rate of 14.3%, while the poverty rate is consistent across all three counties as each County had a poverty rate between 20%-21%. **Table 2.5** shows the poverty status for residents within the KYOVA MPO region.

Census tracts with high percentages of people with income below the poverty level are scattered throughout the KYOVA MPO area. Census tracts with 25% or more people with incomes below the poverty level are located in all three counties, as high poverty tracts 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. Census tracts with low concentrations of poverty, below 15%, are located in south and western Cabell County, western Wayne County and southeastern Lawrence County. See **Figure 2.4** for a percent low income map.

Table 2.4 – Educational Attainment for the Population Over the Age of 25

	Cabell County		Wayne County		Lawrence County		KYOVA MPO	
	#	%	#	%	#	%	#	%
Population 25 and Over	60,884	100.0%	29287	100.0%	43125	100.0%	133296	100.0%
Less than High School	8,823	14.5%	6,416	21.9%	7,978	18.5%	23,217	17.4%
High School Graduate	21,856	35.9%	11,660	39.8%	18,156	42.1%	51,672	38.8%
Some College	16,915	27.8%	7,500	25.6%	11,286	26.2%	35,701	26.8%
Bachelor's Degree or Higher	13,292	21.8%	3,711	12.7%	5,705	13.2%	22,708	17.0%

Source: American Community Survey 2005-2009 5-Year Estimates

Table 2.5 – Poverty Status of Population for who Poverty Status is Determined

	Cabell County		Wayne County		Lawrence County		KYOVA MPO	
	#	%	#	%	#	%	#	%
Person Below Poverty Level	19,433	21.0%	8,322	20.1%	12,450	20.1%	40,205	20.5%

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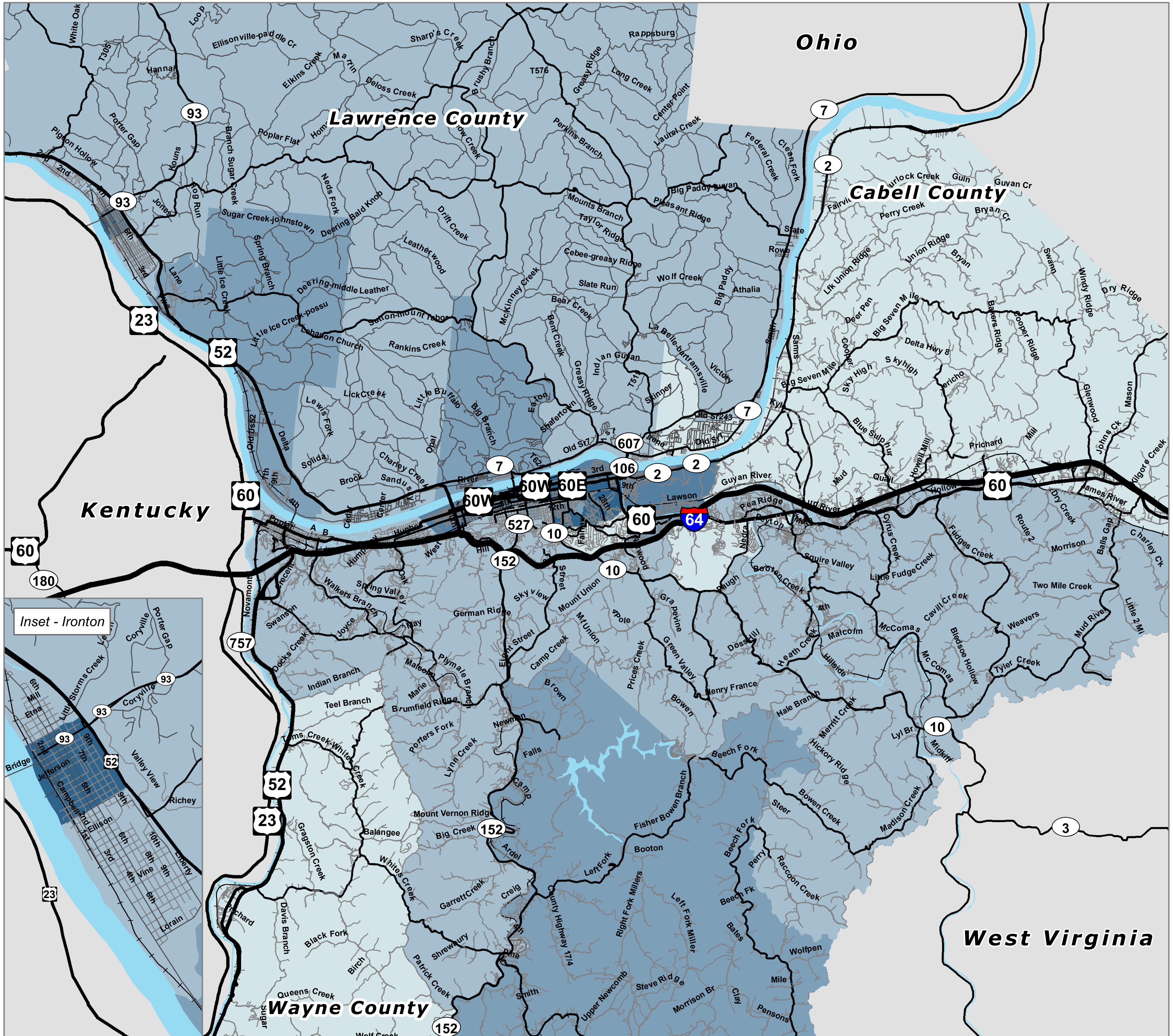
Figure 2.4

Percent Low-Income Population

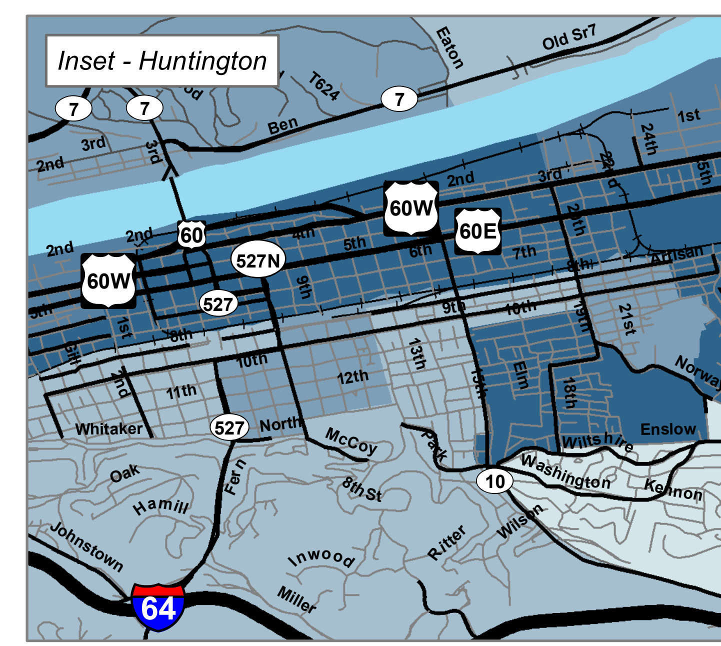


Percent Low-Income Population (below poverty line)

- Less than 10%
- Between 10% to 20%
- Between 20% to 30%
- Between 30% to 40%
- Greater than 40%

- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water

Notes:
- Data shown at the Census tract level based on the 2011 American Community Survey.
- Percentages shown for each Census tract are based only on the population in each Census tract. That is, a Census tract with fewer people may reveal higher percentages of a low-income population despite having a smaller low-income population overall.



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Vehicle Ownership

According to the 2005-2009 American Community Survey 5-year estimates, census tracts with 20% or more of households without access to a vehicle are concentrated within the City of Huntington along the Ohio River. The high concentrations of households without vehicles within the City of Huntington may indicate that people are able to access daily needs via alternative transportation modes. With the exception of the census tracts located in far northwestern and southernmost Wayne County, areas with low percentages of zero vehicle households are located on the periphery of the MPO. See **Figure 2.5** for a map showing the percentage of the population without access to a vehicle.

Work Destination Analysis

Where Workers Who Live in the KYOVA Region are Employed

Based on 2009 LED data from the Census OnTheMap feature, there were 74,788 jobs for residents within the KYOVA MPO three county region. When analyzing where workers live, Cabell County by far accounts for the most jobs, as 33,839 of workers who reside in the KYOVA MPO work in Cabell County, accounting for 45.2% of jobs. Lawrence County had the next highest job count as 7,148 of KYOVA residents with jobs worked in Lawrence County, accounting for 9.6%, followed by Kanawha County with 6,145 jobs, accounting for 8.2%.

While the majority of workers both live and work within the KYOVA MPO, it should also be noted that 28,274, of workers in the KYOVA MPO are employed in jobs located outside the KYOVA MPO area. This compares to the 21,823 of workers who have jobs located within the KYOVA MPO but reside outside the KYOVA region, suggesting a net outflow of jobs exist within the region.

Further supporting the outmigration of workers from the KYOVA region is the distance in miles workers are traveling from their home to work. When analyzing the distance workers commute to their jobs, 27% of workers residing in the KYOVA MPO commute 25 miles or more to their primary place of employment. The work destination and long commute distances of residents indicate that the KYOVA MPO does not have enough jobs to support the working age population.

Table 2.6 highlights the job counts by counties for where workers within the Cabell, Lawrence and Wayne Counties are employed, while **Table 2.7** shows the distance in miles workers are commuting to their place of primary employment.

Table 2.6 – Job Counts by Counties Where Workers are Employed

	Count	Share
Cabell County, WV	33,839	45.2%
Lawrence County, OH	7,148	9.6%
Kanawha County, WV	6,145	8.2%
Wayne County, WV	5,527	7.4%
Boyd County, KY	4,507	6.0%
All Other Locations	17,622	23.6%
Total Primary Jobs	**74,788**	**100.0%**

Source: OnTheMap LED Census Data

Table 2.7 – Distance from Home Census Block to Work Census Block

	Count	Share
Less than 10 miles	40,828	54.6%
10 to 24 miles	13,767	18.4%
25 to 50 miles	8,891	12.0%
Greater than 50 miles	11,212	15.0%
Total Primary Jobs	**74,788**	**100.0%**

Source: OnTheMap LED Census Data

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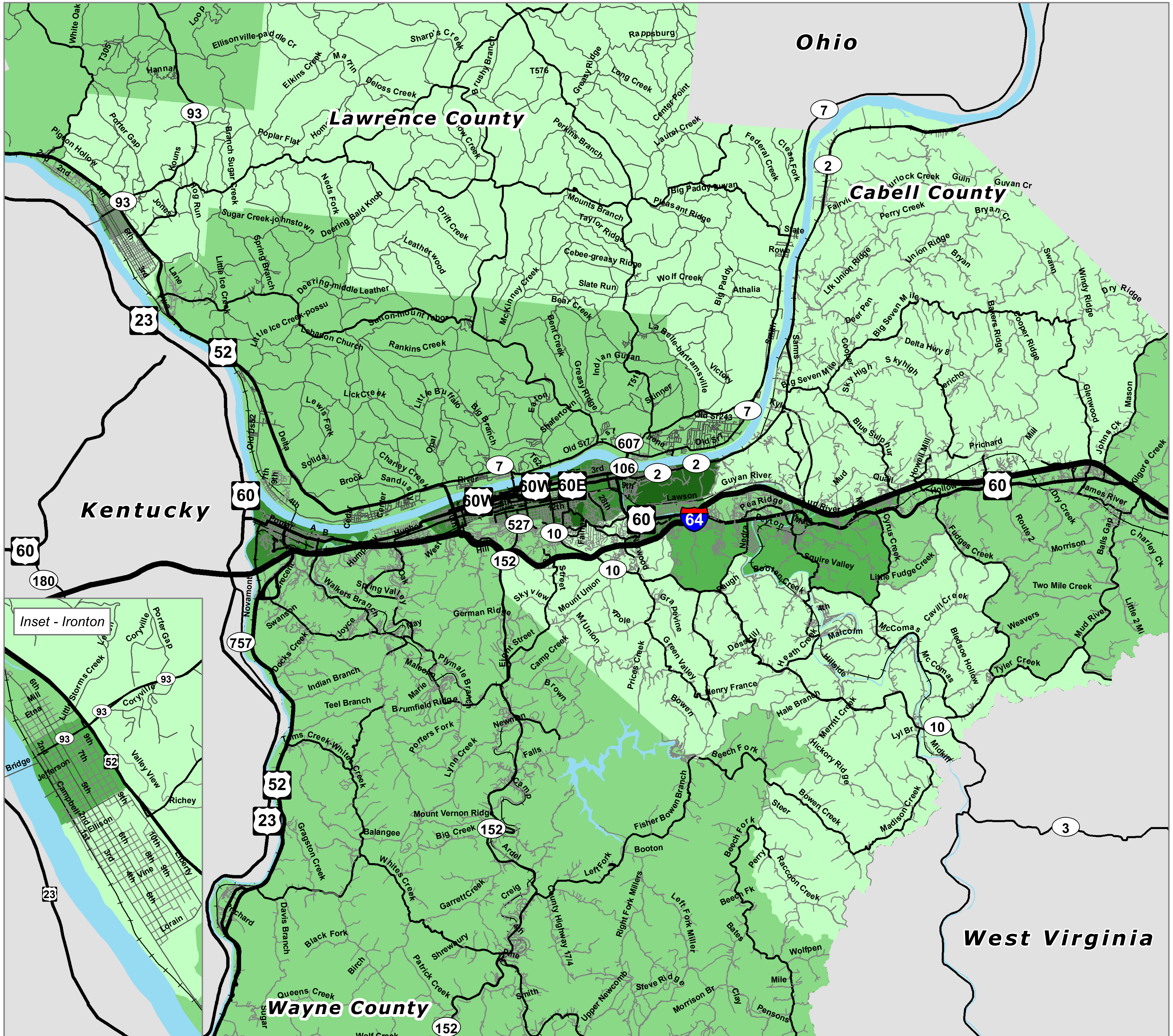
BRIDGING THE GAP IN REGIONAL TRANSPORTATION

2040 Metropolitan Transportation Plan

KYOVA INTERSTATE PLANNING COMMISSION

Figure 2.5

Percent No Vehicle Households

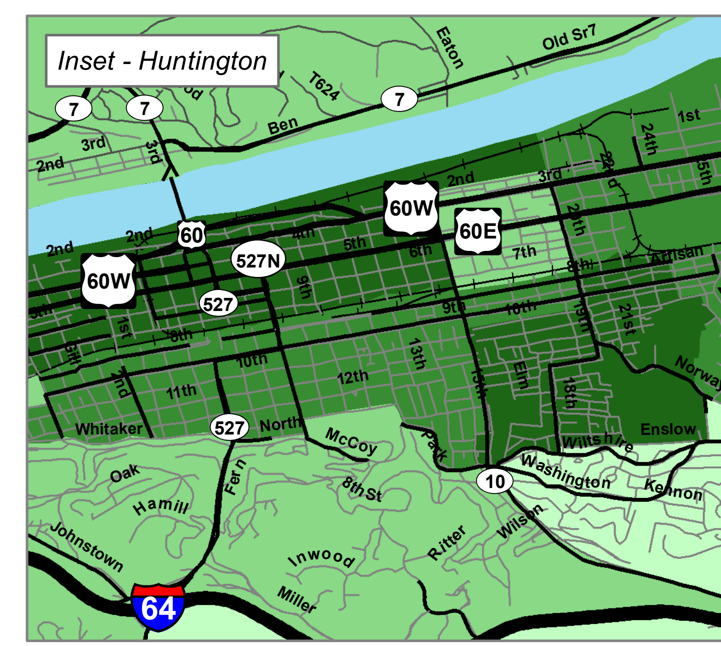


Percent No Vehicle Households

- Less than 5%
- Between 5% and 10%
- Between 10% and 15%
- Between 15% and 20%
- Greater than 20%

- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water

Notes:
- Data shown at the Census tract level based on the 2011 American Community Survey.
- Percentages shown for each Census tract are based only on the households in each Census tract. That is, a Census tract with fewer households may reveal higher percentages of no vehicle households despite having fewer no vehicle households overall.



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Means of Transportation to Work

Workers within the KYOVA region overwhelmingly commute to work via single occupancy vehicle, as 82.9% of workers over the age of 16 commute to work by driving alone. Additionally, another 9.3% of workers commute to work via carpools, indicating that more than 92% of workers within the KYOVA MPO travel to work via automobile.

While percentages of Cabell County workers commuting to work via alternative transportation means are higher than in the outlying counties, on a regional level, alternative means of transportation are not being widely utilized by workers. This is evident as only 1.1% of workers in the KYOVA MPO use public transportation, while 2.7% walk to work and only 0.5% use a bicycle to commute to work. **Table 2.8** highlights the means of transportation to work for worker over the age of 16 for the KYOVA MPO.

Table 2.8 – Means of Transportation to Work for Workers 16 years and Over

	Cabell County		Wayne County		Lawrence County		KYOVA MPO	
	#	%	#	%	#	%	#	%
Drove Alone	32,171	80.2%	13,676	84.0%	21,177	86.5%	67,024	82.9%
Carpooled	3,842	9.6%	1,610	9.9%	2,059	8.4%	7,511	9.3%
Rode Public Transportation	593	1.5%	124	0.8%	202	0.8%	919	1.1%
Biked	313	0.8%	17	0.1%	36	0.1%	366	0.5%
Walked	1,514	3.8%	322	2.0%	339	1.4%	2,175	2.7%
Worked at Home	1,304	3.3%	275	1.7%	335	1.4%	1,914	2.4%
Total Workers	**40,115**		**16,284**		**24,494**		**80,893**	

Source: American Community Survey 2005-2009 5-Year Estimates

Environmental Assessment

Through MAP-21, which was signed into law on July 6, 2012, the Federal government once again affirmed its commitment to environmental mitigation. The legislation requires MPOs to consult with Federal and state agencies to develop possible environmental mitigation activities for incorporation into transportation projects identified in long range transportation plans. To fulfill MAP-21 requirements, it is important to understand the definition of mitigation according to Federal regulation. Mitigation:

- Avoids the impact altogether by not taking a certain action or parts of an action.
- Minimizes the impact by limiting the degree or magnitude of the action and its implementation.
- Rectifies the impact by repairing, rehabilitating, or restoring the affected environment.
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the action.
- Compensates for the impact by replacing or providing substitute resources or environments. (Source: 40 CFR 1508.20)

An ordered approach to mitigation starts with an understanding of the affected environment and assesses transportation effects throughout project development. To be most effective, mitigation must start at the beginning of the NEPA process and play a role in the development and analysis of alternatives.

Because long range transportation planning is regional in scope, the environmental mitigation discussion that follows does not focus on each individual project of the *KYOVA 2040 MTP*. Instead, this section provides maps and a general summary of environmentally sensitive areas for consideration. The evaluation matrix in **Chapter 4** introduces project-level analysis of potential impacts to the environment.

Natural Resources

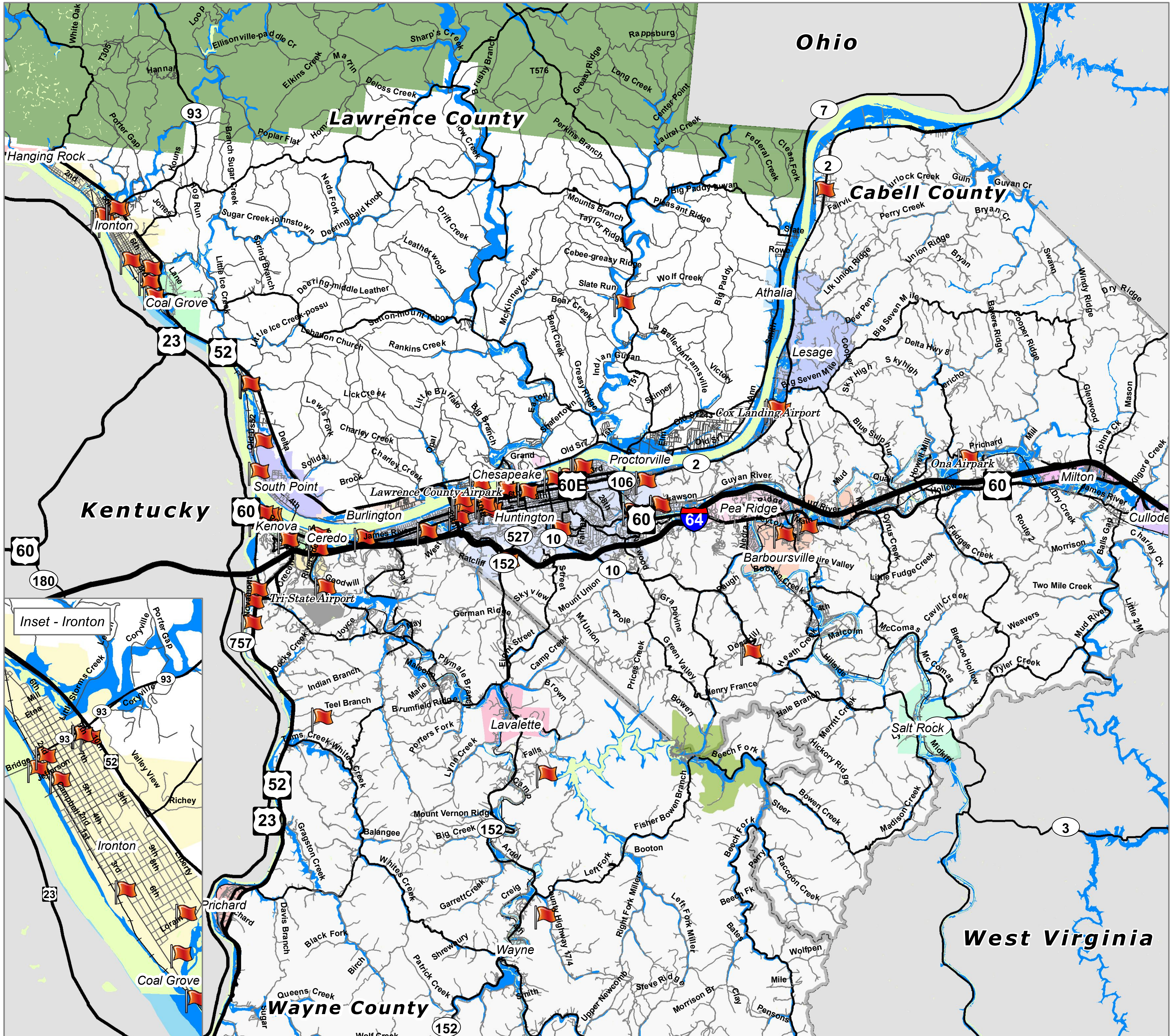
The KYOVA region is blessed with an abundance of natural resources, including rolling terrain, scenic peaks, rivers, streams, and wetlands. Growth continues to place these natural resources at odds against the roads and infrastructure designed to accommodate rising population and business interests. The inventory of natural resources is more than just placing features on a map—the presence of natural resources directly influenced the preliminary alignments for various projects. Some projects such as new location roadways required avoidance of these resources where possible. Other projects such as multiuse trails were located along natural resources to take advantage of the area's green infrastructure and connect activity centers. The most prominent features include:

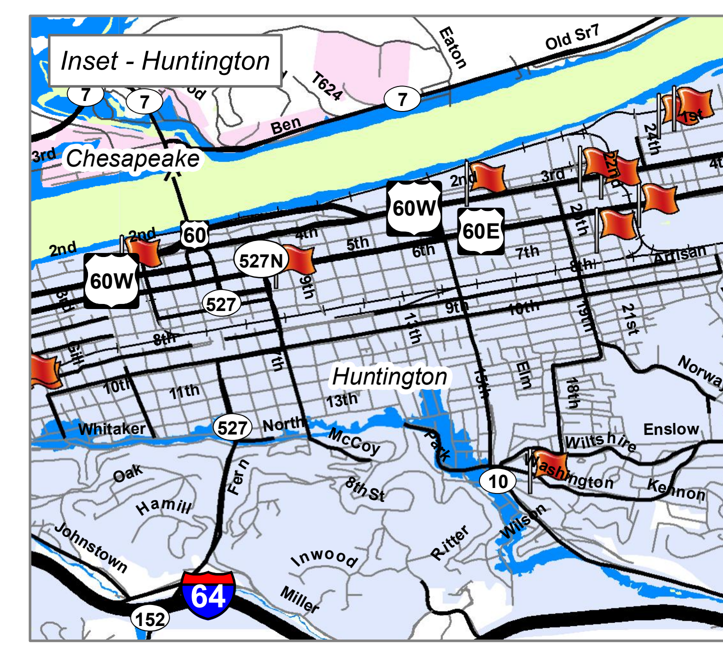
- Ohio River
- Big Sandy River
- Guyandotte River
- Beech Fork Lake
- Dean State Forest
- David Harris Riverfront Park
- Beech Fork State Park
- Kiwanis Park
- Ritter Park
- Barboursville Park

Figure 2.6 illustrates the occurrence of important environmental features such as rivers, streams, wetlands, and floodplains. The map also shows topography and the location of parks. Consideration also should be given to hazardous waste sites and sensitive facilities (i.e. security concerns), though these sites are not shown in **Figure 2.6**.

Figure 2.6

Environmental Context





- Hazardous Waste Site
- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water
- Wetland
- Floodplain
- Airport
- Wayne National Forest
- Beech Fork State Park

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Cultural Resources

Cultural and community resources in the area include schools, universities, libraries, community centers, hospitals, and historic buildings/districts. These locations provide popular destinations for citizens and visitors of all ages as well as important community landmarks and critical service facilities. Some of the most prominent cultural resources include:

- Marshall University
- Pullman Square
- Huntington Mall
- Huntington City Hall/Cabell County Courthouse
- Ironton City Hall/Lawrence County Courthouse
- Huntington Hospital
- VA Medical Center
- St. Mary's Hospital
- HIMG Medical Center
- King's Daughter Hospital
- Bellefonte Hospital
- Huntington Internal Medicine Group
- Cabell County Vocational Training Center
- Ohio University – Proctorville
- Ohio University – Ironton
- East Hill Mall

As projects are considered for implementation, officials must bear in mind impacts to these important community features.

Conclusion

Identifying potential impacts helps balance the competing interests of improving mobility and preserving the region's important social, natural, and cultural resources. The location of these resources must factor into the decision process when investing transportation dollars—because it's good practice and it's a federal requirement. Screenings help identify sensitive location setting the stage for mitigating or avoiding significant impacts. The earlier these features are identified, the more likely sustainable solutions will arise to minimize or avoid impacts and reduce unnecessary delays and expenses throughout the implementation of the project. The region's commitment to mitigation is represented in part by the inclusive planning process described in **Chapter 1** coupled with the screening presented in this chapter and the evaluation matrix explained in **Chapter 4**.

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Introduction

Development patterns in an area are primarily shaped by the transportation modes available during the time of development. The KYOVA study area, originally established near the confluence of the Ohio and Big Sandy Rivers because they allowed for the easy movement of goods and people, has also over the past century expanded around a robust local and regional roadway network. This network provides efficient travel to destinations along the rivers and also provides overland connections between different economic centers around the region such as Charleston, West Virginia, Columbus, Ohio, and Lexington, Kentucky. The Roadway Element of the *KYOVA 2040 Metropolitan Transportation Plan* documents current and forecasted roadway conditions within the study area and builds the foundation for evaluating existing and future transportation needs at the corridor level.

Following a general discussion of transportation corridors and activity centers, the description of roadway conditions is organized into the following sections:

Corridor Characteristics

- Functional Classifications
- Corridor Operations (traffic and congestion)
- Public Perception

Recommendations

- Development and Prioritization Process
- Project Recommendations
- Downtown Huntington Access Study
- Project Sheets

Often neighborhoods and activity centers rely on a small number of transportation corridors to provide essential links.

Transportation Corridors and Activity Centers

Within the KYOVA study area are several activity centers that attract numerous peak period trips each day. The majority 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. As populations and demographics in each of these centers continue to shift and change, traffic volumes can be expected to change as well. The changing patterns will influence traffic patterns and create new deficiencies on the existing transportation network. Traffic bottlenecks may become evident in places that currently function adequately while existing deficiencies may be magnified. An important goal of this plan was to assess how to maintain the existing network while identifying key areas for expansion. As roadway infrastructure ages, replacement and repair of facilities, including the major bridges within the study area, will need to be included in the long range plan. Also, any new facilities such as the proposed phases of the Chesapeake Bypass (SR 7) corridor and the proposed Ohio River bridges will affect how the area develops and where new traffic impacts will be felt.

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. The two largest economic centers in the KYOVA region are Huntington, West Virginia and Ironton, Ohio. However, other areas such as Barboursville, West Virginia and South Point, Ohio also contain significant activity or destination points.

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. These improvements often enhance access, thus raising land values and attracting more development. The circular diagram on the next page illustrates this continuing cycle of influence between land use and transportation.

A common challenge in designing successful transportation systems is to improve connectivity and access within an area while also preserving natural features and the unique character of the many towns and cultures nearby. Neighborhoods and smaller communities within the area may have many needs and priorities that are unique from one another. While recognizing these differences, it is important not to lose focus of the practical concept of overall connectivity. This concept is particularly relevant as it relates to people's desires to make safe and efficient trips not only by driving but also by walking, bicycling, or using public transportation.

Walkable areas are typically characterized by a well-connected street network with relatively small block sizes ideally no more than 400 or 500 feet in length such as in the traditional downtown areas of Huntington or Ironton. Small block sizes allow pedestrians to find shorter routes to nearby destinations. A well-connected street network also disperses traffic–particularly local traffic–which can help lower vehicular volumes and speeds throughout the network, thereby improving safety for pedestrians. Many of the roadways outside of these traditional downtowns are large arterials with no nearby parallel facilities, and the more recently constructed local streets are closed at one end and provide no through connections thereby reducing the opportunity for multi-modal mobility.

Table 3.1 – Activity Center Characteristics

Regional Activity Center

- Large-scale, transit-supportive center with employee-intensive land uses
- Core areas contain large-scale and high intensity urban land uses supported by and serving communities within the region
- Accessed by interstates/freeways, principal arterials, and public transportation
- Served by municipal water and sewer
- Higher residential densities
- Balanced between residential/non-residential land uses
- Example: Downtown Huntington, Downtown Ironton

Community Activity Center

- Include a combination of retail, personal services, civic, educational, and social uses
- Core areas contain medium-scale development that serve the day-to-day needs and activities of the core area occupants and the surrounding neighborhoods
- Accessed by principal arterials and public transportation
- Served by municipal water and sewer
- Medium density residential areas
- Land use mix is generally around 60% residential and 40% non-residential
- Example: Barboursville (around Huntington Mall)

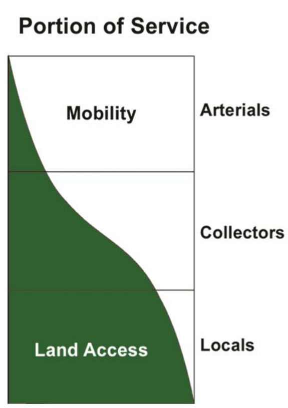
Neighborhood Activity Center

- Large-scale, transit-supportive center with employee-intensive land uses
- Mostly residential with a mixed-use core that serves as a focal point for the neighborhood and provides retail and service needs
- Accessed by major and minor arterials with integrated collector street access
- Mixture of low and medium density residential areas
- Transit service provided or desired
- Example: Ceredo (around Ceredo Plaza Shopping Center), Proctorville

Corridor Characteristics

As the region's economy expands and people continue to relocate to the area, the frequency and length of trips on the current system of highways and streets is expected to increase. Increased traffic may create new or worsening deficiencies within the existing transportation network, and traffic bottlenecks may become evident in places that currently function adequately. To anticipate future problem areas, it is helpful to understand the characteristics of the existing transportation corridors in the region.

Functional Classification



An effective roadway network must manage two competing demands placed on the system: 1) providing access to specific destinations and 2) facilitating long-range mobility between centers. Strategies to meet these two demands are inherently adverse to each other (i.e. increasing access on one facility usually limits mobility along the same facility). Therefore, it is advantageous to create layered transportation networks, in which some facilities afford easy access and others provide long-range, higher-speed mobility.

Balancing access and mobility creates roadways with different contexts that serve a variety of user groups and adjacent land uses. For example, the primary function of local or neighborhood streets is to provide access. These streets are intended to serve localized areas or neighborhoods, including local commercial and mixed-use land uses (i.e. low speeds, low volumes, and short distances). Local streets are not intended for use by large volumes of through traffic. Meanwhile, the primary function of arterials is mobility. Limiting access points (intersections and driveways) on arterials enhances mobility. Too much mobility at high speeds can inhibit access by pedestrians and bicyclists. An arterial is designed with the intent to carry more traffic than is generated within its corridor.

Roadway functional classifications are stratified by purpose and character between these two extremes. Roadways can be categorized into one of five or so functional classifications, with each classification exhibiting certain traits and characteristics. It should be noted that the lines between these classifications are not exact and are often defined differently in different jurisdictions. Roadways exist on a continuum between the two principles of access and mobility that makes specific definitions difficult to apply. In order of decreasing mobility, the five classifications used in the *KYOVA 2040 MTP* are: expressways and freeways, major arterials, minor arterials, collectors, and local roads. Each classification is described here, along with its typical characteristics and an example roadway in the KYOVA area that fits its profile.

- **Expressways and Freeways**
  - Provide the most mobility and least amount of access (access restricted to grade-separated interchanges)
  - Typically serve longer distance travel and support regional mobility
  - Maintenance and improvement typically funded by state
  - Local Example: I-64
- **Major Arterials**
  - Have tightly controlled access
  - Carefully spaced at-grade intersections and few, if any, individual site driveways
  - Serve medium to longer distance travel
  - Typically connect minor arterials and collector streets to freeways and other higher type roadway facilities
  - Maintenance and improvement typically funded by state (sometimes funded through partnerships with local municipalities)
  - Local Example: US 52 along the Ohio River

- **Minor Arterials**
  - Primarily serve a mobility function but often have more closely spaced intersections and some individual site driveways
  - Generally have lower design and posted speeds compared to major arterials
  - Primarily serve travel demand within the local area
  - Connect to other minor arterials, to major arterials, and to collector streets
  - Provide a higher level of access to adjacent land uses than major arterials
  - Typically have lower traffic volumes
  - Maintenance and improvement typically funded by state (sometimes funded through partnerships with local municipalities)
  - Local Example: SR 7 along the Ohio River; Park Avenue through downtown Ironton; US 60 (transitions into a minor arterial as it enters into the downtown area)
- **Collectors**
  - Typically provide less overall mobility, operate at lower speeds, have more frequent and greater access flexibility with adjacent land uses, and serve shorter distance travel than arterials
  - Provide critical connections by bridging the gap between arterials and local streets
  - Usually connect with one another, with local streets, and with non-freeway/expressway arterials
  - Primarily collect traffic from neighborhoods and distribute it to the system of major and minor arterials
  - Local Example: Madison Avenue through downtown Huntington
- **Locals:**
  - Provide greater access and the least amount of mobility
  - Typically connect to one another or to collector streets and provide a high level of access to adjacent developments
  - Serve short distance travel and have low posted speed limits (typically 25 mph to 35 mph)
  - Local Example: most roadways within the study area

Once streets have been classified into these functional categories, they can be further classified into urban or rural contexts to reflect an additional layer of design considerations. For example, an arterial in an urban setting may exhibit different features — curb and gutter, lighting, or bicycle and pedestrian facilities — that are not always present in a rural setting.

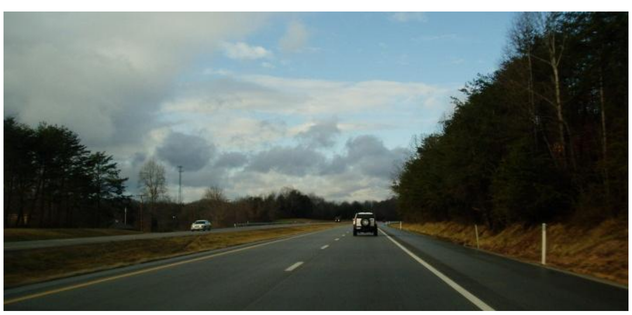
Multimodal Roadways |"Complete Streets"

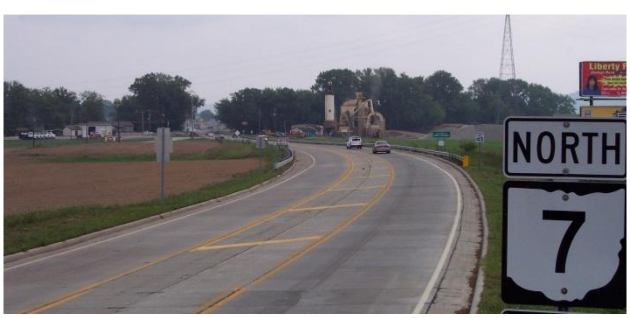
Across the nation, interest has surged in creating "complete streets" within existing roadway networks. The National Complete Streets Coalition defines a complete street as enabling all users inclusive of pedestrians, bicyclists, motorists and transit riders of all ages and abilities to safely move along and across a street. Primarily, roadways with lower speeds and greater access points (local streets and collectors) provide the greatest opportunities for developing complete streets. However, all functional classifications are eligible for some consideration of multi-modal users even if only for motorists and regional transit (such as on expressways and freeways). Multi-modal options and opportunities for complete streets were explored during the needs assessment and recommendations portion of the *KYOVA 2040 MTP*.

Corridor Operations

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, SR 7, 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 many 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. SR 7, 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 study area.





Average Annual Daily Traffic

Traffic volumes signify the total number of vehicles traveling along a roadway segment on an average day. **Figure 3.1** illustrates the existing traffic volumes (vehicles per day) on study roadways in the KYOVA area based on the regional travel demand model. I-64 directly south of downtown Huntington has among the area's highest traffic volume with approximately 44,000 vehicles per day (vpd). US 60 entering downtown Huntington from the east carries more than 30,000 vpd. US 52 between South Point and Coal Grove carries nearly 39,000 vpd. As US 60 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:

- Huntington Mall Road (35,000 vpd);
- US 52 north of the Ohio River near Chesapeake (26,000 vpd);
- US 52 entering Ironton from the southeast (16,500 vpd);
- WV 10 entering Huntington from the southeast (20,500 vpd);
- WV 152 entering Huntington from the south (21,000 vpd); and
- SR 7 Bypass of Chesapeake (18,000 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.

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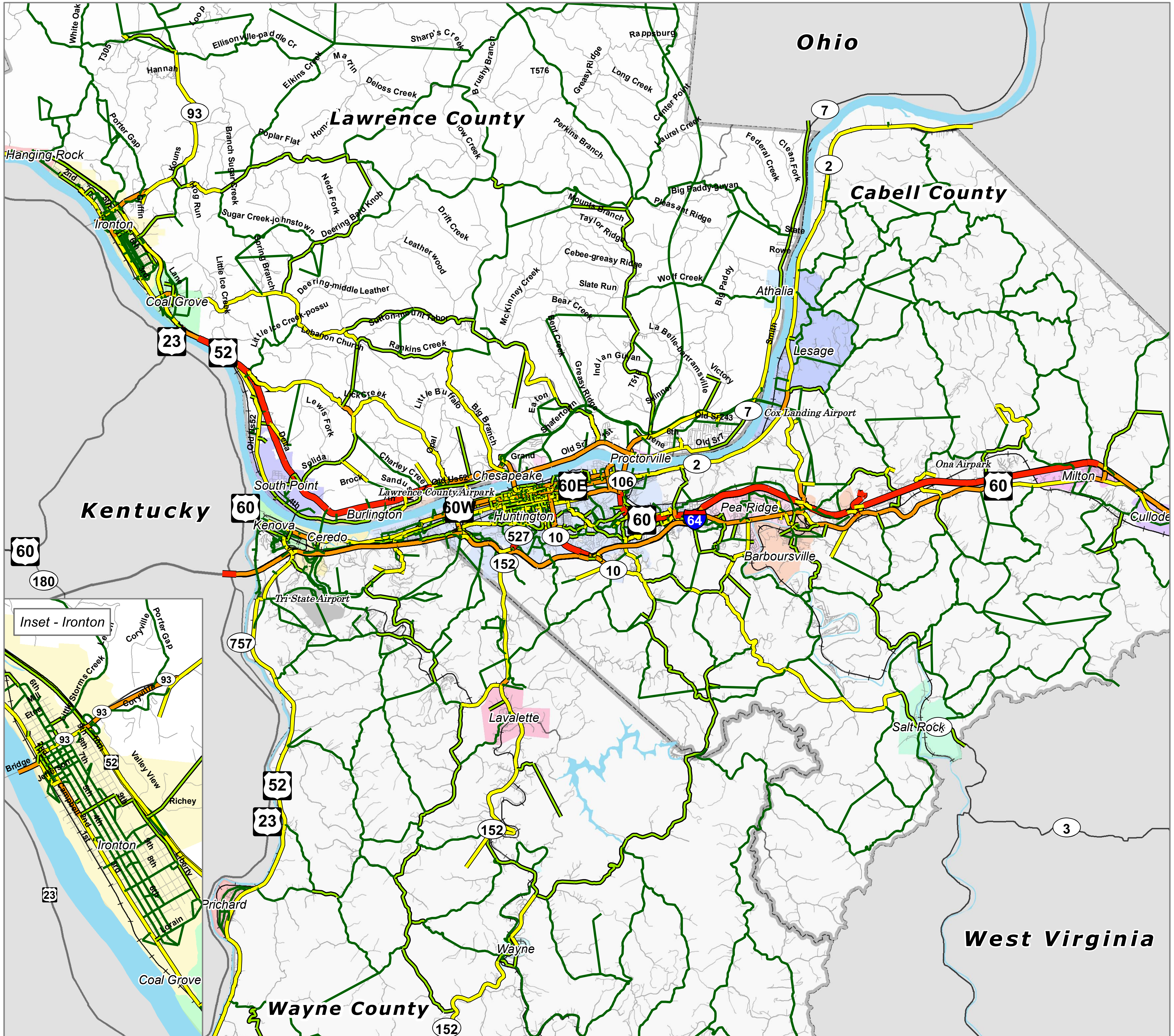
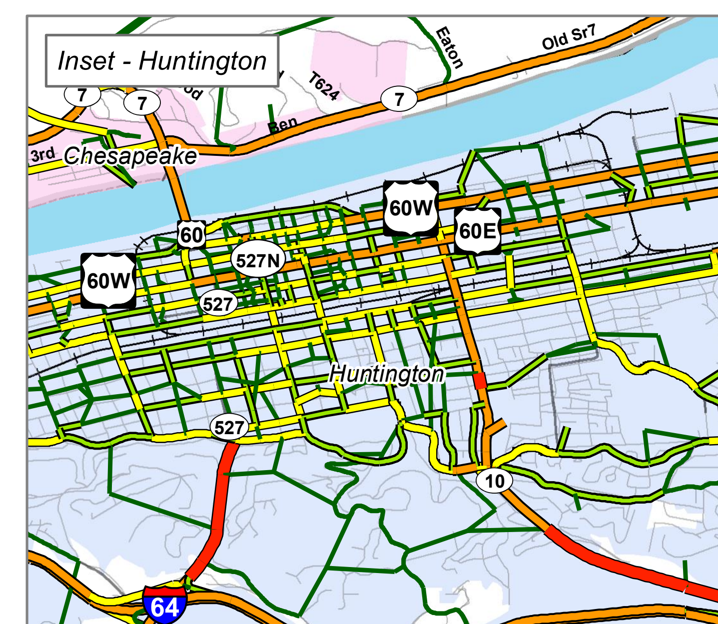
Figure 3.1

Existing (2010) Traffic Volumes

Vehicles Per Day (2010)

- 2,500 or Less
- 2,501 to 5,000
- 5,001 to 10,000
- 10,001 to 20,000
- 20,001 or More





0 1.5 3 Miles

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Congested Corridors

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. For the purposes of the *KYOVA 2040 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

  Roadways operating below capacity are without congestion during peak travel periods. This level of service usually occurs on rural or local streets. As the V/C nears 0.8, the roadway becomes more congested. These roadways may operate effectively during non-peak periods but be congested during morning and evening peak travel periods.
- **At Capacity** | LOS D
  V/C is 0.8 to 1.0

  Roadways operating at capacity are somewhat congested during non-peak periods with congestion building during peak periods. A change in capacity due to incidents impacts the travel flow. Roadways in this category most efficiently balance corridor operations with cost of instrastructure.
- **Above Capacity** | LOS E or F
  V/C is greater than 1.0

  Roadways operating above capacity experience heavy congestion during peak periods and moderate congestion during non-peak periods. Changes in capacity can have major impacts on corridors and may create gridlock conditions. Roadways with V/C ratios exceeding 1.2 are congested during non-peak periods and likely operate in stop-and-go gridlock conditions during the peak travel periods.

Existing (2010) Conditions

Figure 3.2 shows how roadways in the KYOVA region currently (2010) perform based on the three categories. 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. Roadways operating above capacity warranted special consideration to alleviate congestion and improve the overall transportation system.

The map of existing congestion shows minimal congestion in the KYOVA region. Corridors with notable congestion in the 2010 model base year include:

- US 52 over the Ohio River between Huntington and Lawrence County, Ohio;
- WV 152 north of Lavalette;
- US 52 near Coal Grove;
- US 60 just east of the interchange with I-64 near Pea Ridge;
- US 60 between the Guyandotte River and WV 193 (Big Ben Bowen Highway); and
- CR 19 near WV 193.

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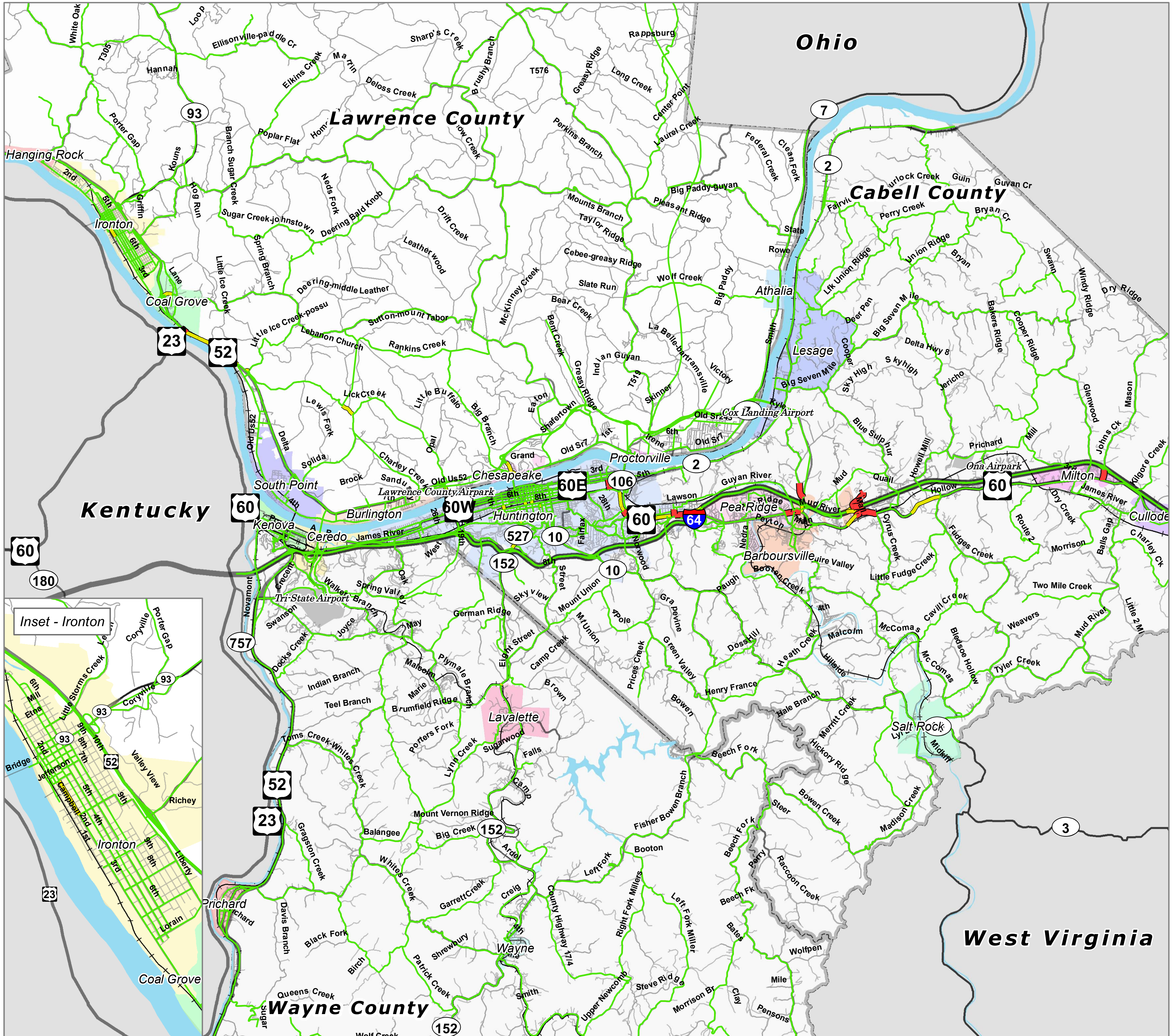
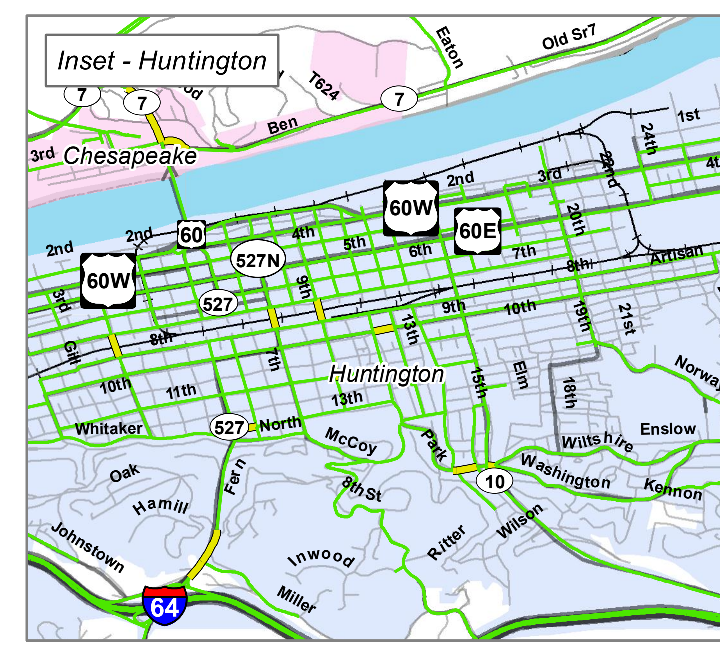
Figure 3.2

Base Year Congestion (2010)

2010 Volume-to-Capacity Ratio

- Below Capacity (v/c < 0.80)
- At Capacity (0.8 < v/c < 1.0)
- Above Capacity (v/c > 1.0)





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Existing + Committed (2040) Conditions

The Transportation Improvement Program (TIP) is a four-year schedule of federally assisted transportation projects for the three-county region that is required under the MAP-21 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 ODOT and WVDOT. 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 2012-2015 TIP primarily was guided by the Huntington-Ironton Area Transportation Study (HIATS) 2035 Long-Range Transportation Plan. The 2014-2017 TIP is being development concurrently with the *KYOVA 2040 MTP*.

The TIP must be financially constrained, so a financial plan is included to demonstrate the list of projects 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. The current 2012-2015 total TIP program cost is $220 million including all Federal, State, and Local sources with approximately 25% being spent in Ohio and 75% being spent in West Virginia ($55 and $165 million, respectively).

Table 3.2 lists the TIP projects from the 2014-2017 TIP that are relevant to this chapter. **Figure 3.3** depicts traffic congestion in 2040 for the KYOVA area assuming these committed projects are added to the existing transportation network. This process helps illustrate what needs of the system beyond the projects currently slated for improvement.

Table 3.2 – KYOVA 2014-2017 TIP Projects

Project ID	Route/Section	Length (mile)	Location and Description	Total Cost (000's)
Lawrence County, Ohio				
81595	Ironton Russell Bridge	0.10	Replace bridge over the Ohio River between Ironton, OH and Russell, KY at a new location and perform necessary approach work	93,050
Cabell County, West Virginia				
U306-10/-13.35 00	WV 10	2	Upgrade to 4 lanes between Huntington and Melissa Road	29,000
U306-10/-13.36 00	WV 10	2.27	Upgrade to 4 lanes between Huntington and Melissa Road	5,900

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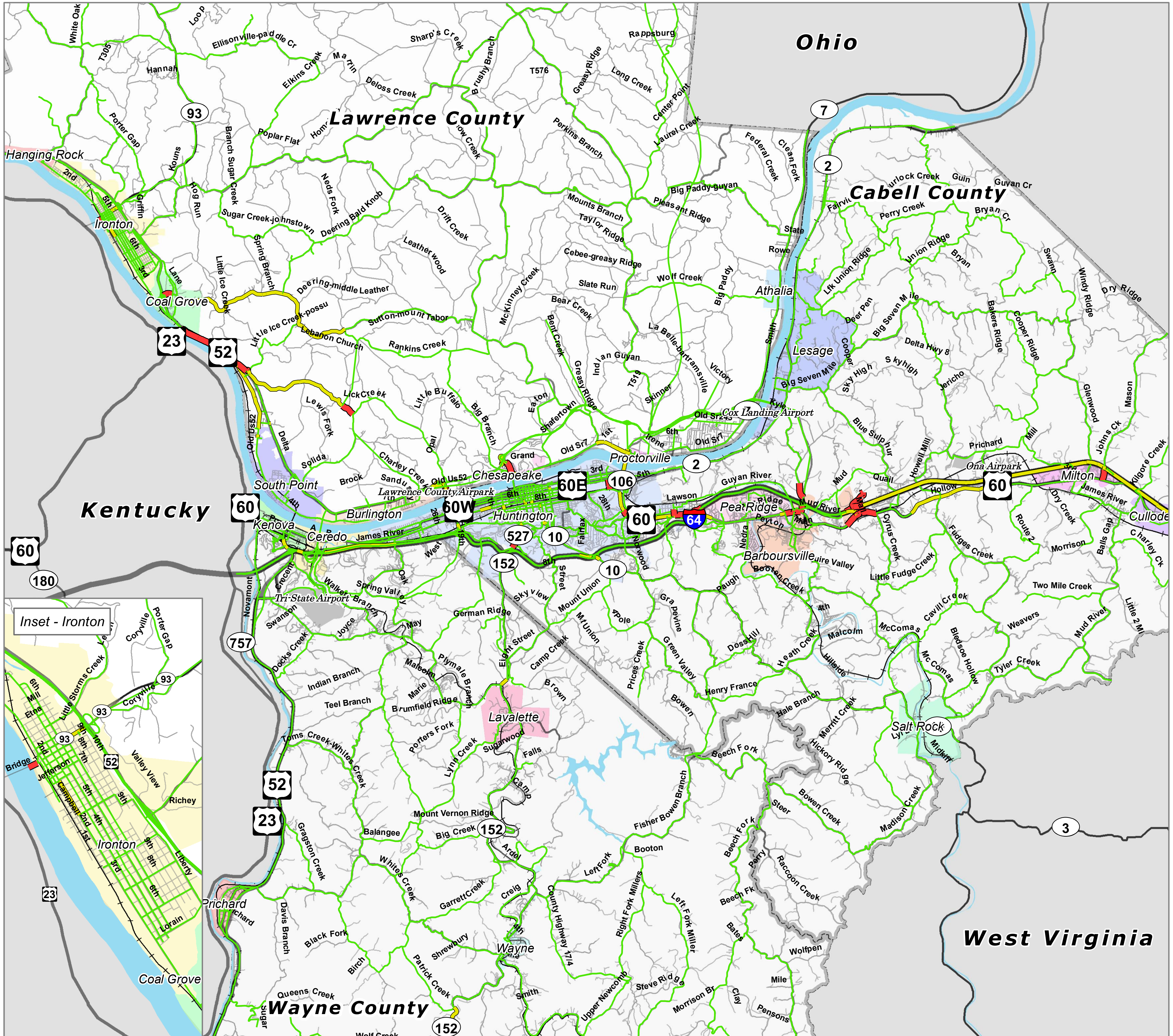
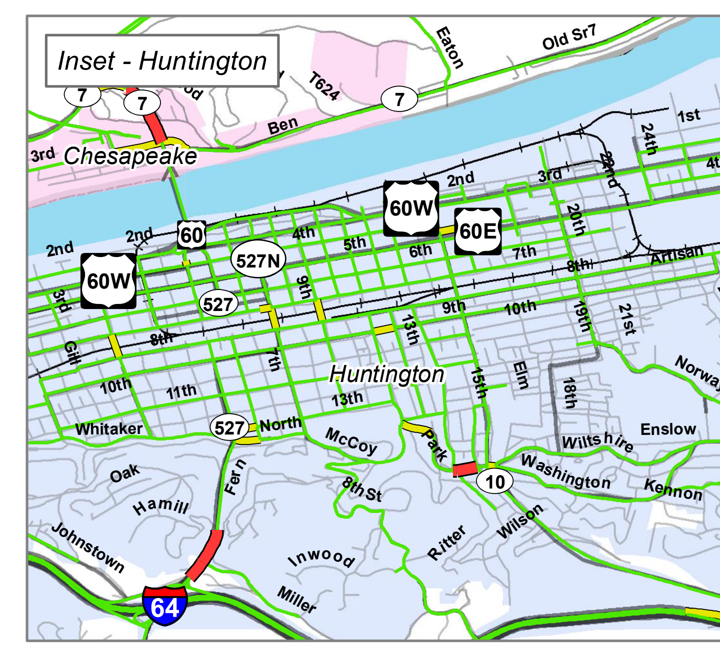
Figure 3.3

Existing + Committed Congestion (2040)

2040 Existing + Committed Volume-to-Capacity Ratio

- Below Capacity (v/c < 0.80)
- At Capacity (0.8 < v/c < 1.0)
- Above Capacity (v/c > 1.0)





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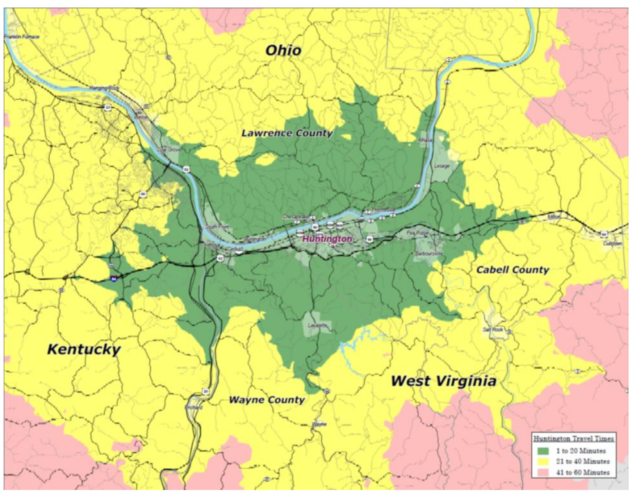
Travel Sheds

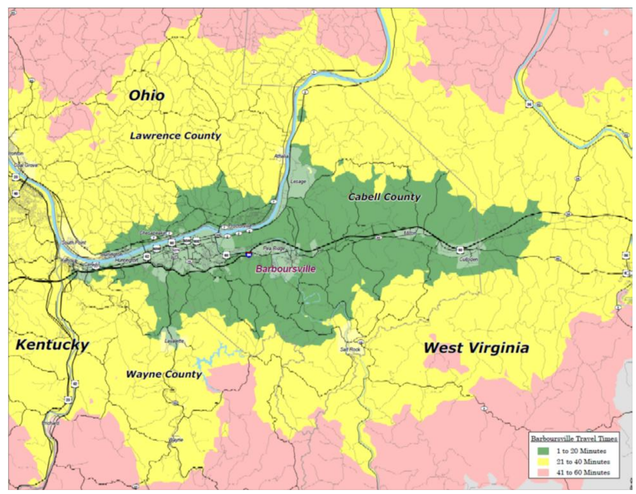
For some people, it is hard to translate traffic volumes, functional classification, and congestion into real world terms. A travel shed is a simple way to show data from the travel demand model. The four maps below show how far someone can travel from the center of the city using today's roadway network. A motorist can travel within the green area in 20 minutes or less and the yellow area in 40 minutes or less. It would take a motorist at least 40 minutes to reach the areas in pink.

Travel shed maps can clearly illustrate the opportunities and obstacles that are part of the current transportation system. For example, the travel shed centered on Barboursville is linear, following US 60 and I-64. The capacity and speeds of these roads allow the user to travel longer distances more quickly than they could in other areas. The opposite is true around Prichard, where inadequate roads inhibit rapid or effective travel to Lavalette and Wayne.

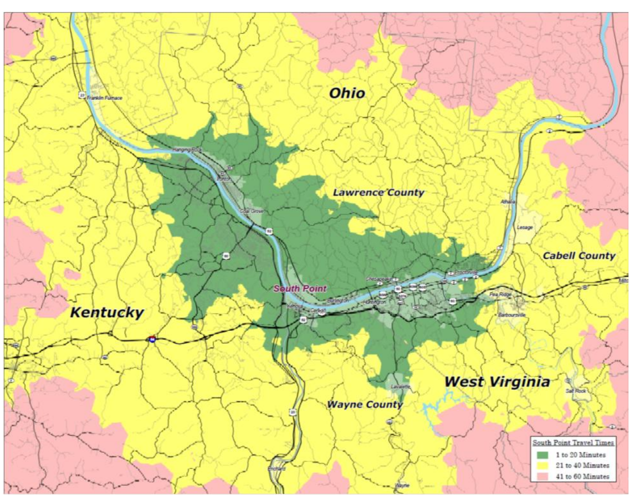
Huntington Travel Shed



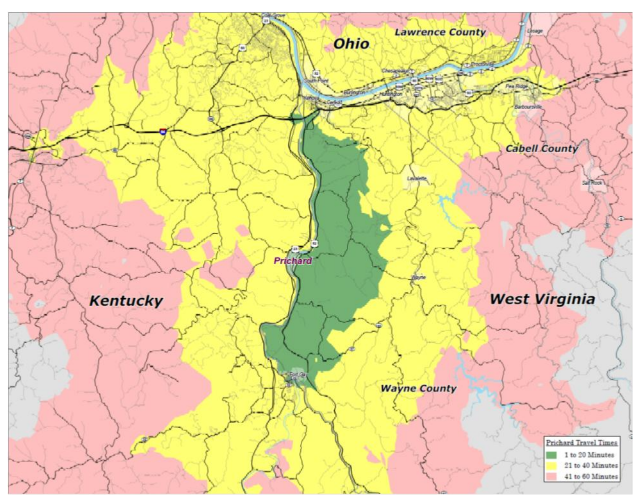
Barboursville Travel Shed



South Point Travel Shed



Prichard Travel Shed

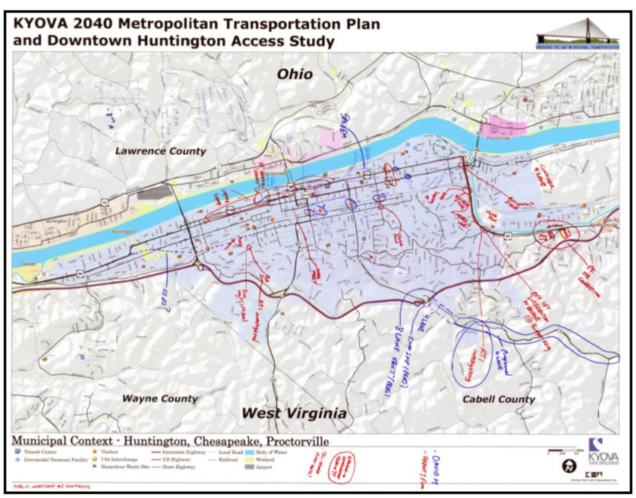


Public Perception

During the public outreach process for the *KYOVA 2040 MTP*, residents and local staff expressed their views on numerous issues for corridors and intersections. Feedback from the outreach events was gathered to help inform the decision-making process in this plan. In most cases, comments on corridor congestion and intersection safety were borne out by the data gathered in the existing conditions analysis. Specific comments included:

- East Huntington Bridge can become very congested during peak periods;
- Enhancements are needed on some of the streets in downtown Huntington – 3rd Avenue from 16th Street to 20th Street needs to be a complete street;
- Carpooling along SR 2 to Columbus, Ohio is in high demand - SR 2 needs to be 4 lanes wide; and
- US 60 signage is confusing.

Several comments touched on the need for better signal coordination throughout the study area. Multiple workshop participants proposed improving access to Prichard, either by improving US 52, connecting with US 23, or providing a new connection from Prichard to the east or northeast, possibly connecting directly with Lavalette.



Recommendations

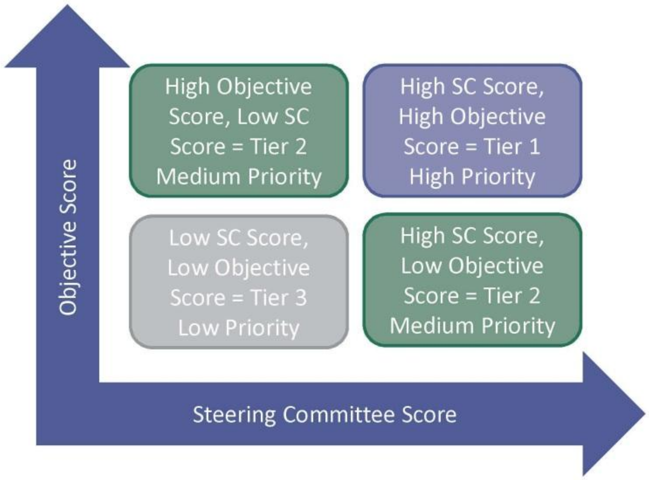
Development and Prioritization Process

Recommendations were developed based on public feedback and stakeholder outreach as well as a review of the 2035 LRTP, available congestion and safety data, the West Virginia and Ohio Statewide Plans, and other applicable planning efforts. Once recommendations were established, a rational and defensible system had to be developed to prioritize projects for funding and implementation. Modal elements often are considered separately due to different funding sources and evaluation criteria. A discussion between KYOVA, the Regional Intergovernmental Council (RIC), and the West Virginia Department of Transportation (WVDOT) established how best to evaluate these projects. The continued growth of the Charleston and Huntington metropolitan areas places an added importance on creating a streamlined process for project evaluation.

During this correspondence, a set of quantitative and geographic evaluation criteria were identified for use in both the KYOVA and RIC MTPs. Each criterion is listed on the pages that follow with the proposed data sources and calculation methods. The data sources and calculations shown are unique to the KYOVA area. Applying these evaluation criteria helped establish an objective project score. Criteria within the evaluation process have assigned weights based on how the Steering Committee ranked the six transportation priorities or focus areas: Goods Movement, Tourism and Recreation, Barriers to Mobility, Congestion Mitigation, Livability and Complete Streets, and Multimodal Integration. The intent of this process is to address local priorities, state concerns, and the emphasis on the development and use of performance measures set forth in MAP-21.

The Steering Committee identified the projects of highest importance to the MPO area. Results from this exercise were combined with the objective scoring process to establish an overall tiered project prioritization. This tiered process follows the concept currently being developed as a part of WVDOT's statewide prioritization efforts.

Project Prioritization Methodology



*Note: The color-coding applied to the tiers in the Prioritization Matrix (**Table 3.3**) correspond the colors shown for each tier in the Project Prioritization methodology diagram above.*

Prioritization Criteria

The following quantitative and geographic criteria were established to evaluate roadway projects for the *2040 KYOVA MTP*. Scores from each of these criteria were summed to obtain the total objective score.

Efficiency—Efficiency is a measure of the project's impact on reducing regional vehicle miles traveled (VMT) determined by running each project individually in the KYOVA travel demand model. If a project causes an increase in regional VMT, it received a score of 0. Otherwise, projects were indexed between 0 and 1 (from 0 to the greatest VMT decrease).

Reduction in Delay—Reduction in delay is a measure of the project's impact on the region's vehicle hours of travel determined by running each project individually in the KYOVA travel demand model. If a project causes an increase in regional delay, it received a score of 0. Otherwise, projects were indexed between 0 and 1 (from 0 to the greatest decrease in hours of delay).

Reduction in Excess Demand—This category is a measure of the reduction in excess demand resulting from the project's implementation. It is focused on the performance of the specific project rather than regional performance. Each project was run individually in the KYOVA travel demand model. For projects having an existing volume less than the roadway's current capacity (assessed at a LOS D), a value of 0 was assigned because these projects do not experience excess demand and don't qualify for a benefit. New location projects also received a score of 0. For the remaining projects, this measure subtracted the future roadway capacity from the future roadway volume and calculated the difference from the existing roadway conditions. Projects were indexed from 0 to the highest calculated value, with any project resulting in a negative value receiving a 0.

Support of Freight Priorities—This measure indicated whether improvements to the route would serve freight needs. It was determined by identifying whether the improved section lies along an identified freight route or serves an intermodal terminal. Projects meeting these criteria received a value of 1. Projects not meeting the criteria received a value of 0. New location projects were assessed on a case-by-case basis to determine whether the likelihood they would be used to serve freight traffic.

Support of Transit Service—This measure indicates whether improvements to the route will serve transit needs. If the project lies along a current or proposed transit route, it received a score of 1; otherwise it received a score of 0.

Support of Bicycle and Pedestrian Mobility—This measure is meant to indicate whether improvements to the route have the potential to better serve bicycle and pedestrian mobility. The project will receive a 1 if it contains a recommendation for future bicycle and pedestrian facilities (detailed in Chapter 6). Otherwise, it received a score of 0.

Safety—This measure indicates whether the recommended project could improve safety at critical intersections. This measure was assessed by referencing the identified intersection safety improvement locations. A score of 1 was assigned if the project includes one or more intersections and a score of 0 if no intersections are addressed.

Growth Management—This measure reflects portions of the KYOVA area identified as having the potential for future population growth. These areas have been determined through the MTP's land use analysis process (detailed in Chapter 8). If a project falls within an identified growth area, it will receive a score of 1. Otherwise, it received a score of 0.

Economic Development—This measure recognizes areas forecasted to have employment growth in the 2040 plan horizon year determined by referencing the travel demand model. The travel demand model reveals traffic analysis zones (TAZs) experiencing employment growth. The number of TAZs with growth was divided by the total number of TAZs through which the project travels.

Social Criteria—Using data from the 2010 Census, this measure assesses impacts of proposed projects to areas with high minority, Hispanic, and low income populations. Based on established ranges for each social criterion, a value of 0, 0.5, or 1 was assigned.

Environmental Criteria—This measure reflects whether proposed projects impact wetlands or floodplains. If the proposed project crosses either of these features, a value of 0 was assigned. Otherwise, the project received a value of 1.

Existing Deficiency—The existing deficiency measures the existing level of service at the project location to reflect whether the proposed project relieves existing congestion issues. If a project roadway is below capacity it receives a score of 0, if it is approaching or at capacity it receives a score of 0.5, and if it is above capacity it receives a score of 1.

Cost Effectiveness—This measure provides an understanding of the congestion relief afforded by a project compared with its overall cost. To calculate this measure, the reduction of delay was divided by the estimated project cost in 2012 dollars.

State Priority—This measure values projects that are included in the West Virginia or Ohio Statewide Plans. If the project appears in either document, it receives a score of 1. Otherwise, the project receives a score of 0.

Project Recommendations

Collectively, the corridor characteristics describe a series of needs and priorities for the region's network of highways and streets. Travel demand along the main corridors coupled with environmental and fiscal constraints will challenge local efforts to enhance mobility for people and freight within and through the region. These constraints make it especially hard to build new roads, so more emphasis in the *KYOVA 2040 MTP* has been placed on maximizing the region's existing infrastructure.

Prioritization Matrix

The recommendations are presented in matrix form, showing the outcome of the prioritization process described in the preceding section. Projects are grouped by county. The matrix (Table 3.3) has been simplified for display in the report by showing only the following columns of information:

- Tier
- Project number (corresponds to **Figure 3.4** and **Figure 3.4a**)
- Project type (bridge construction, multimodal/downtown, operations, widening, or new location)
- Project road
- Location (municipality or county)
- Estimated cost (in millions of dollars)
- Project length (in miles)
- Objective Prioritization Score
- Steering Committee Ranking
- Steering Committee Average Score

The prioritization process directly informed the development of the financial and implementation plans shown in **Chapters 9** and **10**, respectively.

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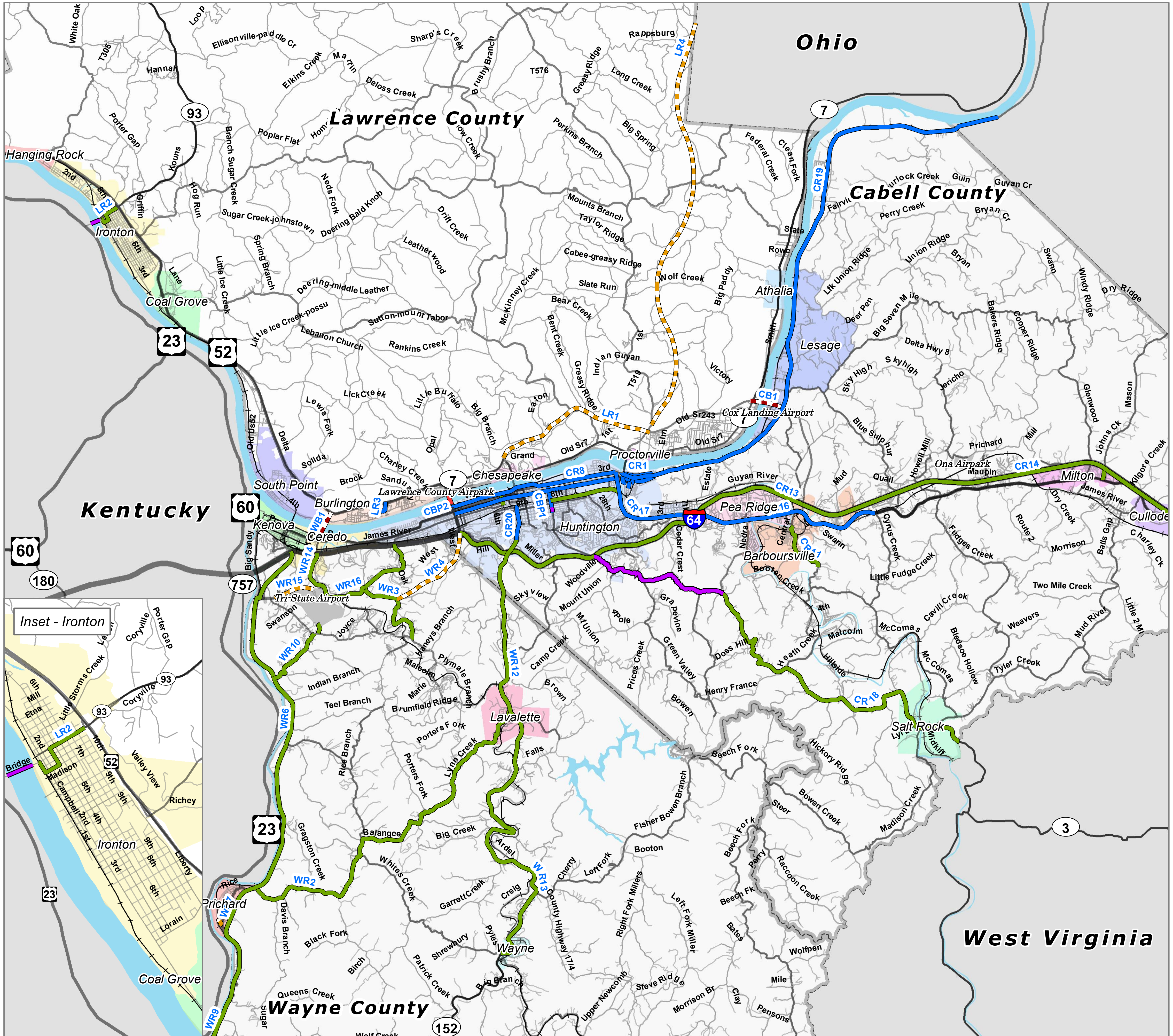
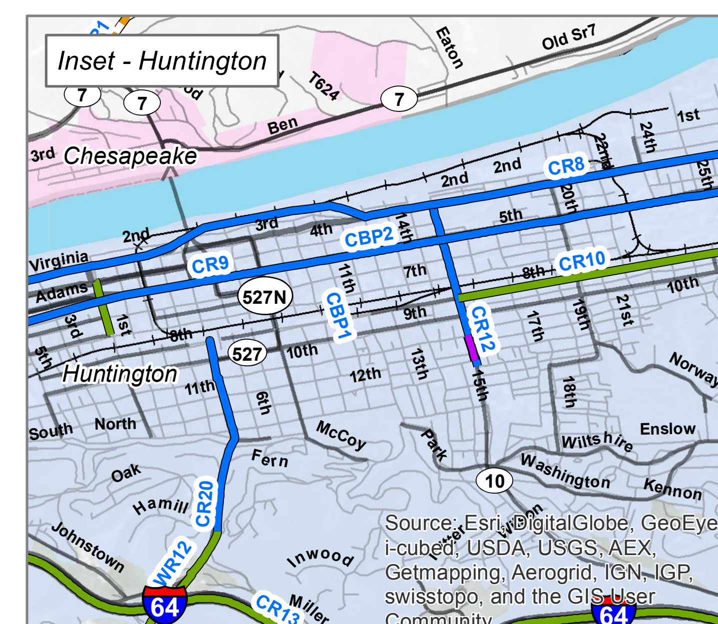
Figure 3.4

2040 Roadway Recommendations

- Committed
- Roadway New Location
- Roadway Widening
- Multimodal/Downtown Improvements
- Bridge Construction
- Bridge Replacement





Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

0 1.5 3 Miles

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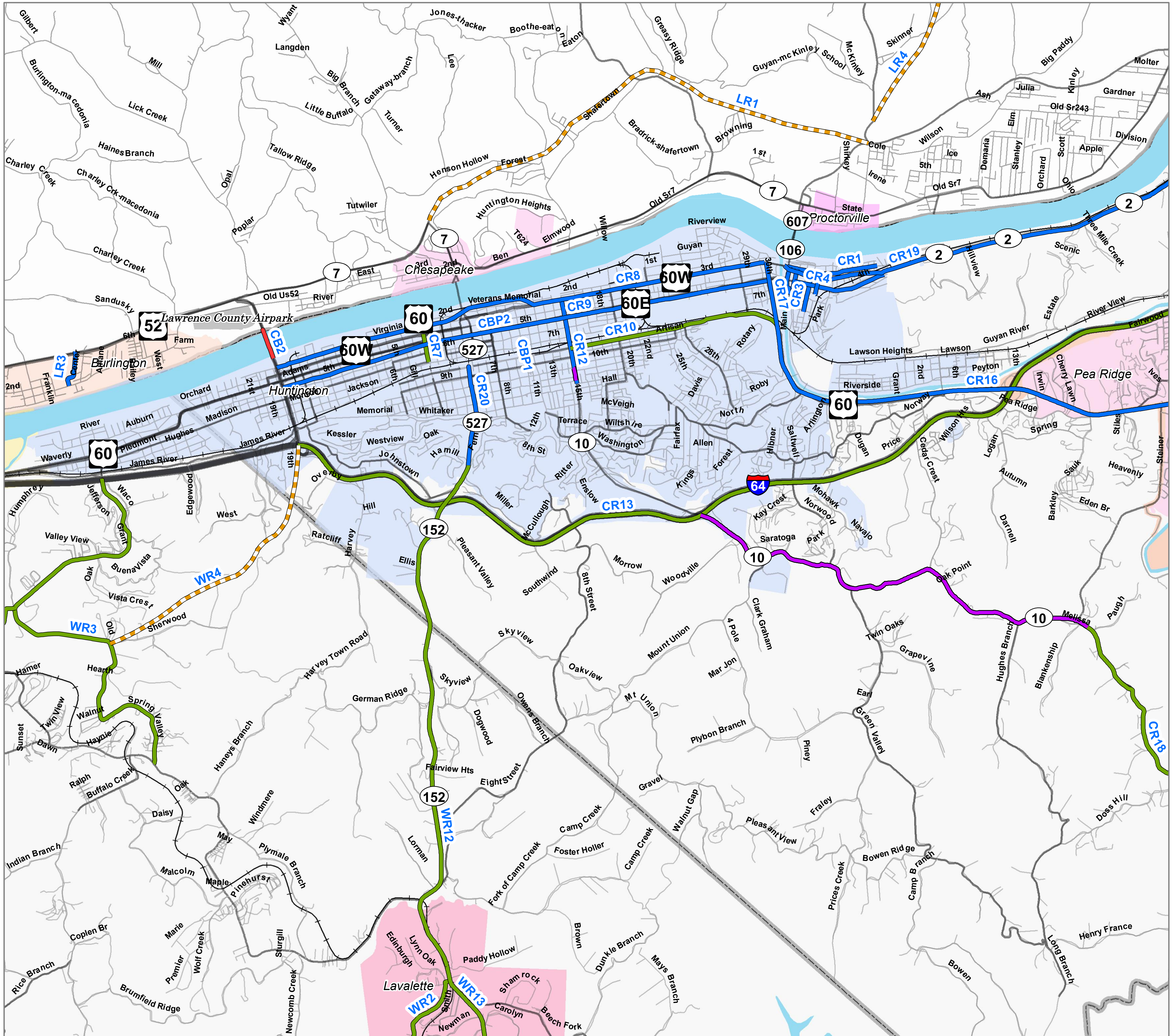
Figure 3.4a

2040 Roadway Recommendations

- Committed
- Roadway New Location
- Roadway Widening
- Multimodal/Downtown Improvements
- Bridge Construction
- Bridge Replacement



0 0.5 1 Miles

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Table 3.3 - Prioritization Matrix

Tier	Project No.	Project Type	Project Road	Location	Estimated Cost ($ Millions)	Project Length (Miles)	Objective Score	Steering Committee Ranking	Steering Committee Average Score
Cabell County, WV									
1	CB 1	Bridge Construction	Ohio River Bridge	Lesage, WV	100.0	1.0	34.0	18	2.3
1	CB 2	Bridge Replacement	W 17th Street Bridge	Huntington, WV	90.0	0.3	29.8	9	3.0
3	CR 1	Multimodal/ Downtown	Bridge Street	Guyandotte, WV	5.2	0.9	11.9	37	1.7
3	CR 2	Multimodal/ Downtown	Main Street	Guyandotte, WV	1.8	0.3	18.6	37	1.7
3	CR 3	Multimodal/ Downtown	Buffington Street	Guyandotte, WV	2.3	0.4	13.1	42	1.6
3	CR 4	Multimodal/ Downtown	5th Avenue	Guyandotte, WV	5.3	0.9	23.2	42	1.6
3	CR 5	Multimodal/ Downtown	Guyan Street	Guyandotte, WV	1.8	0.3	8.4	37	1.7
3	CR 6	Multimodal/ Downtown	Short Street	Guyandotte, WV	1.2	0.2	8.4	37	1.7
2	CR 7	Widening	1st Street	Huntington, WV	6.8	0.3	24.4	14	2.4
3	CR 8	Multimodal/ Downtown	3rd Avenue	Huntington, WV	6.0	5.1	23.2	32	1.8
3	CR 9	Multimodal/ Downtown	5th Avenue	Huntington, WV	6.0	5.0	23.2	32	1.8
1	CR 10	Widening	8th Avenue	Huntington, WV	15.0	2.2	31.6	3	3.8
2	CR 11	Widening	College Avenue/Martha Road (CR 30/2)	Barboursville, WV	37.5	1.8	36.9	32	1.8
2	CR 12	Multimodal/ Downtown	Hal Greer Boulevard	Huntington, WV	15.5	0.9	28.2	8	3.1
1	CR 13	Widening	I-64	Cabell County, WV	168.0	11.6	30.5	6	3.4
1	CR 14	Widening	I-64	Cabell County, WV	149.0	13.8	32.2	11	2.7
2	CR 15	Widening	Johns Branch Road/ Mason Road	Milton, WV	7.7	0.4	24.3	21	2.2
2	CR 16	Operations	US 60	Barboursville, WV	2.5	6.5	44.5	42	1.6
2	CR 17	Multimodal/ Downtown	US 60	Huntington, WV	1.8	2.8	29.8	25	2.0
2	CR 18	Widening	WV 10	Cabell County, WV	726.7	11.1	30.7	28	1.9
1	CR 19a	Operations	WV 2	Cabell County, WV	3.5	19.2	30.3	12	2.5
1	CR 19b	Widening	WV 2	Cabell County, WV	389.0	19.2	41.3	12	2.5
2	CR 20	Multimodal/ Downtown	WV 527	Huntington, WV	3.0	1.3	17.1	15	2.3

Table 3.3 - Prioritization Matrix (continued)

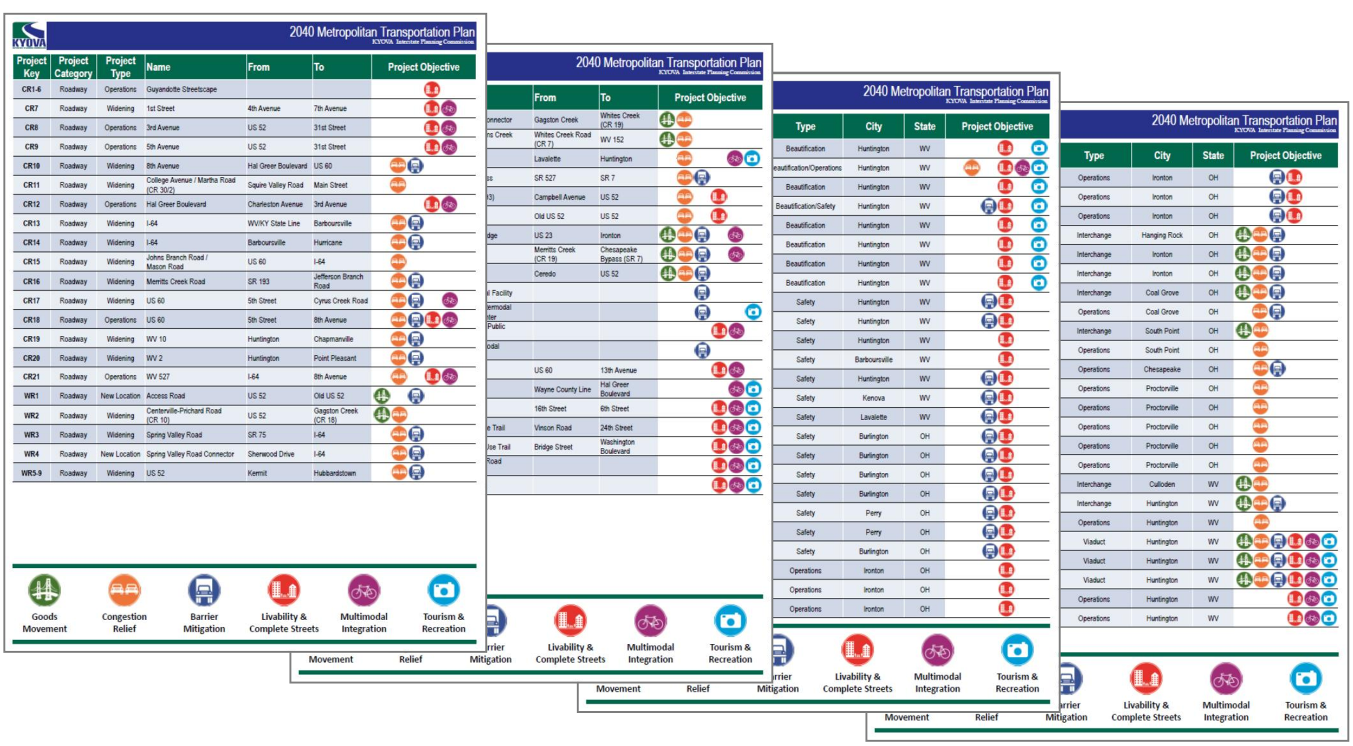
Tier	Project No.	Project Type	Project Road	Location	Estimated Cost ($ Millions)	Project Length (Miles)	Objective Score	Steering Committee Ranking	Steering Committee Average Score
Lawrence County, OH									
1	LR 1	New Location	Chesapeake Bypass	Lawrence County, OH	70.0	5.1	52.9	1	3.9
1	LR 2	Widening	Park Avenue (SR 93)	Ironton, OH	21.0	0.9	30.0	18	2.3
2	LR 3	Operations	CR 410 (Sams Walmart Way)	Burlington, OH	15.0	0.4	24.0	20	2.3
2	LR 4	New Location	SR 7 - US 35 Connector	Lawrence County, OH	125.8	12.8	31.3	36	1.7
Wayne County, WV									
2	WB 1	Bridge Construction	I-73/74 Bridge	Ceredo, WV	90.0	0.8	14.4	2	3.8
1	WR 1	New Location	Access Road	Prichard, WV	3.0	0.2	32.3	10	2.9
2	WR 2	Widening	Centerville-Prichard Rd. (CR 20)/Lynn Creek Rd.	Wayne County, WV	258.3	12.2	35.8	28	1.9
3	WR 3	Widening	Spring Valley Road	Wayne County, WV	197.2	5.2	24.9	37	1.7
3	WR 4	New Location	Spring Valley Road Connector	Wayne County, WV	72.5	3.0	14.7	35	1.8
2	WR 5	Widening	US 52 (future I-73/I-74)	Wayne County, WV	1249.9	26.6	21.8	17	2.3
1	WR 6	Widening	US 52 (future I-73/I-74)	Wayne County, WV	281.2	6.8	31.9	4	3.6
1	WR 7	Widening	US 52 (future I-73/I-74)	Wayne County, WV	104.6	8.6	36.2	4	3.6
2	WR 8	Widening	US 52 (future I-73/I-74)	Wayne County, WV	220.5	3.9	33.8	24	2.1
2	WR 9	Widening	US 52 (future I-73/I-74)	Wayne County, WV	74.3	2.5	32.3	31	1.8
3	WR 10	Widening	Docks Creek Road (CR 8)	Wayne County, WV	77.3	2.0	3.0	28	1.9
1	WR 11	Widening	Darling Lane	Wayne County, WV	7.1	0.3	30.0	15	2.3
2	WR 12	Widening	WV 152	Wayne and Cabell Counties, WV	251.6	5.4	44.4	25	2.0
2	WR 13	Widening	WV 152	Wayne County, WV	228.7	10.8	26.5	21	2.2
2	WR 14	Widening	Walkers Branch Road (CR 3)	Ceredo, WV	178.2	1.9	16.3	21	2.2
3	WR 15	New Location	Airport Road Connector	Wayne County, WV	17.8	1.2	27.7	25	2.0
1	WR 16	Widening	Goodwill Road	Wayne County, WV	14.3	1.0	41.1	7	3.2

Focus Areas

Through discussions with the project Steering Committee, six major focus areas were identified for transportation priorities in the KYOVA area:

- Goods Movement
- Tourism and Recreation
- Barriers to Mobility
- Congestion Mitigation
- Livability and Complete Streets
- Multimodal Integration

These focus areas closely mirror the guiding principles established for the *KYOVA 2040 MTP*. The Steering Committee also was asked to specify which of the focus areas held the most importance to the KYOVA area through a ranking exercise. Each recommendation in turn was compared to the six focus areas to see how the project responds to these regional needs. The result of this process is shown under "Objectives" in the "Project at a Glance" table on project sheets that follow.



Downtown Huntington Access Study

The Downtown Huntington Access Study was a sister study to the *KYOVA 2040 MTP* and addressed specific transportation needs for the downtown Huntington area. Recommendations were developed through a public charrette process and have been folded into the *KYOVA 2040 MTP*.

Recommendations

A Preferred Access Strategy was developed to identify where emphasis should be placed on improving key facilities within the study area. Grand Boulevards—including 3rd and 5th Avenues, Hal Greer Boulevard, Midland Trail, US 52, and 5th Street—provide the backbone of the street network. These streets provide direct access from the interstate and points east-west along the Ohio River. Green Streets—including 4th Avenue and 10th Street—allow safe and convenient bicycle and pedestrian access to destinations such as Marshall University, Downtown Huntington, Ritter Park, and the Harris Riverfront Park. A series of issues and observations were established through the Preferred Access Strategy to guide the study's corridor and intersection-specific recommendations.

Recommendations suitable for inclusion in the *KYOVA 2040 MTP* have been added and assessed through the regional prioritization system. A brief summary of the transportation recommendations are provided here. The complete Access Study is available on KYOVA's website.

Issue: One-way to Two-way Street Conversion

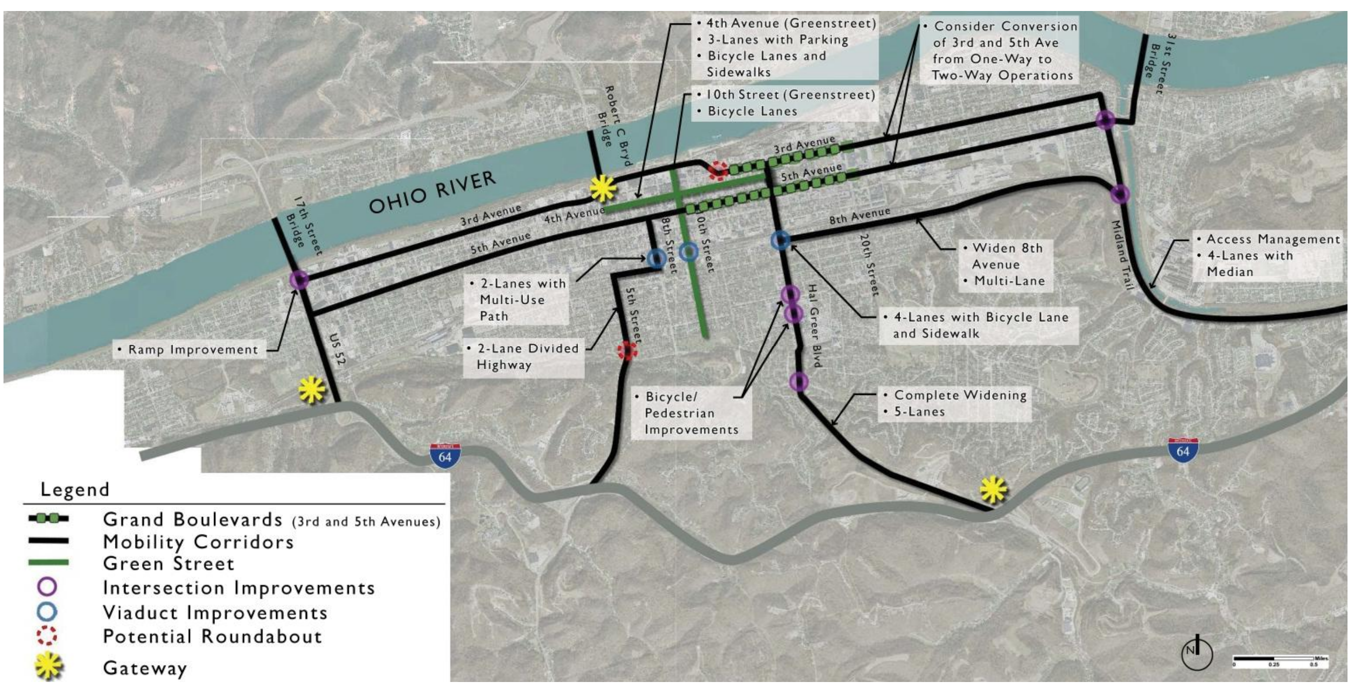
Recommendations: 3rd and 5th Avenues were recommended to operate with two-way traffic. Other recent studies have proposed road diets on these roads that maintain their one-way operation. A full corridor study is needed to determine multimodal impacts and future routing of US 60.

Issue: Intersection Improvements

Recommendations: Improvements to study included installing high visibility crosswalks, directional signage, dedicated left turn lanes, street trees, and pedestrian count-down signals for 3rd Avenue at 16th and 20th Streets; 5th Avenue at 16th and 20th Streets; and 3rd Avenue at Veterans Memorial Boulevard.

Issue: Corridor Improvements

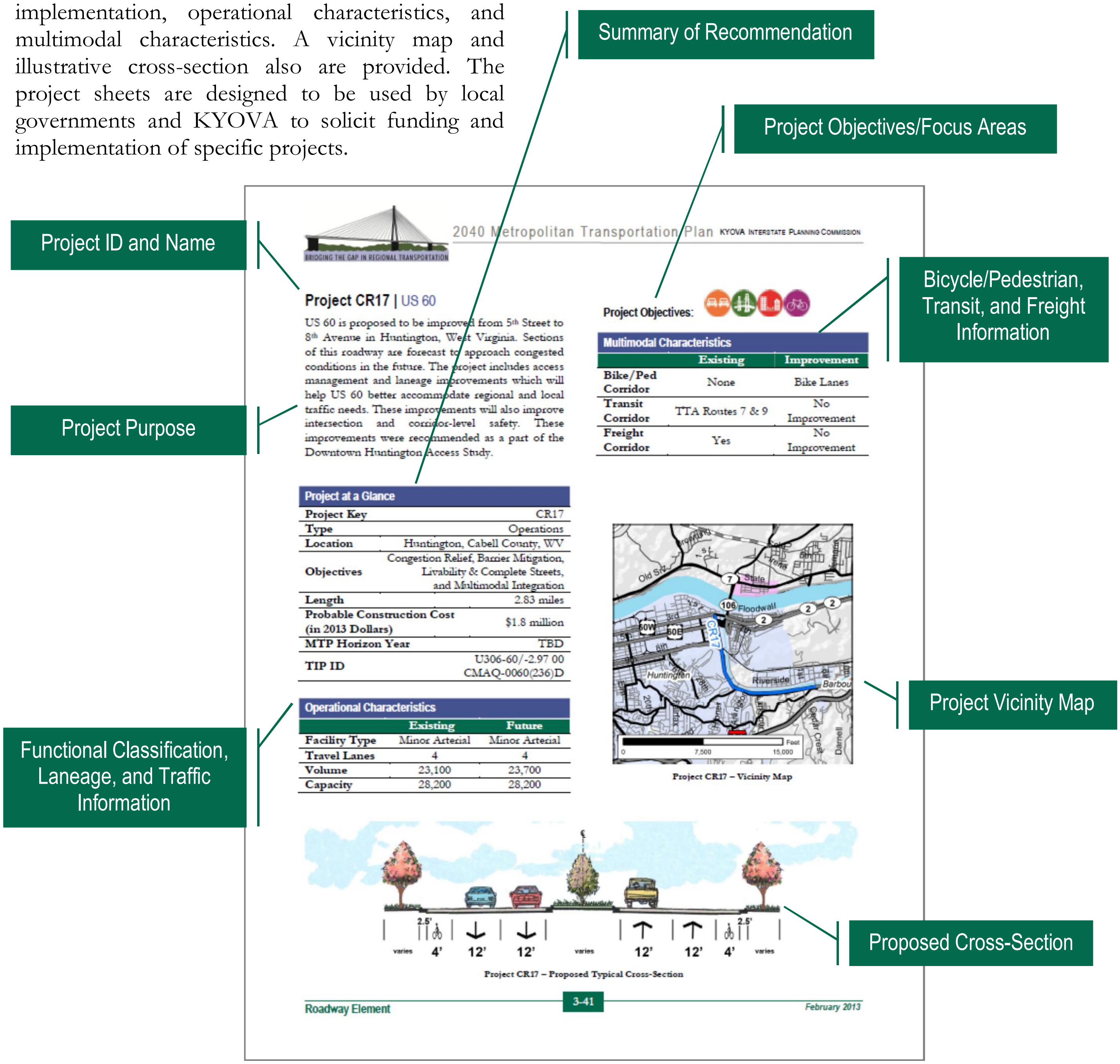
Recommendations: A series of improvements related to roadway geometry, pedestrian access, stormwater, and streetscaping were recommended to Hal Greer Boulevard, US 60/Midland Trail, US 52, 5th Street, 4th Avenue, 8th Avenue, and 10th Street.



Project Sheets

Project sheets have been created for each roadway recommendation (excluding bridges) to support the development of the *KYOVA 2040 MTP*. The project sheet succinctly provides the location, description, objective, length, cost, year of implementation, operational characteristics, and multimodal characteristics. A vicinity map and illustrative cross-section also are provided. The project sheets are designed to be used by local governments and KYOVA to solicit funding and implementation of specific projects.

Project Objectives and Focus Areas are defined on Page 3-27 and are listed in written form in the Project at a Glance section of each project sheet.



Project CR1-6 | Guyandotte Streetscape

Several roadways are proposed to be streetscaped in the Guyandotte neighborhood in Huntington, West Virginia. The project includes bike lanes, landscaped medians, mast arm signals, and street trees. These improvements were recommended as a part of the Guyandotte Master Plan and will enhance neighborhood development and multimodal travel in the area. This project's primary benefit is to multimodal users and for aesthetic enhancement.

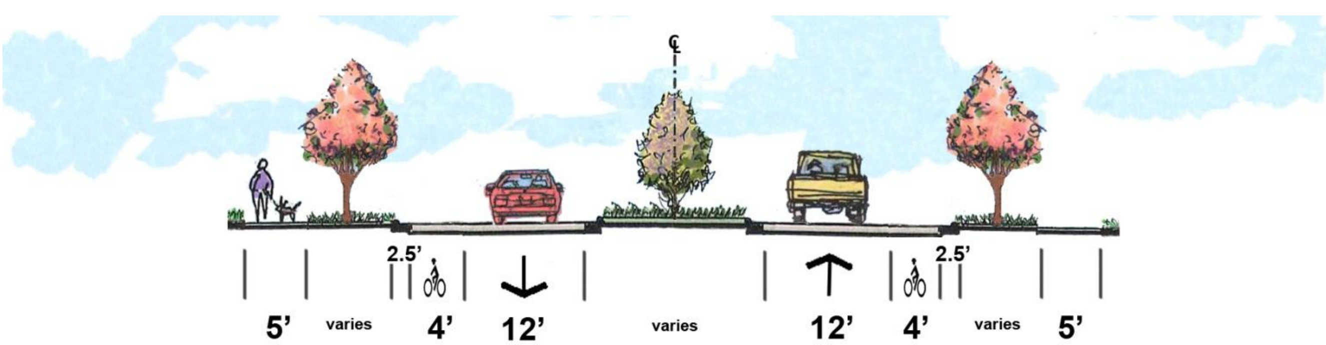
Project Objectives:

Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	Sidewalks	Bike Lanes
Transit Corridor	TTA Route 3	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance	
Project Key	CR1
Type	Operations
Location	Guyandotte, Cabell County, WV
Objectives	Livability & Complete Streets
Length	3.11 miles
Probable Construction Cost (in 2013 Dollars)	$17.6 million
MTP Horizon Year	2040 and Vision
TIP ID	n/a

Project CR1-6 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Collector	Collector
Travel Lanes	2	2
Volume	2,700	2,900
Capacity	11,900	11,900



Project CR1-6 – Proposed Typical Cross-Section

Project CR7 | 1st Street

1st Street is proposed to be widened to a 4-lane divided (where feasible) roadway with bike lanes from 4th Avenue to 7th Avenue in Huntington, West Virginia. Improvements to this roadway will address two identified safety-concern intersections, and will better distribute traffic within Downtown Huntington. This project will primarily address safety issues and enhance multimodal travel.

Project at a Glance	
Project Key	CR7
Type	Widening
Location	Huntington, Cabell County, WV
Objectives	Livability & Complete Streets and Multimodal Integration
Length	0.29 miles
Probable Construction Cost (in 2013 Dollars)	$6.8 million
MTP Horizon Year	2040
TIP ID	n/a

Operational Characteristics

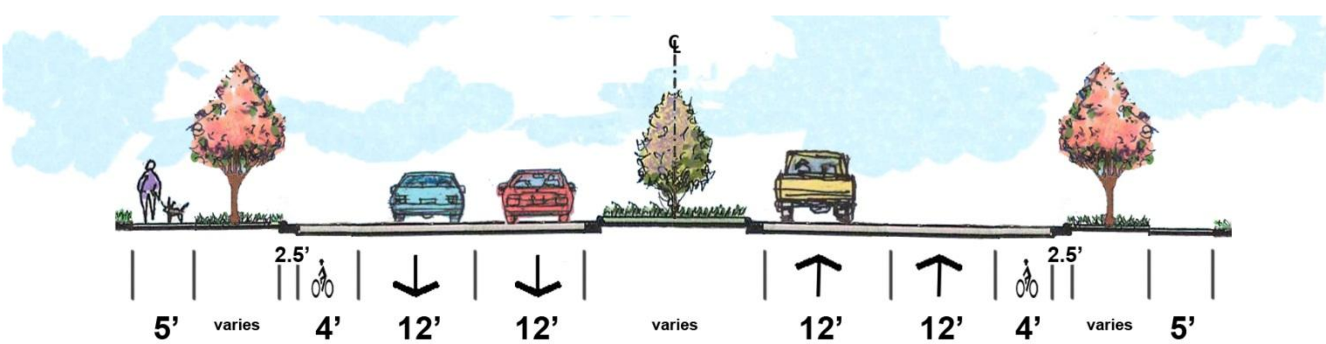
	Existing	Future
Facility Type	Minor Arterial	Principal Arterial
Travel Lanes	2	4
Volume	2,900	2,500
Capacity	11,900	28,200

Project Objectives:

Multimodal Characteristics

	Existing	Improvement
Bike/Ped Corridor	Sidewalks	Bike Lanes
Transit Corridor	None	No Improvement
Freight Corridor	None	No Improvement

Project CR7 – Vicinity Map



Project CR7 – Proposed Typical Cross-Section

Project CR8 | 3rd Avenue

3rd Avenue is proposed to be converted to a two-way roadway with bike lanes from US 52 to 31st Street in Huntington, West Virginia. This project was recommended as a part of the Downtown Huntington Access Study. Conversion from one to two directions could better serve non-motorized users, provide enhanced access to businesses along the corridor, and improve corridor safety. Corridor safety will be enhanced through removal of on-street parking and enhanced visibility for bicycles and pedestrians from two-way traffic operations.

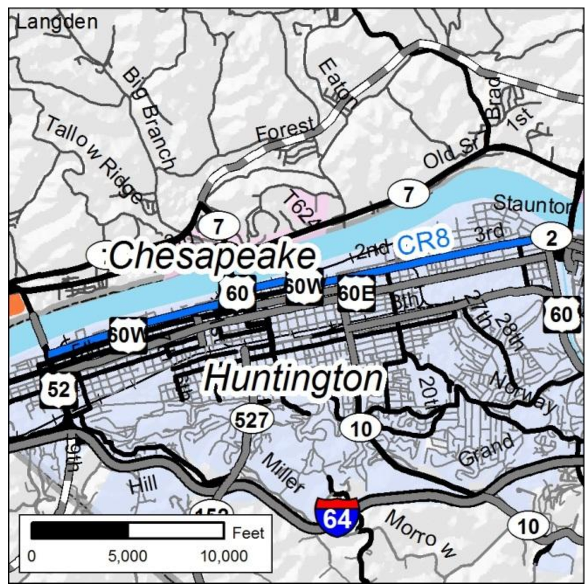
Project Objectives:

Multimodal Characteristics

	Existing	Improvement
Bike/Ped Corridor	Sidewalks	Bike Lanes
Transit Corridor	TTA Routes 3 & 9	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance

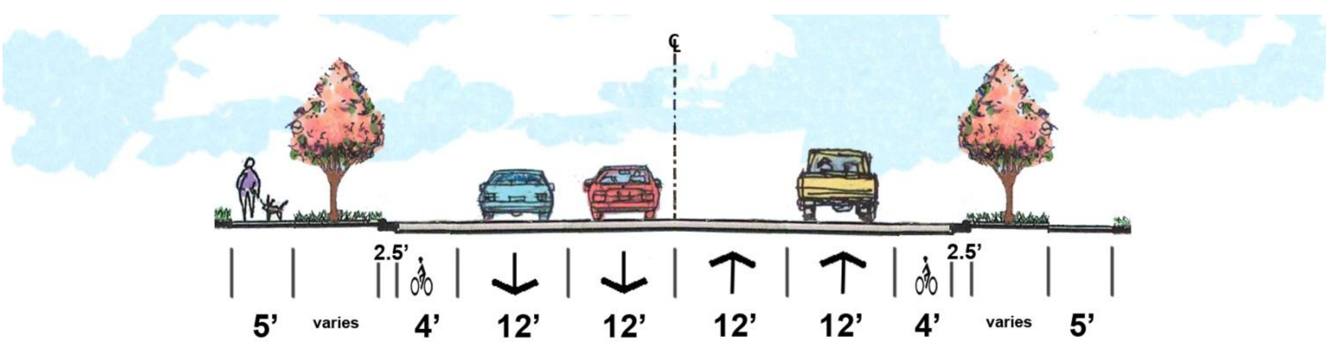
Project Key	CR8
Type	Operations
Location	Huntington, Cabell County, WV
Objectives	Congestion Relief, Livability & Complete Streets and Multimodal Integration
Length	5.08 miles
Probable Construction Cost (in 2013 Dollars)	$6.0 million
MTP Horizon Year	Vision
TIP ID	n/a



Project CR8 – Vicinity Map

Operational Characteristics

	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	4	4
Volume	7,800	10,700
Capacity	28,200	28,200



Project CR8 – Proposed Typical Cross-Section

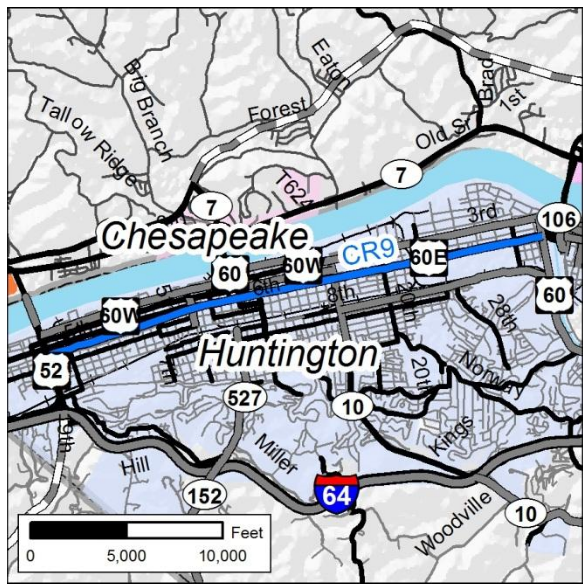
Project CR9 | 5th Avenue

5th Avenue is proposed to be converted to a two-way roadway with bike lanes from 17th Street to 31st Street East, in Huntington, West Virginia. This project was recommended as a part of the Downtown Huntington Access Study. Conversion from one to two directions could better serve non-motorized users, provide enhanced access to businesses along the corridor, and improve corridor safety. Corridor safety will be enhanced through removal of on-street parking and enhanced visibility for bicycles and pedestrians from two-way traffic operations.

Project Objectives:

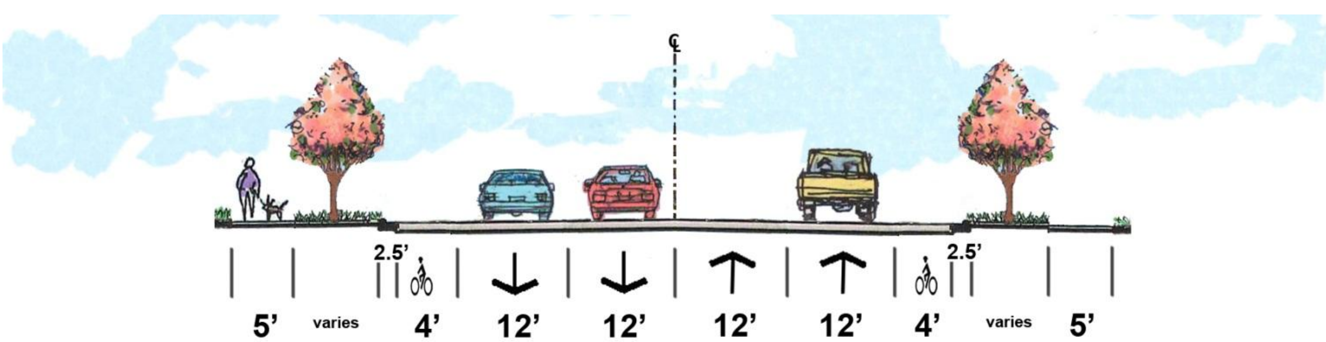
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	Sidewalks	Bike Lanes
Transit Corridor	TTA Routes 3, 7, 10, & 12	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	CR9
Type	Operations
Location	Huntington, Cabell County, WV
Objectives	Livability & Complete Streets and Multimodal Integration
Length	5.03 miles
Probable Construction Cost (in 2013 Dollars)	$6.0 million
MTP Horizon Year	Vision
TIP ID	n/a



Project CR9 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	4	4
Volume	11,600	12,500
Capacity	28,200	28,200



Project CR9 – Proposed Typical Cross-Section

Project CR10 | 8th Avenue

8th Avenue is proposed to be widened to a 4-lane roadway from Hal Greer Boulevard to US 60 in Huntington, West Virginia. This project was recommended as a part of the Downtown Huntington Access Study. Sections of this roadway are currently approaching congested conditions, a condition that is forecast to continue in the future. The primary purpose of widening this roadway would be to address corridor and intersection safety, improve emergency service vehicle access, improve east-west traffic circulation, and improve industrial access and mobility needs for the downtown area.

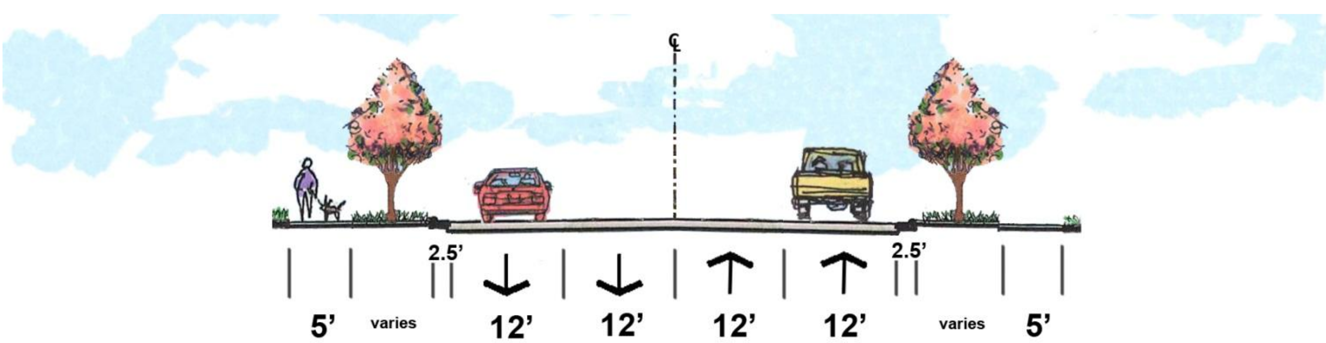
Project Objectives:

Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	Sidewalks	No Improvement
Transit Corridor	TTA Route 8	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance	
Project Key	CR10
Type	Widening
Location	Huntington, Cabell County, WV
Objectives	Congestion Relief and Barrier Mitigation
Length	2.17 miles
Probable Construction Cost (in 2013 Dollars)	$15.0 million
MTP Horizon Year	2030
TIP ID	n/a

Project CR10 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	2	4
Volume	8,500	6,500
Capacity	11,900	28,200



Project CR10 – Proposed Typical Cross-Section

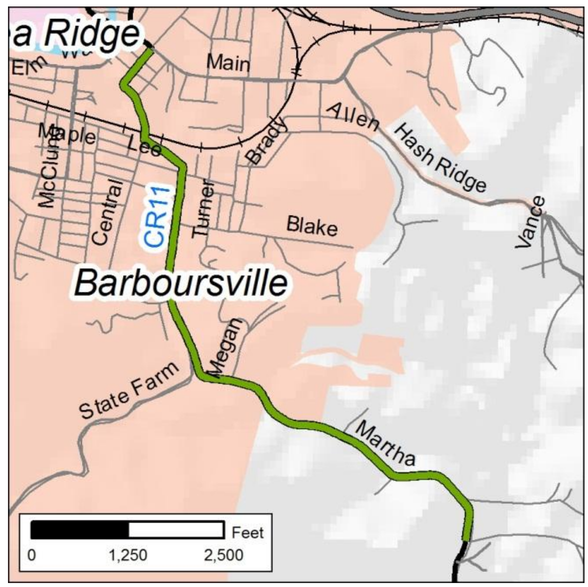
Project CR11 |
College Avenue / Martha Road (CR 30/2)

College Avenue and Martha Road are proposed to be widened to 4-lane divided (where feasible) roadways in Barboursville, West Virginia. Sections of this roadway are forecast to approach congested conditions in the future. Widening these roadways will help to relieve congestion through Barboursville and improve corridor safety. The primary benefit of this project is to improve corridor safety.

Project Objectives:

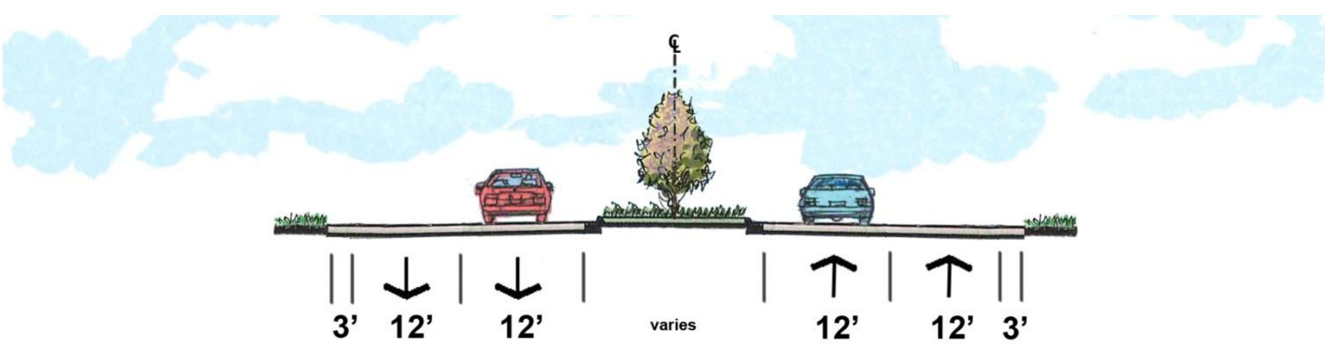
Multimodal Characteristics		
	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance	
Project Key	CR11
Type	Widening
Location	Barboursville, Cabell County, WV
Objectives	Congestion Relief
Length	1.77 miles
Probable Construction Cost (in 2013 Dollars)	$37.5 million
MTP Horizon Year	Vision
TIP ID	n/a



Project CR11 – Vicinity Map

Operational Characteristics		
	Existing	Future
Facility Type	Minor Arterial	Minor Arterial
Travel Lanes	2	4
Volume	2,300	3,600
Capacity	15,200	33,200



Project CR11 – Proposed Typical Cross-Section

Project CR12 | Hal Greer Boulevard

Hal Greer Boulevard is a high-mobility corridor that is proposed to be improved from Charleston Avenue to 3rd Avenue in Huntington, West Virginia. The project includes enhancements to the existing viaduct, a new pump station and separate stormwater retention facility, and pedestrian improvements. These improvements, recommended in the Downtown Huntington Access Study, will improve safety, relieve flooding concerns, and serve as an attractive gateway to Downtown Huntington and Marshall University.

Project Objectives:

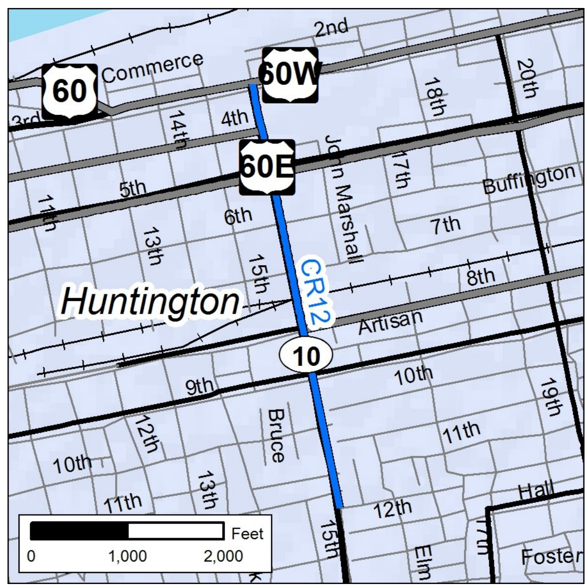
Project at a Glance	
Project Key	CR12
Type	Operations
Location	Huntington, Cabell County, WV
Objectives	Livability & Complete Streets and Multimodal Integration
Length	0.85 miles
Probable Construction Cost (in 2013 Dollars)	$15.5 million
MTP Horizon Year	2040
TIP ID	n/a

Multimodal Characteristics

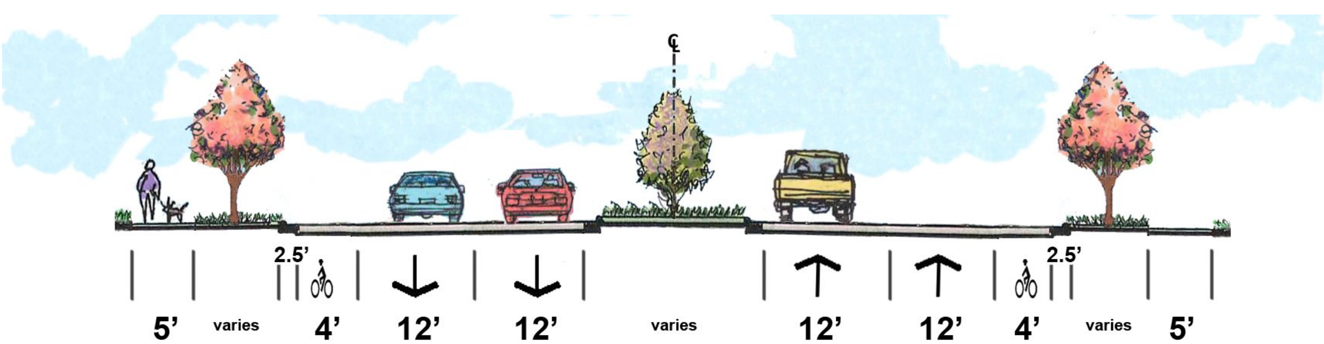
	Existing	Improvement
Bike/Ped Corridor	Sidewalks	Bike Lanes
Transit Corridor	TTA Routes 8 & 9	No Improvement
Freight Corridor	Yes	No Improvement

Operational Characteristics

	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	4	4
Volume	13,800	15,100
Capacity	28,200	28,200



Project CR12 – Vicinity Map



Project CR12 – Proposed Typical Cross-Section

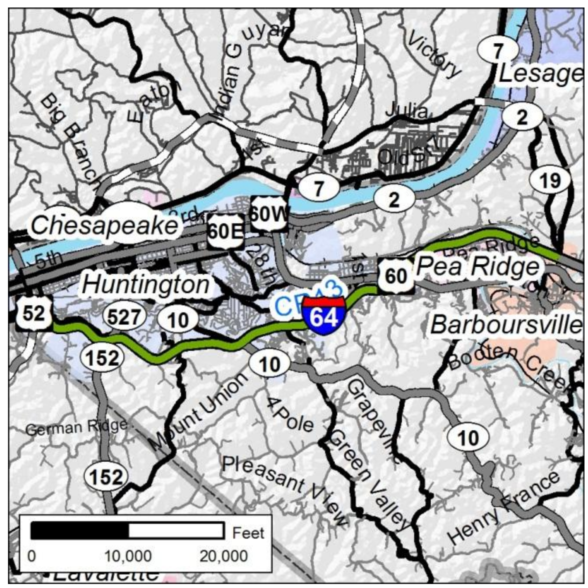
Project CR13 | I-64

I-64 is proposed to be widened to a 6-lane divided roadway from the W 17th Street Bridge to Barboursville, West Virginia. Widening this roadway will facilitate freight movement within and through the KYOVA region, and will reduce impacts to the overall transportation network reducing overall vehicle miles traveled and hours of delay. This improvement was also recommended in the West Virginia Statewide Plan.

Project Objectives:

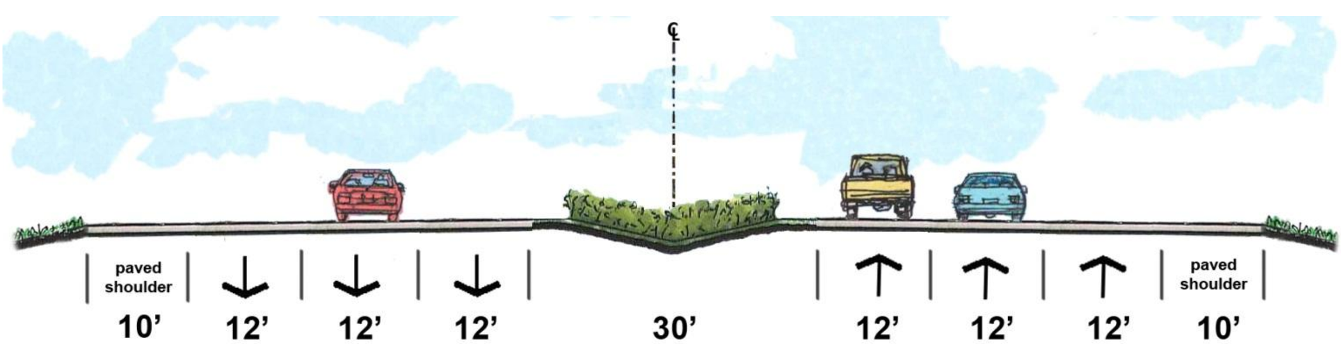
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	CR13
Type	Widening
Location	Cabell County, WV
Objectives	Goods Movement, Congestion Relief, and Barrier Mitigation
Length	11.6 miles
Probable Construction Cost (in 2013 Dollars)	$168.0 million
MTP Horizon Year	Vision
TIP ID	n/a



Project CR13 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Freeway	Freeway
Travel Lanes	4	6
Volume	33,000	36,000
Capacity	73,600	110,300



Project CR13 – Proposed Typical Cross-Section

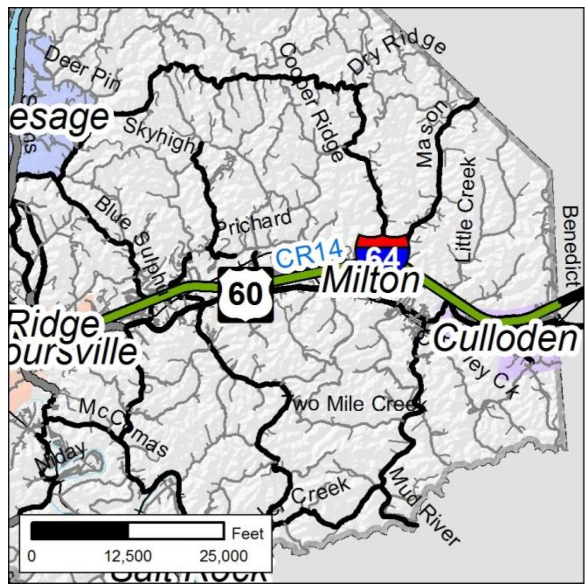
Project CR14 | I-64

I-64 is proposed to be widened to a 6-lane divided roadway from Barboursville to Hurricane in West Virginia. Widening this roadway will facilitate freight movement within and through the KYOVA region, and will reduce impacts to the overall transportation network reducing overall vehicle miles traveled and hours of delay. This improvement was also recommended in the West Virginia Statewide Plan.

Project Objectives:

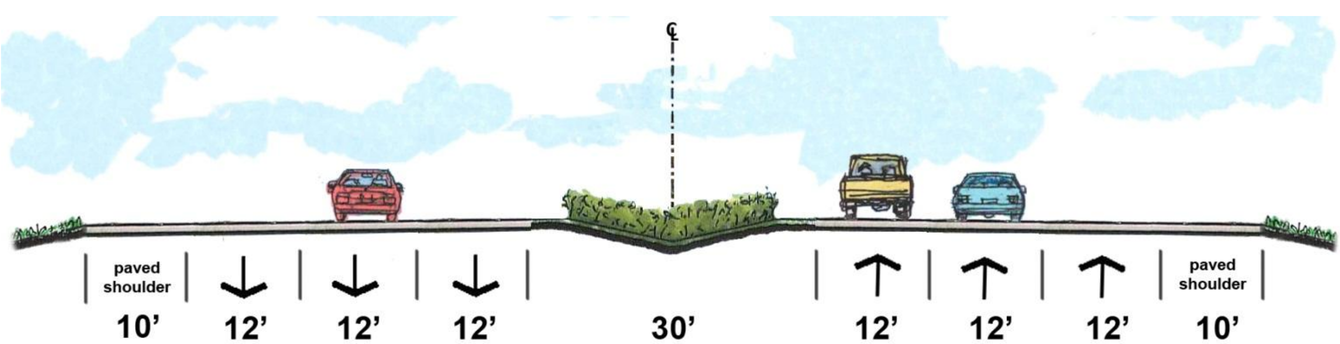
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	CR14
Type	Widening
Location	Cabell County, WV
Objectives	Goods Movement, Congestion Relief, and Barrier Mitigation
Length	13.75 miles
Probable Construction Cost (in 2013 Dollars)	$149.0 million
MTP Horizon Year	Vision
TIP ID	n/a



Project CR14 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Freeway	Freeway
Travel Lanes	4	6
Volume	41,200	57,600
Capacity	73,600	110,300



Project CR14 – Proposed Typical Cross-Section

Project CR15 |
Jones Branch Road / Mason Road

Jones Branch Road / Mason Road is proposed to be widened to a 4-lane divided roadway in Milton, West Virginia. This roadway is currently approaching congested conditions, a condition that is forecast to worsen in the future. Widening this roadway is expected to relieve congestion and will serve the north-south mobility needs of Milton. Turn pockets or turn lanes will be provided where necessary to accommodate corridor movements.

Project Objectives:

Multimodal Characteristics

	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	None	No Improvement

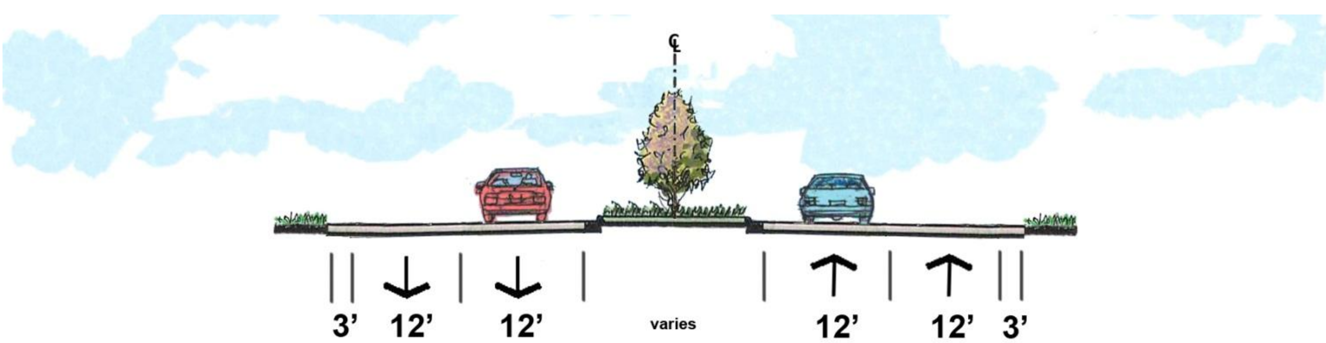
Project at a Glance

Project Key	CR15
Type	Widening
Location	Milton, Cabell County, WV
Objectives	Congestion Relief
Length	0.36 miles
Probable Construction Cost (in 2013 Dollars)	$7.7 million
MTP Horizon Year	2040
TIP ID	n/a

Project CR15 – Vicinity Map

Operational Characteristics

	Existing	Future
Facility Type	Collector	Minor Arterial
Travel Lanes	2	4
Volume	13,000	17,700
Capacity	15,200	33,200



Project CR15 – Proposed Typical Cross-Section

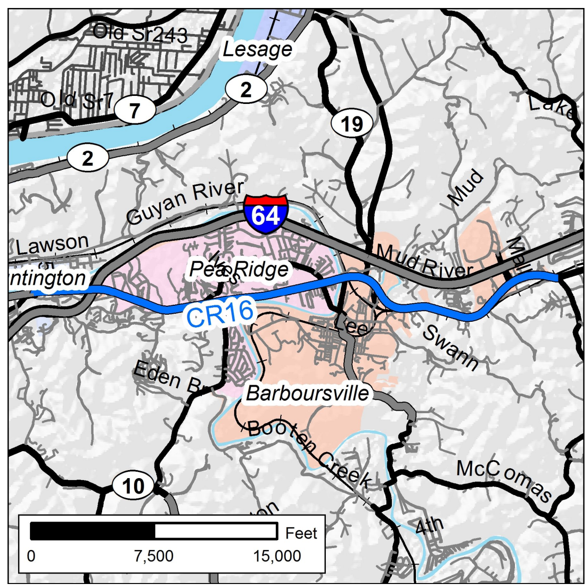
Project CR16 | US 60

US 60 is proposed to be improved from 5th Street in Huntington to Cyrus Creek Road in Barboursville, West Virginia. Sections of this roadway are currently experiencing congested conditions, a condition that is forecast to continue in the future. Performing intersection improvements and corridor signal timing will relieve congestion, improve intersection and corridor safety issues, and will help better serve growing population based in Pea Ridge and Barboursville.

Project Objectives:

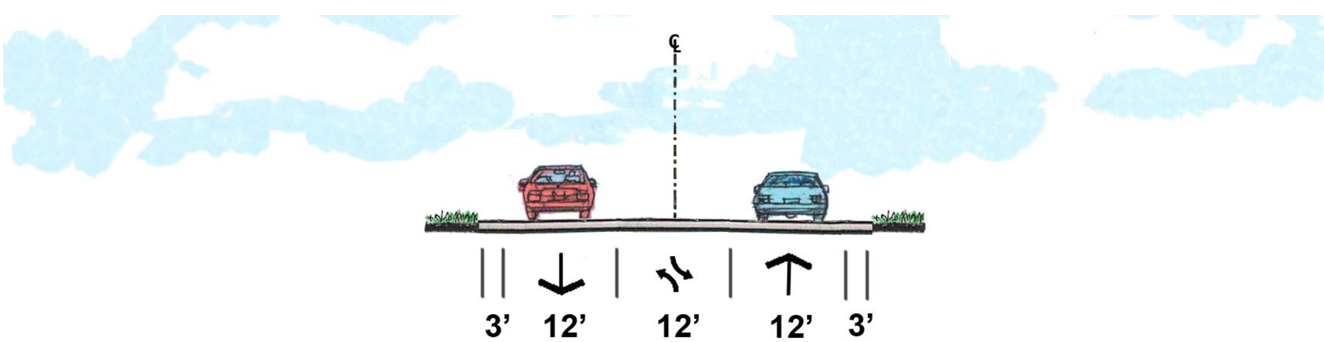
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	Bike Route Signage
Transit Corridor	TTA Routes 5 & 7	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	CR16
Type	Operations
Location	Barboursville, Cabell County, WV
Objectives	Congestion Relief, Barrier Mitigation and Multimodal Integration
Length	6.5 miles
Probable Construction Cost (in 2013 Dollars)	$2.5 million
MTP Horizon Year	2040
TIP ID	n/a



Project CR16– Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	3	3
Volume	15,600	17,200
Capacity	15,200	15,200



Project CR16 – Proposed Typical Cross-Section

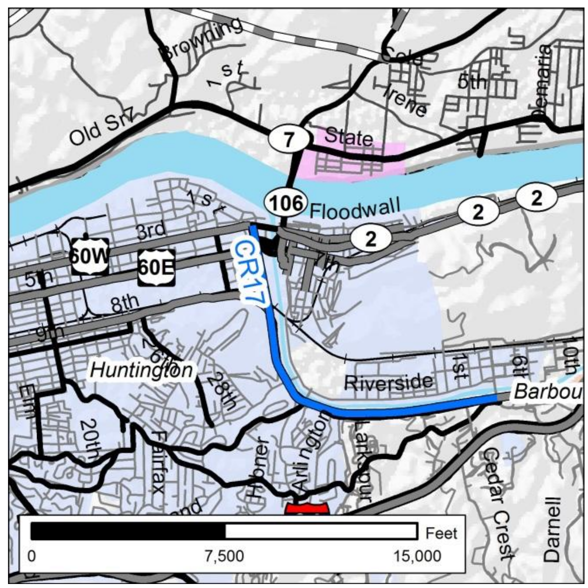
Project CR17 | US 60

US 60 is proposed to be improved from 5th Street in Altizer to 8th Avenue in Huntington, West Virginia. Sections of this roadway are forecast to approach congested conditions in the future. The project includes access management and laneage improvements which will help US 60 better accommodate regional and local traffic needs. These improvements will also improve intersection and corridor-level safety. These improvements were recommended as a part of the Downtown Huntington Access Study.

Project Objectives:

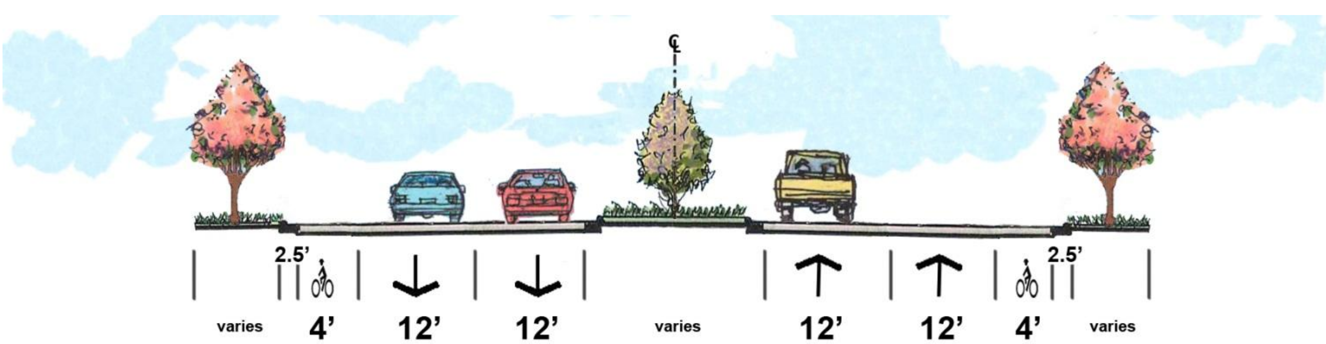
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	Bike Lanes
Transit Corridor	TTA Routes 7 & 9	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	CR17
Type	Operations
Location	Huntington, Cabell County, WV
Objectives	Congestion Relief, Barrier Mitigation, Livability & Complete Streets, and Multimodal Integration
Length	2.83 miles
Probable Construction Cost (in 2013 Dollars)	$1.8 million
MTP Horizon Year	2040
TIP ID	U306-60/-2.97 00 CMAQ-0060(236)D



Project CR17 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Minor Arterial	Minor Arterial
Travel Lanes	4	4
Volume	22,000	22,000
Capacity	28,200	28,200



Project CR17 – Proposed Typical Cross-Section

Project CR18 | WV 10

WV 10 is proposed to be widened to a 4-lane divided roadway with wide shoulders from Melissa Road to Salt Rock in Cabell County, West Virginia. Widening this roadway will create a viable alternate route for regional traffic, as well as reducing regional vehicle hours of delay. This project was previously identified as a part of the West Virginia Statewide Plan and is a major regional access route.

Project Objectives:

Project at a Glance

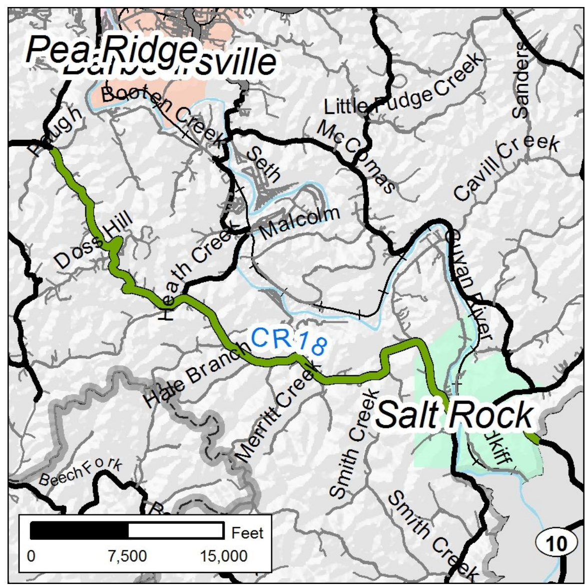
Project Key	CR18
Type	Widening
Location	Cabell County, WV
Objectives	Congestion Relief and Barrier Mitigation
Length	11.1 miles
Probable Construction Cost (in 2013 Dollars)	$726.7 million
MTP Horizon Year	Vision
TIP ID	n/a

Multimodal Characteristics

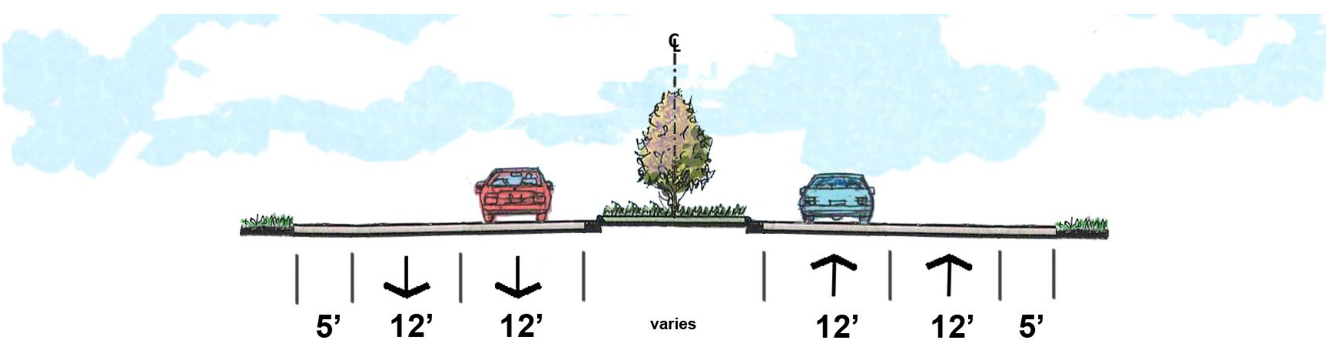
	Existing	Improvement
Bike/Ped Corridor	None	Wide Shoulders
Transit Corridor	None	No Improvement
Freight Corridor	Yes	No Improvement

Operational Characteristics

	Existing	Future
Facility Type	Minor Arterial	Minor Arterial
Travel Lanes	2	4
Volume	5,700	8,800
Capacity	16,500	36,700



Project CR18 – Vicinity Map



Project CR18 – Proposed Typical Cross-Section

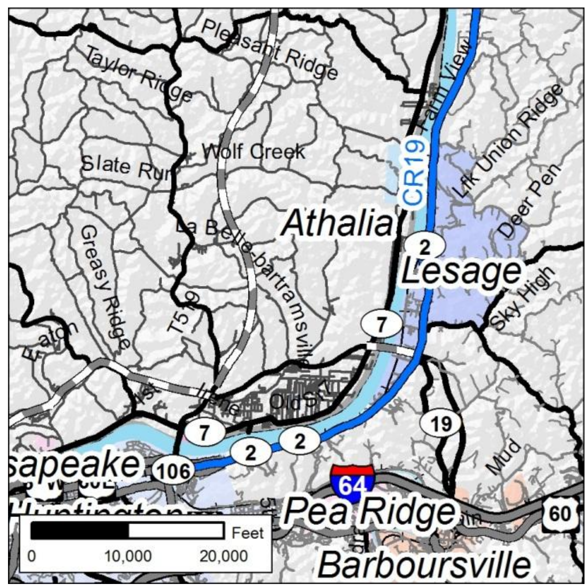
Project CR19a | WV 2

WV 2 is proposed to be improved from Huntington to Point Pleasant in West Virginia as Phase I of WV 2 Improvements. Intersection enhancements and truck pull-out lanes on WV 2 will improve freight mobility, serve growing industrial centers, and enhance regional connectivity.

Project Objectives:

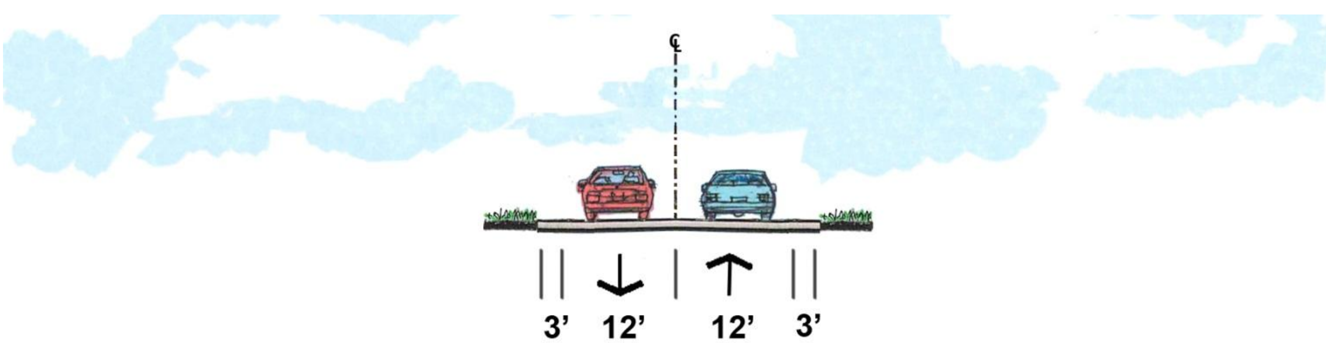
Multimodal Characteristics		
	Existing	**Improvement**
Bike/Ped Corridor	None	No Improvement
Transit Corridor	TTA Route 3	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	CR19a
Type	Operations
Location	Cabell County, WV
Objectives	Goods Movement and Barrier Mitigation
Length	19.2 miles
Probable Construction Cost (in 2013 Dollars)	$3.5 million
MTP Horizon Year	2030
TIP ID	n/a



Project CR19a – Vicinity Map

Operational Characteristics		
	Existing	**Future**
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	2	2
Volume	7,200	7,200
Capacity	16,500	16,500



Project CR19a – Proposed Typical Cross-Section

Project CR19b | WV 2

WV 2 is proposed to be widened to a 4-lane divided roadway from Huntington to Point Pleasant in West Virginia as Phase II of WV 2 Improvements. Widening WV 2 improves freight mobility, serves growing industrial centers, and enhances regional connectivity. This project is identified as a part of the West Virginia Statewide Plan. The primary benefit of this project is economic development.

Project at a Glance

Project Key	CR19b
Type	Widening
Location	Cabell County, WV
Objectives	Goods Movement and Barrier Mitigation
Length	19.2 miles
Probable Construction Cost (in 2013 Dollars)	$389.0 million
MTP Horizon Year	Vision
TIP ID	n/a

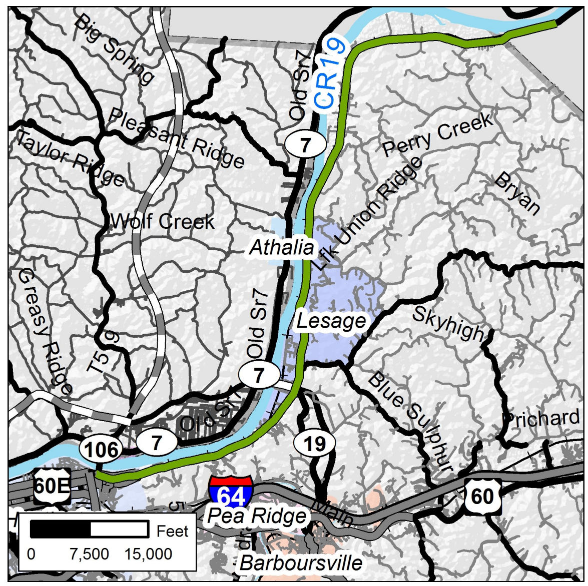
Operational Characteristics

	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	2	4
Volume	7,200	10,200
Capacity	16,500	36,700

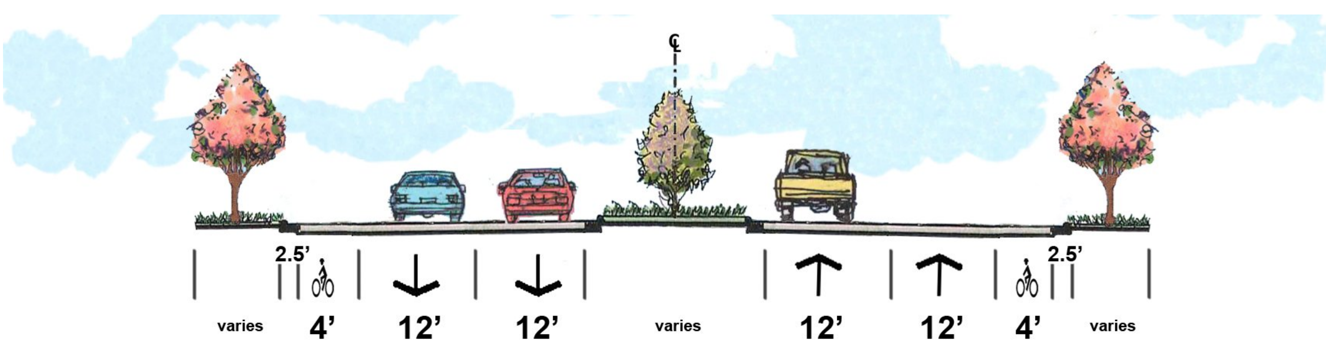
Project Objectives:

Multimodal Characteristics

	Existing	Improvement
Bike/Ped Corridor	None	Bike Lanes
Transit Corridor	TTA Route 3	No Improvement
Freight Corridor	Yes	No Improvement



Project CR19b – Vicinity Map



Project CR19b – Proposed Typical Cross-Section

Project CR20 | WV 527

WV 527 is proposed to be improved from I-64 to 8th Avenue in Huntington, West Virginia. This project was recommended as part of the Downtown Huntington Access Study. Sections of this roadway are currently approaching congested conditions, a condition that is forecasted to continue in the future. Improvements would improve corridor and intersection safety, create an aesthetic gateway into Downtown Huntington, and create a more viable alternate route for vehicles entering the City.

Project Objectives: 

Multimodal Characteristics

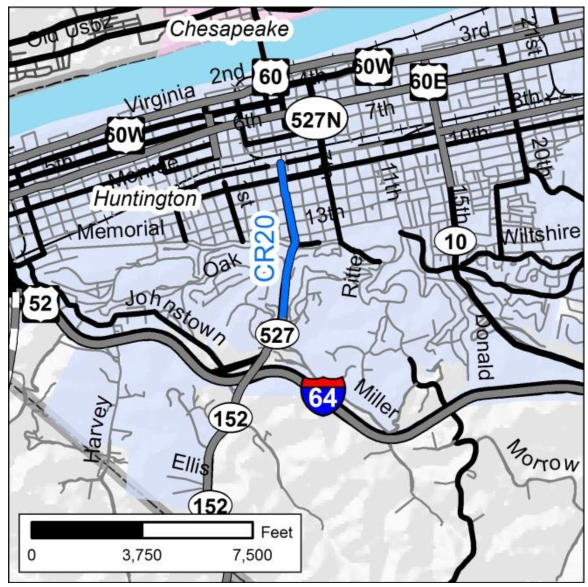
	Existing	Improvement
Bike/Ped Corridor	Sidewalks	Bike Route Signage
Transit Corridor	None	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance

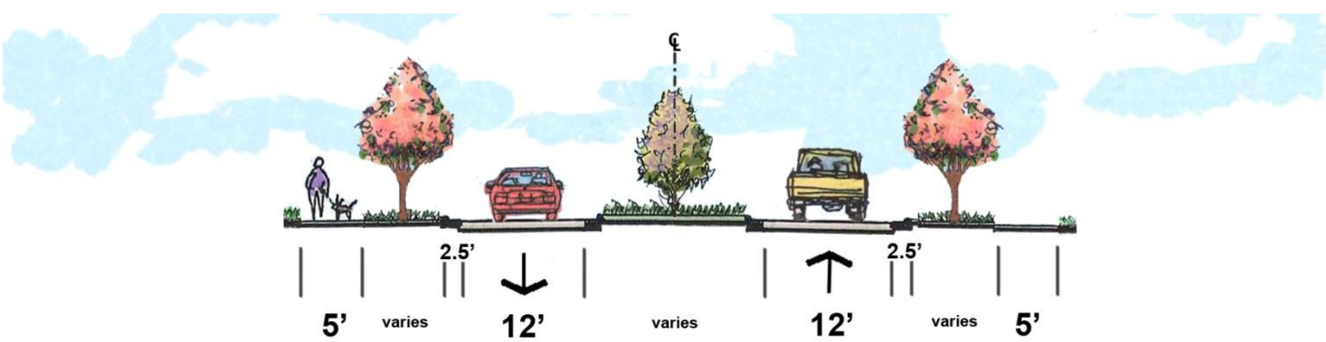
Project Key	CR21
Type	Widening
Location	Huntington, Cabell County, WV
Objectives	Congestion Relief, Livability & Complete Streets, and Multimodal Integration
Length	1.3 miles
Probable Construction Cost (in 2013 Dollars)	$3.0 million
MTP Horizon Year	2040
TIP ID	U306-527/-038 00 CMAQ-0527(003)D

Operational Characteristics

	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	2	2
Volume	13,000	14,700
Capacity	16,500	16,500



Project CR20 – Vicinity Map



Project CR20 – Proposed Typical Cross-Section

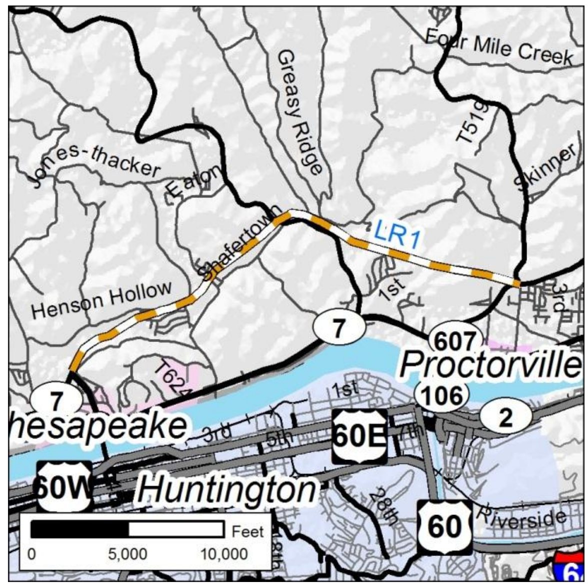
Project LR1 | Chesapeake Bypass

A new 4-lane divided bypass roadway is proposed between Chesapeake and Proctorville in Lawrence County, Ohio. This project, identified as part of the 2035 KYOVA MTP, would create an effective bypass around the communities of Chesapeake and Proctorville. It would reduce regional hours of delay and improve travel for freight traffic in the region. This project has been identified as a high priority by members of the public.

Project Objectives:

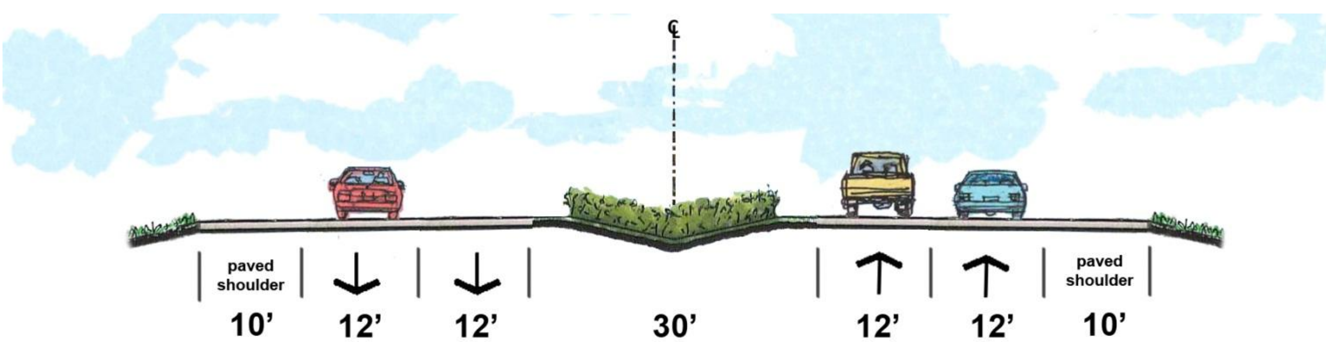
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	n/a	No Improvement
Transit Corridor	n/a	No Improvement
Freight Corridor	n/a	No Improvement

Project at a Glance	
Project Key	LR1
Type	New Location
Location	Lawrence County, OH
Objectives	Congestion Relief and Barrier Mitigation
Length	5.12 miles
Probable Construction Cost (in 2013 Dollars)	$70.0 million
MTP Horizon Year	2030
TIP ID	75923 80998



Project LR1 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	n/a	Principal Arterial
Travel Lanes	n/a	4
Volume	n/a	5,400
Capacity	n/a	64,300



Project LR1 – Proposed Typical Cross-Section

Project LR2 | Park Avenue

Park Avenue is proposed to be widened to a 4-lane divided (where feasible) roadway from Campbell Avenue to US 52 in Ironton, Ohio. This project will provide a viable connection from US 52 to the Ironton-Russell bridge through Downtown Ironton.

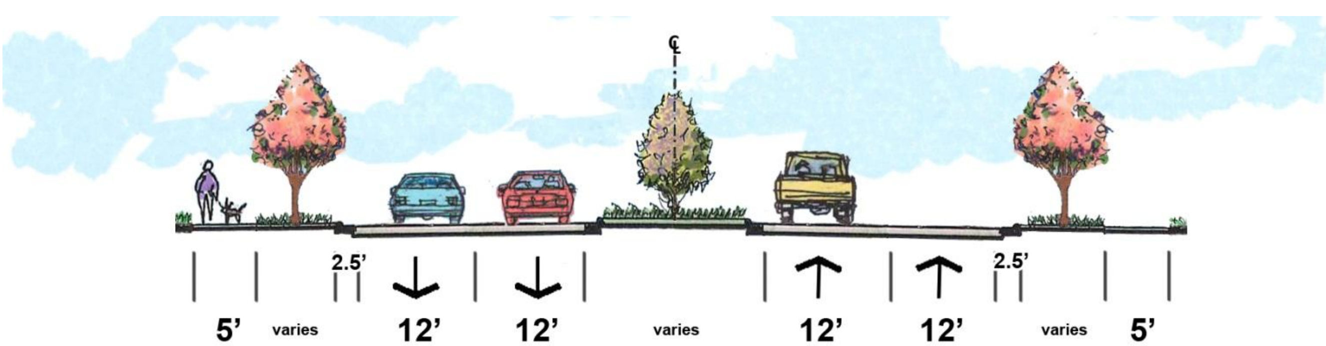
Project Objectives:

Multimodal Characteristics		
	Existing	Improvement
Bike/Ped Corridor	Sidewalks	Bike Route Signage
Transit Corridor	TTA Route 13	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	LR2
Type	Widening
Location	Ironton, Lawrence County, OH
Objectives	Barrier Mitigation and Livability & Complete Streets
Length	0.89 miles
Probable Construction Cost (in 2013 Dollars)	$21.0 million
MTP Horizon Year	2030
TIP ID	n/a

Operational Characteristics		
	Existing	Future
Facility Type	Minor Arterial	Principal Arterial
Travel Lanes	2	4
Volume	4,900	6,700
Capacity	11,900	28,200

Project LR2 – Vicinity Map



Project LR2 – Proposed Typical Cross-Section

Project LR3 | CR 410 (Sams Walmart Way)

CR 410 is proposed to be improved from Old US 52 to US 52 in Burlington, Ohio. The project includes access management, restriping, and the construction of an interchange with US 52. Operational improvements at this location will help improve intersection and corridor level safety, and will serve a developing commercial area.

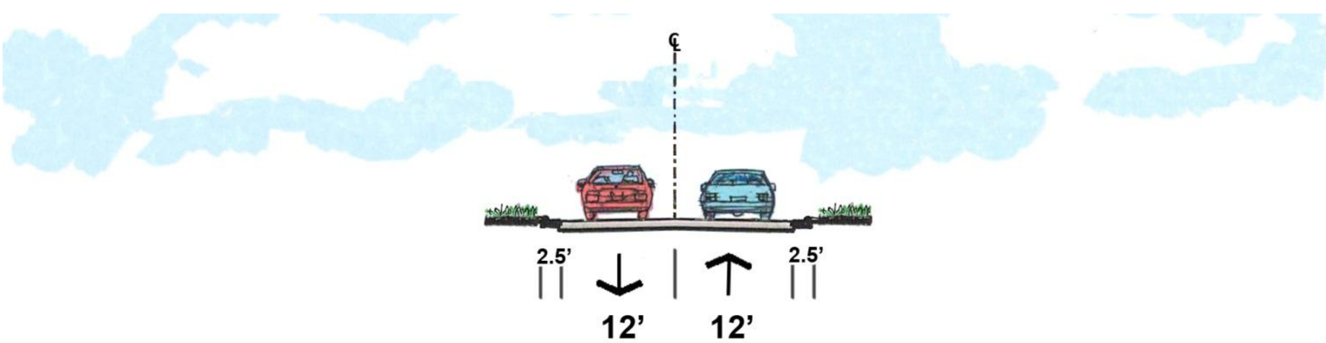
Project Objectives:

Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	TTA Route 12	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance	
Project Key	LR3
Type	Operations
Location	Burlington, Lawrence County, OH
Objectives	Barrier Mitigation and Livability & Complete Streets
Length	0.39 miles
Probable Construction Cost (in 2013 Dollars)	$15.0 million
MTP Horizon Year	2030
TIP ID	n/a

Project LR3 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Local	Collector
Travel Lanes	2	2
Volume	3,700	3,800
Capacity	11,900	11,900



Project LR3 – Proposed Typical Cross-Section

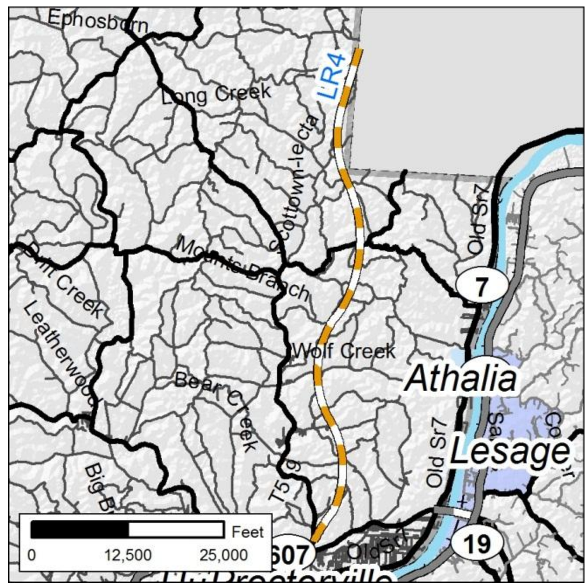
Project LR4 | SR 7 - US 35 Connector

A new 2-lane roadway is proposed between Proctorville and the Gallia County Line in Lawrence County, Ohio. The project would utilize a 60 mph design speed, intersections at public roads, and no private driveways. The proposed roadway would serve as a viable north-south connection, decreasing travel times and encouraging economic development.

Project Objectives:

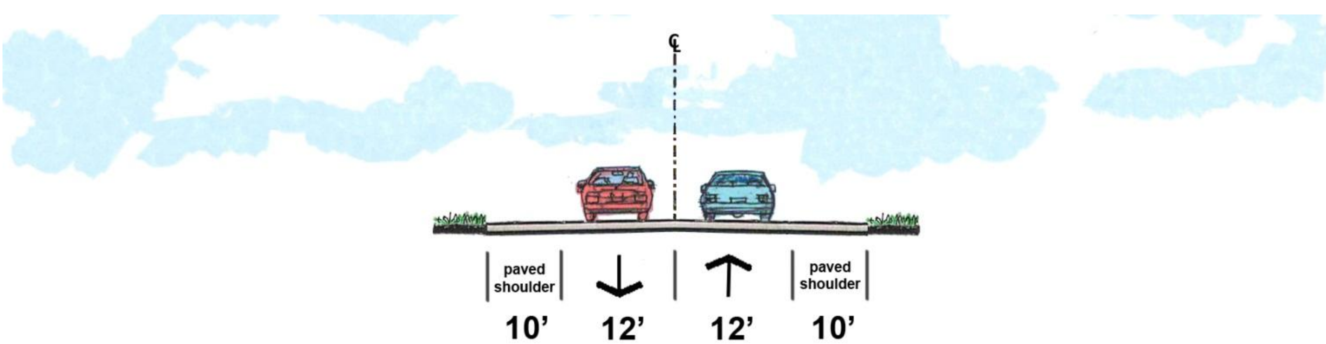
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	n/a	No Improvement
Transit Corridor	n/a	No Improvement
Freight Corridor	n/a	No Improvement

Project at a Glance	
Project Key	LR4
Type	New Location
Location	Lawrence County, OH
Objectives	Congestion Relief, Barrier Mitigation, and Multimodal Integration
Length	12.8 miles
Probable Construction Cost (in 2013 Dollars)	$125.8 million
MTP Horizon Year	2040 and Vision
TIP ID	n/a



Project LR4 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	n/a	Minor Arterial
Travel Lanes	n/a	2
Volume	n/a	1,600
Capacity	n/a	16,500



Project LR4 – Proposed Typical Cross-Section

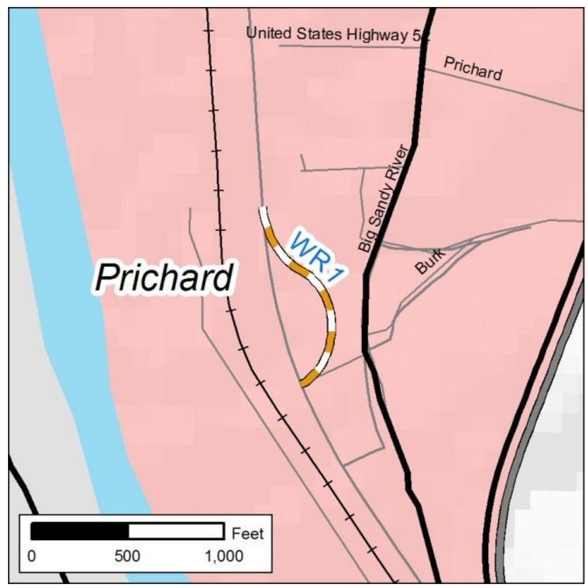
Project WR1 | Prichard Access Road

A new access road is proposed from US 52 to the proposed overpass at Old US 52 in Prichard, West Virginia. This new road is one part of the improvements to better serve the Prichard Intermodal Facility. This facility will improve freight mobility, reduce barriers to travel in the area, and improve the economic vitality of the site. This project has been identified as a high priority through the federal TIGER program.

Project Objectives:

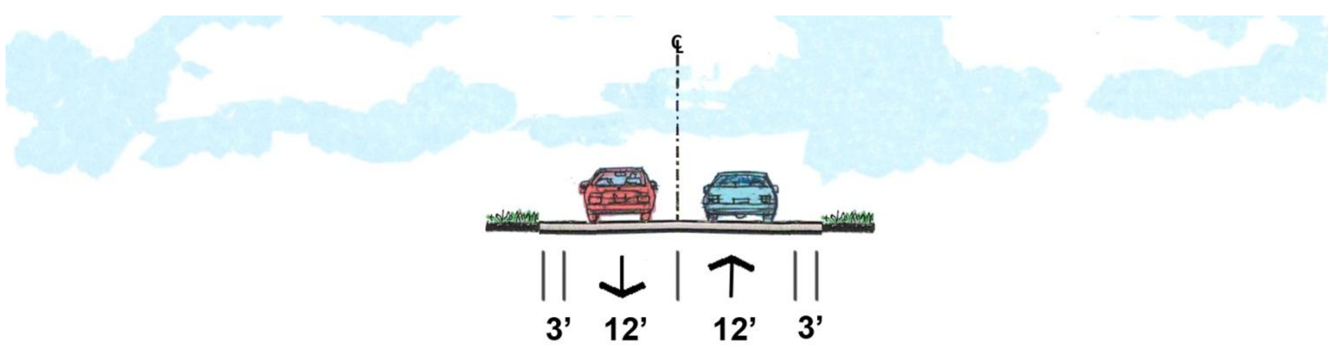
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	n/a	No Improvement
Transit Corridor	n/a	No Improvement
Freight Corridor	n/a	Yes

Project at a Glance	
Project Key	WR1
Type	New Location
Location	Prichard, Wayne County, WV
Objectives	Goods Movement and Barrier Mitigation
Length	0.18 miles
Probable Construction Cost (in 2013 Dollars)	$3.0 million
MTP Horizon Year	2030
TIP ID	n/a



Project WR1 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	n/a	Collector
Travel Lanes	n/a	2
Volume	n/a	n/a
Capacity	n/a	16,500



Project WR1 – Proposed Typical Cross-Section

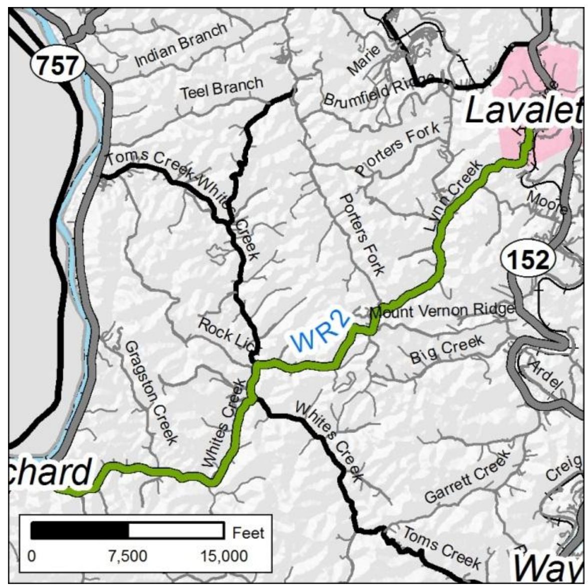
Project WR2 | Centerville-Prichard Road (CR 20) / Lynn Creek Road

Centerville-Prichard Road and Lynn Creek Road are proposed to be widened to 4-lane roadways from Prichard to Lavalette in Wayne County, West Virginia. Improving these roads will create a viable access connection between WV 152 and US 52, significantly reduce regional hours of delay, and provide a new east-west connection across Wayne County. The primary purpose of this project is for economic development and enhanced mobility.

Project Objectives:

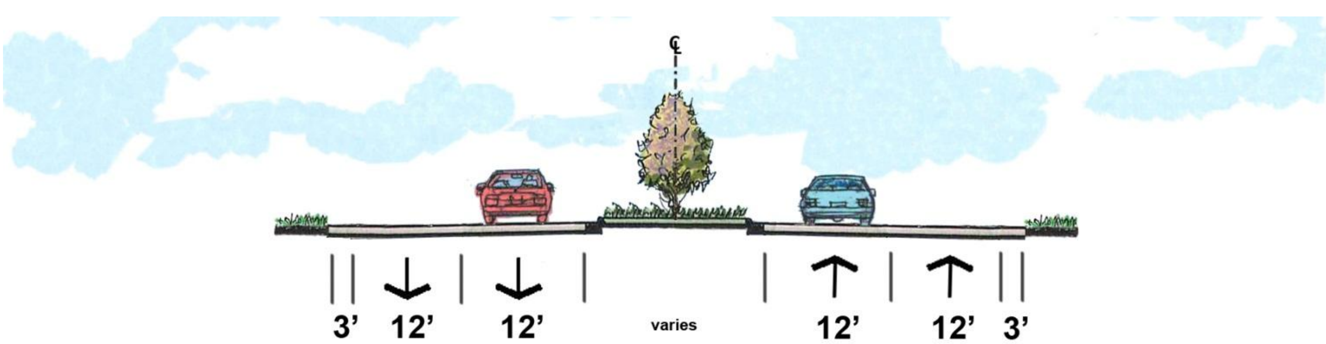
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	None	Yes

Project at a Glance	
Project Key	WR2
Type	Widening
Location	Wayne County, WV
Objectives	Goods Movement and Congestion Relief
Length	12.24 miles
Probable Construction Cost (in 2013 Dollars)	$258.3 million
MTP Horizon Year	Vision
TIP ID	n/a



Project WR2 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Collector	Minor Arterial
Travel Lanes	2	4
Volume	2,600	8,800
Capacity	16,500	36,700



Project WR2 – Proposed Typical Cross-Section

Project WR3 | Spring Valley Drive

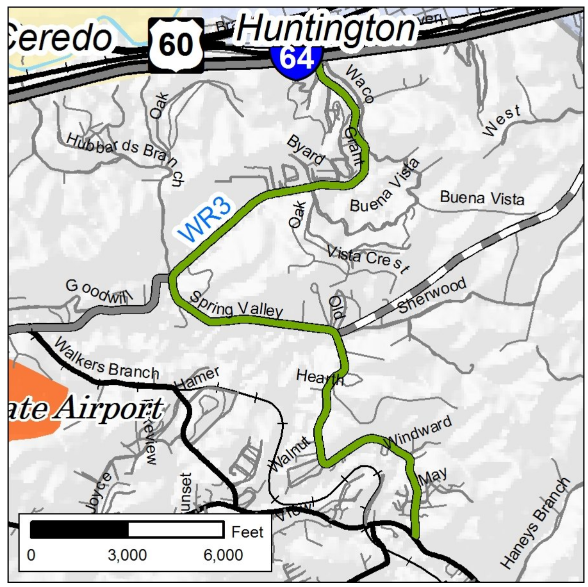
Spring Valley Drive is proposed to be widened to a 3-lane roadway with a two-way left-turn lane from WV 75 to I-64 in Wayne County, West Virginia. Widening this road to include a center turn lane will improve corridor safety and provide an enhanced connection for the residential and commercial uses in the area. The primary benefit of this project is enhanced corridor safety.

Project at a Glance	
Project Key	WR3
Type	Widening
Location	Wayne County, WV
Objectives	Barrier Mitigation
Length	5.98 miles
Probable Construction Cost (in 2013 Dollars)	$197.2 million
MTP Horizon Year	Vision
TIP ID	n/a

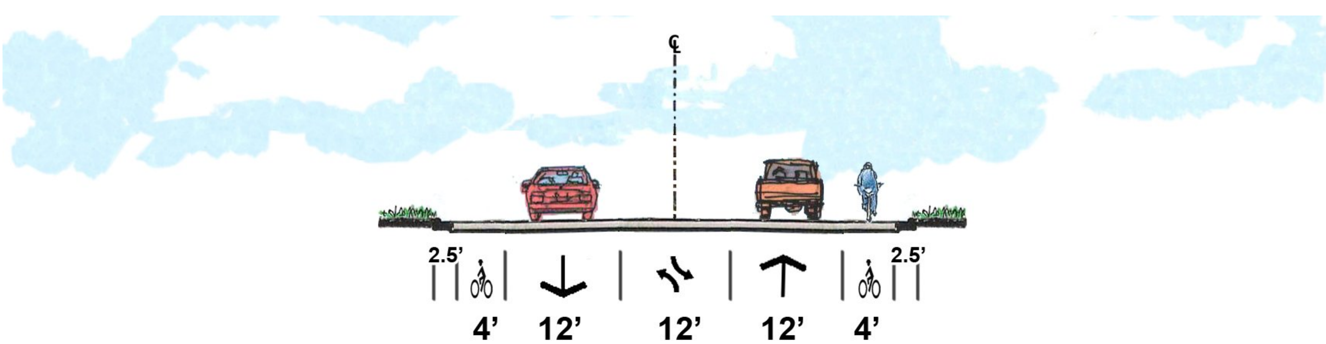
Operational Characteristics		
	Existing	Future
Facility Type	Collector	Minor Arterial
Travel Lanes	2	3
Volume	4,200	5,000
Capacity	16,500	16,500

Project Objectives:

Multimodal Characteristics		
	Existing	Improvement
Bike/Ped Corridor	None	Bike Lanes
Transit Corridor	TTA Route 1	No Improvement
Freight Corridor	None	No Improvement



Project WR3 – Vicinity Map



Project WR3 – Proposed Typical Cross-Section

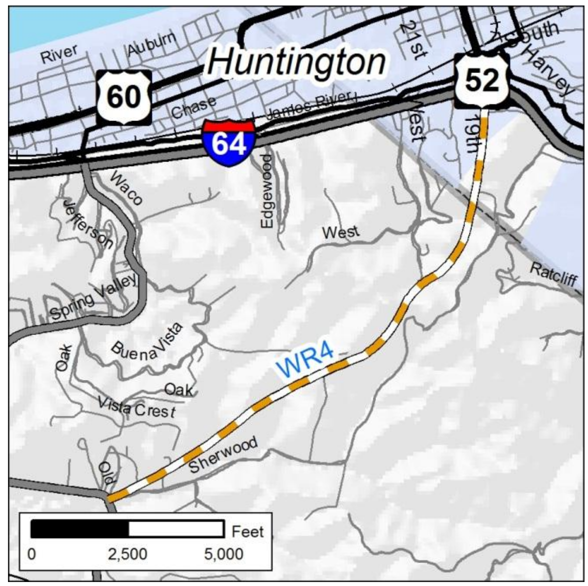
Project WR4 | Spring Valley Drive Connector

A new 2-lane roadway with wide shoulders is proposed from Sherwood Drive to I-64 in Wayne County, West Virginia. This connection provides users with a direct linkage between Downtown Huntington and Spring Valley Road. The West Virginia Statewide Plan identifies this project as a priority.

Project Objectives:

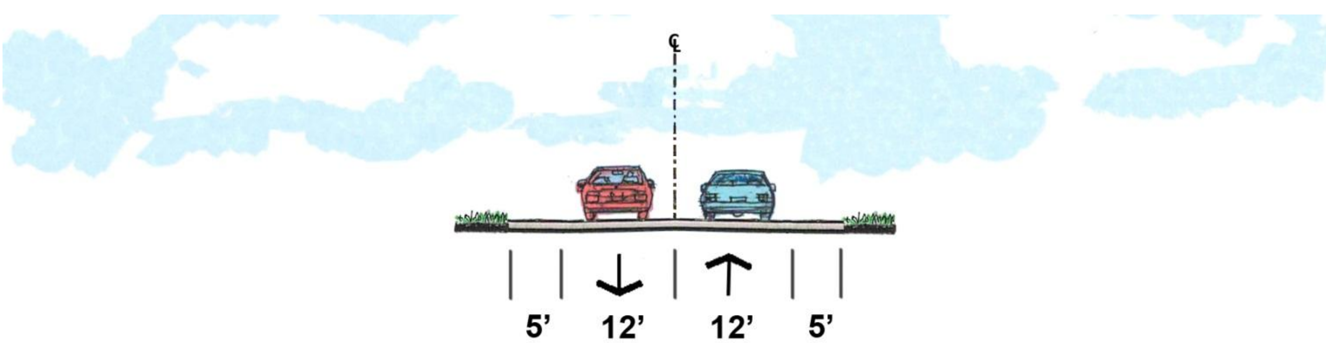
Multimodal Characteristics		
	Existing	Improvement
Bike/Ped Corridor	n/a	Wide Shoulders
Transit Corridor	n/a	No Improvement
Freight Corridor	n/a	No Improvement

Project at a Glance	
Project Key	WR4
Type	New Location
Location	Wayne County, WV
Objectives	Congestion Relief and Barrier Mitigation
Length	2.98 miles
Probable Construction Cost (in 2013 Dollars)	$72.5 million
MTP Horizon Year	Vision
TIP ID	n/a



Project WR4 – Vicinity Map

Operational Characteristics		
	Existing	Future
Facility Type	n/a	Minor Arterial
Travel Lanes	n/a	2
Volume	n/a	4,200
Capacity	n/a	16,500



Project WR4 – Proposed Typical Cross-Section

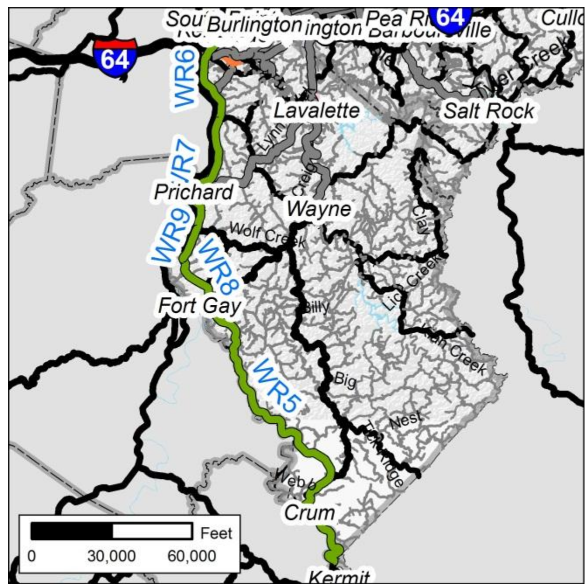
Project WR5-9 | US 52

US 52 is proposed to be widened to a 4-lane divided roadway from Kermit to Hubbardstown. US 52 has been identified as the future alignment for the I-73/I-74 in the KYOVA region. Improving this roadway will serve regional mobility and goods movement needs. This is a listed project in the West Virginia Statewide Plan and has been identified as a high-priority project regionally for its potential economic development benefits.

Project Objectives:

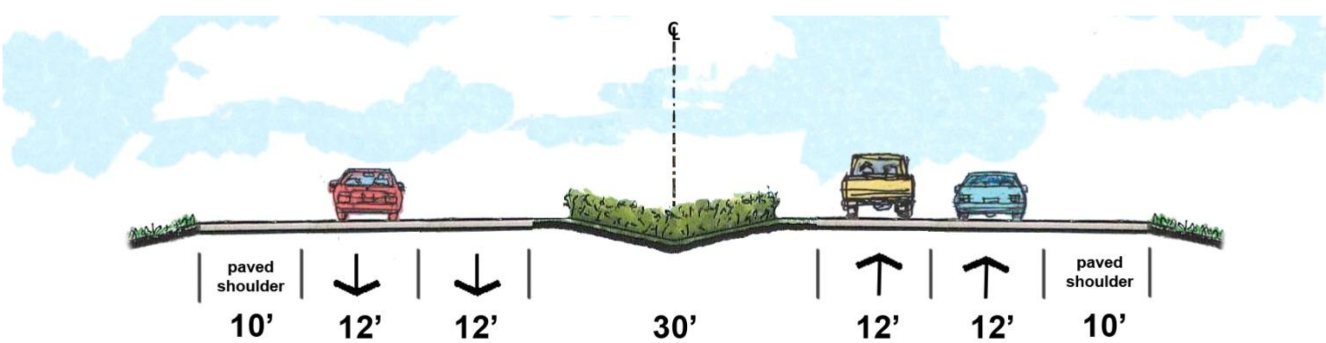
Multimodal Characteristics		
	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	WR5-9
Type	Widening
Location	Wayne County, WV
Objectives	Goods Movement and Barrier Mitigation
Length	48.42 miles
Probable Construction Cost (in 2013 Dollars)	$1930.5 million
MTP Horizon Year	Vision
TIP ID	Multiple (unfunded)



Project WR5-9 – Vicinity Map

Operational Characteristics		
	Existing	Future
Facility Type	Principal Arterial	Principal Arterial
Travel Lanes	2	4
Volume	6,300	7,700
Capacity	22,200	64,300



Project WR5-9 – Proposed Typical Cross-Section

Project WR10 | Docks Creek Road (CR-8)

Docks Creek Road is proposed to be widened to a 4-lane divided roadway from US 52 to WV 75 in Wayne County, West Virginia. Improvements to this roadway will facilitate an improved back entrance to the Tri-State Airport. Additionally, intermodal freight connections will be better served by establishing an improved connection with US 52. The primary benefit of this project is improved freight mobility between intermodal terminals.

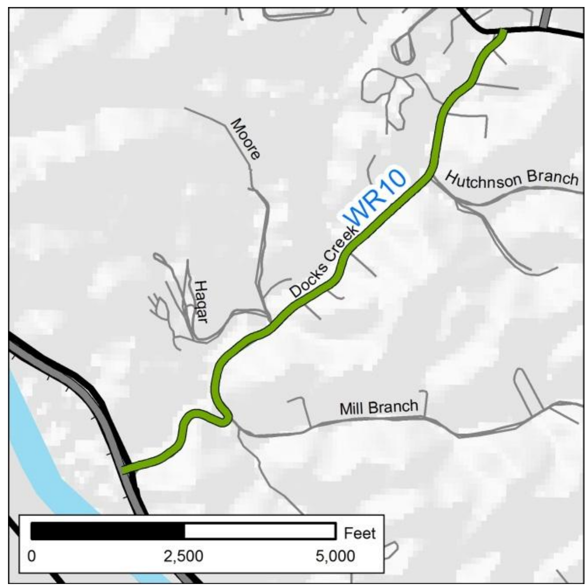
Project Objectives:

Multimodal Characteristics

	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance

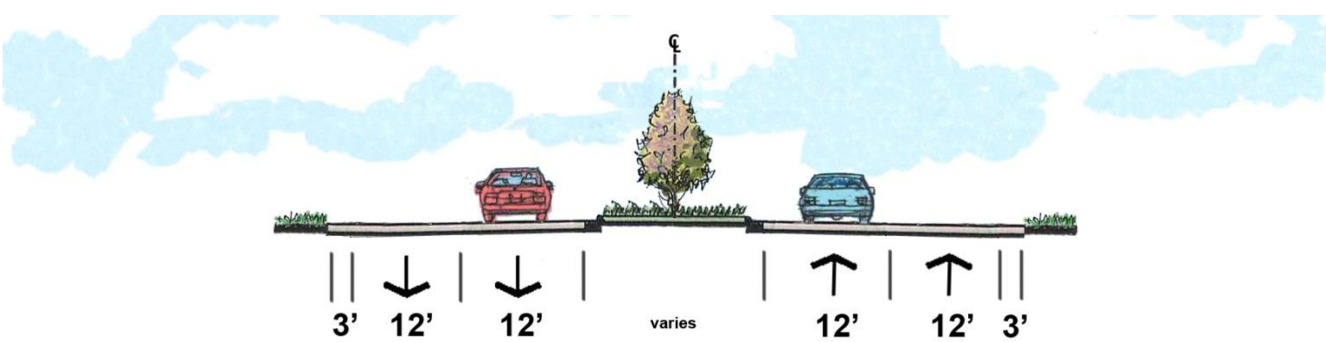
Project Key	WR10
Type	Widening
Location	Wayne County, WV
Objectives	Goods Movement and Barrier Mitigation
Length	2.03 miles
Probable Construction Cost (in 2013 Dollars)	$180.5 million
MTP Horizon Year	Vision
TIP ID	n/a



Project WR10 – Vicinity Map

Operational Characteristics

	Existing	Future
Facility Type	Collector	Minor Arterial
Travel Lanes	2	4
Volume	1,500	1,800
Capacity	16,500	36,700



Project WR10 – Proposed Typical Cross-Section

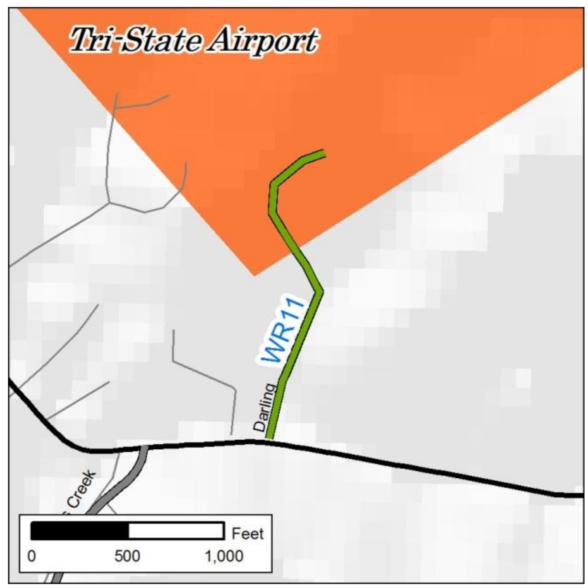
Project WR11 | Darling Lane

Darling Lane is proposed to be widened to a 4-lane divided roadway from WV 75 to the Tri-State Airport in Wayne County, West Virginia. Improvements to this roadway will facilitate an improved back entrance to the Tri-State Airport. Additionally, intermodal freight connections will be better served by establishing an improved connection with US 52.

Project Objectives:

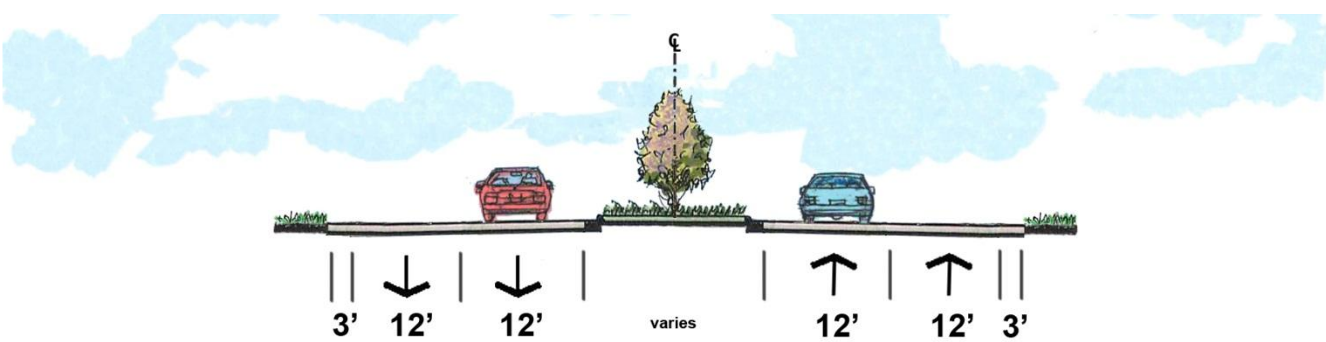
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	No Improvement
Transit Corridor	None	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance	
Project Key	WR11
Type	Widening
Location	Wayne County, WV
Objectives	Goods Movement and Barrier Mitigation
Length	0.33 miles
Probable Construction Cost (in 2013 Dollars)	$7.1 million
MTP Horizon Year	2040
TIP ID	n/a



Project WR11 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Local	Collector
Travel Lanes	2	4
Volume	n/a	n/a
Capacity	n/a	16,500



Project WR11 – Proposed Typical Cross-Section

Project WR12 | WV 152

WV 152 is proposed to be widened to a 4-lane divided roadway with bike lanes from Lavalette to Huntington in West Virginia. This project will improve access to the Lavalette area for all travel modes. Since WV 152 serves numerous visitor and tourist destinations, improvements to the corridor will also serve as a benefit for economic development. In addition, improvements to this roadway will alleviate intersection and corridor safety issues. The primary benefit of this project is enhanced safety and multimodal travel enhancements.

Project at a Glance	
Project Key	WR12
Type	Widening
Location	Wayne and Cabell Counties, WV
Objectives	Livability & Complete Streets, Multimodal Integration, and Tourism and Recreation
Length	5.4 miles
Probable Construction Cost (in 2013 Dollars)	$251.6 million
MTP Horizon Year	Vision
TIP ID	n/a

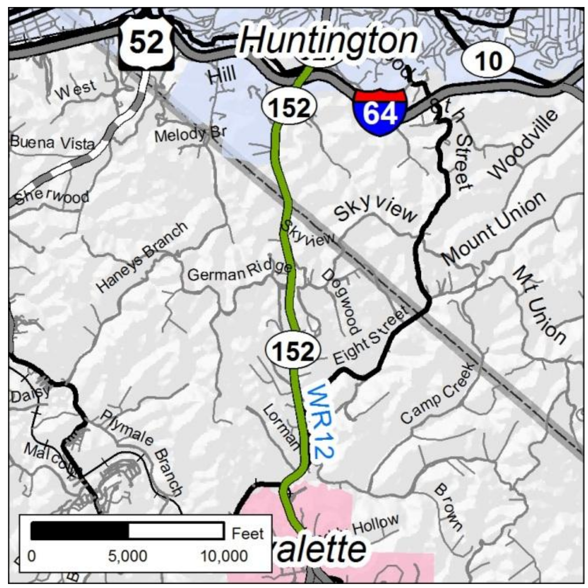
Operational Characteristics

	Existing	Future
Facility Type	Minor Arterial	Minor Arterial
Travel Lanes	2	4
Volume	9,200	9,900
Capacity	16,500	36,700

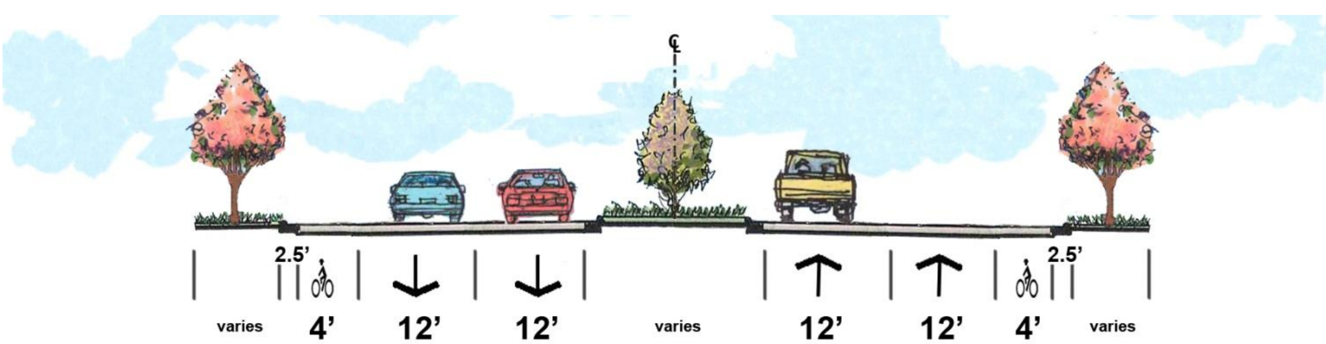
Project Objectives:

Multimodal Characteristics

	Existing	Improvement
Bike/Ped Corridor	None	Bike Lanes
Transit Corridor	None	No Improvement
Freight Corridor	Yes	No Improvement



Project WR12 – Vicinity Map



Project WR12 – Proposed Typical Cross-Section

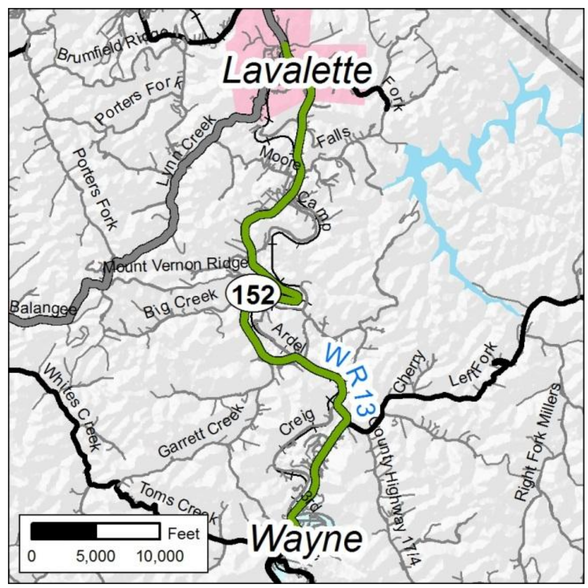
Project WR13 | WV 152

WV 152 is proposed to be widened to a 4-lane divided (where feasible) roadway with wide shoulders from Wayne to Lavalette in Wayne County, West Virginia. Improvements to this section of WV 152 facilitate enhanced multimodal connections between Huntington and Wayne. The primary purpose of this project is economic development and multimodal travel benefits.

Project Objectives:

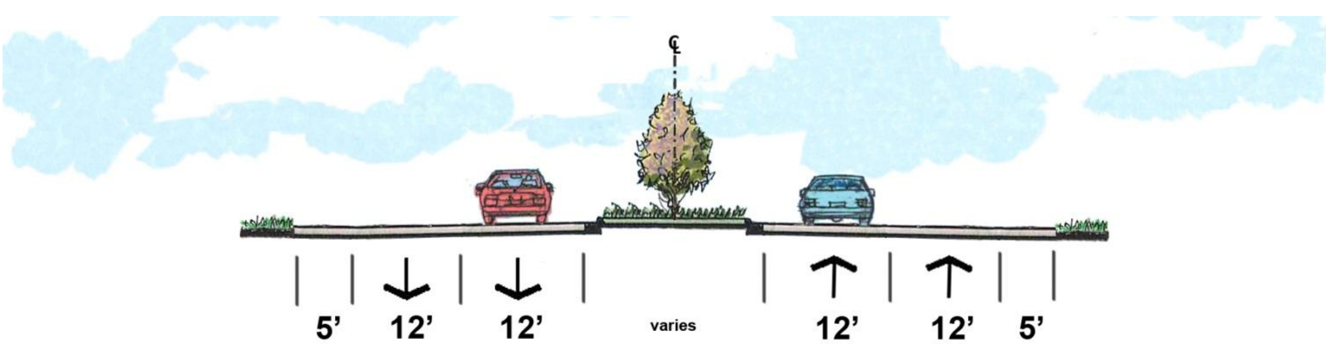
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	Wide Shoulders
Transit Corridor	None	No Improvement
Freight Corridor	Yes	No Improvement

Project at a Glance	
Project Key	WR13
Type	Widening
Location	Wayne County, WV
Objectives	Goods Movement, Livability & Complete Streets, and Multimodal Integration,
Length	10.83 miles
Probable Construction Cost (in 2013 Dollars)	$228.7 million
MTP Horizon Year	Vision
TIP ID	n/a



Project WR13 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Minor Arterial	Minor Arterial
Travel Lanes	2	4
Volume	4,800	4,600
Capacity	16,500	36,700



Project WR13 – Proposed Typical Cross-Section

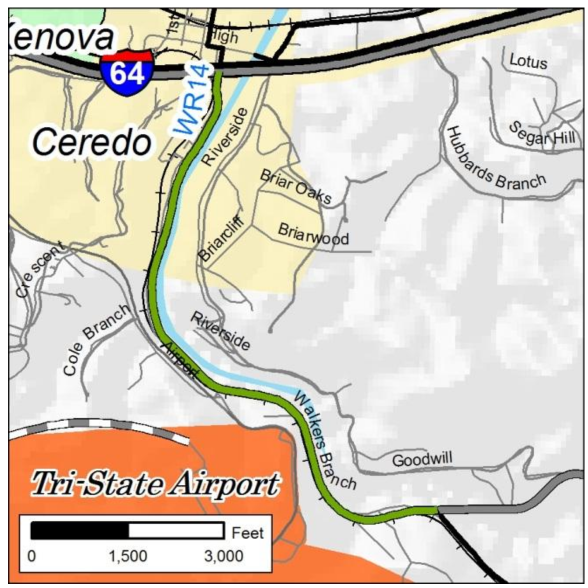
Project WR14 | Walkers Branch Road (CR3)

Walkers Branch Road is proposed to be widened to a 4-lane divided (where feasible) roadway from Walkers Branch Road Bridge to I-64 in Ceredo, West Virginia. Widening this section of Walkers Branch Road improves connections to the Huntington Tri-State Airport and also serves multimodal travel needs in the area.

Project Objectives:

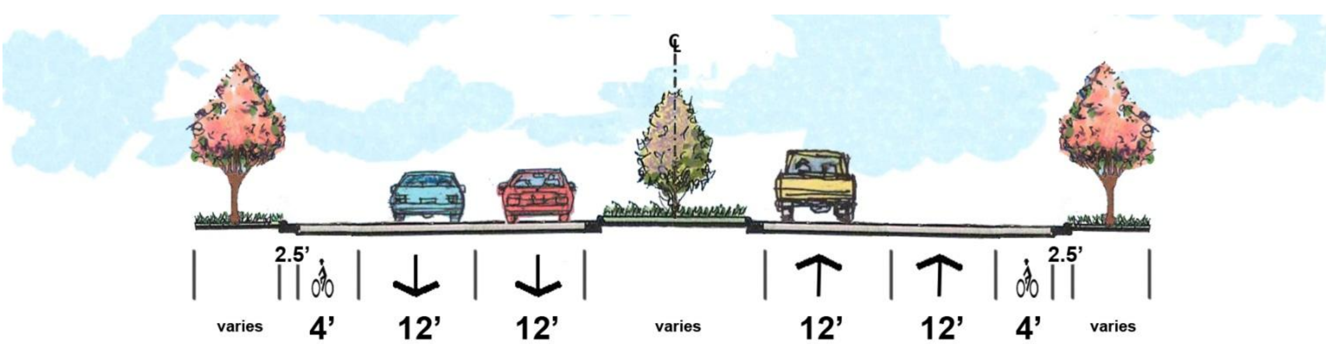
Multimodal Characteristics	Existing	Improvement
Bike/Ped Corridor	None	Bike Lanes
Transit Corridor	None	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance	
Project Key	WR14
Type	Widening
Location	Ceredo, Wayne County, WV
Objectives	Goods Movement, Multimodal Integration, and Tourism & Recreation
Length	1.92 miles
Probable Construction Cost (in 2013 Dollars)	$178.2 million
MTP Horizon Year	Vision
TIP ID	n/a



Project WR14 – Vicinity Map

Operational Characteristics	Existing	Future
Facility Type	Collector	Minor Arterial
Travel Lanes	2	4
Volume	2,300	4,500
Capacity	15,200	33,200



Project WR14 – Proposed Typical Cross-Section

Project WR15 | Airport Road Connector

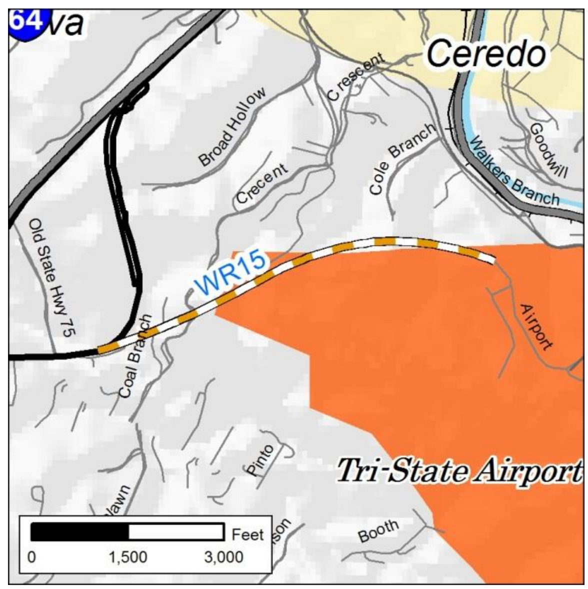
A new 2-lane connector roadway is proposed from US 52 to Airport Road in Wayne County, West Virginia. This new facility will facilitate an alternate entry point to the Tri-State Airport. Additionally, intermodal freight connections will be better served by establishing an improved connection with US 52.

Project Objectives:

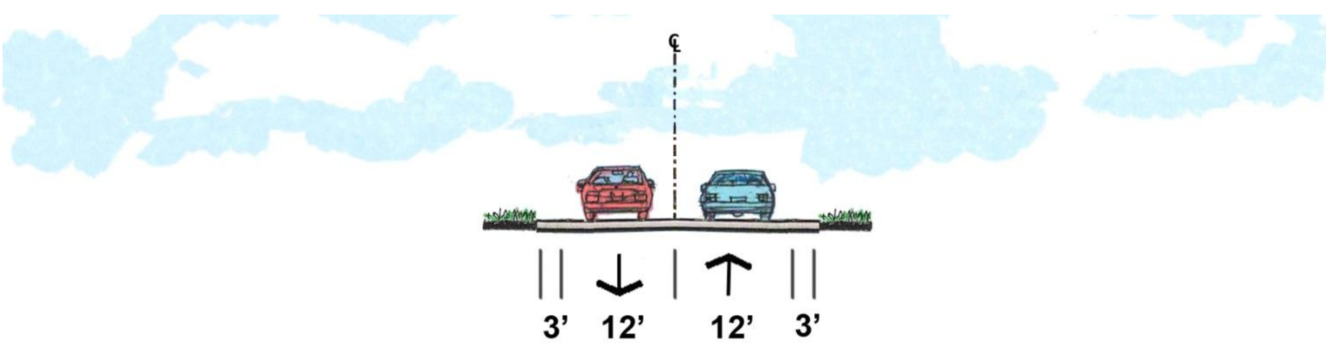
Multimodal Characteristics		
	Existing	Improvement
Bike/Ped Corridor	n/a	No Improvement
Transit Corridor	n/a	No Improvement
Freight Corridor	n/a	No Improvement

Project at a Glance	
Project Key	WR15
Type	New Location
Location	Wayne County, WV
Objectives	Goods Movement and Barrier Mitigation
Length	1.25 miles
Probable Construction Cost (in 2013 Dollars)	$17.8 million
MTP Horizon Year	Vision
TIP ID	n/a

Operational Characteristics		
	Existing	Future
Facility Type	n/a	Collector
Travel Lanes	n/a	2
Volume	n/a	500
Capacity	n/a	16,500



Project WR15 – Vicinity Map



Project WR15 – Proposed Typical Cross-Section

Project WR16 | Goodwill Road

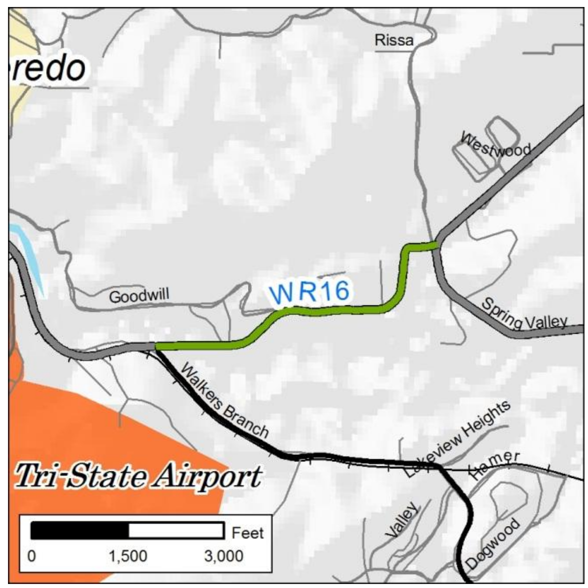
Goodwill Road is proposed to be widened to a 4-lane undivided roadway from Walkers Branch Road to Spring Valley Drive in Wayne County, West Virginia. Widening this section of Goodwill Road improves connections to the Huntington Tri-State Airport and also serves multimodal travel needs in the area.

Project Objectives:

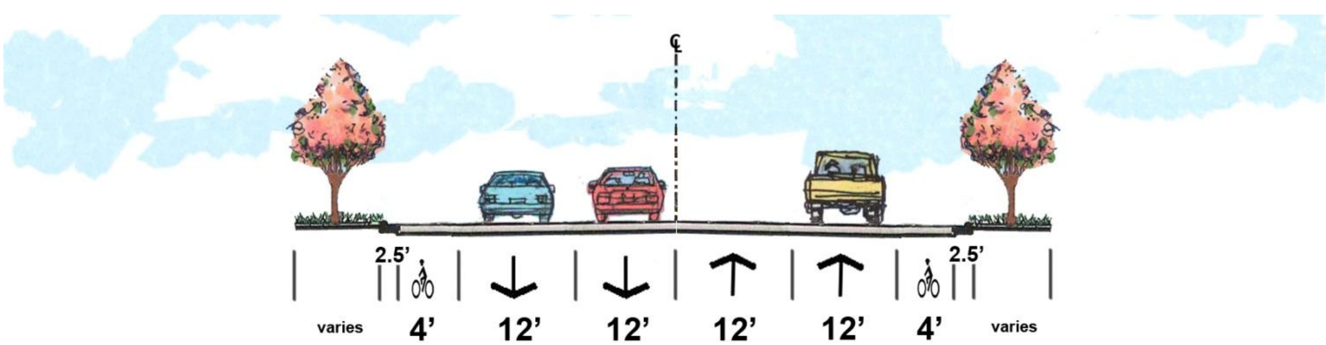
Multimodal Characteristics		
	Existing	Improvement
Bike/Ped Corridor	None	Bike Lanes
Transit Corridor	None	No Improvement
Freight Corridor	None	No Improvement

Project at a Glance	
Project Key	WR16
Type	Widening
Location	Wayne County, WV
Objectives	Multimodal Integration and Tourism & Recreation
Length	1.00 miles
Probable Construction Cost (in 2013 Dollars)	$14.3 million
MTP Horizon Year	Vision
TIP ID	n/a

Operational Characteristics		
	Existing	Future
Facility Type	Local	Minor Arterial
Travel Lanes	2	4
Volume	1,800	5,700
Capacity	12,200	36,700



Project WR16 – Vicinity Map



Project WR16 – Proposed Typical Cross-Section

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Introduction

With the adoption of the Moving Ahead for Progress in the 21st Century Act (MAP-21), the federal government re-affirmed safety and security as independent planning factors for consideration in long-range transportation plans. During the planning process for the *KYOVA 2040 Metropolitan Transportation Plan*, safety and security—for people and freight—of the region's transportation system was consistently cited as a critical area of consideration. The *KYOVA 2040 MTP* includes an evaluation of transportation safety and security for each of the modes of the plan. This chapter of the *KYOVA 2040 MTP* focuses on safety and security as it relates to the critical nodes—intersections, viaducts, and bridges—of the roadway network. It is emphasized that the different modes that complete the region's transportation network typically intersect, and often conflict, at these points. Recommendations identified in this chapter can be considered with those in **Chapter 3** to paint a comprehensive picture of roadway needs in the KYOVA region.

Safety and Transportation Planning

According to the National Highway Traffic Safety Administration, West Virginia ranked fourth in the nation in fatalities per 100 million vehicle miles traveled in 2010 (see **Table 4.1**). And while the rate has decreased 21% since 1994, the improvement is among the lowest in the nation. Ohio fared much better in 2010, with a rate of 0.97 fatalities per 100 million vehicle miles traveled. The geography of West Virginia makes safety on the roadways an ongoing concern. This statement is true in the KYOVA region, where many roads must be designed to account for steep slopes and blind curves. As a result, it is essential to look at potential solutions for mitigating safety issues throughout the region, particularly hotspot locations identified by the stakeholders and the public.

Security and Transportation Planning

Emphasizing security during the transportation planning process helps identify and implement ways to improve security and mitigate imminent threats. The *KYOVA 2040 MTP* is an important part of the region's attempt to deliver secure transportation for people and goods. The MPO has the advantage of considering security 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, implementation for many strategies may be the responsibility of local organizations. In the KYOVA area, key security 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 the safeguard of highway transit and freight operations. The security element later in this chapter provides added detail to these considerations.

Table 4.1 – Fatalities per 100 Million Vehicle Miles Traveled

Rank	State	2010	% Change (1994-2010)
1	Montana	1.69	-24%
2	Arkansas	1.68	-31%
3	South Carolina	1.65	-27%
4	**West Virginia**	**1.64**	**-21%**
5	Wyoming	1.62	-25%
6	Mississippi	1.61	-42%
7	Kentucky	1.58	-19%
8	South Dakota	1.58	-22%
9	Louisiana	1.56	-31%
10	Tennessee	1.46	-35%
37	**Ohio**	**0.97**	**-31%**

Source: National Highway Traffic Safety Administration

Public Perception

Through the various outreach events held in support of the *KYOVA 2040 MTP*, residents and stakeholders had many opportunities to describe issues and concerns related to safety and security. The project team gathered numerous viewpoints related to corridors and intersections. This feedback helped guide the decision-making process. Specific comments included:

- We need better rail crossings in downtown Huntington;
- Signals are needed where US 52 crosses under Marion Pike in Coal Grove;
- I believe we need to make all the viaducts in Huntington more people (and pedestrian) friendly – especially 8th Street – it's the worst and possibly busiest; and
- Speed enforcement along I-64 near the Kentucky border is lacking.

Several comments touched on the need for better signal coordination throughout the study area. Multiple workshop participants proposed improving access to Prichard, either by improving US 52 or by providing a new connection from Prichard to the east or northeast.

Several intersections were identified as feeling unsafe including the intersection of Midland Trail (US 60) and Washington Boulevard and the intersection of 5th Avenue (US 60) and 31st Street (US 60). There were also many comments regarding the draining of the viaducts during major rain events. Participants noted that pumping and utility systems need to be improved to support draining these during such events. Members of the public also commented on the availability of parking in downtown Huntington. As more urban infill occurs, there is a desire to see an increase in parking supply as well.

Committed Projects

The KYOVA MPO and its communities already have begun to act on many of the issues and concerns expressed during the outreach events. As described in **Chapter 3**, the Transportation Improvement Program (TIP) is a four-year schedule of federally assisted transportation projects for the three-county region that is required under the MAP-21 legislation. The KYOVA Interstate Planning Commission revises and reissues the TIP every other year in coordination with ODOT and WVDOT. The Huntington-Ironton Area Transportation Study (HIATS) 2035 Long-Range Transportation Plan guided the development of the 2012-2015 TIP.

As mentioned in **Chapter 3**, the 2014-2017 TIP is being developed concurrently with the *KYOVA 2040 MTP*. A financial plan based on the financial resources reasonably expected to be available in the KYOVA area over the next four years is used to determine fiscal constraint. The current 2012-2015 total TIP program cost is $220 million including all federal, state, and local sources. Some projects included in the TIP are completely funded using federal money, while others are supplemented with state and local dollars. Approximately 25% of the funds are allocated to Ohio and 75% to West Virginia ($55 and $165 million, respectively). **Table 4.2** lists the relevant TIP projects (e.g. bridge, intersection, and ITS projects) from the 2014-2017 TIP.

Table 4.2 – KYOVA 2014-2017 TIP Projects

Project ID	Route/Section	Length (mile)	Location and Description	Total Cost (000's)
Lawrence County, Ohio				
10379	SR 93	N/A	Replace Bridge over Pine Creek	615.0
83280	CR 144	N/A	Charley Creek/US 52 Intersection – Realign intersection and build access road south of US 52	1,406.8
87326	SR 522	N/A	Lawrence County Bridge Repair	110.0
91413	SR 141	N/A	Replace bridge on SR 141	1,243.0
93350	SR 217	N/A	Replace deficient bridge 2.16 mi E of SR 141	583.0
Cabell County, West Virginia				
U306-60/5-1.60 00 CMAQ-0605(004)D	CR 60/5	0.08	Construct turn lane, drainage, and traffic loop at East Pea Ridge (CR 60/5) and US 60	568.0
U306-60/5-0029100 CMAQ-0605(006)D	CR 60/5	0.08	Construct turn lane, drainage, and traffic loop at East Pea Ridge (CR 60/5) and US 60	450.0
U306-64/-01 091 00	I-64	N/A	Hal Greer Boulevard – 29th Street Interchange	8,600.0
U399/-MTASB1 00 SB-11WV(004)D	US 60	N/A	Midland Trail Corridor Management Plan, various spot locations (statewide)	211,034.0
S306-64/-10.91 00 NH-0641(340)	I-64	0.04	16th Street entrance and exit ramps	6,073.0
S306-527/-2.00 00 BR-0527(007)D	WV 527	0.01	Replace 5th Street Ritter Park Bridge over Fourpole Creek	2,305.0
U306-60/-16.52 00 OCRO-0060(257)D	US 60	0.14	Construct left turn lane on US 60 at MP 16.52	300.0
Wayne County, West Virginia				
S350-152/-23.71.00 STP-0152(047)D STP-0152(048)D	WV 152	0.01	Replace Sidney Beam span	1.300.0
S350-37/-00 329 00 ACBR-0037(030)D	WV 37	1.25	Replace 3 bridges over Hurricane Creek	1,500.0

Safety Element

For safety fully to be integrated into the transportation planning process, it must be a focus at all levels of planning — from the US Department of Transportation to local neighborhoods. At the federal level, MAP-21 has established this focus. Other programs at the state and federal level target work zones, older drivers, bicyclists, and pedestrians. Through the *KYOVA 2040 MTP* process, residents highlighted safety concerns across the different travel modes.

Safety Guidelines

The following guidelines are presented to ensure safety remains a core component of transportation planning in the KYOVA region.

Engineering

The roadway recommendations presented in this plan represent a series of engineering enhancements that should improve traffic flow while increasing safety for all users. The MPO also has emphasized safety planning by incorporating a crash analysis and ranking system into the LRTP to identify high priority crash locations throughout the planning area. General engineering strategies to maximize safety include: improving highway and road design guidelines; implementing corridor-based access management strategies; identifying appropriate intersection improvements to mitigate crashes; constructing a coordinated network of on-street bicycle facilities and off-street trails; designing streets to be pedestrian-friendly; designating appropriately designed streets for truck freight; and maintaining adequate standards for railroad crossings, bridges, and viaducts.

Enforcement

During the outreach events, some attendees expressed concern for the lack of enforcement of traffic laws. Enforcement activities typically include ways to monitor and maintain the appropriate behaviors of road users (motorists, bicyclists, pedestrians, and transit users). These activities usually include law enforcement participation, task forces, and partnerships with organizations dedicated to improving safety. Safety campaigns and initiatives in West Virginia include "Click It or Ticket", "Target Red" (raising awareness of the dangers of red light and stop sign violations), "Drive Sober or Get Pulled Over", and "Over the Limit, Under Arrest". In Ohio, the campaigns include "Click It or Ticket", "Drive Sober or Get Pulled Over", and "Ride SMART/Share the Road". The MPO can partner with state agencies and local governments to support enforcement programs in the planning area.

Education

Education programs can target all age groups and skill levels to encourage the safe use of the transportation system. These programs can be incorporated into activities at schools, churches, task forces, local organizations, and government-sponsored events. Often, education campaigns work in concert with enforcement. Reaching children through education programs is an important way to support lifelong habits of safely using the transportation system. Safe Routes to School programs educate children on the proper use of sidewalks, bicycle facilities, and roadways. Finally, education programs can enhance the attitude toward safety.

Emergency Services

Ensuring safe access to homes and businesses by emergency personnel is a critical element of safety within the transportation system. When the public speaks about safety, they often mention the need for ambulances and fire trucks to respond quickly to incidents. For crashes, timely response is essential to reducing the severity of injuries. The roadway recommendations presented in the *KYOVA 2040 MTP* will have a positive impact on emergency response times. These improvements will encourage an interconnected network of streets that provides route choices and reduced congestion. In addition, improving the signal system and ITS deployment will improve safety.

Traffic Safety and Crash History

Examining traffic patterns and understanding the region's crash history are an important part of identifying where intersection improvements can benefit both motorists and the community as a whole. A high-level analysis of crash trends at the county-level (using data collected by the National Highway Traffic Safety Administration) was combined with discussions with KYOVA staff and local stakeholders to identify locations for safety countermeasures or improvements. This section of the Safety and Security Element reviews in detial some of the worst-performing intersections in the region and presents recommendations for potential countermeasures.

Statewide and Countywide Traffic Fatalities

The National Highway Traffic Safety Administration (NHTSA) directs national highway safety programs and works to help prevent crashes. The NHTSA collects, processes, and distributes a variety of crash data aggregated to the state and county levels. **Table 4.3** summarizes fatality rates based on a series of categories for the three counties in the KYOVA region for a five-year period ending in 2011. The 2011 statewide rank for the three counties is provided for reference. It should be noted that the rate fluctates each year, so the ranking may not reflect the 5-year trend. In general, the fatality rates in Lawrence County are lower than its peer counties in West Virginia. Wayne County typically fares worse than Cabell County.

Table 4.3 – Fatalities per 100,000 Population

County	2007	2008	2009	2010	2011	2011 Statewide Ranking	Total Fatalities in 5-year Period
All Crashes							
Cabell County, WV	22.09	8.40	18.74	12.45	12.42	32 out of 55	71
Wayne County, WV	39.79	30.40	28.14	21.22	37.98	4 out of 55	67
Lawrence County, OH	17.53	7.98	11.17	4.81	14.40	18 out of 88	35
Crashes At an Intersection							
Cabell County, WV	5.26	2.10	3.12	1.04	2.07	13 out of 55	13
Wayne County, WV	2.34	2.34	4.69	0.00	2.37	12 out of 55	5
Lawrence County, OH	4.78	3.19	1.60	0.00	1.60	35 out of 88	7
Crashes Involving a Large Truck							
Cabell County, WV	1.05	2.10	0.00	4.15	0.00	24 out of 55	7
Wayne County, WV	4.68	0.00	4.69	4.72	2.37	18 out of 55	7
Lawrence County, OH	0.00	0.00	0.00	0.00	1.60	24 out of 88	1
Pedestrian Fatalities							
Cabell County, WV	5.26	2.10	3.12	1.04	2.07	10 out of 55	3
Wayne County, WV	4.68	0.00	0.00	2.36	2.37	9 out of 55	4
Lawrence County, OH	0.00	1.60	1.60	0.00	0.00	35 out of 88	2
Pedalcyclist Fatalities							
Cabell County, WV	0.00	0.00	0.00	0.00	0.00	N/A	0
Wayne County, WV	0.00	0.00	0.00	0.00	0.00	N/A	0
Lawrence County, OH	1.59	0.00	0.00	0.00	0.00	16 out of 88	1

Source: National Highway Traffic Safety Administration

Priority Locations

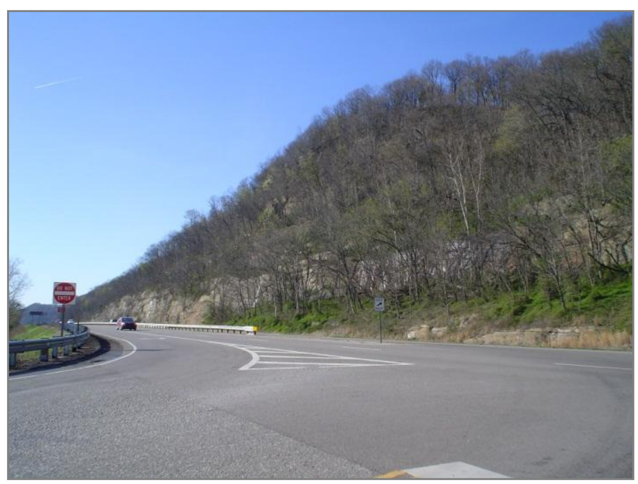
Contributing factors to high crash frequency often include intersection design, access considerations, and traffic congestion. Many locations in the region cited as having high crash frequencies also exhibited higher levels of congestion. Since this relationship exists between traffic congestion and crash frequency, recommended roadway projects in **Chapter 3** that reduce traffic congestion should be recognized as having secondary safety benefits.

A detailed field review was performed for 15 intersections identified by the project team in consultation with KYOVA staff. The field review helped confirm existing conditions and identify possible flaws in the current design of the intersection. Based on this review, a list of potential improvements such as geometric changes or enhancements to traffic control were developed. The priority intersections examined as part of the *KYOVA 2040 MTP* are:

- SR 7 (Chesapeake Bypass) and CR 15 (Buffalo Creek Road)
- US 52 and CR 120S (Burlington-Macedonia Road)
- US 52 and CR 144 (Charley Creek Road)
- US 52 and CR 276
- US 52 and CR 410 (Walmart Way)
- US 52 and CR 1 (Old US 52)
- US 52 and CR 15 (Lick Creek Road)
- 5th Avenue and 1st Street
- 7th Avenue and 1st Street
- 5th Avenue and Hal Greer Boulevard
- US 60 (31st Street) at 5th Avenue
- US 60 at 8th Avenue
- US 60 at 21st Street
- US 60 at East Pea Ridge Road
- WV 152 at WV 75

A summary of general observations and recommendations as well as a conceptual exhibit are provided for each location on the pages that follow. It should be noted that the countermeasures recommended for intersections along US 52 are intended to occur in the interim, setting the stage for the more advanced recommendations (interchanges, frontage roads) in the 2007 Traffic and Safety Study for US 52 and SR 7.

Figures 4.1 and **4.1a** show the location of the priority safety intersections as well as other intersections identified for improvement in the Traffic and Safety Study for US 52 and SR 7. The figure also highlights eight intersection beautification improvements, the committed Ironton intersection projects, and new or rehabilitated interchanges along I-64 and US 52. The new interchanges recommended on US 52 would be constructed when the highway is upgraded to a freeway. An improvement at I-64 and US 52 is aimed at improving truck operations. A new interchange is currently under study by WVDOH in cooperation with KYOVA and RIC at I-64 and Benedict Road (CR 60/21) in Culloden.



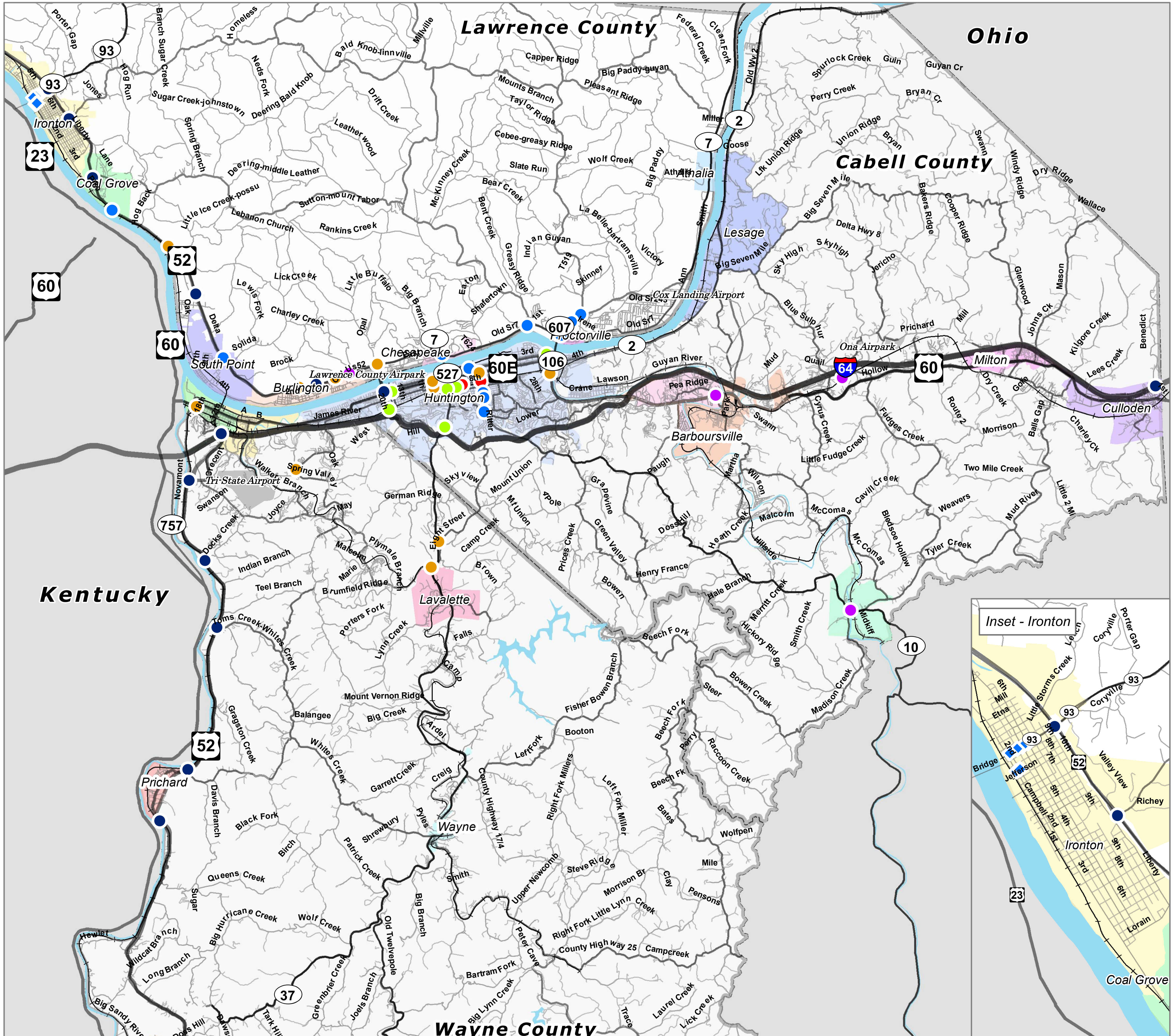
US 52 and CR 15 (Lick Creek Road)

2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION

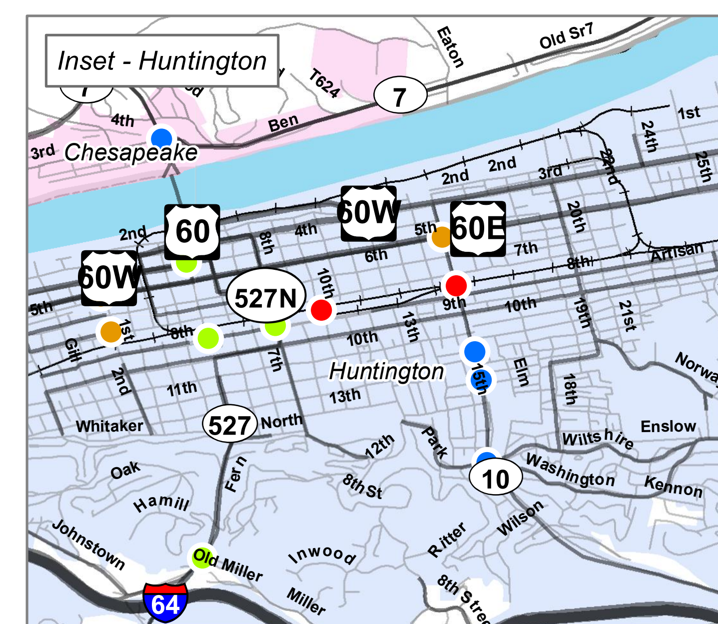
KYOVA INTERSTATE PLANNING COMMISSION

Figure 4.1



Intersection Recommendations

- Committed Improvements
- Interchange Improvements
- Intersection Safety Improvements
- Intersection Beautification
- Intersection Operation Improvements
- Intersection Operation Improvements - Ironton (Committed)
- Viaduct Improvements



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KYOVA INTERSTATE PLANNING COMMISSION

Kimley-Horn and Associates, Inc.

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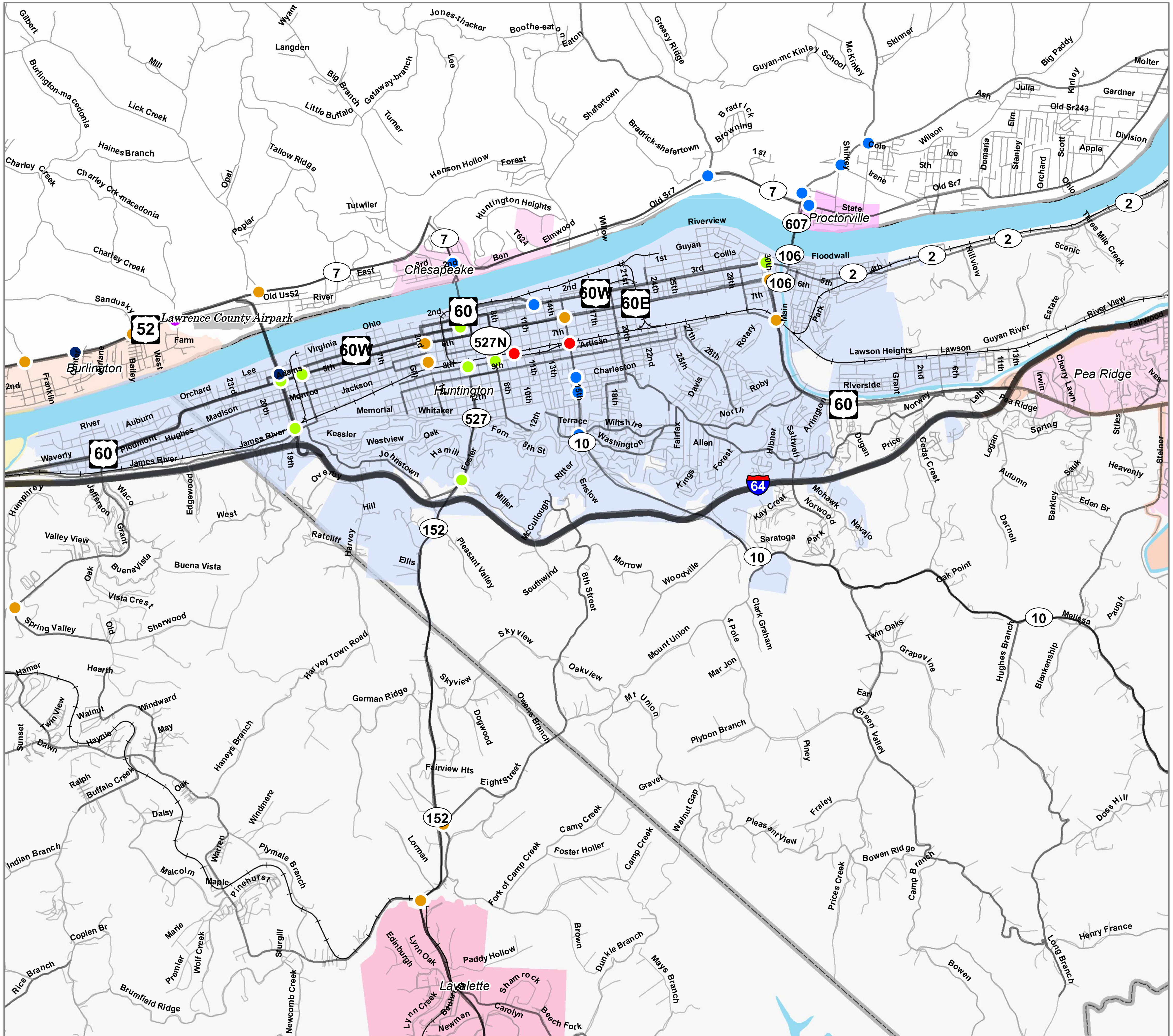
Figure 4.1a

Intersection Recommendations

- Committed Improvements
- Interchange Improvements
- Intersection Safety Improvements
- Intersection Beautification
- Intersection Operation Improvements
- Intersection Operation Improvements - Ironton (Committed)
- Viaduct Improvements



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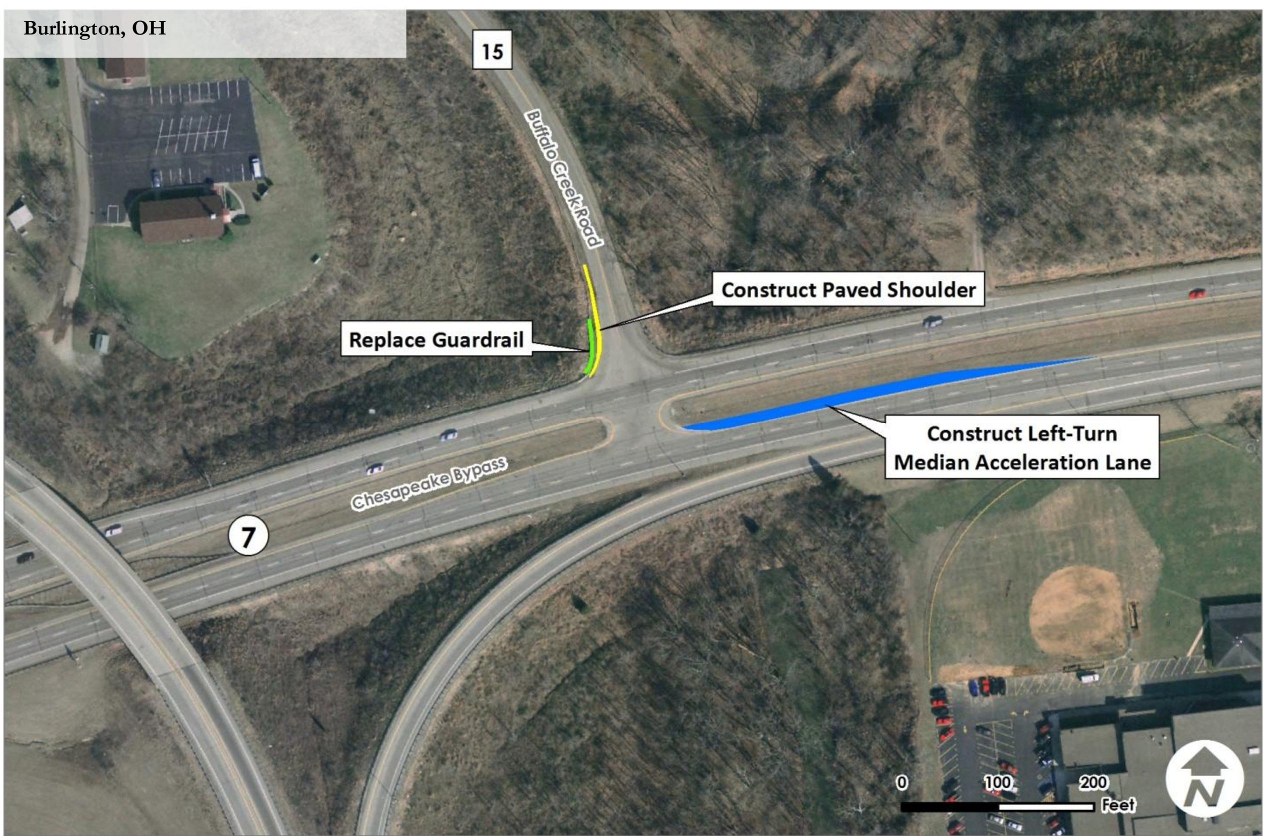
SR 7 (Chesapeake Bypass) and CR 15 (Buffalo Creek Road)

General Observations

- Guardrail in northwest quadrant is in poor condition.
- Dirt shoulder along west side of Buffalo Creek Road is in poor condition.
- Crash data reveals a high frequency of angle crashes involving left-turning vehicles struck by through vehicles on eastbound US 52.

Recommendations

- Replace guardrail in northwest quadrant
- Construct paved shoulder along west side of Buffalo Creek Road
- Improve safety:
  - **Option 1**: Construct a merge lane on eastbound US 52 for vehicles turning left from Buffalo Creek Road
  - **Option 2**: Construct a continuous green T-intersection



US 52 and CR 120S (Burlington-Macedonia Road)

General Observations

- Gap exists in paved shoulder along east side of northbound Burlington-Macedonia Road.
- Crash data reveals a high frequency of rear-end crashes along eastbound US 52 before intersection.

Recommendations

- Construct paved shoulder along east side of northbound Burlington-Macedonia Road
- Replace "Prepare to Stop When Flashing" sign with Signal Ahead sign and continuous flashers
- Improve signal visibility:
  - Install signal head retroflective backplates
  - Install red light strobes

US 52 and CR 144 (Charley Creek Road)

General Observations

- Dirt shoulder along east side of northbound Charley Creek Road is in poor condition.
- Crash data reveals a high frequency of rear-end crashes along eastbound and westbound US 52 before the intersection and a high frequency of angle crashes at intersection.

Recommendations

- Construct paved shoulder along east side of northbound Charley Creek Road
- Replace "Prepare to Stop When Flashing" signs with Signal Ahead signs and continuous flashers
- Improve signal visibility:
    - Install signal head retroflective backplates
    - Install red light strobes
- Split northbound and southbound phases on Charley Creek Road
- Install "Side-street Traffic Does Not Stop" signs on Sandusky Road
- Study eventual design and construction of an interchange as recommended in the US 52/SR 7 Traffic and Safety Study

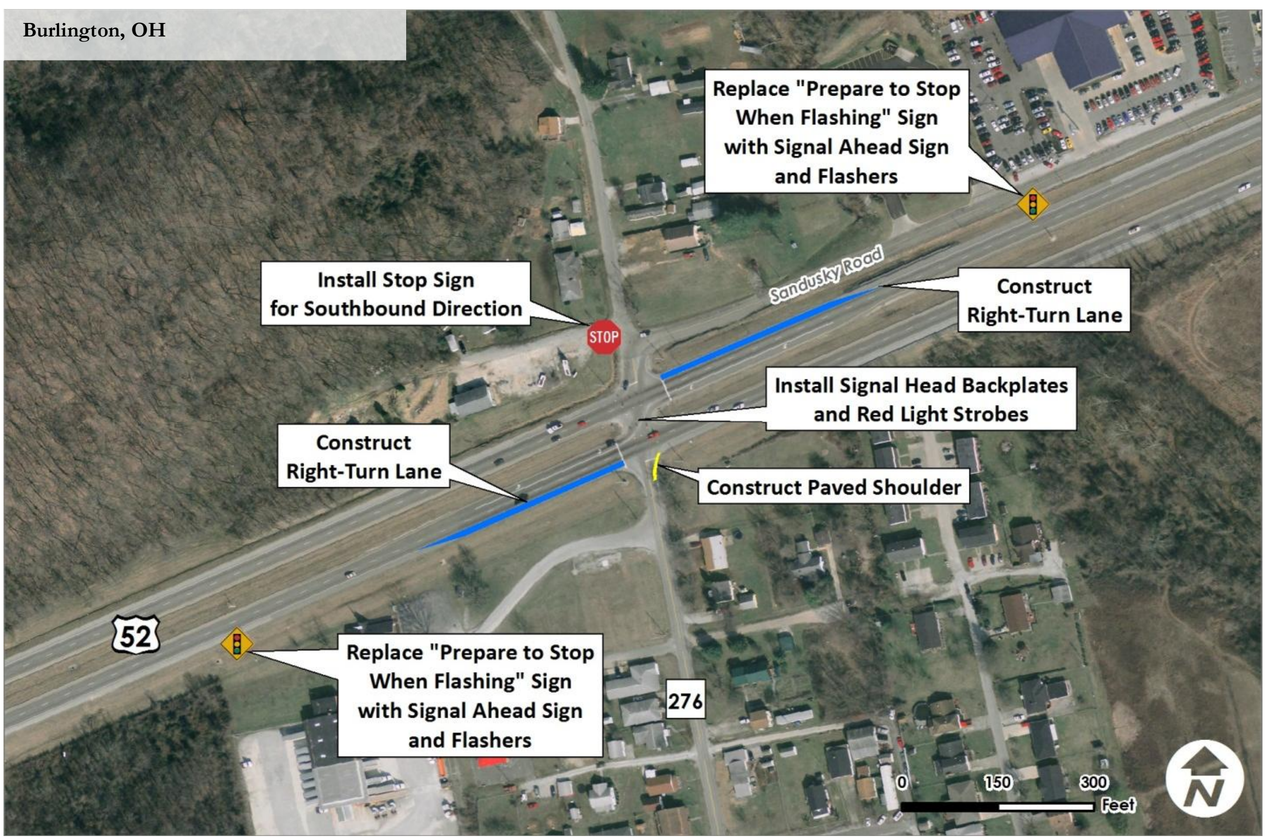
US 52 and CR 276

General Observations

- Dirt shoulder along east side of northbound County Road 276 is in poor condition.
- Right-of-way is available for exclusive right-turn lanes on US 52.
- Crash data reveals a high frequency of rear-end crashes along eastbound and westbound US 52 before intersection.

Recommendations

- Construct paved shoulder along east side of northbound CR 276
- Construct exclusive right-turn lanes on US 52
- Replace "Prepare to Stop When Flashing" signs with Signal Ahead signs and continuous flashers
- Improve signal visibility:
  - o Install signal head retroflective backplates
  - o Install red light strobes
- Install Stop Sign for southbound CR 276 at Sandusky Road



US 52 and CR 410 (Walmart Way)

General Observations

- Northbound Walmart Way may accommodate the extension of the exclusive right-turn lane.
- Crash data reveals a high frequency of rear-end crashes on westbound US 52 and northbound Walmart Way before intersection.
- Crash data also reveals a high frequency of angle crashes at Walmart Way and 6th Avenue, likely the result of a large business sign obstructing the view of drivers on 6th Avenue waiting to turn right.

Recommendations

- Restripe northbound Walmart Way with two lanes from 6th Avenue to US 52
- Replace "Prepare to Stop When Flashing" sign with Signal Ahead sign and continuous flashers
- Improve signal visibility:
  - Install signal head retroflective backplates
  - Install red light strobes
- Install intersection striping for dual left-turn on westbound US 52
- Relocate business sign at Walmart Way and 6th Avenue

US 52 and CR 1 (Old US 52)

General Observations

- No traffic control is present for right-turns from eastbound US 52.
- Crash data reveals a high frequency of angle crashes involving left-turning vehicles struck by through vehicles on westbound US 52.
- A left-turn median acceleration lane exists.

Recommendations

- Install yield sign for right-turn lane on eastbound US 52
- Monitor intersection and signalize intersection when Manual on Uniform Control Devices Warrant 7 (Crash Experience) is met:
  - Consider a continuous green T-intersection
- Install intersection striping for left-turn on westbound US 52

US 52 and CR 15 (Lick Creek Road)

General Observations

- Crash data reveals a high frequency of angle crashes involving right-turning vehicles struck by through vehicles on westbound US 52.

Recommendations

- Construct right-turn acceleration lane on westbound US 52

5th Avenue and 1st Street

General Observations

- Crosswalk markings exist only on north leg.
- Several full-movement driveway access points are in proximity of intersection.
- Stop bar for left-turn lane on southbound 1st Street is set back approximately 100' from intersection.
- 1st Street and its corresponding right-of-way are very narrow.

Recommendations

- Install crosswalk markings on east and south legs
- Install pedestrian buttons and countdown signals
- Install "Yield to Pedestrians" sign for right-turns on northbound 1st Street
- Construct concrete island in driveway in southwest quadrant to restrict left-turns
- Adjust signal phasing to allow left-turns on southbound 1st Street as protected only
- Long term, consider widening 1st Street between 4th Avenue and 5th Avenue

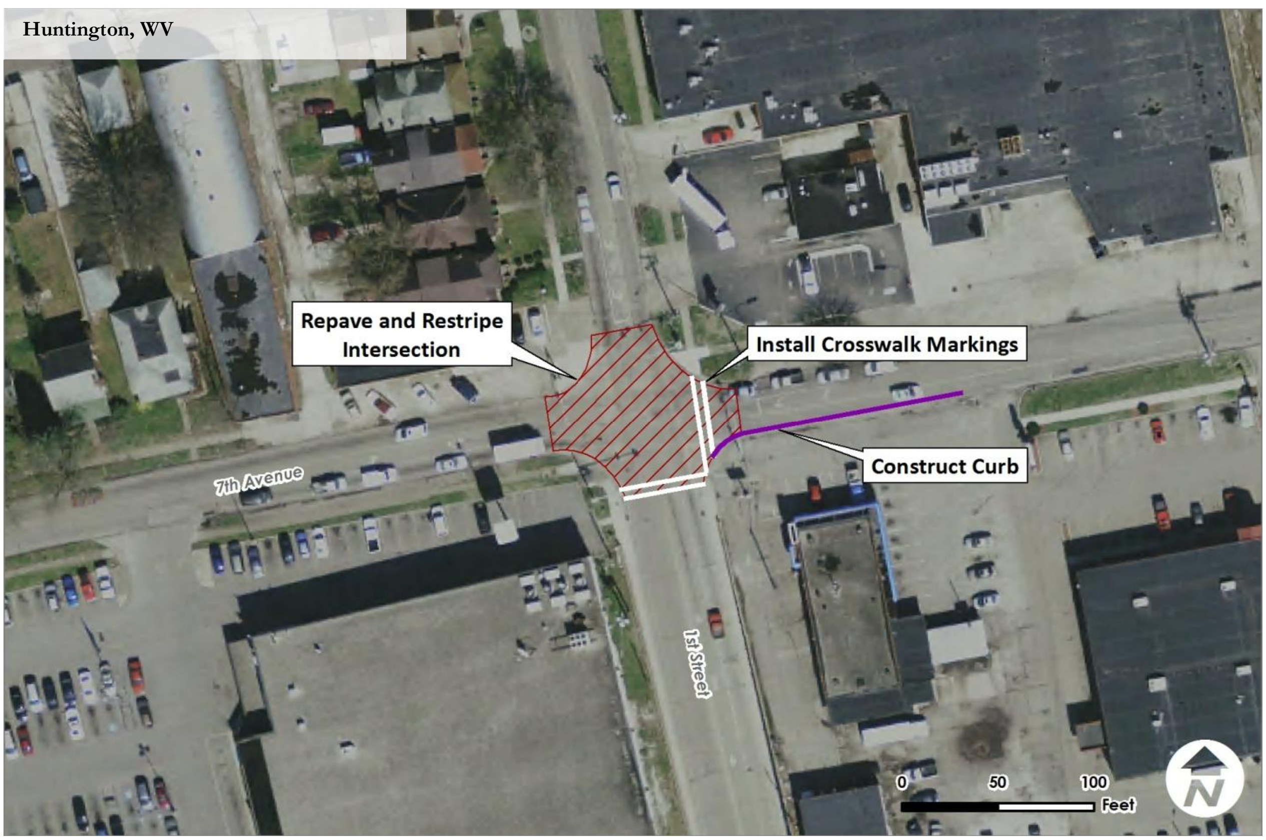
7th Avenue and 1st Street

General Observations

- Intersection pavement is in poor condition.
- No crosswalk markings are present.
- No clear delineation of driveway access exists.

Recommendations

- Repave and restripe intersection
- Install crosswalk markings on east and south legs
- Construct a curb along 5th Avenue adjacent to Fantastic Sam's to restrict access but maintain parking



5th Avenue and Hal Greer Boulevard

General Observations

- Intersection pavement is in poor condition.
- Left-turn on eastbound 5th Avenue is difficult for large trucks.

Recommendations

- Repave and restripe intersection
- Move stop bar for left-turn lane on southbound Hal Greer Boulevard further north to provide larger turn radius for heavy trucks turning left from eastbound 5th Avenue

US 60 (31st Street) at 5th Avenue

General Observations

- Unmarked on-street parking exists on west side of US 60.
- Signage is insufficient for drivers on eastbound 5th Avenue and left-turning drivers on southbound US 60.

Recommendations

- Install on-street parking pavement markings
- Install directional signage and thermoplastic shield markings for SR 7 and US 60 on eastbound 5th Avenue
- Install directional signage to SR 7 / Proctorville and 5th Avenue / Guyandotte for left-turning vehicles on southbound US 60
- Install ADA ramp in northwest quadrant
- Install "Yield to Pedestrians" sign at crosswalk at ramp to SR 7

US 60 at 8th Avenue

General Observations

- Channelized right-turn lane on eastbound 8th Avenue is stop-controlled.
- Drivers must look back over their left shoulder when turning right onto US 60.
- Topography prohibits the addition of a right-turn acceleration lane on southbound US 60.

Recommendations

- Install signal for right-turn on eastbound 8th Avenue with an overlap phase coinciding with the northbound left-turn phase and the westbound left-turn phase

US 60 at 21st Street

General Observations

- "Except When Turning Right" sign under stop sign on northbound 21st Street is confusing.
- Limited sight distance is available for vehicles turning left or traveling through on northbound 21st Street.
- A similar intersection exists to the south at Chestnut Street and 21st Street.

Recommendations

- Signalize intersection with northbound right-turns and westbound left-turns as main movements:
  - May also be implemented at Chestnut Street and 21st Street intersection to the south

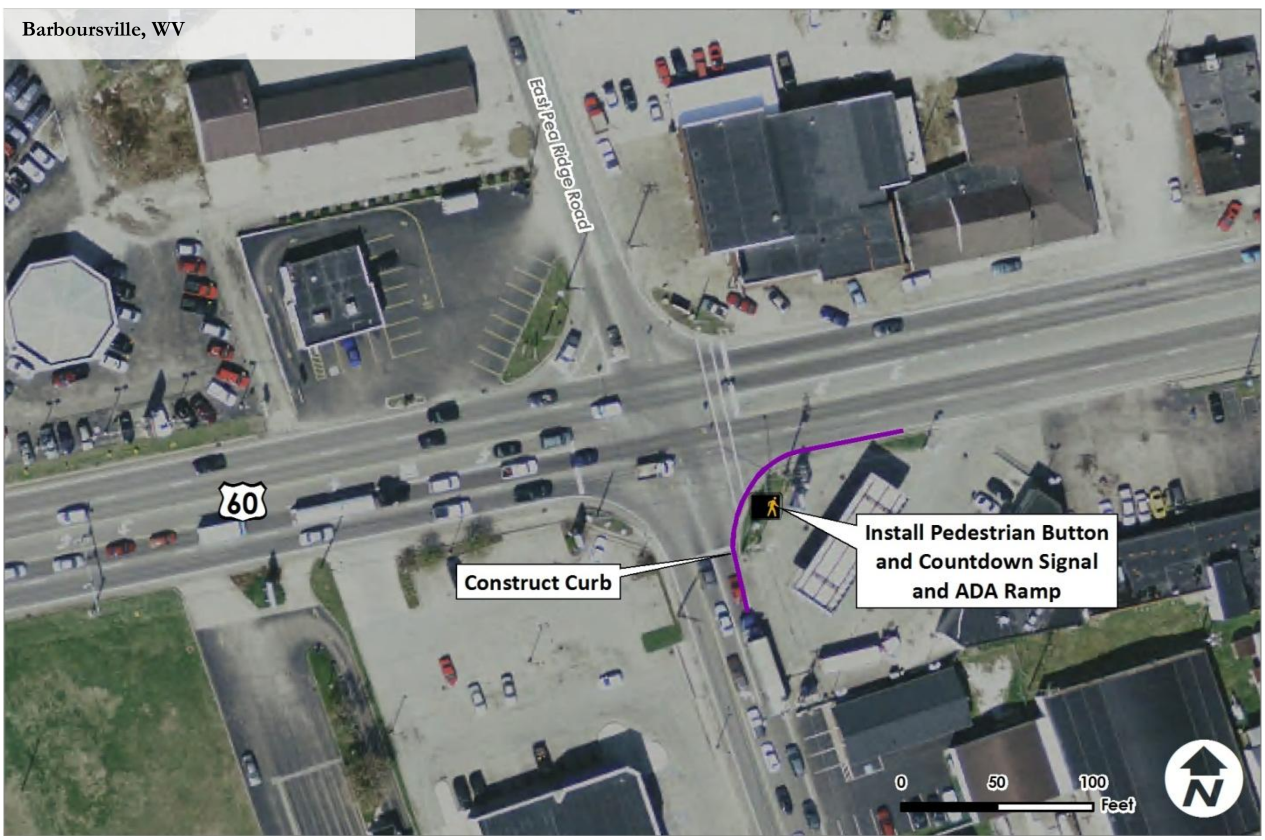
US 60 at East Pea Ridge Road

General Observations

- Several driveways are in proximity of intersection.
- Southern terminus of eastern crosswalk is obstructed by a curb and utility poles.

Recommendations

- Construct curb to delineate driveway access
- Construct ADA ramp in southeast quadrant
- Install pedestrian button and countdown signal



WV 152 at WV 75

General Observations

- No gates exist at at-grade railroad crossing.

Recommendations

- Consider installing railroad crossing gates if train volumes increase
- Replace three-section signal head with five-section signal head for right-turn lane on southbound WV 152 to allow right-turn overlap with eastbound phase
- Consider adding a preempted right turn prohibition for southbound traffic
- Construct right-turn lane on eastbound WV 75

Security Element

Through the adoption of SAFETEA-LU and subsequently MAP-21, the federal government established security as an independent planning factor for consideration in long-range transportation plans. The section that follows provides an overview of existing transportation security while making recommendations for future improvements.

The KYOVA MPO is tasked with considering security at a regional level, which is a logical first step to ensuring protection at the local level. The multimodal recommendations established by the MPO address the key security considerations mentioned in the introduction to this chapter: evacuation routes for communities potentially affected by flooding, failure of sensitive facilities, protection and maintenance of bridges, and the safeguard of highway transit and freight operations. A selection of these considerations is described in more detail below. Each of the considerations should continue to be a focus of the KYOVA Policy Committee.

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 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 Ohio and West Virginia. 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.

Four Categories of Security

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.

Emergency Response and Fire Protection

Natural or man-made community emergencies can occur at any time. The Emergency Management Departments of Lawrence County, Ohio and Wayne County and Cabell County, West Virginia 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).

Evacuation Routes

Natural emergencies such as earthquakes, floods, fire, 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 study area are critical for area access.

Bridges

The major bridges and viaducts within the study 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:

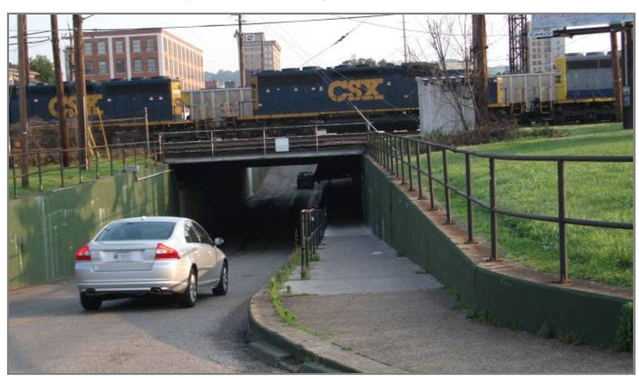
- Ironton Bridge Road across the Ohio River (Ironton-Russell Bridge)
- 12th Street across the Ohio River (Ben Williamson Memorial Bridge / 12th Street Bridge)
- US 60 across the Ohio River (Simeon Willis Memorial Bridge)
- US 52 across the Ohio River (West Huntington Bridge / West End Bridge / West 17th Street Bridge / Nick Joe Rahall II Bridge)
- 2nd Street (SR 527) across the Ohio River (Robert C. Byrd Bridge)
- SR 775/SR 106 across the Ohio River (East Huntington Bridge / East End Bridge / Frank Gatski Memorial Bridge / 31st Street Bridge)
- Chestnut Street / 35th Street (US 60) across the Big Sandy River
- 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

Viaducts

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.



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.

Sufficiency Ratings

Bridges inspected by WVDOT and ODOT are checked for sufficiency every two years as required by the FHWA. These reviews produce a sufficiency rating for each bridge. Per FHWA's Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges, a bridge's sufficiency rating calculates four separate factors to obtain a numeric value indicative of bridge sufficiency to remain in service. Bridges with a sufficiency rating of 50.0 or below qualify for federal replacement funds while bridges with a sufficiency rating of 80.0 or below qualify for federal rehabilitation funding. A summary of the bridges in the KYOVA study area with bridge sufficiency ratings of below 80.0 is provided on this page.

Sufficiency Ratings of 80 and Below

Cabell County, WV

- 202 bridges countywide
  - 33 bridges with ratings below 50
  - 54 bridges with ratings between 50 and 80

Wayne County, WV

- 157 bridges countywide
  - 29 bridges with ratings below 50
  - 54 bridges with ratings between 50 and 80

Lawrence County, OH

- 348 bridges countywide
  - 32 bridges with ratings below 50
  - 94 bridges with ratings between 50 and 80

Structurally Deficient/Functionally Obsolete

Structurally deficient bridges refer to structures at least 10 years old in relatively poor condition or that cannot carry sufficient loads due to its design or deterioration. Functionally obsolete bridges refer to structures that can no longer adequately serve existing traffic due to design limitations such as being too narrow, poorly aligned, or unable to carry proper loads. **Tables 4.4** and **4.5** summarize the bridges with sufficiency ratings of 50.0 or less for West Virginia and Ohio, respectively.

Table 4.4 – Bridges with Sufficiency Ratings of 50.0 or Below (West Virginia)

Route	Feature Intersected	Length	Year Built	Sufficiency Rating	Category
CR 31 (McComas Road)	Trace Creek	100.7	1923	2.0	Structurally Deficient
8th Street Viaduct	CSX Railroad	58.5	1920	2.0	Structurally Deficient
CR 25/11 (Girl Scout Camp Road)	Mud River	121.7	1965	17.0	Structurally Deficient
CR 31 (McComas Road)	Tom Creek	101.2	1923	17.0	Structurally Deficient
CR 43 (Long Branch Road)	Long Branch	25.5	1940	17.0	Structurally Deficient
Wilson Court	Fourpole Creek	44.7	1920	19.0	Structurally Deficient
Whitaker Boulevard West	Fourpole Creek	43.6	1921	21.0	Structurally Deficient
CR 31 (McComas Road)	Cavill Creek	100.2	1923	22.0	Structurally Deficient
Cedar Drive	Mud River	191.0	1977	23.5	Structurally Deficient
WV 10	Heath Creek	42.8	1936	26.5	Structurally Deficient
5th Avenue	Guyandotte River	485.8	1926	27.0	Structurally Deficient
Madison Avenue/Piedmont Road	Fourpole Creek	97.7	1928	27.6	Structurally Deficient
Howell Mill-Union Ridge Road	Spurlock Creek	36.2	1979	28.0	Structurally Deficient
5th Street	Fourpole Creek	80.9	1921	29.5	Structurally Deficient
CR 10/11 (Melissa Drive)	Left Fork Davis Creek	30.3	1930	31.4	Structurally Deficient
16th Street Entrance Ramp	Fourpole Creek	148.9	1965	31.8	Structurally Deficient
16th Street Exit Ramp	Fourpole Creek	159.0	1965	32.0	Structurally Deficient
CR 1 (Edmonds Branch Road)	Big Cabell Creek	37.7	1982	35.9	Structurally Deficient
CR 17 (Blue Sulphur Road)	Sevenmile Creek	30.0	1979	36.0	Structurally Deficient
CR 25 (East Mud River Road)	Charley Creek	32.0	1929	38.5	Structurally Deficient
WV 10	Smith Creek	28.2	1950	39.5	Structurally Deficient
Green Valley Road	Fourpole Creek	39.8	1940	39.5	Structurally Deficient
CR 9 (Newmans Branch Road)	Mill Creek	31.9	1931	40.5	Structurally Deficient
US 60 (Midland Trail)	CSX Railroad	1300	1932	41.2	Structurally Deficient
CR 15 (Glendwood Road)	Right Fork Lower Creek	32.3	1922	41.5	Structurally Deficient
I-64	US-52	146.0	1964	41.6	Structurally Deficient
CR 25 (East Mud River Road)	Big Twomile Creek	33.7	1943	42.9	Structurally Deficient
CR 68 (Merritts Creek Road)	Merritt Creek	30.1	1950	45.5	Structurally Deficient
CR 7 (Nine Mile Road)	Ninemile Creek	30.6	1945	46.5	Structurally Deficient
WV 10	Left Fork of Heath Creek	23.1	1940	47.8	Structurally Deficient
12th Street	Fourpole Creek	45.8	1927	49.1	Functionally Obsolete
CR 29 (Fudges Creek Road)	Fudges Creek	34.2	1929	49.2	Functionally Obsolete
5th Street	I-64	350.7	1963	49.9	Structurally Deficient

Table 4.5 – Bridges with Sufficiency Ratings of 50.0 or Below (Ohio)

Route	Feature Intersected	Length	Year Built	Sufficiency Rating	Category
93	Ohio River and N&W RR	731.8	1922	6.9	Structurally Deficient
5th Street	Storms Creek	-	-	9.3	Structurally Deficient
C0004	Cannons Creek	42.0	-	16.2	Structurally Deficient
C0004	Cannons Creek	23.0	-	24.8	Structurally Deficient
C0022	Little Storms Creek	39.0	-	25.5	Structurally Deficient
T0225	Little Guyan Creek	-	-	25.9	Structurally Deficient
C0052	Turkey Fork Creek	26.0	1940	26.3	Structurally Deficient
C0013	Long Creek	23.0	-	27.9	Structurally Deficient
C0002	Bent Creek	16.0	-	33.1	Structurally Deficient
C007B	Blackfork	32.0	-	33.9	Structurally Deficient
C0010	Pine Creek	93.0	1934	34.5	Structurally Deficient
C0056	Branch of Lick Creek	21.0	1941	34.6	Structurally Deficient
C0029	Storms Creek	53.0	1940	35.8	Functionally Obsolete
C0144	Charley Creek	21.0	1941	37.0	Structurally Deficient
52	Solida Creek	35.0	1959	38.8	Structurally Deficient
775	Trib of Wolf Creek	-	1984	39.3	Functionally Obsolete
C0051	Slab Fork	31.0	1939	40.1	Structurally Deficient
C0005	Elkins Creek	23.0	-	43.8	Structurally Deficient
C0056	Ice Creek	23.0	1941	45.3	Structurally Deficient
TOWIN	Solida Creek	33.0	1900	45.5	Structurally Deficient
C0017	Symmes Creek	-	-	46.4	Functionally Obsolete
141	Long Creek	42.0	1915	46.7	Structurally Deficient
T0110	Long Creek	-	-	47.0	-
243	Leatherwood Creek	19.0	1948	47.2	Functionally Obsolete
C0005	Branch of Elkins Creek	21.0	-	47.3	-
C0033	Hales Creek	37.0	-	47.5	Functionally Obsolete
7	Buffalo Creek	31.5	1959	47.6	Structurally Deficient
217	Stream	-	1965	47.9	Structurally Deficient
T0113	Branch of Cannons Creek	-	-	48.3	Structurally Deficient
T0113	Branch of Cannons Creek	-	-	48.6	Functionally Obsolete
C0022	Storms Creek	-	1959	48.8	Structurally Deficient
Lawrence Hill Road	Cannons Creek	31	1908	49.9	Structurally Deficient

Additional Considerations

Two additional considerations relevant to the safety and security of the KYOVA region's transportation network include congestion management/incident management and the results of a 2007 safety study for US 52 and SR 7 in Lawrence County.

Systems Management

Transportation systems management (TSM) and intelligent transportation systems (ITS) are additional tools available to alleviate traffic congestion and improve safety. The *KYOVA 2040 MTP* refers to these tools as systems management approached. These techniques have been deployed throughout the world, including the KYOVA region. Additional techniques are scheduled to go live in the region in the years to come. A description of the existing systems as well as programmed and planned systems follows.

KYOVA relies on the West Virginia, Ohio, and Kentucky Statewide ITS Architectures and coordinates with WVDOT, ODOT, and KYTC 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. During the project selection process, KYOVA considers ITS technologies as potential solutions to transportation needs in the MPO area.

Existing Systems Management Approaches

In the KYOVA study area, three primary systems management approaches are in use:

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

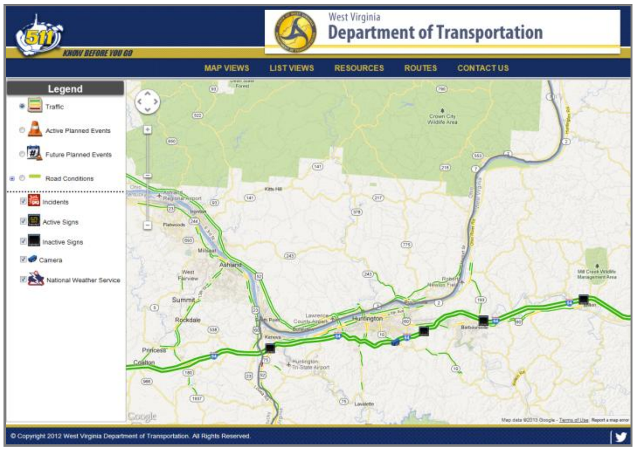
These approaches are detailed on the pages that follow.

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

In the fall of 2012, the system introduced the West Virginia 511 website and voice activated traveler information system. The image below is screen shot from the website version of the traveler information porthole (www.wv511.org). In addition to the main traffic management center (TMC) located in the Capitol Complex, satellite TMCs are located at the WV Turnpike Authority and the Rahall Transportation Institute in Huntington. ODOT has a similar system called Buckeye Traffic, with traveler information accessible at www.ohgo.com.



In the KYOVA study area, the primary WVDOH ITS deployment is along the I-64 corridor from the Cabell County/Putnam County border to the West Virginia/Kentucky state line. This deployment includes the following dynamic message signs (DMS), closed circuit television units (CCTV), and road weather information system monitoring locations (RWIS).

- I-64 DMS
    - MP 0.4 (EB)
    - MP 27.5 (EB)
    - MP 13.3 (EB)
    - MP 27.5 (WB)
    - MP 13.3 (WB)
- I-64 CCTV
    - Milton (MP 28)
    - Hal Greer Boulevard (MP 11)
- I-64 RWIS
    - Twelve Poole Bridge (MP 2.3)
    - Edgewood Overpass (MP 5.32)
    - Hal Greer Boulevard (MP 22)
    - Milton (MP 28)

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 encompasses 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.

Programmed Deployments

Several systems management improvements have been identified in the West Virginia and Ohio STIPs for the next 4 to 6 years.

2014-2017 KYOVA TIP

The KYOVA TIP includes improvements in various stages of completion (programmed, under construction, or recently implemented). These include:

- WVDOH Statewide ITS
  - CCTV: I-64 east of Milton (MP 18.4)
  - CCTV: I-64 at exit 20B (East Mall Road) – westbound off-ramp, southeast quadrant
- City of Huntington Computerized Signal System

Ironton Traffic Flow Study

The City of Ironton recently completed an operations study and consequent design and is about to commence construction of a computerized signal system and to enhance signing and turn radii in the City. The locations included in the project include:

- Signal, poles, and light upgrades (6 locations)
  - Park Avenue (SR 93) and 6th Street
  - Park Avenue (SR 93) and 5th Street
  - Park Avenue (SR 93) and 4th Street
  - Park Avenue (SR 93) and 3rd Street
  - 2nd Street and Adams Street
  - 3rd Street and Adams Street
- Turning radii enhancements (7 locations)
  - Liberty Street at Pine Street (NW quadrant)
  - 9th Street at Spruce Street (SW quadrant)
  - 3rd Street at Lorain Street (NE and SE quadrants)
  - 3rd Street at Jefferson Street (SW quadrant)
  - 2nd Street at Jefferson Street (NE quadrant)
  - 2nd Street at Park Avenue (SE quadrant)
  - 2nd Street at Adams Street (SW quadrant)
- Centralized Computerized Signal System

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 study 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 shown in **Figure 4.2** and 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 "I64 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

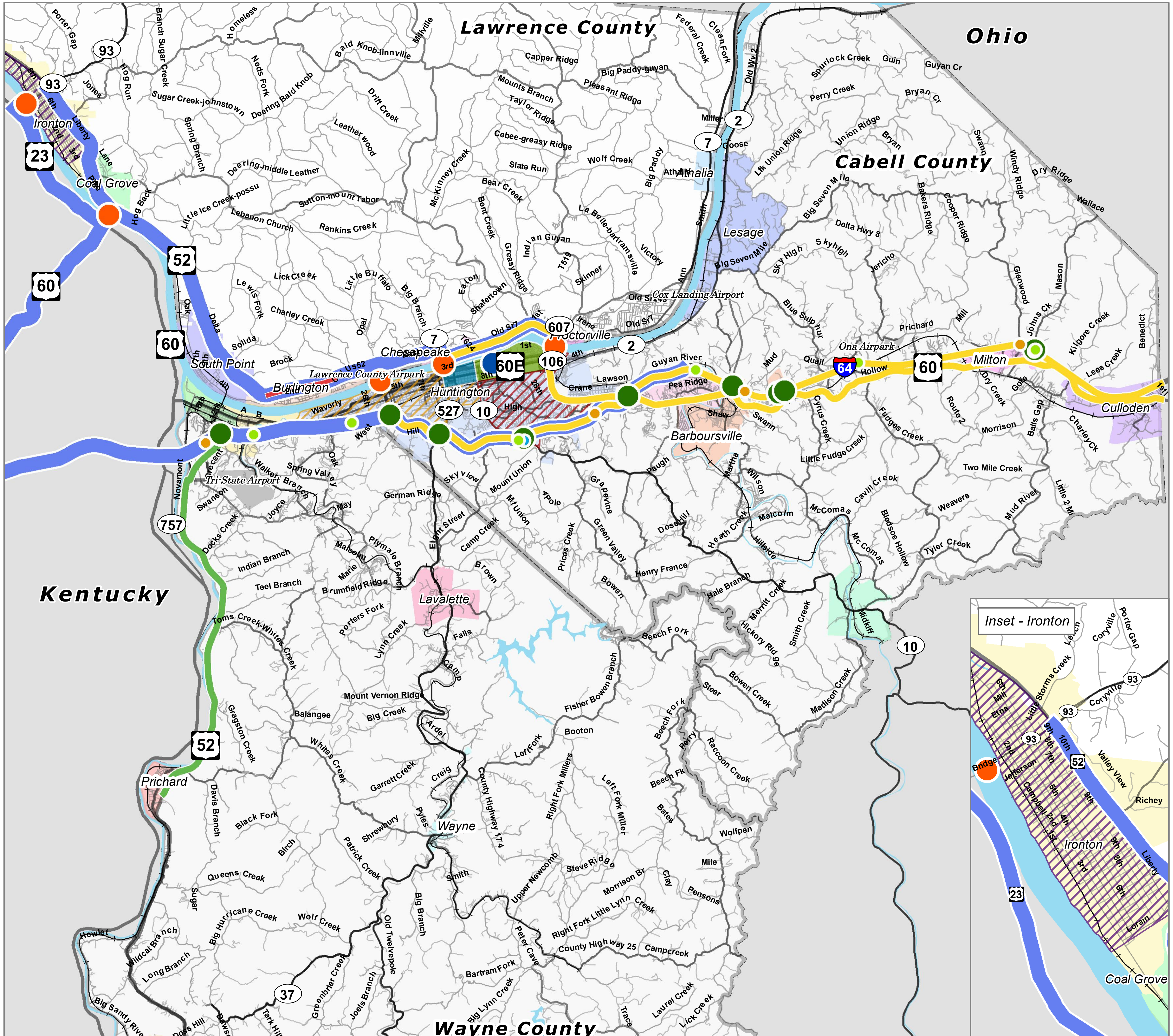
Back of Queue Detection and CCTV Surveillance

- 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)
- Ironton/Russell Bridge

2040 Metropolitan Transportation Plan

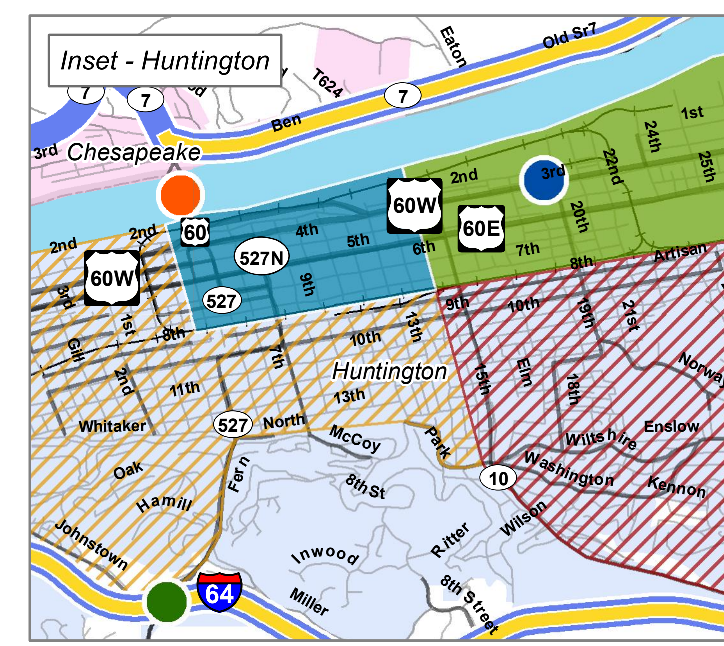
BRIDGING THE GAP IN REGIONAL TRANSPORTATION KYOVA INTERSTATE PLANNING COMMISSION

Figure 4.2



Incident Management Improvements

- Existing CCTV
- Existing DMS
- Existing RWIS
- I-64 Interchange
- Existing Huntington TOC
- Video Surveillance / Queue Detection
- Closed Loop Signal System
- US 60/I-64/US 52/US 23 Incident Management Corridor
- US 60/I-64 Integrated Corridor Management
- Freight Management Corridor
- Ironton ATMS
- Huntington ATMS - Eastern Phase (Future)
- Huntington ATMS - Western Phase (Future)
- Huntington ATMS - Arterial Project (Existing)
- Huntington ATMS - Downtown Project (Existing)



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KYOVA INTERSTATE PLANNING COMMISSION

Kimley-Horn and Associates, Inc.

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Traffic and Safety Study for US 52 and SR 7

The Traffic and Safety Study for US 52 and SR 7 in Lawrence County, Ohio (completed in July 2007) focused on mobility and safety by examining current conditions, reasonably forecasting future conditions, and evaluating recommendations for both corridors in the study area. Several steps informed the understanding of existing conditions and existing and forecasted deficiencies:

- Obtaining data for the corridor including cross-sections, median types, posted speeds, and intersection geometrics, as well as existing link count and state crash data.
- Identifying deficiencies along the corridor, at specific locations (both safety and congestion related), and at points of interest/concern. Deficiencies included safety, congestion, access, and mobility constraints.
- Analyzing high crash locations along the US 52/SR 7 corridor and then prioritizing locations to help with selecting potential highway safety projects.
- Examining expected capacity deficiencies along the corridor using the KYOVA travel demand model.
- Conducting an operational deficiency analysis for intersections along the US 52/SR 7 corridor.

Based on the deficiency analysis, locations along the corridor needing traffic and safety improvements to mitigate existing and projected shortcomings were identified. The alternatives ranged in complexity from intersection level signalization improvements to the construction of new Ohio River crossings, and ranged in estimated construction price from $65,000 to $122,000,000. The study grouped proposed alternatives geographically along the corridor and chronologically through the planning horizon. The geographic regions included three sections: Western, Central, and Eastern. The chronological groupings included near term (zero to five years), short term (five to ten years), medium term (ten to twenty years), and long term (greater than twenty years). The detailed schematics of the improvements were shown in a series of figures (Figures 14, 15, and 16). These figures are reprinted on the pages that follow.

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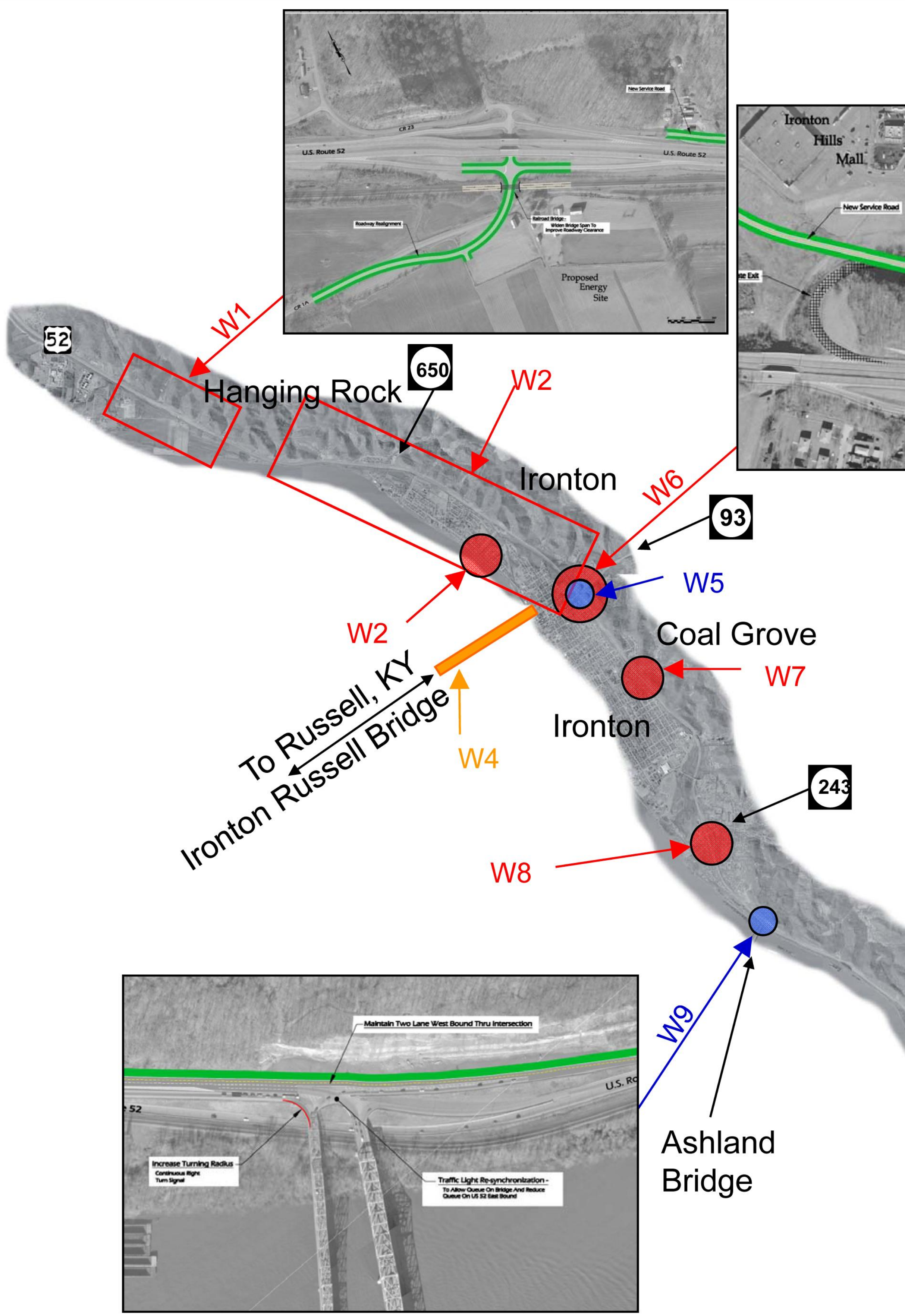

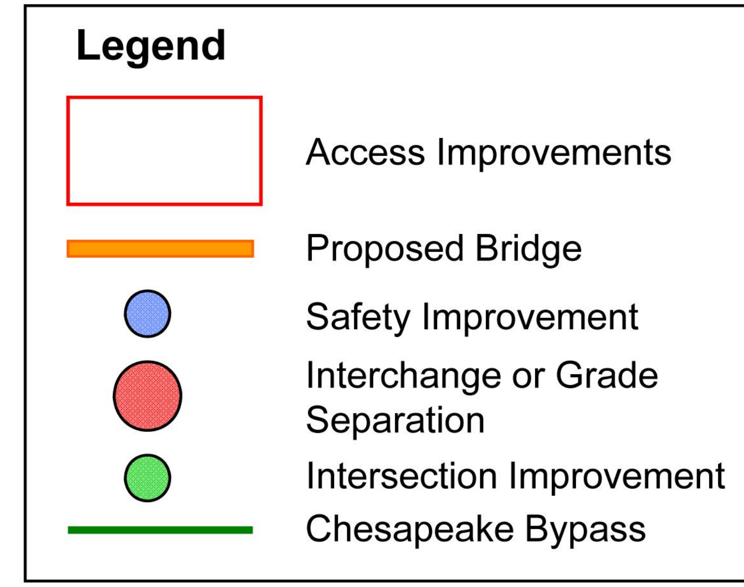

Western Corridor	W1	CR 1A/CR 23 Interchange and US 52 Access	This improvement includes widening the bridge span over Old US 52 (CR 1A) to improve roadway clearance, realigning the Old US 52 (CR 1A) approach to the interchange to improve sight distance, creating a new service road north of US 52 (connects to Patrick Street T-117), and eliminating one highway access point. The consolidation of access to US 52 is anticipated to enhance US 52 mobility
	W2	US 52 Access Improvements Location 1	This improvement includes managing access to US 52 between Rock Hollow Rd (CR 128) and Park Dr (SR 93) by: **1.** Creating a new service road between Happy Hollow Dr (T-330) and Scioto Ave, eliminating two highway access points **2.** Eliminating highway access at Township Rd 277 **3.** Improving an existing service road between Orchard Rd (T 142) and Little Storms Creek Rd (CR 22), eliminating one highway access point **4.** Creating a new service road between Little Storms Creek Rd (CR 22) and Park Dr (SR 93)
	W3	2nd Street Bridge Replacement	This improvement includes replacing the 2nd Street Bridge that spans an inlet of the Ohio River between Orchard Street and Sycamore Street. This location is prone to flooding from the Ohio River, and the existing bridge is routinely closed when water levels rise.
	W4	Ironton-Russell Bridge	This improvement includes reconstructing the Ironton-Russell Bridge over the Ohio River. The bridge will maintain and enhance the connection between Ironton, OH with Russell, KY.
	W5	Park Drive (SR 93)	The predominant crash pattern at this location is rear-end crashes primarily at the ramp termini. The proposed improvements include upgrading the existing traffic signals to a three-phase Texas diamond configuration and adding warning signage.
	W6	SR 93 Interchange	This improvement includes converting the existing partial cloverleaf interchange to a diamond configuration.
	W7	Campbell Drive (SR 141) Interchange	This improvement includes the complete signalization of the interchange and intersection as well as the addition of two turning lanes.
	W8	SR 243 Interchange	This improvement includes signalizing the interchange at Marion Pike (SR 243).
	W9	Ashland Bridge (US 60) Ramp Termini	The predominant crash pattern at this location is a combination of rear-end and loss-of-control collisions due to heavy queuing at the signalized intersection. The proposed improvements include signal retiming and optimization and construction of an additional westbound thru lane.

Traffic and Safety Study For US 52 and SR 7

Figure 14 – Western Corridor Alternatives

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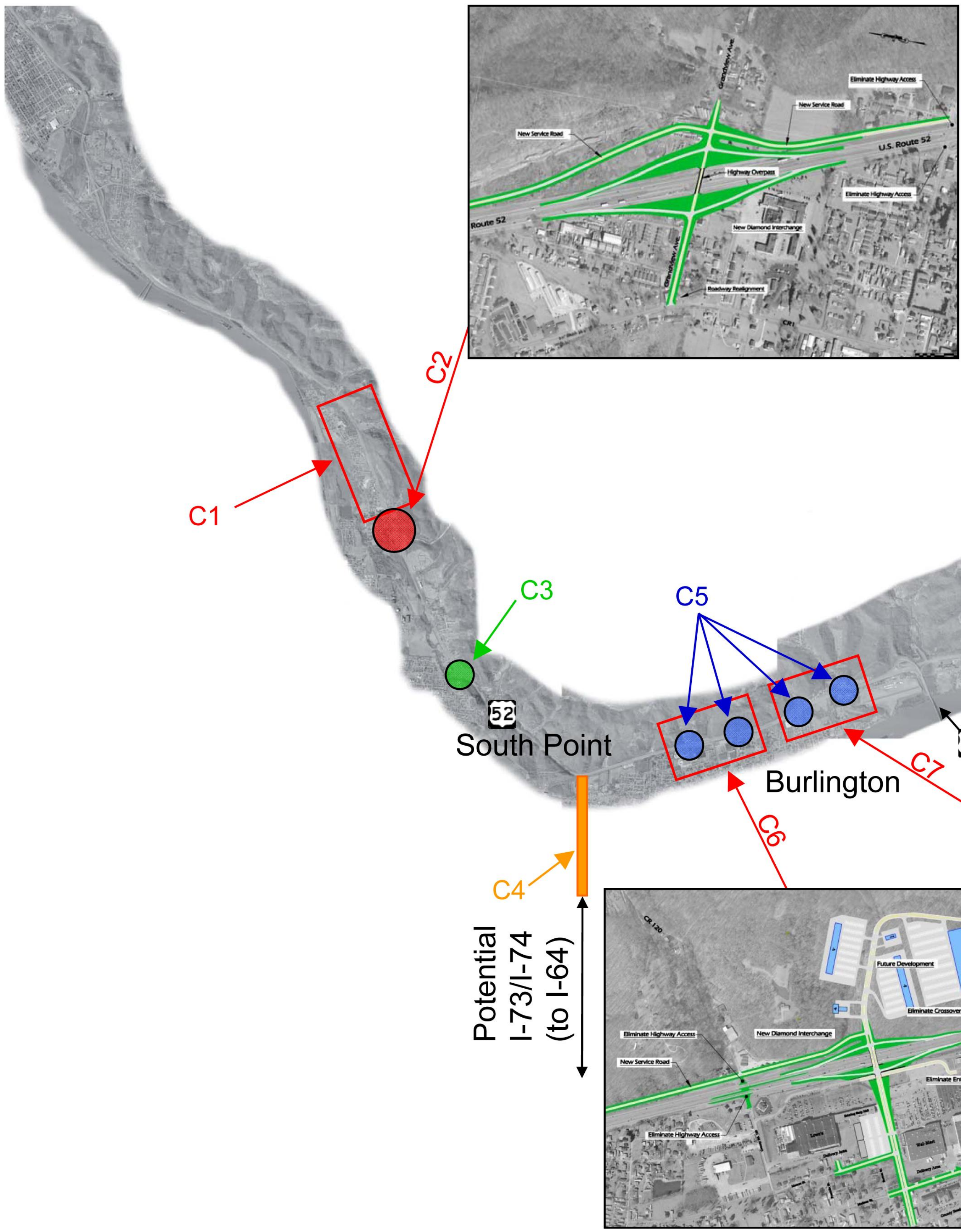

US 52 Bridge

Central Corridor	C1	US 52 Access Improvements Location 2	This improvement includes closing highway access at Hog Back Road (T-268) and CR 56, as well as constructing a new service road between Lick Creek Rd (CR 15) and Grandview Ave.
	C2	Grandview Ave/Delta Ln Interchange	This improvement includes constructing a diamond interchange at the existing Grandview Ave intersection, constructing a new service road north of US 52 connecting Grandview Ave and Delta Ln, and eliminating highway access at Delta Ln.
	C3	Solida Rd (CR 18) Interchange	This improvement includes signalizing the eastbound ramp at the existing Solida Rd (CR 18) interchange.
	C4	I 73/I 74 Bridge	This improvement includes the construction of a new bridge over the Ohio River. The bridge would span from I-64 in West Virginia to South Point, Ohio. Exact location under consideration.
	C5	Burlington-Macedonia Corridor Improvements	The predominant crash pattern at this location is rear-end collisions between the signals and angle collisions at the intersections. The proposed improvements include creating a progression-controlled signal system that would create more consistent traffic flows along the corridor.
	C6	Burlington Retail Area Interchange	This improvement includes constructing a diamond interchange between the Burlington-Macedonia Rd (CR 120) and Wal-Mart Way (CR-410) intersections. Highway access would be eliminated at these locations. This improvement would require the construction of a new service road between Dallas-Matthew Pike and Burlington-Macedonia Rd (CR 120), eliminating highway access at Dallas-Matthew Pike.
	C7	Charley Creek Rd (CR 144) Interchange	This improvement includes constructing a diamond interchange at the existing Charley Creek Rd intersection. Highway access would be eliminated at Sandusky Rd (CR 276). This improvement would require the construction of new service roads north of US 52, connecting to CR 406 on either side, as well as realigning Old US 52 (CR 1) south of US 52.

Legend

- Access Improvements
- Proposed Bridge
- Safety Improvement
- Interchange or Grade Separation
- Intersection Improvement
- Chesapeake Bypass

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Traffic and Safety Study For US 52 and SR 7

Figure 15 – Central Corridor Alternatives

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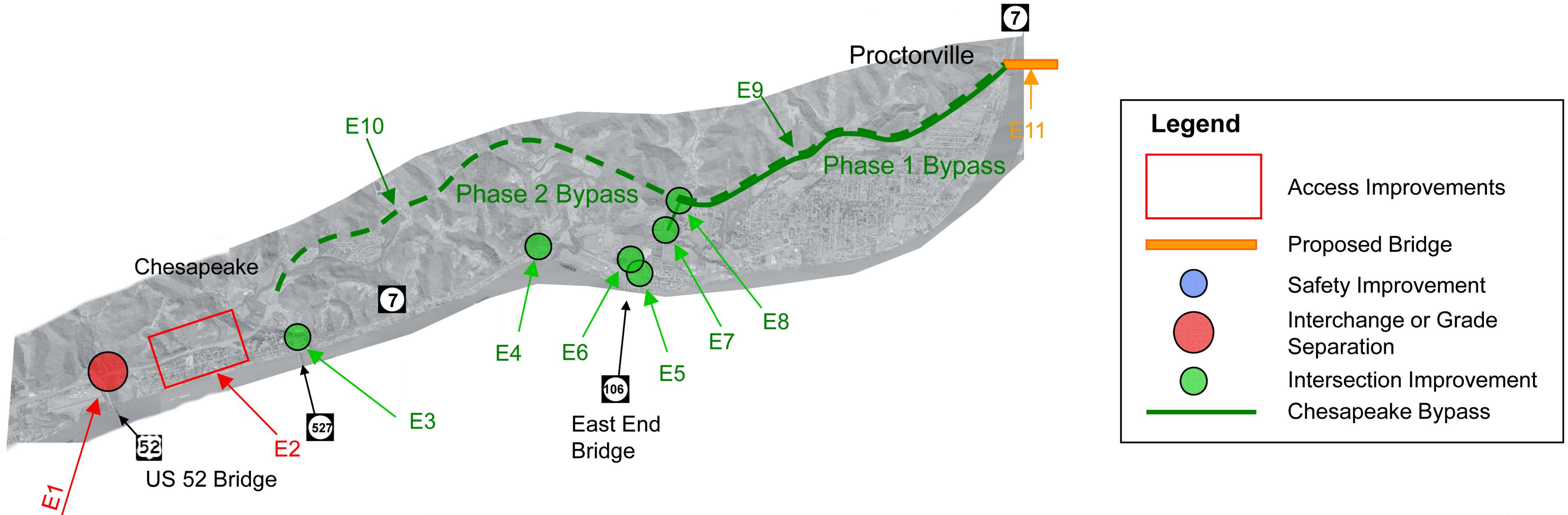

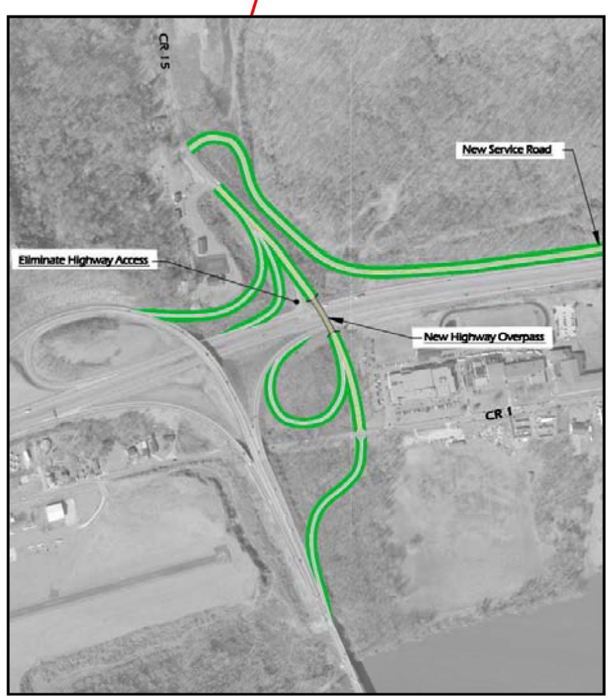

Eastern Corridor	E1	Buffalo Creek Rd (CR 15) Overpass	This improvement includes constructing a new highway overpass from Buffalo Creek Rd (CR 15) to Old US 52 (CR 1), removing a highway access point along US 52.
	E2	SR 7 Access Improvements Location 1	These improvements include managing access to SR 7 by constructing two new service roads: 1. Between Kimball Ln (T-287) and Tallow Ridge Rd (CR 124), eliminating two highway access points 2. Between Tallow Ridge Rd (CR 124) and Big Branch Rd (CR 31), creating alternate access between these two routes
	E3	3rd Avenue and SR 7 (6th Street Bridge)	This improvement includes constructing free flow right-turn lanes in the eastbound and westbound approaches. Modify signal cycle length.
	E4	SR 7 and SR 243 (Bradrick)	This improvement includes constructing a free flow right-turn lane on southbound SR 243.
	E5	SR 775 and Old SR 7	This improvement includes constructing free flow right-turn lanes on the southbound and westbound approaches. Protected phasing should be given to northbound and southbound left-turn movements.
	E6	East End Bridge and SR 775 Ramp	This improvement includes widening SR 775 to provide a second southbound thru lane and a second westbound left turn lane to accommodate heavy volumes of traffic using the East End Bridge to cross the Ohio River.
	E7	SR 775 and Irene Road	This improvement includes modifying the signal timing to improve vehicle progression.
	E8	SR 775 and Chesapeake Bypass	This improvement includes constructing dual left-turn lanes on the westbound approach, as well as free flow right-turn lanes on the northbound and eastbound approaches.
	E9	Chesapeake Bypass Phase 1C	This improvement includes the construction of additional thru lanes and grade separated interchanges at SR 775 and Kinley Avenue along the Chesapeake Bypass between SR 775 and SR 7 (existing Phase 1A alignment).
	E10	Chesapeake Bypass Phase 2	This improvement includes completion of the full alignment of the Chesapeake Bypass from the SR 775 interchange to an interchange at SR 152N. The alignment will be built as four lanes divided with grade separated intersections.
	E11	Merrick Creek Bridge	This improvement includes the construction of a new bridge over the Ohio River. The bridge would span from the Merrick Creek Connector in West Virginia to the eastern terminus of the Chesapeake Bypass in Ohio.

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Introduction

Livable communities balance travel between modes by accommodating pedestrians and cyclists for both recreational and utilitarian trips. The increasing demand for bicycle and pedestrian facilities as expressed by the public has culminated in an enhanced focus on these modes during the transportation planning process. Sometimes commuters find cycling more efficient, affordable, and convenient than traveling by automobile on congested urban streets. Although most people in the United States choose to travel by automobile, cycling and walking remain the best or only option for some people.

The Bicycle and Pedestrian Element of the *KYOVA 2040 Metropolitan Transportation Plan* emphasizes how local decisions can enhance safety and mobility for cyclists and pedestrians in the region's urban centers and rural routes. The *KYOVA 2040 MTP* blends efforts and recommendations from previous planning efforts with the other elements of the MTP, notably the roadway element. This chapter begins with an overview of the bicycle and pedestrian framework and planning context for this element. The heart of the Bicycle and Pedestrian element is a series of facility, program, and policy recommendations.

Bicycle and Pedestrian Framework

The benefits of cycling and walking are well documented. Taking trips by bike or on foot rather than driving improves the environment, promotes good health, saves money, eases the burden on roadways, and enhances the livability of a community. Despite these benefits, the transition from potential use of non-motorized transportation to its reality is not easy. This is particularly true given the geography of the KYOVA region and the barriers to connectivity that exist in downtown Huntington and elsewhere. However, throughout the public involvement process residents noted a need for improved bicycle and pedestrian facilities and programs to balance the transportation network. It should be noted that the inclusion of bicycle and pedestrian facilities on upgrades of existing roadways and newly constructed roadways will contribute to friendliness of the study area to bicyclists and pedestrians.

Five E's of Bicycle & Pedestrian Planning

Bicycle and pedestrian recommendations from the *KYOVA 2040 MTP* can be grouped into one or more of the following interrelated components.

- **Engineering**—Engineering refers to the network of pathways that must be planned, designed, and constructed.
- **Education**—Once facilities are in place, cyclists and pedestrians must be made aware of the location and proper use of the facilities as well as the destinations they connect.
- **Encouragement**—People need to be encouraged to bicycle and walk to validate public investment.
- **Enforcement**—To ensure safety of all users and the long-term sustainability of the bicycle and pedestrian system, the formal and informal "rules of the road" must be enforced.
- **Evaluation**—A regular review of the bicycle and pedestrian network should include an assessment of cycling and walking activity, safety analysis, and ways the community continues to work to improve these numbers.

Types of Users

To integrate the bicycle and pedestrian network into the overarching vision for the transportation system, the types of users and facilities must be understood. Types of users can be described in terms of trip purpose and skill level. Different reasons for traveling by bike or foot, combined with the varying levels of skill, require a flexible and responsive approach to bicycle and pedestrian planning. Bicycling and walking often falls into two distinct categories based on trip purpose:

- **Utilitarian, non-discretionary travel.** Often, children, persons with disabilities, and many elderly are not able to drive. Others simply cannot afford an automobile. For these people, the only option for required daily trips may be transit, bicycling, and/or walking. Other members of the population may choose non-motorized travel for their utilitarian trips to promote physical fitness, environmental stewardship, or cost savings.
- **Recreational, discretionary travel**. Walking and bicycling are excellent methods of exercise, helping residents establish a healthy lifestyle while enjoying the livability of their communities.

Both types of trip purposes require a complete network of bicycle and pedestrian facilities and programs that educate and encourage current and future users. Cyclists also can be categorized based on their level of riding skill.

- **Advanced cyclists** are usually the most experienced on the road and can safely ride on typical arterials that have higher traffic volumes and speeds. Most advanced cyclists prefer shared roadways in lieu of striped bike lanes and paths, but may be more willing to accept striped bike lanes when the street gutter is cleaned regularly. Although this group represents approximately 20% of all cyclists, they account for nearly 80% of annual bicycle miles traveled.
- **Basic adult cyclists** are less secure in their ability to ride in traffic without special accommodations. These cyclists are casual or new adult/teenage riders who typically prefer multi-use paths or bike lanes that reduce their exposure to fast-moving and heavy traffic. Surveys of the cycling public indicate that about 80% of cyclists can be categorized as basic cyclists.
- **Child bicyclists** have a limited field of vision while riding and generally keep to neighborhood streets, sidewalks, and greenways. On busier streets, this group likely will stay on sidewalks or off-street facilities that protect them from traffic. While riding on sidewalks generally should be discouraged, the comfort level of child and basic cyclists may warrant riding on sidewalks provided they yield to pedestrians.

The transition from basic to advanced cyclist requires facilities that accommodate users of all skill levels.

Types of Facilities

Roadways need to be designed with an eye toward both the intended use by cyclists and pedestrians and how the facility fits into a system-wide network. **Table 5.1** summarizes the major types of bicycle and pedestrian facilities.

Design considerations should also be given to ancillary bicycle facilities and amenities such as bike racks, bikes on buses and bike amenities at transit stops, and bike-friendly drainage inlets. For pedestrians, attention must be given to curb ramps as well as marked crosswalks and enhancements such as raised crosswalks, pedestrian refuge islands, and curb extensions.

Table 5.1 – Bicycle and Pedestrian Facility Overview

Striped Bike Lanes

Description

- Exclusive-use area adjacent to the outer most travel lane
- Typical width: 4' to 5' (preferred)

Target User

- Basic and Intermediate Cyclists

Estimated Cost

- $2,000 per mile (striping only)

Wide Outside Lane

Description

- Extra width in outermost travel lane
- Best on roadways with speed limits of 35 mph or higher and moderate to high daily traffic volumes
- Typical width: 14' outside lane preferred

Target User

- Advanced Cyclists

Estimated Cost

- $2,000 per mile (striping only)

Multi-Use Path

Description

- Separated from traffic and located in open space (greenway) or adjacent to road with more setback and width than sidewalks (sidepath)
- Typical width: 10' preferred; 8' in constrained areas

Target User

- All Cyclists; Pedestrians

Estimated Cost

- $220,000 per mile

Sidewalk

Description

- Dedicated space within right-of-way for pedestrians
- Should include a landscaped buffer from roadway
- Typical width: 5' preferred

Target User

- Pedestrians

Estimated Cost

- $150,000 per mile

Unpaved Trail

Description

- Formal/informal hiking trail made of dirt, mulch, or pea gravel
- Typically connects recreational and environmental features of a community
- Typical width: 5-8' footpath; 8-10' bike trail

Target User

- Off-Road Cyclists; Pedestrians; Hikers

Estimated Cost

- $10,000 to $20,000 per mile

Note: Estimated costs shown above exclude right-of-way.

Design Guidelines

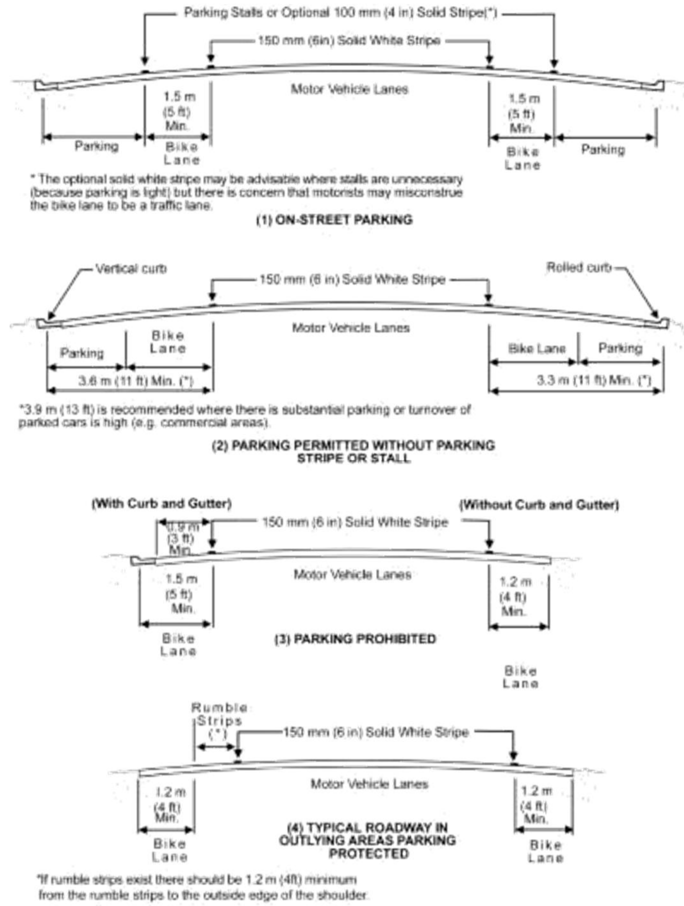
United States Code Title 23 USC 217 states:

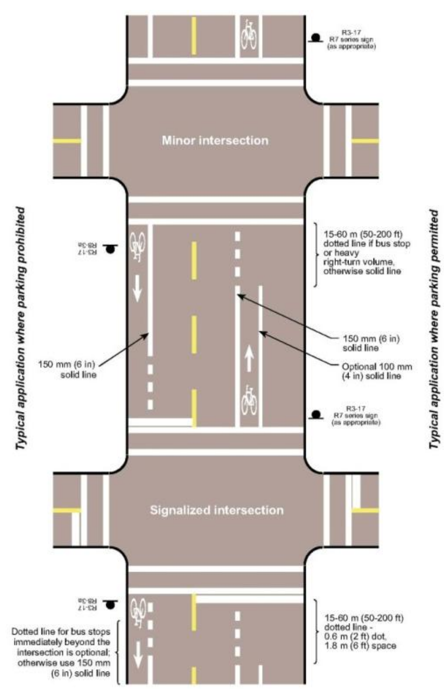
> Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities.

Recommendations that include bike paths on the pavements should be designed according to the 1999 American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities* for bicycle lane marking and the 2009 US Department of Transportation's *Manual on Uniform Traffic Control Devices* (MUTCD). The diagrams at right show a sample of the plan views and cross sections from the AASHTO *Guide for the Development of Bicycle Facilities*. These diagrams show the standard widths for bicycle lane marking with or without on-street parking as well as the treatment at intersections.

Facility designs also should reference the *Urban Bikeway Design Guide* produced by the National Association of City Transportation Officials (NACTO) to provide cities with state-of-the-practice solutions that can help create complete streets. The treatments included in this guideline are not directly referenced in the current AASHTO *Guide for the Development of Bicycle Facilities*. However, all but two treatments are permitted under the MUTCD.

Bike lane Standard Design





Facility Recommendations

Bicycling and walking are important modes of transportation in Huntington and throughout the Tri-State region. These modes are available to people of all ages and socioeconomic backgrounds. In urban areas such as downtown Huntington, the modes are efficient and convenient ways to travel. Throughout the region, recreational bicycling is gaining in popularity as expert and novice cyclists take to the scenic rural roads. Regardless of the trip purpose, bicycling and walking provide a high level of independence, flexibility, and freedom of choice relative to where you want to go and when you want to get there. A complete network of bicycle and pedestrian facilities as well as programs that educate and encourage current and future users is necessary for bicycling and walking to reach its potential as a transportation alternative in the region.

Several barriers challenge the flow of bicyclists and pedestrians, specifically to major destinations such as Ritter Park, Marshall University, and Beech Fork State Park. Based on a review of current conditions and stakeholder comments, the following issues are concerns and constraints that should be addressed as long-range transportation improvements:

- Need for bike lanes in downtown Huntington
- Connections between downtown Huntington and other municipalities/points of interest
- Viaducts and bridges
- Pedestrian crosswalks at key intersections

Recommendations to improve bicycle and pedestrian movements for the *KYOVA 2040 MTP* include bicycle lanes with pavement markings on the street, separated multi-use paths, signed bicycle routes, viaduct and bridge enhancements, sidewalk improvements, and discussion on water ferry service. These recommendations are developed to provide connections to schools, employment centers, commercial facilities, and other modes.

Connections to Destinations

Enhancing access to Huntington and the Paul Ambrose Trail for Health (PATH)—a proposed 32-mile bicycle and pedestrian trail system in Huntington—are key considerations. Few connections exist from Huntington to Ceredo and Kenova, Barboursville, Burlington, Lavalette, or Proctorville. Recommended improvements link key destination points and tie into proposed transit and water ferry routes. The recommendations also should make walking and biking to Marshall University and other area schools more attractive. A combination of recommended facilities connect:

- Schools
- Hospitals
- Parks
- Harveytown
- Kenova/Ceredo
- Barboursville
- Chesapeake
- Proctorville
- South Point
- Marshall University
- Pullman Square
- Huntington CBD
- Huntington Antiques District
- Huntington Civic Arena
- Huntington Museum of Art
- Beech Fork State Park
- Dean State Forest
- Ritter Park
- Heritage Farm

The first 10 to 12 miles of the PATH should be completed in 2013. By 2011, a one-mile section at St. Cloud's Common and several miles of Share the Road sections downtown were completed. Huntington currently is working to fund, design, and implement these proposed facilities.

- The trail along the Ohio River is under design.
- Bids were opened in October 2012 on short portions of the trail located in West Huntington, Harveytown, and Guyandotte.
- Ground was broken for a trail connection between Harveytown and Ritter Park in October 2012. Huntington City Council has approved a design contract for the bridge.

Upon completion, approximately 76% of the population of Huntington will live within one mile of the PATH.

Table of Recommendations

Figure 5.1 shows the recommended PATH network. **Figure 5.2** incorporates the PATH system into the larger regional network proposed through the KYOVA 2040 MTP. The bicycle recommendations are summarized in **Tables 5.2**, **5.3**, and **5.4** based on location and address ongoing bicycle and pedestrian projects and issues. Conceptual costs were developed for each recommended improvement. Within each table, the projects have been prioritized with consideration given to:

- Connecting origin-destination locations such as schools, parks and neighborhoods;
- Completing work on the Paul Ambrose Trail for Health (PATH);
- Addressing needs identified through public involvement and mobility assessment;
- Furthering overall goals of the plan;
- Identifying potential eligibility for federal funding programs; and
- Accessing downtown Huntington.

A column in the tables distinguishes between recommendations that are considered a part of the PATH. The tables also include recommendations from the *Downtown Huntington Access Study*. Please refer to the *Downtown Huntington Access Study* for details regarding the viaducts and greenways.

Pedestrian Recommendations

The KYOVA 2040 MTP operates at a multi-county regional scale, which makes it difficult to identify all deficiencies in the pedestrian network. While specific sidewalk recommendations are not provided in the text or on maps, the region and its jurisdiction should continue to identify and correct gaps in the pedestrian network. Many of the roadway recommendations presented in **Chapter 3** and the intersection improvements presented in **Chapter 4** will enhance the safety and convenience of traveling on foot to a variety of destinations. The *Downtown Huntington Access Study* includes specific pedestrian recommendations within its study area.

Priority Improvements

The top priorities are improvements to the 1st Street, 8th Street and 10th Street viaducts as well as ADA compliant curb ramps and crosswalks. The viaducts create a barrier with narrow walkways, dirty conditions, dilapidated handrails, and flanking vehicular traffic. These conditions create an unpleasant environment for pedestrians. ADA compliance is recommended for all intersections, including curb ramps, crosswalks, and pedestrian countdown timers. Curb ramps downtown are being improved to be ADA compliant as part of the signal coordination project. Crosswalks also are being marked. The work should be extended to other intersections throughout Huntington and include pedestrian countdown timers. In total, 56 intersections have been completed as part of signal coordination projects. An additional 65 intersections from 10th Street to the west and from Hal Greer Boulevard to the east have yet to be completed.

Other priorities include:

- Bike lanes on Hal Greer Boulevard (8th Avenue to Washington Boulevard), Veteran's Memorial Parkway, 8th Street, 3rd Avenue, 4th Avenue, 5th Avenue;
- Signed route on 5th Street and 14th Street as part of the PATH;
- Improvements to 16th Street viaduct;
- Bike lanes on US 60, 29th street, WV 2, SR 7, and 1st Street;
- Trails and walkways in Ironton; and
- Signed bike routes in Barboursville and Ironton.

Funding Considerations

Tables 5.2, **5.3**, and **5.4** also include conceptual costs and potential funding sources. The July 2011 Ohio Department of Transportation's Procedure for Budget Estimating was used to develop conceptual costs. While funding through other programs cannot be guaranteed, the potential sources are shown as a way to maximize implementation of the recommendations. Funding sources available for bicycle lanes and multi-use paths include:

- National Highway System (NHS)
- Surface Transportation Program (STP)
- Transportation Alternative Program (TA)
- Bridge (BR)
- Highway Safety Improvement Program (HSIP)
- Congestion Mitigation/Air Quality Program (CMAQ)
- Federal Transit Capital, Urban & Rural Funds (FTA)
- Scenic Byways (SB)

When possible, recommendations should be combined with planned roadway improvement or safety projects. The project sheets in **Chapter 3** include provisions for bicyclists and pedestrians. NHS, STP, and CMAQ funding that are being used through KYOVA for maintenance or safety funds can be applied to include the bicycle and pedestrian recommendations. Coordination among organizations and local agencies can help pool resources to advance core projects.

Approximately 10% of the states' National Highway Performance Program, Surface Transportation Program, and Highway Safety Improvement Program are for the Transportation Alternative Program. The WVDOH and ODOT have an electronic process for Transportation Enhancement project applications.

State and federal grants can play an important role in implementing strategic elements of the transportation network. Several grants have multiple applications, including Transportation Alternatives Program (TAP) grants. TAP, established by Congress through MAP-21, combines the Enhancement Grant program, Recreational Trails program, and Safe Routes to School (SRTS) program into one competitive funding source. TAP ensures the implementation of projects not typically associated with the road-building mindset. While the construction of roads is not the intent of the grant, the construction of bicycle and pedestrian facilities is one of many enhancements that the grant targets.

The Governor's Office of Highway Safety Grant Program (HSIP) is administered through WVDOH and ODOT and targets locations with high crash rates for specific improvements to address safety problems. MAP-21 reaffirmed this as a core program and doubled the funding nationally. Several improvements recommended in this chapter may be eligible for this program. A safety study meeting state requirements would be required to apply for these funds.

PeopleForBikes welcomes grant applications from organizations and agencies within the United States that are committed to putting more people on bicycles more often. Fundable projects include paved bike paths, lanes, and rail-trails as well as mountain bike trails, bike parks, BMX facilities, bike racks, and large-scale bicycle advocacy initiatives.

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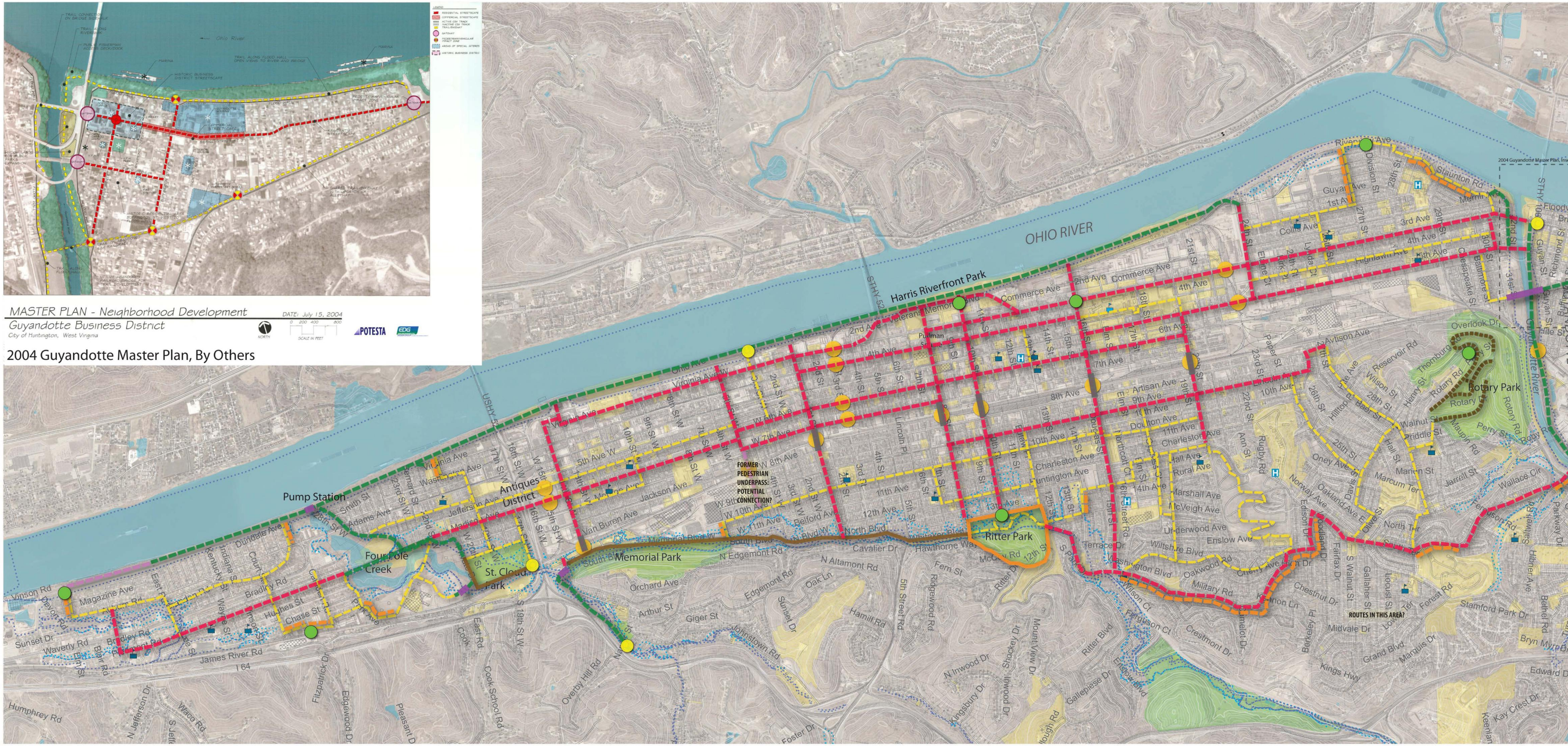
Figure 5.1



Preliminary PATH System

Paul Ambrose Trail for Health
Huntington, WV

Author: Shannon Simms
Date: January 2011

Legend

- School
- Hospital
- Phase 1 Trailhead
- Phase 2 Trailhead
- Exempt Property
- Continuous Wetland
- Floodplain
- 1% Annual Chance of Flooding
- Parkland
- Existing Trail (Bicycles and Peds)
- Existing Trail (Peds Only)
- Proposed Sidewalk
- Proposed On-Road Bicycle Facility
- Proposed Multi-Use Trail
- Proposed Signed Bike Route
- Planned Park Trail
- Potential Trail (Further Study Required)
- Proposed Bridge
- Existing Viaduct
- Railroad Crossing

N

0 1,000 5,000 feet

alta
PLANNING + DESIGN

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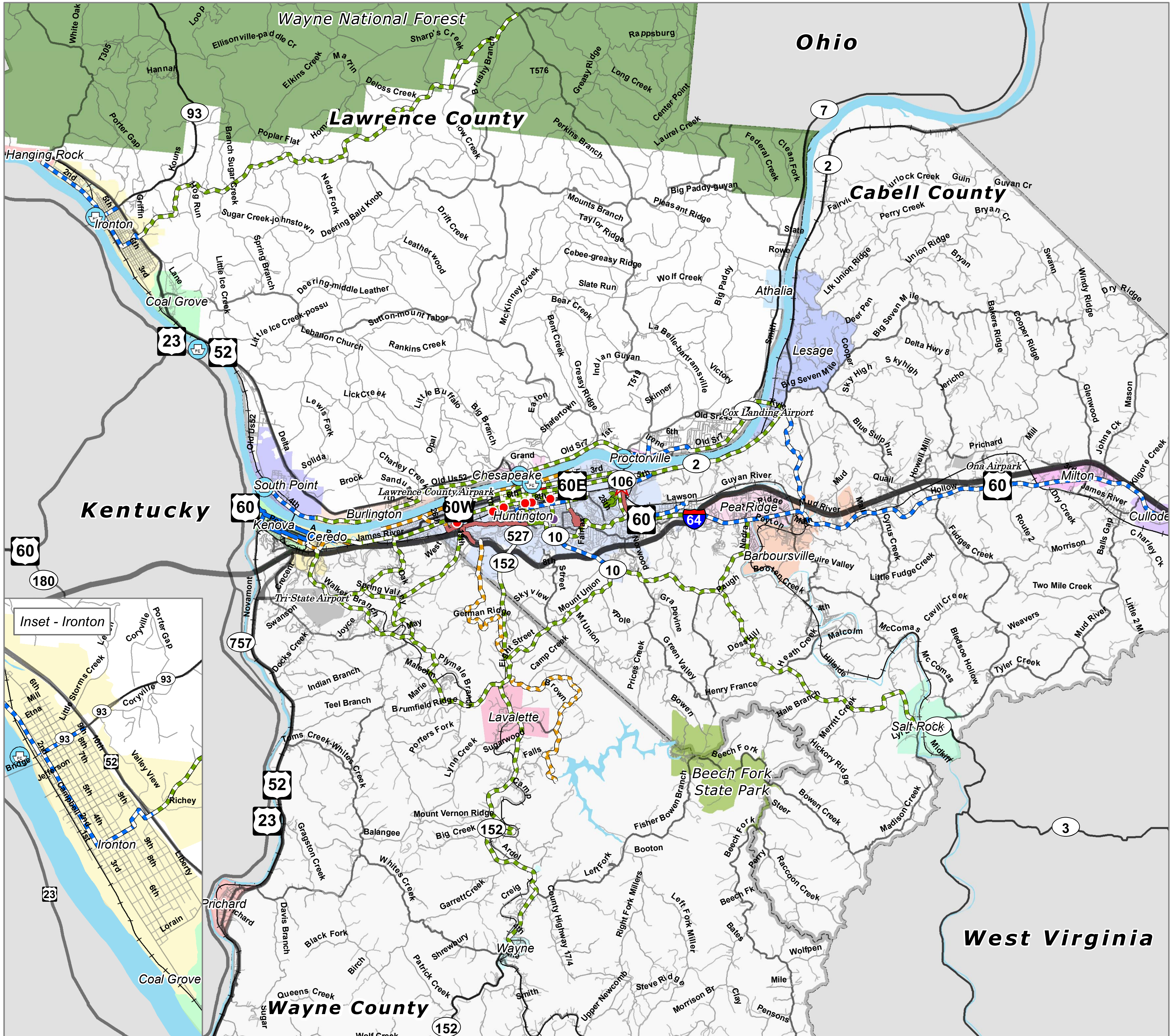
Figure 5.2

Bicycle and Pedestrian Recommendations

- Existing Pedestrian Trail
- Existing Signed Bike Route
- Existing Striped Bike Lane or Wide Shoulder
- Existing Multi-Use Trail
- Proposed Signed Bike Route
- Proposed Striped Bike Lane or Wide Shoulder
- Proposed Multi-Use Trail
- Proposed Viaduct/Tunnel Improvement
- Proposed Grade-Separated Pedestrian Crossing
- Proposed Bike/Abandoned Railroad Bridge
- Proposed Water Ferry Location



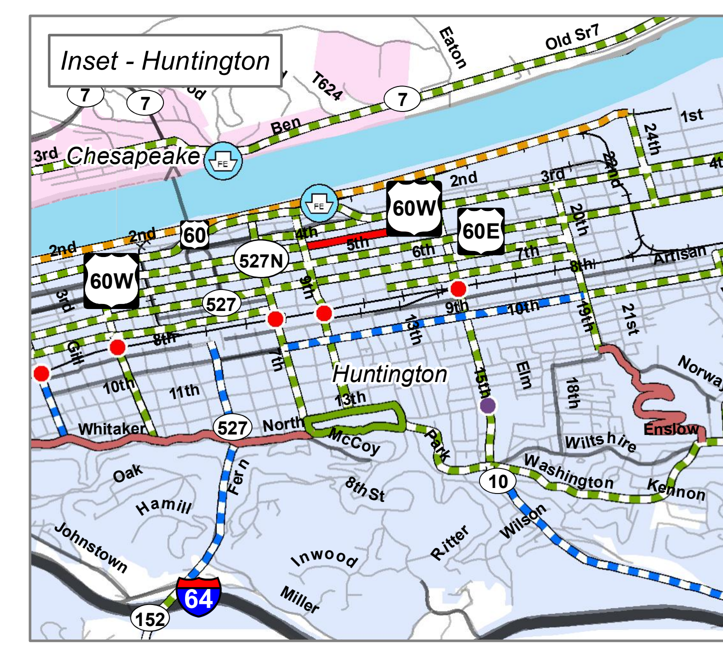


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Table 5.2: Bicycle Recommendations – Lawrence County, Ohio

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
Lawrence County, OH							
High Priority							
Ironton Trails and Walkways	Trail system throughout the City of Ironton and connections to the Tri-State Trails Systems		Multi-use path	TBD	Non-PATH	STP, CMAQ, TA	Provides circulation through and around Ironton
Union-Rome Trails and Walkways	Trail System throughout Union and Rome Townships in Lawrence County, inclusive of Chesapeake and Proctorville		Multi-use path	TBD	Non-PATH	STP, CMAQ, TA	Provides circulation through and around Union Township, Rome Township, Chesapeake, and Proctorville
ADA compliance on all intersections			Curb ramps and crosswalks Pedestrian countdown timers	$150K per intersection including signals	Non-PATH	NHS, STP, CMAQ, TA	Provides safe crossings for pedestrians
Medium Priority							
SR 7 Bike Lanes	Bike lane markings along SR 7 from Chesapeake to Proctorville. This could be implemented along existing SR 7 when Chesapeake Bypass is constructed		Pave both shoulders to 4'; Pavement markings; Signs	$6,490,000	Non-PATH	NHS, STP, RTP, CMAQ, TA	Connects Proctorville to Huntington via SR 106 Ohio River crossing

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
Ironton Bike Circulator Route	Signed bike route/pavement markings throughout Ironton to connect Ironton schools, Downtown, and Beechwood Park		Pavement markings Signs	$4,800	Non-PATH	NHS, STP, CMAQ, TA	Provide circulation through and around Ironton
SR 141 Bike Lanes	Bike lane markings along SR 141 from US 52 to SR 775	Guardrail on some segments is too close to the roadway, slope is too steep for shoulder, and rock approaches roadway.	Pave both shoulders to 4'; Pavement markings; Signs	$27,750,000	Non-PATH	NHS, STP, CMAQ, TA	Connects Ironton to northern Lawrence County
Low Priority							
Proctorville Circulator Bike Route	Signed bike route throughout Proctorville to connect SR 7 and Fairland schools		Pavement markings; Signs	$1,000	Non-PATH	NHS, STP, CMAQ, TA	Provide circulation through and around Proctorville and Fairland Schools
CR 107 Bike Lanes	Signed bike route/pavement markings throughout Proctorville (CR 107) to connect SR 7 and Fairland schools		Pave both shoulders to 4'; Pavement markings; Signs	$5,540,000	Non-PATH	NHS, STP, CMAQ, TA	Provide circulation through and around Proctorville and Fairland Schools

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
CR 1 Bike Lanes	Bike lane markings/signed route along CR 1 from Chesapeake to South Point	6,460' section east of South Point where guardrail is close as result of slope that cannot be paved.	Pave both shoulders to 4'; Pavement markings; Signs	$10,350,000	Non-PATH	NHS, STP, RTP, CMAQ, TA	Connects South Point to Chesapeake schools and Huntington via SR 106 Ohio River crossing
South Point Circulator Bike Route	Signed bike route/pavement markings throughout South Point to connect CR 1, South Point schools, and South Point Park		Pavement markings; Signs	$2,900	Non-PATH	NHS, STP, CMAQ, TA	Provide circulation through and around South Point
Ironton-Russell Bridge Bike Route	Signed route across the new bridge from Ohio to Kentucky		Signs	$1,600	Non-PATH	NHS, STP, BR, CMAQ, TA	Connects Ironton to Russell
Hanging Rock Bike Route	Signed route from Ironton to the Hanging Rock area of Wayne National Forest		Signs	$7,200	Non-PATH	NHS, STP, CMAQ, TA	Connects Ironton to Hanging Rock area of Wayne National Forest

Table 5.3: Bicycle Recommendations – Cabell County, West Virginia

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
Cabell County, WV							
High Priority							
1st Street Viaduct	Bike lane markings and sidewalks improvements from 7th Ave to 8th Ave		Improvements to viaducts to improve bicycle and pedestrian mobility	$350,000	PATH	NHS, STP, CMAQ, BR, CST, CDBG, City funds	Connects West End to existing paths at Memorial Park and Ritter Park, allows for north-south bike movement
8th Street Viaduct	Bike lane markings and sidewalks improvements from 7th Ave to 8th Ave		Improvements to viaducts to improve bicycle and pedestrian mobility	$450,000	PATH	NHS, STP, CMAQ, BR, TA	Connects Downtown to existing paths at Ritter Park, allows for north-south bike movement
10th Street Viaduct	Bike lane markings and sidewalks improvements from 7th Ave to 8th Ave		Improvements to viaducts to improve bicycle and pedestrian mobility	$350,000	PATH	NHS, STP, CMAQ, BR, TA	Connects Downtown to existing paths at Ritter Park, allows for north-south bike movement
Hal Greer Boulevard Bike Lanes	Bike lane markings and sidewalks improvements from 8th Ave to Washington Blvd		Pavement markings, signs, ADA compliant curb ramps	$160,000	PATH	NHS, STP, CMAQ, TA	Connects Downtown to existing paths at Ritter Park, allows for north-south bike movement
Walkers Branch Bike Route	Signed route from I-64 to Spring Valley Rd via Walkers Branch Rd and WV 75		Signs	$7,800	Non-PATH	STP, CMAQ, TA	Connects West Huntington to Lavelette
Veterans Memorial Boulevard Bike Lanes	David Harris Riverfront Park to W 3rd St		Pavement markings; Signs	$14,600	PATH	NHS, STP, CMAQ, TA	Connection from David Harris Riverfront Park to West End

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
W. 14th Street Bike Route	From levee to Memorial Blvd	Street width does not allow for separate bike lanes	Signs	$500	PATH	NHS, STP, CMAQ, TA	Connects Central City Market to existing paths at Memorial Park and Ritter Park
W. 5th Street Bike Route	From 8th Ave to Memorial Blvd	Street width does not allow for separate bike lanes	Signs	$500	PATH	NHS, STP, CMAQ, TA	Connects West End to existing paths at Memorial Park and Ritter Park, allows for north-south bike movement
8th Street Bike Lanes	Veterans Memorial Blvd to Ritter Park		Pavement markings; Signs	$14,500	PATH	NHS, STP, CMAQ, TA	Connects Downtown to Ritter Park
10th Street Bike Lanes	Veterans Memorial Blvd to Ritter Park		Pavement markings; Signs; Sidewalks	$2,310,000	PATH	NHS, STP, CMAQ, TA	Connects Downtown to Ritter Park
3rd Avenue Bike Lanes	Bike lane markings from 8th St to Guyandotte		Pavement markings; Signs	$46,400	PATH	NHS, STP, CMAQ, TA	Connects Marshall University to Pullman Square
4th Avenue Bike Lanes	Bike lane markings from W 1st St to 16th St		Pavement markings; Signs	$19,500	PATH	NHS, STP, CMAQ, TA	Connects Marshall University to Downtown
5th Avenue Bike Lanes	Bike lane markings from 1st St to 31st St		Pavement markings; Signs	$48,000	PATH	NHS, STP, CMAQ, TA	Connects Marshall University to Downtown
Hal Greer Boulevard grade-separated pedestrian crossing	Pedestrian bridge over Hal Greer Boulevard near hospital		Grade-separated crossing	$2,000,000 to $4,000,000	Non-PATH	NHS, STP, CMAQ, TA	Safe crossing of Hal Greer Boulevard
ADA compliance on all intersections			Curb ramps and crosswalks Pedestrian countdown timers	$150K per intersection including signals	Non-PATH	NHS, STP, CMAQ, TA	Provides safe crossings for pedestrians

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
Medium Priority							
WV 2 East Bike Lanes	Bike lane markings along WV 2 from Guyandotte to Big Ben Bowen Hwy (SR 193)	2,000' section has guardrail close to roadway as result of slope near railroad	Pave both shoulders to 4'; Pavement markings; Signs	$8,270,000	Non-PATH	NHS, STP, CMAQ, TA	Connects Huntington to Merritts Creek Road development
US 60 Bike Route	Signed bike route along US 60 from Barboursville to Milton to connect to the Charleston to Huntington Greenway in Milton		Signs	$11,300	Non-PATH	TA	Connects Barboursville to Milton and the Charleston to Huntington Trail
Barboursville Circulator Bike Route	Signed bike route/pavement markings throughout Barboursville to connect US 60, Barboursville schools, and Barboursville Park		Pavement markings; Signs	$8,800	Non-PATH	NHS, STP, CMAQ, TA	Provide circulation through and around Barboursville
Hal Greer Boulevard Viaduct	Bike lane markings and sidewalks improvements from 7th Ave to 8th Ave		Improvements to viaducts to improve bicycle and pedestrian mobility Cost includes replacement of railroad viaduct	$11,000,000	PATH	NHS, STP, CMAQ, BR, TA	Connects Downtown and Marshall University to South Side and Cabell Huntington Hospital, allows for north-south bike movement

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
US 60 (Midland Trail) Bike Lanes	Bike lane markings on US 60 from Washington Blvd to Barboursville to connect proposed PATH to Barboursville	No existing right of way on north side	Pave shoulder on south side to 4' from Washington Blvd to I-64; Pavement markings; Signs Signs from I-64 to Barboursville	\$900,000 \$2,621	Non-PATH	NHS, STP, CMAQ, TA	Connects Huntington to Barboursville
1st Street Bike Lanes	3rd Ave to 12th Ave		Signs from 7th Ave to 12th Ave Widen roadway by 10' from 3rd Ave to 12th Ave; Pavement markings; Signs	\$900 \$368,000	PATH	NHS, STP, CMAQ, TA	Connects West End to existing paths at Memorial Park and Ritter Park, allows for north-south bike movement
20th Street Bike Lanes	3rd Ave to 12th Ave		Pavement markings; Signs	\$12,400	PATH	NHS, STP, CMAQ, TA	Connects to Marshall University
24th Street Bike Lanes	Oley St to 5th Ave.		Pavement markings; Signs	\$6,500	PATH	NHS, STP, CMAQ, TA	Connects to Marshall University and Cabell Huntington Hospital
6th Avenue Bike Lanes	Bike lane markings and crosswalks from W 5th St to 20th St		Pavement markings; Signs	\$21,000	PATH	NHS, STP, CMAQ, TA	Connects Marshall University to Downtown
7th Avenue Bike Lanes	Bike lane markings from W 5th St to 20th St as part of PATH		Pavement markings; Signs	\$21,000	PATH	NHS, STP, CMAQ, TA	Provides east-west connection
9th Avenue Bike Route	From 8th St to 20th St	Width does not allow for separate bike lanes	Signs	\$2,000	PATH	NHS, STP, CMAQ, TA	Provides east-west connection
Abandoned CSX railroad bridge	Bike path on railroad bridge over Guyandotte River			TBD	PATH	NHS, STP, CMAQ, TA	Connects across Guyandotte River

Project	Description	Issues	Components	Cost Estimate	PATH Status	Potential Funding Source	Benefits
Low Priority							
Merritts Creek Bike Route	Signed bike route to connect WV 2 to Barboursville		Signs	\$5,000	Non-PATH	NHS, STP, CMAQ, TA	Connects Merritts Creek Road development to Barboursville
Altizer Park Bike Route	Signed bike route along Riverside Dr from Washington Blvd to Guyan River Rd		Signs	\$12,000	Non-PATH	NHS, STP, CMAQ, TA	Connects Huntington to Altizer Park and Altizer Elementary School
Madison Avenue	W 21st St to Carson Street		Pave both shoulders to 4'; Pavement markings from Carson Street to W 21st St Signs from Carson St to Camden St and W 21st St to W 5th St	\$2,770,000 \$2,430	PATH	NHS, STP, CMAQ, TA	Provides east-west connection from Downtown to West End
Washington Boulevard Bike Lanes	Bike lane markings from Hal Greer Blvd to US 60		Pavement markings; Signs	\$21,000	PATH	NHS, STP, CMAQ, TA	Provides east-west connection and routes to Meadows Elementary School and Cabell Huntington Hospital
Jackson Avenue Bike/Ped Tunnel	Connection under US 52		Precast tunnel Wingwalls Excavation/fill MOT	\$500,000 \$20,000 \$800,000 \$160,000	PATH	NHS, STP, CMAQ, TA	Provides east-west connection from West End to Kiwanis Park
5th Street Bike/Ped Tunnel	Connection between 7th Ave and 8th Ave		Precast tunnel Excavation and fill	\$263,000 \$400,000	PATH	NHS, STP, CMAQ, TA	Connects West End to existing paths at Memorial Park and Ritter Park, allows for north-south bike movement

Table 5.4: Bicycle Recommendations – Wayne County, West Virginia							
Project	**Description**	**Issues**	**Components**	**Cost Estimate**	**PATH Status**	**Potential Funding Source**	**Benefits**
Wayne County, WV							
High Priority							
ADA compliance on all intersections			Curb ramps and crosswalks Pedestrian countdown timers	$150K per intersection including signals	Non-PATH	NHS, STP, CMAQ, TA	Provides safe crossings for pedestrians throughout Huntington
Medium Priority							
US 60 Bike Lanes from Huntington to Ceredo	Bike lane markings from Carson St in Huntington to B St in Ceredo to connect proposed PATH to existing bike routes in Ceredo/Kenova	Conflict with trees in tree lawn	Signs; Widen roadway by 10' Pave both shoulders to 4'; Pavement markings; Signs	$213,000 $2,848,000	Non-PATH	NHS, STP, CMAQ, TA	Connects existing bike routes in Ceredo/Kenova to Huntington
WV 152 Bike Lanes	Bike lane markings along WV 152 from I-64 to Lavalette		Pave both shoulders to 4'; Pavement markings; Signs	$5,850,000	Non-PATH	NHS, STP, CMAQ, TA	Connects Huntington to Lavalette and and Wayne
Harvey Road Multi-Use Path	Multi-use trail along Harvey Rd from Johnstown Rd to German Ridge Rd (CR 6) to Orchard Dr (CR 6) at WV 152		Pave both shoulders to 4'; Pavement markings; Signs	$7,870,000	Non-PATH	NHS, STP, CMAQ, TA	Connects Hertitage Farm and Harveytown to Lavalette and Beech Fork State Park
Low Priority							
Bike Route to Beech Fork State Park	Signed route from Huntington via Spring Valley Rd (CR 7), WV 75, WV 152, CR 43, WV 10, and Davis Creek Rd		Signs	$42,000	Non-PATH	NHS, STP, CMAQ, TA	Connects Huntington to Beech Fork State Park

Programs and Policy Issues

In addition to the construction of bicycle and pedestrian facilities, awareness of the rights and responsibilities of non-motorized users needs to be improved. Some safety problems can be solved through programs. The programs also can contribute to a safer bicycling and walking environment and better understanding between bicyclists/pedestrians and other road and path users. The best areas for bicyclists and pedestrians balance the Five E's—Engineering, Education, Encouragement, Enforcement, and Evaluation.

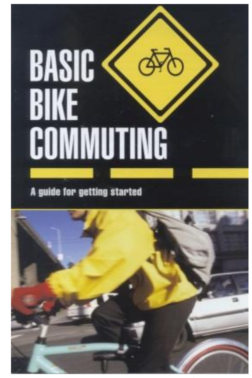
Engineering. Engineering refers to the network of pathways that must be planned, designed, and constructed. The network can enhance user safety and enjoyment and may increase the attraction of each mode. Bicycle and pedestrian facility projects can be divided into two types:

- Independent projects are separate from scheduled highway projects.
- Incidental projects are constructed as a part of a highway project.

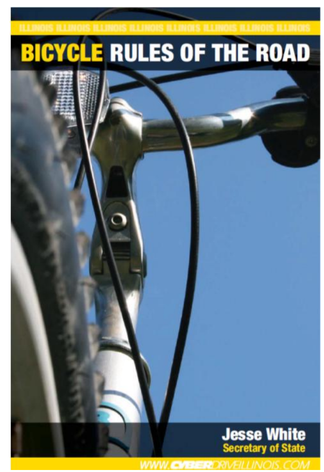
A combination of both types of projects is necessary to develop a well-connected and user-friendly network while maintaining cost-effectiveness.

Education. Once the pathways are in place, new and experienced cyclists and pedestrians must be made aware of their locations and the destinations that can be reached by using them. Bicyclists, pedestrians, and motorists must be educated on the rules of the road to ensure everyone's safety while operating on and adjacent to the bicycle and pedestrian facilities. Education programs can be initiated from a variety of sources. Local governments can host workshops and bike rodeos, law enforcement officers can launch school-based education programs, and local advocacy groups can distribute educational materials.

Encouragement. People need to be encouraged to bicycle and walk. Encouragement should become easier as the network makes the region more bicycle- and pedestrian-friendly. Encouragement becomes more critical as these facilities are constructed to justify the investment. Popular encouragement programs include Safe Routes to School, Walk/Bike to School Days, Bicycle to Work Week, Bicycle Rodeos, and Bicycle Mentor Programs.



Enforcement. To ensure the safety of all users and the long-term sustainability of the bicycle and pedestrian system, the formal and informal "rules of the road" must be heeded by all. Effective enforcement programs ensure consistent enforcement of traffic laws affecting motorists and bicyclists. These programs include bicycle licensing/registration efforts and positive reinforcement programs implemented by local law enforcement.



Evaluation. Though often overlooked, evaluation is a critical component of bicycle and pedestrian planning. The friendliest communities for cyclists and pedestrians have a system in place to assess existing programs and outline steps for future expansion.

The facilities recommended as part of the *KYOVA 2040 MTP* should be supplemented with coordinated programs and policies that instruct and encourage bicyclists and pedestrians in the full and proper use of the non-motorized transportation network.

Existing Programs

Current programs and initiatives that promote bicycling and walking within the region that should continue in the near-term include:

Marshall Eco-Cycle Bike Loan Program

Marshall University developed a new way for students to commute around campus and throughout Huntington. Marshall University's sustainability department developed a bicycle rental program for students. Students can use the bikes on campus or for travel throughout the Huntington area. Helmets and locks also are available to checkout. All equipment is available for checkout during the Eco-Cycle office's hours of operation and should be returned on the same day.

Annual Events

The PATH FitFest is a 5K/10K run/walk run and community health event held annually to raise funding for the construction and maintenance of the PATH. The Tour de PATH was held in July 2012 to promote bicycle riding in Huntington. Kidical Mass was held in November 2011 to teach kids, parents and caregivers safety skills and provide a ride in which to practice them.

Recommended Programs

Continued development, marketing, and awareness of the PATH should be emphasized. Other programs also are needed. Many cyclists within Huntington are riding on sidewalks, creating an unsafe environment for pedestrians and cyclists. Educational programs can help bicyclists understand the risks involved and develop skills to become more comfortable selecting routes and sharing the road with traffic. Education programs and enforcement by local officials and safety officers is needed to prevent pedestrian and bicycle conflicts. An education program for bicycling in the KYOVA region also should promote safe routes to schools for students/ educators and safe use of bicycle lanes.

Programs also should be developed to educate non-cyclists. Bicycle awareness typically is not taught in drivers' education classes nor included on driver licensing exams. Awareness can occur by displaying messages in the print media, providing public service announcements, conducting group presentations, and pursuing marketing campaigns. New programs and initiatives to educate and encourage bicycling could include:

Potential Programs

Events and Outreach

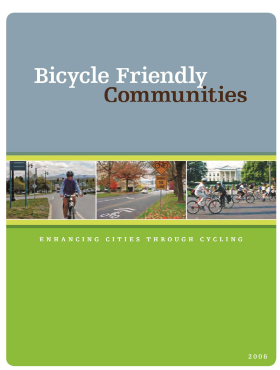
- Host annual bike events
- Update the WVDOT bicycle program website
- Conduct bicycle rodeos
- Provide bicycle stickers, posters, brochures, and other promotional items
- Provide a tour by bike of bicycle facilities
- Sponsor a partner in commuting program to assist commuters in choosing bike routes
- Organize fun runs or walks along with community events

Educational Materials and Events

- Insert awareness material in water bill inserts
- Provide local training webinars for engineers and planners
- Provide bicycle awareness presentations to RTA new operators classes
- Provide bicycle mapping resources

Educational Campaigns

- Implement Share the Road campaigns
- Partner with organizations such as the Safe Routes to School Program and YMCA
- Educate cyclists on how to use bike racks on transit to promote safe usage
- Provide "Basics of Bicycling" school curriculum at one pilot school
- Offer adult bicycle skills classes
- Provide bicycle awareness in drivers' education and licensing
- Produce and update videos for distribution to bike shops, bike clubs, government channel broadcast and website viewing

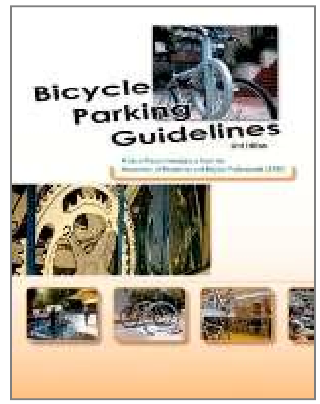


In May 2012, the City of Huntington received an honorable mention as a Bicycle Friendly Community through the League of American Bicyclists. The city should continue to seek designation as a Bicycle Friendly Community. Only one city in the state of West Virginia (Morgantown) holds this distinction. Local sponsors also should identify ways to track progress in pursuing their educational and awareness goals. Tracking existing educational programs will establish a benchmark to demonstrate the success of the expanded range of education and awareness programs envisioned.

Additional Considerations

Bicycle Parking

Bike racks and shelters can promote the use of biking. The KYOVA region lacks sufficient bicycle parking. Municipalities should pursue funding and work with local land and business owners. Bicycle parking should be required with new development.



The Association of Pedestrian and Bicycle Professionals published *Bicycle Parking Guidelines*, a basic guide to the selection and placement of bicycle racks specifically for short-term parking. These guidelines should be referred to for the location of racks and shelters throughout the KYOVA region.

Critical locations for bicycle parking include:

- Schools
- Marshall University
- Pullman Square
- Hospitals
- Huntington Parks (e.g. Ritter, St. Cloud, Memorial, Harris, Rotary)
- Huntington Central Business District
- Huntington Antiques District
- Chesapeake
- South Point at David Harris Riverfront Park
- Kenova at Virginia Point Park
- Downtown Ironton

The cost for an 11-bike in-ground rack ranges from $250 to $1,400 per rack. Bike lockers also can be used along with the racks and shelters at a cost ranging from $200 to $1,200. The cost of bike shelters range from $1,000 to $10,000 depending on the size and style.

Water Service

Water ferries are a potential way to connect Proctorville and Ironton to South Point, Huntington, and Ashland. Initial questions on the applicability of such a service hinge on how many people live within walking distance (¼- or ½-mile) or bicycling distance (up to 2 miles) from potential ferry stops. According to a recent study for similar service in Australia[1], capturing 5 to 10% of the population within these distances would represent a strong or average market for the service.

It also is helpful to understand how point-to-point travel times by water ferry compare to traveling by car. An initial evaluation of travel times indicates water ferry service to Ironton, South Point, and Ashland (at 15 to 25 knots on the Ohio River) would take longer than traveling by vehicle. Travel times from Proctorville and Chesapeake to David Harris Riverfront Park in Huntington would be competitive.

Consideration should be given to the type of vessels, the pier structure, low level landings, shelter, access roads, car parking, access footpaths, lighting, seats, and signage. Cost, including operating and capital, are an important factor.

Operating. Annual operating costs (including personnel, fuel, maintenance, insurance, and licensing) can range from $280,000 to $512,000 depending on length and time of service. For comparison, water ferry service on the Inner Harbor in Baltimore, Maryland had a 2010 annual operating cost of $297,000 for a 3.8-mile service. Annual operation cost for the service in Australia was listed as $176,000 to $213,000 for a service ranging from 1.9 to 3.5 miles.

Capital. The Australian study[1] reports variability in the cost of landings ($110,000 to $1,350,000 each). According to the USDOT, the typical cost (based on 2005 dollars) for a small water taxi is $250,000 and $1,000,000 or more for a large vehicle and passenger-only ferries.

MAP-21 created a program called "Construction of Ferry Boats and Ferry Terminal Facilities" that provides 80% of the capital cost for water ferries. The program does not include set-asides for specific states, and funding is not discretionary. In general, revenue generated from the water ferry services will not offset the cost of operating a vessel, so a dedicated public source of funds would be needed. A detailed analysis of the feasibility of water ferry service on the Ohio River would be necessary to determine ridership, capital costs, and operating costs. This study could consider the possibility of a small-scale trail service geared toward special event traffic as a way to gauge interest in a full-scale ferry service.

[1] Derwent River Commuter Ferries in Tasmania, 06 July 2009, AECOM Australia Pty Ltd for the Tasmania Department of Infrastructure, Energy and Resources

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Introduction

Most people acknowledge that they would use transit if service was fast, frequent, dependable, and easy to use. Like a complete system of roads, sidewalks, and bikeways, transit must provide connections to the places people need or want to go at a time when they need to get there. Since 1972 when the Tri-State Transit Authority was established, the functional role of mass transportation in the KYOVA region has been to provide a viable alternative to the automobile. Even though transit ridership in the United States over the past 60 to 70 years has declined as the availability and dependence on private automobiles has risen, local staff and elected officials have continued to acknowledge the importance of transit in providing mobility to the region's residents, particularly disadvantaged populations.

These officials have taken advantage of positive cycles in transit ridership. In the 1970s, concerns over an energy crisis, automotive fuel shortages, and inflation gave rise to expected demands for revitalizing transit services. This resulted in a transit system for the 1980s that was efficient for the Huntington area. The 1990s and the first part of the 21st century brought to light the effects of industrial and transportation pollution to the air quality of metropolitan areas, with public transportation as part of the solution.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) requires that MPOs consider all modes of transportation in the analysis of region-wide mobility and the formulation of recommended plans, programs, and policies. The collective result of the modal elements should be an integrated, balanced intermodal transportation system that safely and efficiently moves people and goods. The purpose of the Transit Element of the *KYOVA 2040 Metropolitan Transportation Plan* is to analyze and evaluate various aspects of the public transportation system and produce an overall program that 1) serves the existing and potential needs of the area and 2) satisfies Federal and State eligibility requirements for financial assistance.

Many of the key words from the vision of the *KYOVA 2040 MTP* as described in **Chapter 1** relate directly to how the region's diverse public transportation system can continue to contribute to the overall transportation network. These key words are highlighted below:

> We envision a growing region serviced by a **safe 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, cultural and environmental resources, and it will support the **efficient movement of people** and goods at both the local and regional scale.

Likewise, the Guiding Principles and many of the Goals and Objectives described in **Chapter 1** document support for an expanding and robust transit system. A safe, comfortable customer delivery system with attractive and convenient amenities must be developed around bus stops to encourage transit use and decrease dependence on the automobile. This customer delivery system requires a consistent network of sidewalks, safe street crossings, and lighting. The efficiency of transit also depends on an interconnected system of roads and highways suitable for bus traffic. Transit cannot be considered in isolation, and the strategies presented in this chapter support improvements to the larger transportation system.

Existing Conditions

Included in the Existing Conditions section are descriptions of existing transportation services, existing and projected population for the KYOVA region, demographics, the identification of major trip generators, and potential transit passenger origins and destinations.

Current Public Transportation System

Descriptions of the transportation related services provided by the three public transportation organizations that exist in the KYOVA region are provided on the following pages.

Tri-State Transit Authority (TTA)

TTA provides fixed route, ADA paratransit, and non-emergency medical transportation services in Cabell County, West Virginia, and also in Lawrence County, Ohio under contract with the Lawrence County Port Authority. It is based on Fourth Avenue in Huntington where its operations/maintenance facility is located. This facility also houses administrative offices, dispatch, and other operations functions.

TTA serves Huntington, Barboursville, Milton, Ceredo, Kenova, and Marshall University. Complementary ADA paratransit service is provided throughout the area. Service is available from 5:30 a.m. to 11:15 p.m. Monday through Saturday. Descriptions of its fixed route and paratransit services follow.

Fixed Route Service

TTA fixed route service consists of nine radial routes, the Pullman-Marshall University shuttle, and three evening routes. Maps showing the daytime routes for Cabell and Wayne Counties appear in **Figures 6.1** and **6.2**, respectively. A route profile for TTA is included in **Table 6.1**.

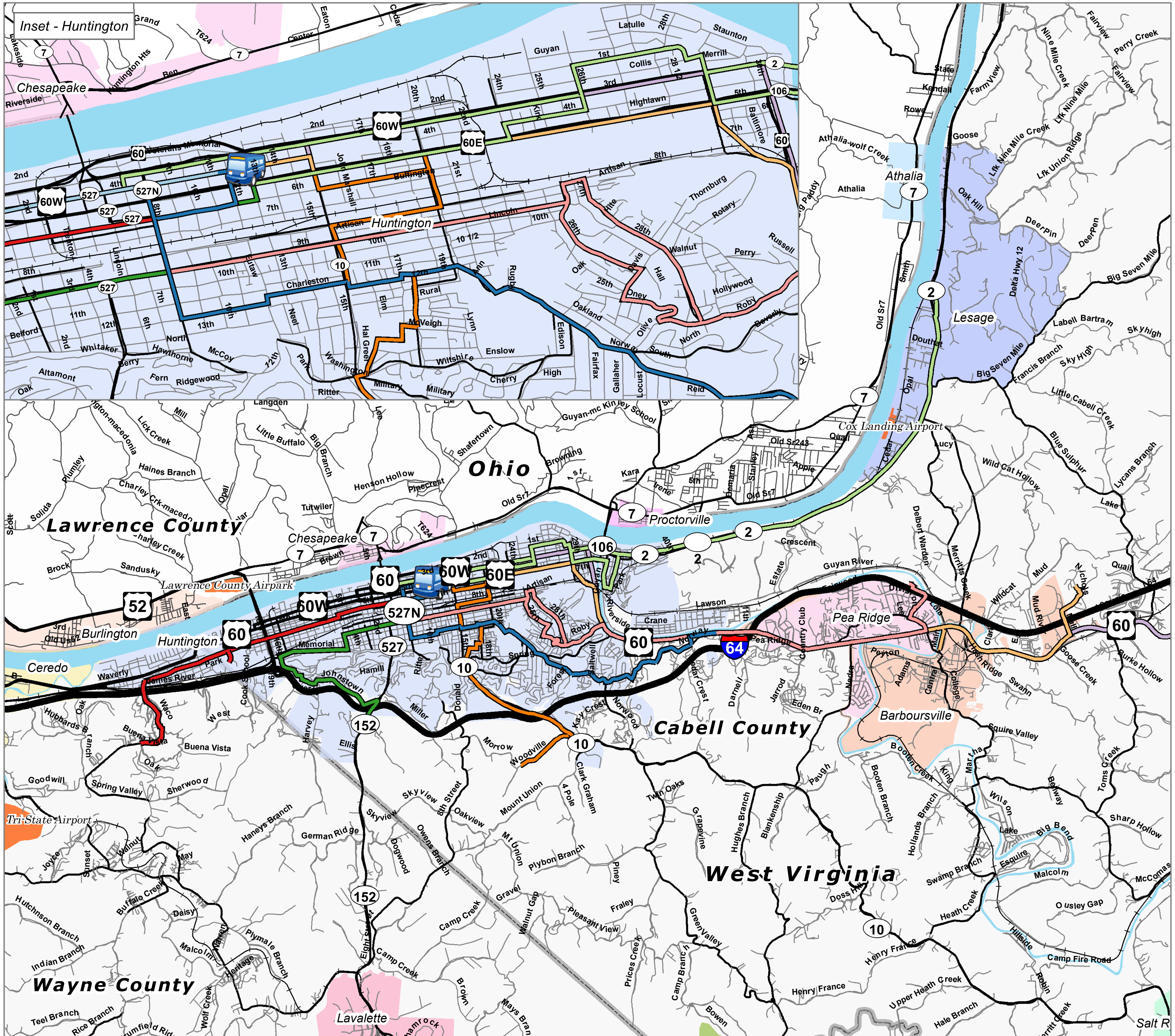
With a few exceptions, TTA operates nearly the same schedule on Saturdays as it does on weekdays. Most routes begin around 6:00 a.m. and end at 7:15 p.m. Routes 9 – Milton, 5 – Walnut Hills, and 7 – Barboursville operate to about 8:15 p.m. There are three routes that operate to past 11:00 p.m. on weekdays and Saturdays. These combine the alignments of portions of the daytime routes. TTA also operates the Pullman-Marshall University shuttle from noon to 11:15 p.m. on weekdays and Saturdays.

2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION | KYOVA INTERSTATE PLANNING COMMISSION

Figure 6.1

TTA Cabell County Routes



Transit Center

- Route 2
- Route 3
- Route 4
- Route 5
- Route 6
- Route 7
- Route 8
- Route 9

- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water
- Beech Fork State Park
- Airport

0 0.75 1.5 Miles

KYOVA INTERSTATE PLANNING COMMISSION

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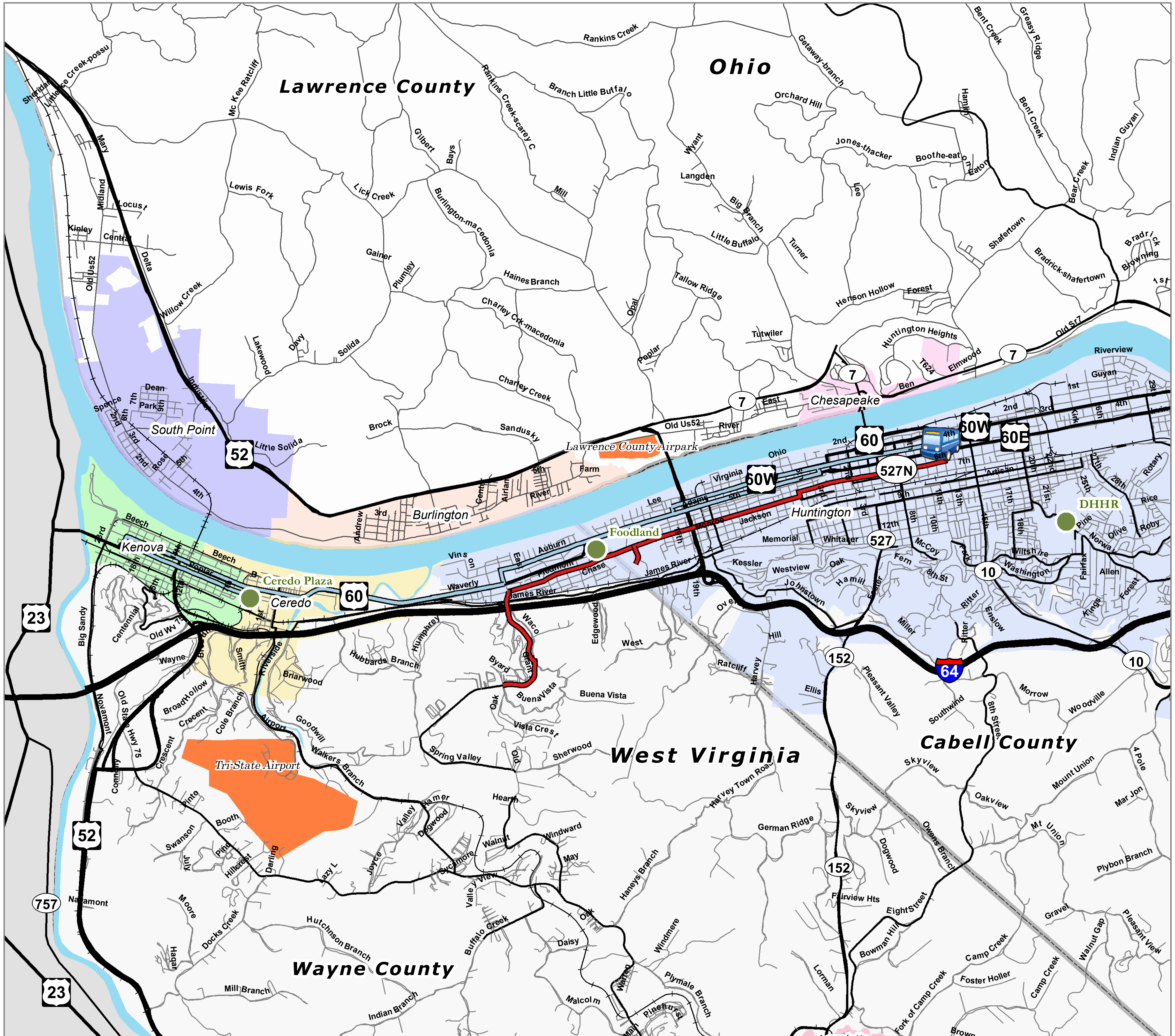
2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION

KYOVA INTERSTATE PLANNING COMMISSION

Figure 6.2

TTA Wayne County Routes



- Transit Center
- Major Stop
- Route 1
- Route 6
- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road
- Body of Water
- Airport

0 0.5 1 Miles

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Table 6.1 – TTA Route Profile

Route	Service Span		Vehicle Required				Frequency				Rev Hrs	
	Weekday	Saturday	Pk	Md	Eve	Sat	Pk	Md	Eve	Sat	Wday	Sat.
1-Ceredo/Kenova	6:10a-7:10p	6:10a-7:10p	1	1	-	1	60	60	-	60	13.0	13.0
2-Southside	6:10a-7:15p	6:10a-7:15p	1	1	-	1	60	60	-	60	13.1	13.1
3-Third Avenue	6:15a-7:15p	7:15a-7:05p	1	1	-	1	60	60	-	60	13.0	11.8
4-9th & 11th Avenues	7:45a-5:25p	7:45a-5:25p	0.5	0.5	-	0.5	120	120	-	120	6.0	6.0
5-Walnut Hills	6:05a-8:10p	6:05a-8:10p	2	2	2	2	60	60	60	60	24.0	24.0
6-Madison Avenue	6:20a-7:10p	6:20a-7:10p	1	1	-	1	60	60	-	60	12.9	12.9
7-Barboursville/Altizer	5:50a-8:15p	6:50a-8:15p	2	2	2	2	60	60	60	60	28.2	22.9
8-Hal Greer Boulevard	6:45a-7:15p	6:45a-7:15p	0.5	0.5	-	0.5	120	120	-	120	7.0	7.0
9-Milton	5:45a-8:50p	6:00a-8:50p	2	2	2	2	60	60	60	60	27.7	27.4
20-PM South	7:15p-11:05p	7:15p-11:05p	0	0	2	2	-	-	60	60	5.9	5.9
30-PM North	7:15p-11:05p	7:15p-11:05p	0	0	2	2	-	-	60	60	5.8	5.8
40-PM West	7:15p-11:05p	7:15p-11:05p	0	0	1	1	-	-	60	60	3.8	3.8
Pullman-Marshall Shuttle	12:00p-11:15p	12:00p-11:15p	1	1	1	1	20	20	20	20	11.3	11.3
Huntington-Charleston	6:40a-9:20a 5:15p-6:45p	-	1	1	-	-	2 trips	-	-	-	2.7	-
TOTAL			**13**	**13**	**12**	**12**					**174.4**	**164.9**

Thirteen vehicles are operated by TTA on its fixed routes during the weekday peak and mid-day period. Twelve vehicles are in operation between 7:15 p.m. and 8:15 p.m. as the evening routes are being put into service and six daytime routes are ending. After 9:00 p.m. there are six vehicles in service.

Most routes run every sixty minutes. Three routes are the exception to this. Routes 4 – Harveytown and 8 – Hal Greer Boulevard run every 120 minutes. Also, the Pullman – Marshall University shuttle runs every 20 minutes. For all routes, revenue hours total 174.4 on weekdays, and 164.9 on Saturdays. Routes 7 – Barboursville and 9 – Milton have the most weekday revenue hours of all the individual routes. On Saturdays, Routes 5 – Walnut Hills and 9 – Milton have the greatest number of revenue hours.

In 2009, TTA began operating fixed route and paratransit service in Lawrence County, Ohio. This is more fully described in the Lawrence County Port Authority section that follows.

Paratransit Service

TTA operates ADA complementary paratransit service for eligible persons making trips within ¾ mile of a TTA bus route. It also provides non-emergency medical transportation for Medicaid eligible persons. TTA is experiencing rapid grown in paratransit ridership. It has recently installed scheduling software to help address this increase in demand.

TTA Fleet

TTA currently operates on its fixed route service ten 32-passenger buses, ten 26-passenger buses, and nineteen 29-passenger buses. Its paratransit fleet consists of two 24-passenger mini-buses, six 11-passenger vans, fourteen 13-passenger vans, and three fifteen-passenger vans. Two 32-passenger buses and three 13-passenger vans are leased from the Lawrence County Port Authority and **Table 6.2** shows the TTA fleet roster. In addition to these, TTA maintains seven service vehicles.

Table 6.2 – TTA Fleet Roster

Qty	Year	Make	Seating
3	2003	Gillig	32
6	2003	Gillig	26
4	2007	Gillig	26
9	2009	Gillig	26
5	2009	Gillig	32
2	1984	Chance	24
5	2006	Braun	11
1	2006	Goshen Pacer	12
3	2006	Goshen GC II	13
1	2008	Braun	11
6	2009	Ford E450	13
Leased Vehicles - Ohio			
2	2011	Ford E450	13
3	2011	Ford Pacer	15

Ridership and Productivity

Table 6.3 provides a summary of TTA's West Virginia fixed route ridership and productivity. Systemwide, weekday ridership and service levels are nearly equal. Saturday ridership is 2,166 while weekday ridership is 2,145. Saturday productivity is also higher with 13.2 passengers per revenue hour compared to 12.4 passengers per revenue hour on weekdays. Route 5 – Walnut Hills has the highest ridership on weekdays while Route 6 – Madison Avenue is the most productive at 25.1 passengers per revenue hour. On Saturdays, Route 5 – Walnut Hills also has the highest ridership with 534 passenger boardings. The Pullman Shuttle is the most productive route on Saturdays at 33.5 passengers per revenue hour.

Table 6.3 – TTA Route Ridership and Productivity

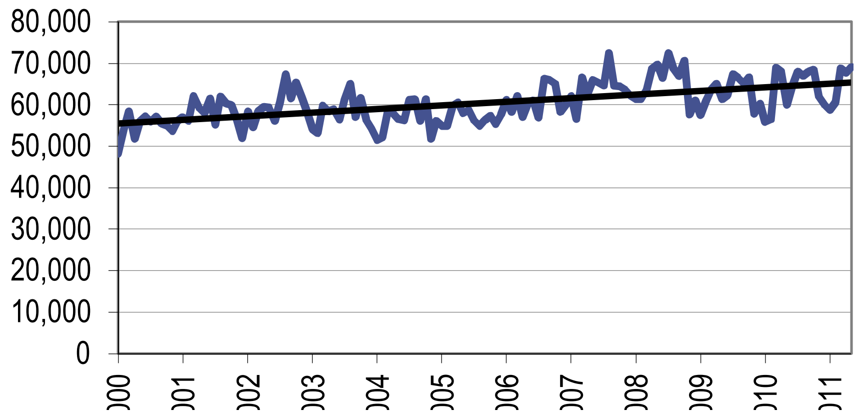
Route	Weekday		Saturday	
	Riders	Per Hr	Riders	Per Hr
1-Ceredo/Kenova*	-	-	-	-
2-Southside	196	15.0	126	9.6
3-Third Avenue	136	10.5	108	9.2
4-9th & 11th Avenues	21	3.5	14	2.3
5-Walnut Hills	479	20.0	534	22.3
6-Madison Avenue	324	25.1	231	17.9
7-Barboursville/Altizer	286	10.1	241	10.5
8-Hal Greer Boulevard	101	7.8	45	6.4
9-Milton	256	9.2	205	7.5
20-PM South	46	7.8	72	12.2
30-PM North	46	7.9	45	7.8
40-PM West	41	10.8	49	12.9
Pullman-Marshall Shuttle	278	24.6	379	33.5
Huntington-Charleston	5	1.9	-	-
TOTAL	**2,145**	**12.4**	**2,166**	**13.2**

**There is not yet sufficient data available for Route 1-Ceredo/Kenova.*

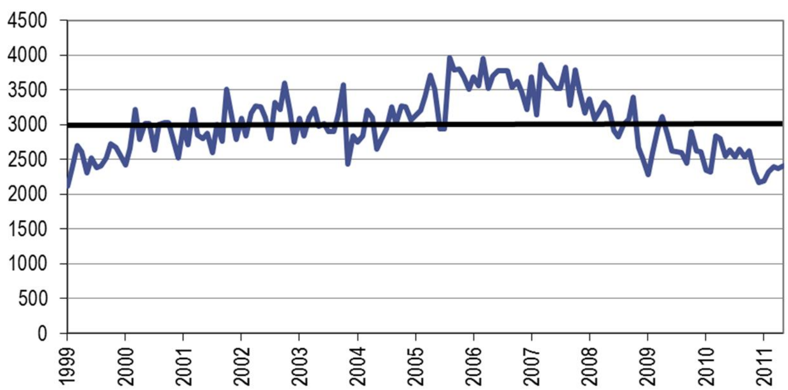
Ridership on the TTA fixed route system has grown steadily over the past ten years. The graph to the right shows monthly ridership levels since January 2000. The graph shows a steady increase from about 56,000 passengers per month in 2000 to 66,000 passengers per month in 2011. These data also show that TTA ridership has a seasonal fluctuation. In most years, ridership is highest in the spring and autumn months.

TTA paratransit ridership increased steadily from 2000 to 2006, and then declined from 2006 to 2011. The result is that the overall trend line is flat. The primary reason for this fluctuation is that there has been a turnover in its customer base. The graph to the right shows monthly paratransit ridership between 1999 and 2011.

TTA Fixed Route Ridership Trend



TTA Paratransit Ridership Trend



Lawrence County Port Authority/Ironton-Lawrence County Community Action Organization (CAO)

The Ironton-Lawrence County CAO provides a wide variety of human service programs. These include community development, housing management, senior services, a family guidance center, family medical centers, weatherization, Head Start, and several other services for low income persons. The Ironton-Lawrence County CAO also provides management services to the Lawrence County Port Authority (LCPA) to manage the public transportation system in Lawrence County. It administers the contract with the Tri-State Transit Authority (TTA) who operates fixed route and ADA paratransit service in Lawrence County. These services began operation in July 2008. The CAO also operates some ADA paratransit as well as transportation for Senior Services and Head Start.

The CAO also is currently constructing a transit center in downtown Ironton.

Fixed Route Service

Figure 6.3 depicts the alignment of the routes operated by TTA under contract with the Lawrence County Port Authority. A route profile for the Lawrence County routes is included in **Table 6.4**. They are run on weekdays only, require three vehicles to operate, and total 29.8 revenue hours daily.

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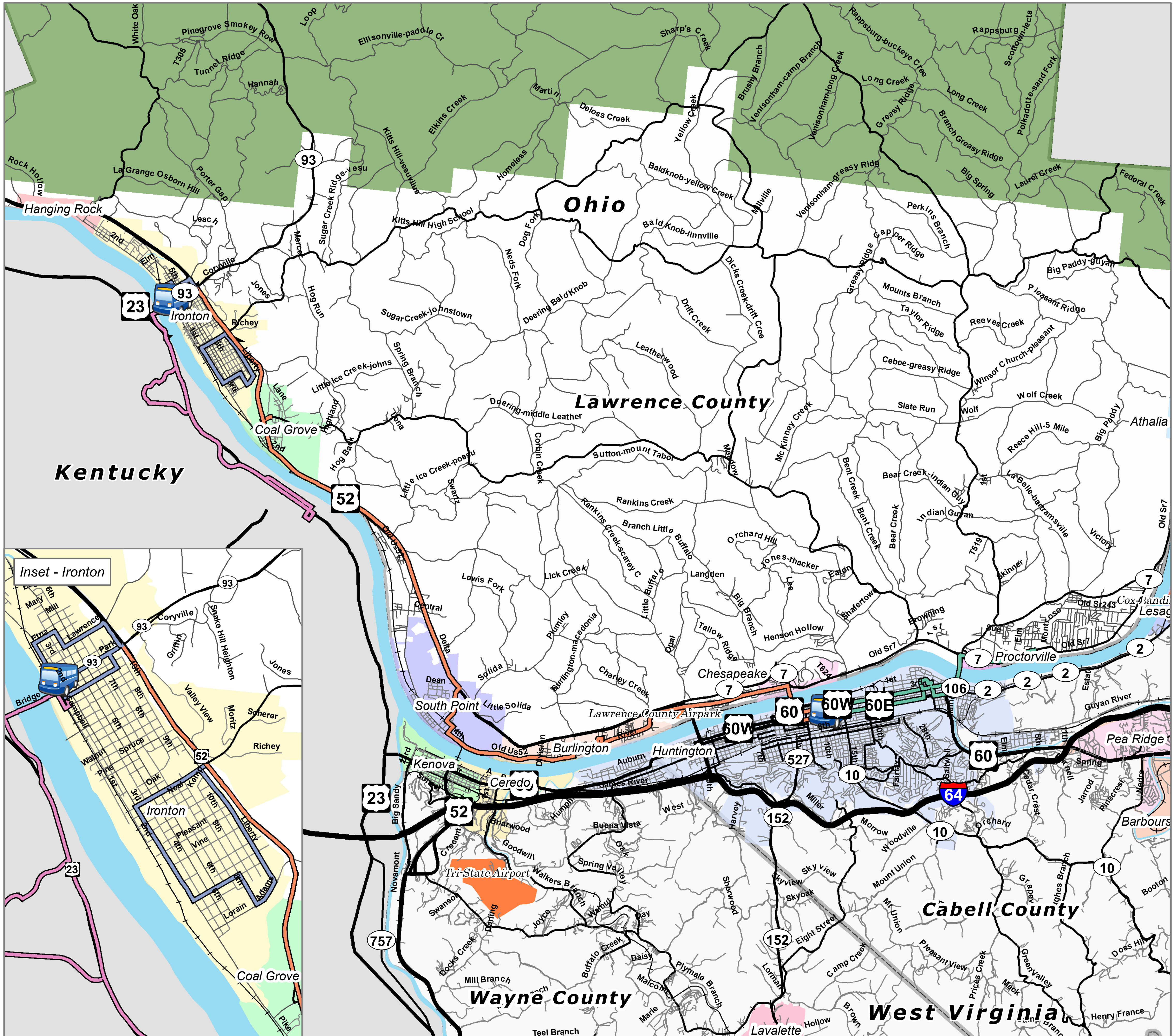
Figure 6.3

TTA Lawrence County Routes



Legend	
Transit Center	
Route 11	
Route 12	
Route 13	
Route 14	
Interstate Highway	
US Highway	
State Highway	
County Road	
Local Road	
Body of Water	
Wayne National Forest	
Airport	

0 1 2 Miles

KYOVA INTERSTATE PLANNING COMMISSION

Kimley-Horn and Associates, Inc.

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Table 6.4 – Lawrence County Route Profile

Route	Service Span		Vehicle Required			Frequency (minutes)			Revenue Hrs	
	Weekday	Saturday	Pk	Md	Sat	Pk	Md	Sat	Wday	Sat.
11-Proctorville	7:35a-5:15p	-	0.5	0.5	-	5 trips/day		-	5.1	-
12-Huntington/Ironton	6:20a-7:43p	-	0.5	0.5	-	5 trips/day		-	12.1	-
13-Downtown Ironton	7:00a-5:30p	-	0.5	0.5	-	50-100	25-130	-	7.4	-
14-Ironton/Ashland	7:30a-6:30p	-	0.5	0.5	-	7 trips/day		-	5.2	-
TOTAL			**2**	**2**	**-**				**29.8**	**-**

Paratransit Service

The LCPA also provides ADA paratransit service as required. This is operated jointly by TTA and the CAO. The CAO has named this service Lawrence County Transit (LCT).

LCPA Fleet

The vehicles used for these services are listed in **Table 6.2** in the TTA description. The LCPA services are provided using two 32-passenger buses and three 13-passenger vans.

Ridership and Productivity

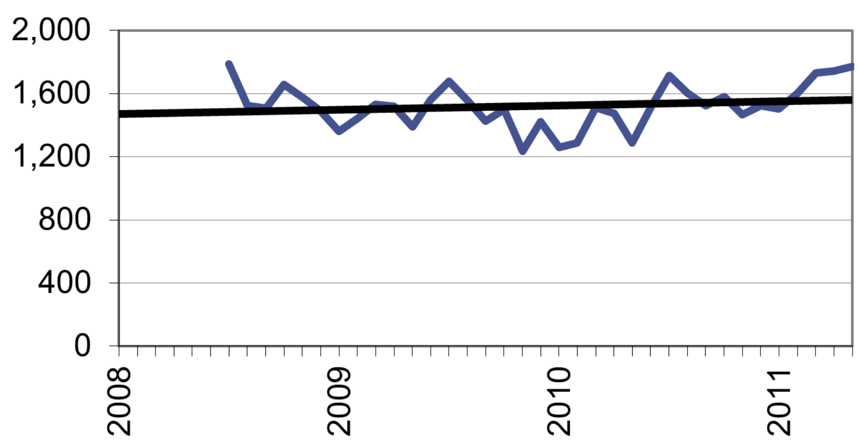
Table 6.5 lists the ridership for these routes. These counts were taken in April 2009, which is less than a year from when they were started. Ridership has increased somewhat on these routes since then.

Table 6.5 – Lawrence County Route Ridership and Productivity

Route	Weekday		Saturday	
	Riders	Per Hr	Riders	Per Hr
11-Proctorville	20	3.4	-	-
12-Huntington/Ironton	52	2.2	-	-
13-Downtown Ironton	7	1.1	-	-
14-Ironton/Ashland	6	1.5	-	-
TOTAL	**85**	**2.1**	**-**	**-**

The graph to the right shows the ridership trend for the Lawrence County routes since its beginning in July 2008. This shows a gradual increase in ridership from about 1,500 to 1,600 passengers monthly. The last three months had ridership levels over 1,700 passengers.

Lawrence County Fixed Route Ridership Trend



Senior Services

The Ironton-Lawrence County CAO also provides a variety of services for senior citizens. This includes the management of a senior center, meals-on-wheels, and the provision of demand response transportation services. It uses seven vans to provide these services. Ridership was 5,458 in 2010.

Wayne Express

Wayne Express provides demand response and deviated fixed route service in Wayne County, West Virginia. Wayne Express is a service of WCCSO, Inc., a multipurpose human service agency. It is based in Kenova where its operations and administrative offices are located. It provides transportation services from 6:15 a.m. to 7:30 p.m. on weekdays.

Table 6.6 – Wayne Express Fleet Roster

Qty	Year	Make	Seating
1	2004	Ford GC II	12
2	2006	Ford GC II	12
4	2006	Ford Pacer	8
1	2006	Dodge Caravan	5
3	2007	Ford GC II	12
4	2008	Ford GC II	12
3	2008	Chevy Uplander	5
2	2009	Dodge	5
3	2009	Ford GC II	12
2	2011	Ford GC II	12

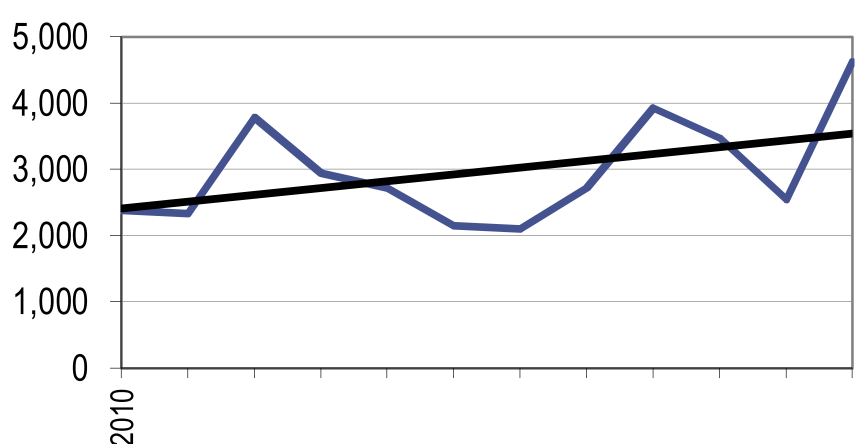
Wayne Express Fleet

Table 6.6 lists the vehicles used by Wayne Express. It currently uses 25 vehicles to provide transportation services to the public. It also maintains seven service vehicles used by Wayne Express staff and a food pantry located in Ft. Gay.

Ridership and Productivity

The graph above shows monthly ridership for Wayne Express for 2010. As can be seen, the ridership trend is increasing from about 2,500 passengers per month to 3,500 passengers per month. Overall, the system averages 0.1 passengers per revenue mile.

Wayne Express Ridership Trend, 2010



Ashland Bus Service

The City of Ashland Bus System (ABS) offers four routes throughout the Ashland and adjoining areas, extending to Catlettsburg, Kenova and Summitt. The system is a hub-and-spokes design with buses departing every hour from the Historic Transportation Center at 99 15th Street. This location directly adjoins the newly renovated Riverfront Park. Bus stops are located at major points of interest such as Town Center Mall, Midland Plaza, the Library, the Movies, and King's Daughters Medical Center. The system operates Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturday from 9:00 a.m. to 6:00 p.m. Office hours are Monday through Friday 8:30 a.m. to 5:00 p.m. and Saturday 9:00 a.m. to 5:00 p.m.

ABS's fleet is handicap accessible, and several of its full-size buses have bicycle racks. The system also offers door-to-door Paratransit services for persons unable to ride the fixed route service. Trips are scheduled in advance.

The full fare is $0.75 per trip. Reduced fares are available for persons with disabilities, persons age 62, persons holding a Medicaid Card, disable veterans, children ages 6 to 12, and students. Children under the age of six ride free. The reduced fare for all others is $0.35. Monthly, weekly, 30-ride, and 10-ride passes are available for full fare patrons and those eligible for reduced fare.

Human Service 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.

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. 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. Six drivers, four full-time and two part-time are employed by the agency.

Transportation service is provided from 7:00 a.m. to 5:00 p.m., Monday through Friday, with occasional Saturday service when necessary. The agency serves about 600 individuals and provides transportation for approximately 250 to 300 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.

Area Agency on Aging District 7, Inc.

The Area Agency on Aging District 7, Inc. (AAA7) is a private, non-profit agency designated by the State of Ohio to be the planning, coordinating and administrative agency for federal and state programs in Adams, Brown, Gallia, Highland, Jackson, Lawrence, Pike, Ross, Scioto, and Vinton Counties in southern Ohio. Of these counties, only Lawrence County, Ohio is included in the KYOVA Interstate Planning Commission region. The AAA7 office is located in Rio Grande, Ohio. The agency provides services for older adults and those with disabilities to live safely and independently in their own homes. The agency mission statement is: *assisting individuals to maintain independence and personal choice by providing resource options and services*.

While there is no formal coordination of transportation trips, AAA7 operates The Aging and Disability Resource Center refers callers to other agencies that may be able to meet the transportation needs of the caller.

AAA7 contracts with the Ironton-Lawrence County Community Action Organization instead of directly providing transportation services. In 2011, $25,000 was awarded to the agency to provide transportation services eligible through the Title III program.

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 non-emergency Medicaid transportation provider.

Transportation service is provided within Cabell County on weekdays from 7:00 a.m. to 5:00 p.m., and on Saturdays by appointment. 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

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 Mental Retardation/ Developmental Disabilities (MR/DD)

The Lawrence County Board of MR/DD provides transportation to children and adults with developmental disabilities. Its transportation services can be divided in two categories. The MR/DD Board provides bus transportation for children who are enrolled at Open Door School and adults served and employed by Tri-State Industries (TSI). MR/DD's non-profit affiliate, TSI, provides transportation primarily for adults for community employment and other purposes. MR/DD also funds private providers who transport individuals to other locations, including hospitals, medical and mental health centers and WIC programs. The agency spends around $500,000 for transportation services annually.

Other Services

Park-and-Ride Lots

Park-and-ride facilities provide a common location for individuals to transfer from a low- occupancy vehicle to a higher-occupancy vehicle. The lots are intended to provide commuters, public transportation passengers, carpoolers, and vanpoolers with a facility to park their vehicles.

There are four park-and-ride lots in the KYOVA area. Each lot was built by and is maintained by the West Virginia Department of Transportation – Division of Highways. The lots are located in Cabell County, two in Huntington and one in Milton, primarily serving passengers of the Huntington - Charleston Commuter Bus service. The park-and-ride lots are also used for meeting area carpooling and vanpooling needs. The lots appear to be well positioned along this corridor. These park-and-ride lots are located at:

- Milton (I-64 Exit 28)
- Huntington Mall (I-64 Exit 20B)
- I-64 at WV 10 (I-64 Exit 11)
- I-64 at WV 152 (I-64 Exit 8)

At the initiation of the Huntington-Charleston Commuter Bus service, the Regional Jail facility at Merritts Creek, just off of Exit 18 in Barboursville, made improvements to the site to accommodate parking of Intelligent Transportation passengers. This enabled iT riders to park away from the jail visitors. The construction of the Huntington Mall park-and-ride lot led to discontinuing use of the Merritts Creek lot for the Intelligent Transportation service.

A 2010 WV Department of Transportation study compiled a detailed inventory of the State's park-and-ride infrastructure. The study found the Milton lot to have overflow parking at times with 95 percent or greater capacity. Expansion of the lot was recommended by the study. It also concluded that across the State there is an issue with inadequate directional signage for the lots.

Amtrak

Amtrak operates two long distance trains through West Virginia. The Capitol Limited operates daily on its Washington-Martinsburg-Pittsburgh-Chicago route. The second train, the Cardinal, provides tri-weekly service on a New York-Washington-Charleston-Cincinnati-Chicago route that stops in Huntington. The Cardinal also stops in Charleston and Ashland, KY. Amtrak stops at Huntington in both directions (westbound in the late evening and eastbound in the early morning) on Sundays, Wednesdays and Fridays. The station has structured hours around the six weekly trains that stop and is open Sunday, Wednesday, and Friday from 5:45 a.m. to 11:45 a.m. and 4:30 p.m. to 10:00 p.m.

The route serves a number of colleges and universities, such as Marshall, Purdue, and Indiana Universities. The Cardinal operates along CSX tracks in the KYOVA portion of the route. A unique feature of the Cardinal is the natural beauty along its route including the Virginia horse country, the Shenandoah Valley, the Blue Ridge and Allegheny Mountains, and the white water of West Virginia's New River Gorge.

Although the Cardinal operates as a through train between New York and Chicago, Amtrak notes that nearly all passengers are traveling to and from intermediate stations in the middle of the route, such as Huntington, where the train is often the only form of intercity transportation available. Therefore, one of the primary functions of the Cardinal is to connect these interior communities with the major hubs and centers in the Northeast and Midwest. In 2011, there were 11,271 boardings and alightings at the Huntington station, an increase of 3.3 percent from the previous year.

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 station contains a ticket office, waiting room, restrooms, television, and vending machines. The station is staffed and baggage services are provided. The Huntington station is owned by Amtrak and was built in 1983.

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.

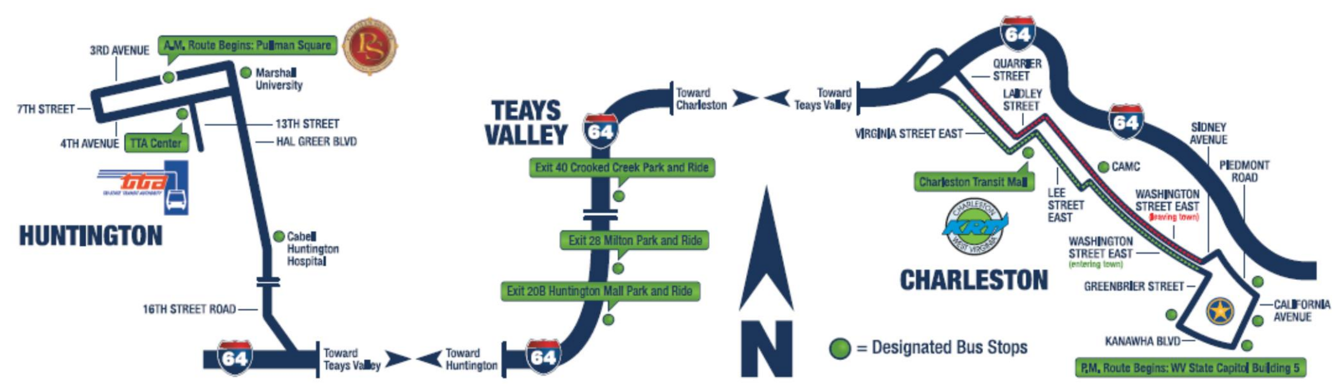
Taxi Service

Numerous taxi companies have operations centered in Cabell, Lawrence, and Wayne Counties. The taxis provide traditional on-call point-to-point transportation throughout the tri-county area. Some taxi operators also provide prearranged time-call service to homes, hotels, or places of work, as well as on-demand delivery and courier service. Taxi Service is available at the Huntington Tri-State Airport, the TTA Center/Greyhound terminal, and the Amtrak train station to assist passengers to their final destinations.

Recent transportation studies in the KYOVA area have found that some human service agencies are utilizing taxi companies for client transportation. For example, the recently revised Lawrence County Department of Job and Family Services Prevention, Retention, Contingency Plan indicates that the agency provides its clients transportation reimbursements that may be used to obtain taxi services to meetings and appointments. The 2011 KYOVA Coordinated Public Transit-Human Services Transportation Plan Update found that the Cabell-Wayne Association of the Blind, Inc. contracts with local taxi companies to meet the transportation needs of its clients. Often this practice is more cost effective than an agency operating its own fleet of vehicles.

Huntington – Charleston Commuter Bus

In January 2009, commuter bus service was initiated between Huntington and Charleston. Intelligent Transit (iT), as the service is called, is a joint effort between the Tri-State Transit Authority (TTA), the Kanawha Valley Regional Transportation Authority (KRT) and the West Virginia Department of Transportation - Division of Public Transit. The service operates two trips in each direction Monday through Friday from downtown Huntington to downtown Charleston, with stops at the Marshall University main campus, the West Virginia State Capitol Building and additional notable locations. TTA provides the service in the morning, while KRT is the service provider in the evening. In an effort to attract the business or college commuter, the service provides free WI-FI and newspapers on each vehicle.



The initial Federal and State support for the service ended January 5, 2012, with Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds being the primary funding source. TTA, KRT and the West Virginia Division of Public Transit came to an agreement to extend the service until June 30 with each entity responsible for one-third of the net costs. Subsequently an agreement was reached to extend funding support of the service through 2015. With an estimated cost of $500,000 to operate the service through 2015, the agreement calls for FTA to provide approximately $250,000 with the remaining $250,000 to be shared equally between the State, TTA, and KRT.

The service was initiated as a demonstration project and it has progressively gained in popularity. The vehicles operate at approximately 80 percent capacity, with standing-room-only buses not uncommon. In 2011 a total of 14,477 iT passenger trips were provided by TTA and KRT.

Due to increasing operating costs and uncertain funding support, fares for Intelligent Transit were recently increased. The fare is based upon distance traveled. From Huntington/Barboursville/Milton to Charleston the rate is $4.00 one way and the same from Charleston/Crooked Creek to Huntington. For passengers boarding at the Crooked Creek stop and traveling into Charleston the fare is $3.00. From Milton/Barboursville to Huntington, the fare is also $3.00 one way. Bus passes are available for the Intelligent Transit service at either a $30 value or a $40 value.

Intercity Bus Service

GREYHOUND

As a result of the industry trend to discontinue routes, the KYOVA area is now served by one of the few intercity bus routes that traverse West Virginia. Huntington is the only designated intercity bus stop in the KYOVA area, with Greyhound Lines, Inc. utilizing the TTA Center as its terminal. Greyhound rents space at the TTA Center, a facility that once was the Greyhound terminal until purchased and renovated by TTA.

Huntington is a stop on Greyhound's route between Charleston and Detroit, with two stops daily in each direction in both the morning and evening. Connections are available along the route to various destinations served by Greyhound or other carriers, linking Huntington passengers to over 2,300 destinations across North America.

The standard fare between Huntington and Charleston is $22.50. The December 2011 West Virginia Region II Coordinated Public Transit-Human Services Transportation Plan Update recommended additional intercity transportation service in the Region to provide more service options for travel beyond the local area.

Major Trip Attractions

The identification of major trip attractions is an important part of determining what gaps exist, if any, in the public transportation system. The following were identified as important trip generators for public transportation to serve.

The locations of these trip generators shown below correspond to the numbers in the list. They follow the linear pattern of the urbanized area. The cluster of commercial development surrounding the Huntington Mall has direct access to I-64. The core of Huntington has major medical facilities, commercial development, and Marshall University located near it. Some commercial development exists along U.S. 52 in Lawrence County. There are also major medical facilities and commercial development in Ashland.

Medical Facilities

1) Cabell-Huntington Hospital
2) VA Medical Center
3) St. Mary's Hospital
4) HIMG Medical Center
5) King's Daughter Hospital
6) Bellefonte Hospital
7) Huntington Internal Medicine Group

Schools/Training Centers

8) Marshall University
9) Cabell County Vocational Training Center
10) Huntington High School
11) Ohio University – Proctorville
12) Ohio University – Ironton

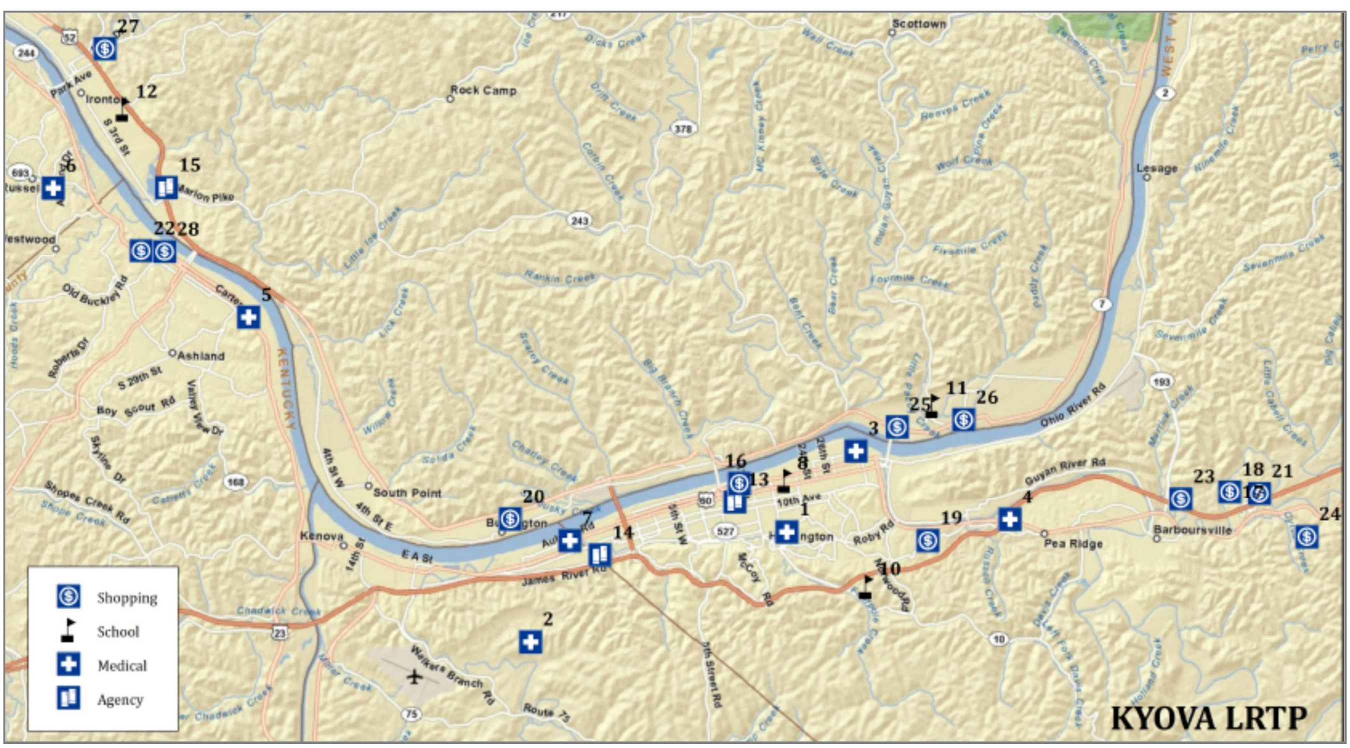
- Cabell Midland High School (not shown in map)

Human Service Agencies

13) Prestera Center
14) DHHR (2699 Park Avenue)
15) Tri-State Industries

Shopping Centers

16) Pullman Square
17) Huntington Mall
18) East Hill Mall
19) Wal Mart (U.S. 60)
20) Wal Mart (U.S. 52)
21) Wal Mart (Barboursville)
22) Wal Mart (Ashland)
23) Target (Barboursville)
24) K-Mart (U.S. 60)
25) Kroger (Proctorville)
26) Food Fair (Rome)
27) Ironton Plaza
28) Ashland Mall



Demographic Analysis

Limited information currently is available from the 2010 U.S. Census. This information was used to identify total population and population densities throughout the KYOVA region. Population projections by county were developed by the West Virginia University Bureau of Business and Economic Research and the Ohio Department of Development. These were used to estimate the population of two key components of transit ridership: senior citizens and persons with disabilities.

Population and Population Density

According to the U.S. Census, the total population of the KYOVA region in 2010 was 201,250. This is a decrease of 756 from 2000, or 0.3 percent. Population densities vary throughout the KYOVA region. The Huntington area has the highest population per square mile, with block groups ranging from between 3,306 to 11,885 people per square mile. The Barboursville area as well as portions of southern Lawrence and northern Wayne Counties each have block groups of moderate population densities ranging from 271 to 1,604 people per square miles. These areas comprise the majority of the greater Huntington urbanized area.

Population Projections

According to information from the West Virginia University Bureau of Business and Economic Research and the Ohio Department of Development, the total population of the three county KYOVA Region in 2010 was 199,042 persons. (Note that this varies slightly from the 2010 U.S. Census.) This is slightly greater than the area's 2005 estimated population of 198,783. The projected population for these counties (**Table 6.7**) shows moderate growth for Cabell and Lawrence Counties, and a loss of population for Wayne County.

These population projections were based on projections by five-year cohorts. These cohorts were summed to four general age groups: 0 to 14 years of age, 15 to 24 years, 25 to 64 years, and over 65 years. **Table 6.8** provides the population projections by age group for each county for 2010 through 2030.

Table 6.7 – Population Projections

	2010	2015	2020	2025	2030
Cabell County	95,245	96,363	96,356	97,246	97,107
Wayne County	40,888	40,191	39,352	38,366	37,195
Lawrence County	62,910	63,650	63,830	63,990	64,060

Sources: West Virginia University Bureau of Business and Economic Research, and Ohio Department of Development

Table 6.8 – Population Projections by Age Group

	2010	2015	2020	2025	2030	% Change 2010-2030
Cabell County	**95,245**	**96,363**	**96,356**	**97,246**	**97,107**	**2.0%**
0-14 Years	16,023	17,357	17,003	17,003	15,616	-2.5%
15-24 Years	18,126	12,578	11,574	12,494	13,476	-25.7%
25-64 Years	45,580	50,092	50,070	48,746	48,413	6.2%
65 Years and Over	15,516	16,336	17,709	19,003	19,602	26.3%
Wayne County	**40,888**	**40,191**	**39,352**	**38,366**	**37,195**	**-9.0%**
0-14 Years	7,144	6,657	6,003	5,586	5,276	-26.1%
15-24 Years	4,698	4,677	4,469	4,219	3,726	-20.7%
25-64 Years	22,592	21,462	20,676	19,669	18,931	-16.2%
65 Years and Over	6,454	7,395	8,204	8,892	9,262	43.5%
Lawrence County	**62,910**	**63,650**	**63,830**	**63,990**	**64,060**	**1.8%**
0-14 Years	10,590	11,190	11,230	11,880	10,900	2.9%
15-24 Years	10,210	8,850	8,650	7,880	9,140	-10.5%
25-64 Years	32,430	33,110	33,460	33,220	33,040	1.9%
65 Years and Over	9,690	10,200	10,500	10,990	10,990	13.4%

Estimate of the Population with Disabilities

The Survey of Income and Program Participation (SIPP) is a national survey that began in 1984. The SIPP is characterized by an extensive set of disability questions. Generally, it is the preferred source of data for examining most disability issues. The reason for this preference is the similarities between questions posed on the SIPP survey and the ADA definition of disability.

The ADA definition of disabled persons, when applied to public transportation, is designed to permit a *functional* approach to disability determination rather than a strict *categorical* definition. In a functional approach, the mere presence of a condition that is typically thought to be disabling gives way to consideration of an individual's abilities to perform various life functions. In short, an individual's capabilities, rather than the mere presence of a medical condition, determine transportation disability.

Data collected in the SIPP do permit consideration of persons with multiple disabilities. Moreover, the definitions employed can be directly related to the concepts in 49 CFR Part 37.3 with respect to "activities of daily life." This source establishes the criteria that only one major limitation in activities of daily life is necessary to trigger ADA eligibility for complementary paratransit services and that it also is a strong indicator of transit dependency.

Using the indices or incidence rates for specific disabilities derived from the SIPP (2002), an imputed estimate of the number of disabled individuals by age group has been calculated for each county. **Tables 6.9** to **6.12** (on the following pages) summarize these data for 2015, 2020, 2025 and 2030.

Table 6.13 is a summary of the projected number of disabled persons for each county for 2015 through 2030. This shows that the growth rate for the number of disabled persons is greater than the population in general. In Cabell County this amounts to a nine (9) percent growth from 2015 to 2030, with most of the growth occurring after 2020. A similar pattern can be seen in Wayne and Lawrence Counties. Wayne County also has a projected nine (9) percent increase in the disabled population, while Lawrence County has a five (5) percent increase from 2015 to 2030.

Table 6.13 – Projection of the Disabled Population

	2015	2020	2025	2030
Cabell County	4,819	4,994	5,208	5,343
Wayne County	2,095	2,193	2,262	2,275
Lawrence County	3,114	3,164	3,199	3,254

Source: RLS & Associates, Inc.

Table 6.9 – Estimate of the ADA Transportation Eligible Population, 2015

	Ages 15-24 Years				Ages 25-64 Years				Ages 65 Years and Over				Total Region			
Disability Status	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Ages 15-24 Yrs.	Ages 25-64 Yrs.	Ages 65+ Yrs.	Total All Ages
Total Population		18,126	4,698	10,210		45,580	22,592	32,430		15,516	6,454	9,690	33,034	100,602	31,660	165,296
Disability Status																
With a Disability	20.8%	3,770	977	2,124	16.3%	7,430	3,682	5,286	52.3%	8,115	3,375	5,068	6,871	16,398	16,558	39,827
- Severe	13.7%	2,483	644	1,399	10.8%	4,923	2,440	3,502	36.9%	5,725	2,382	3,576	4,526	10,865	11,683	27,073
- Not Severe	7.0%	1,269	329	715	5.5%	2,507	1,243	1,784	15.4%	2,389	994	1,492	2,312	5,533	4,876	12,721
Seeing/Hearing Disability																
With a Disability	6.7%	1,214	315	684	4.8%	2,188	1,084	1,557	20.5%	3,181	1,323	1,986	2,213	4,829	6,490	13,532
- Severe	1.4%	254	66	143	0.9%	410	203	292	4.4%	683	284	426	462	905	1,393	2,761
- Not Severe	5.3%	961	249	541	3.9%	1,778	881	1,265	16.1%	2,498	1,039	1,560	1,751	3,923	5,097	10,772
Walking/Using Stairs																
With a Disability	11.4%	2,066	536	1,164	8.0%	3,646	1,807	2,594	38.2%	5,927	2,465	3,702	3,766	8,048	12,094	23,908
- Severe	5.9%	1,069	277	602	3.6%	1,641	813	1,167	22.1%	3,429	1,426	2,141	1,949	3,622	6,997	12,568
- Not Severe	5.5%	997	258	562	4.4%	2,006	994	1,427	16.1%	2,498	1,039	1,560	1,817	4,426	5,097	11,341
Had Difficulty Walking	9.4%	1,704	442	960	6.5%	2,963	1,468	2,108	31.8%	4,934	2,052	3,081	3,105	6,539	10,068	19,712
- Severe	5.1%	924	240	521	3.1%	1,413	700	1,005	19.5%	3,026	1,259	1,890	1,685	3,119	6,174	10,977
- Not Severe	4.3%	779	202	439	3.4%	1,550	768	1,103	12.3%	1,908	794	1,192	1,420	3,420	3,894	8,735
Had Difficulty Using Stairs	9.2%	1,668	432	939	6.5%	2,963	1,468	2,108	31.2%	4,841	2,014	3,023	3,039	6,539	9,878	19,456
- Severe	3.1%	562	146	317	1.8%	820	407	584	11.9%	1,846	768	1,153	1,024	1,811	3,768	6,602
- Not Severe	6.1%	1,106	287	623	4.6%	2,097	1,039	1,492	19.3%	2,995	1,246	1,870	2,015	4,628	6,110	12,753
Used a Wheelchair	1.2%	218	56	123	0.7%	319	158	227	4.5%	698	290	436	396	704	1,425	2,525
Used a Cane/Crutches/Walker	4.1%	743	193	419	2.2%	1,003	497	713	16.9%	2,622	1,091	1,638	1,354	2,213	5,351	8,918
With an Activities of Daily Life Limitation	3.6%	653	169	368	2.5%	1,140	565	811	12.3%	1,908	794	1,192	1,189	2,515	3,894	7,598
- Needed Personal Assistance	2.0%	363	94	204	1.3%	593	294	422	7.1%	1,102	458	688	661	1,308	2,248	4,216
- Did not Need Personal Assistance	1.6%	290	75	163	1.2%	547	271	389	5.2%	807	336	504	529	1,207	1,646	3,382
One or more ADLs or IADLs for which assistance was needed	4.8%	870	226	490	3.1%	1,413	700	1,005	16.3%	2,529	1,052	1,579	1,586	3,119	5,161	9,865

Table 6.10 – Estimate of the ADA Transportation Eligible Population, 2020

	Ages 15-24 Years				Ages 25-64 Years				Ages 65 Years and Over				Total Region			
Disability Status	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Ages 15-24 Yrs.	Ages 25-64 Yrs.	Ages 65+ Yrs.	Total All Ages
Total Population		11,574	4,469	8,650		50,070	20,676	33,460		17,709	8,204	10,500	24,693	104,206	36,413	165,312
Disability Status																
With a Disability	20.8%	2,407	930	1,799	16.3%	8,161	3,370	5,454	52.3%	9,262	4,291	5,492	5,136	16,986	19,044	41,166
- Severe	13.7%	1,586	612	1,185	10.8%	5,408	2,233	3,614	36.9%	6,535	3,027	3,875	3,383	11,254	13,436	28,074
- Not Severe	7.0%	810	313	606	5.5%	2,754	1,137	1,840	15.4%	2,727	1,263	1,617	1,729	5,731	5,608	13,067
Seeing/Hearing Disability																
With a Disability	6.7%	775	299	580	4.8%	2,403	992	1,606	20.5%	3,630	1,682	2,153	1,654	5,002	7,465	14,121
- Severe	1.4%	162	63	121	0.9%	451	186	301	4.4%	779	361	462	346	938	1,602	2,886
- Not Severe	5.3%	613	237	458	3.9%	1,953	806	1,305	16.1%	2,851	1,321	1,691	1,309	4,064	5,862	11,235
Walking/Using Stairs																
With a Disability	11.4%	1,319	509	986	8.0%	4,006	1,654	2,677	38.2%	6,765	3,134	4,011	2,815	8,336	13,910	25,061
- Severe	5.9%	683	264	510	3.6%	1,803	744	1,205	22.1%	3,914	1,813	2,321	1,457	3,751	8,047	13,256
- Not Severe	5.5%	637	246	476	4.4%	2,203	910	1,472	16.1%	2,851	1,321	1,691	1,358	4,585	5,862	11,806
Had Difficulty Walking	9.4%	1,088	420	813	6.5%	3,255	1,344	2,175	31.8%	5,631	2,609	3,339	2,321	6,773	11,579	20,674
- Severe	5.1%	590	228	441	3.1%	1,552	641	1,037	19.5%	3,453	1,600	2,048	1,259	3,230	7,101	11,590
- Not Severe	4.3%	498	192	372	3.4%	1,702	703	1,138	12.3%	2,178	1,009	1,292	1,062	3,543	4,479	9,084
Had Difficulty Using Stairs	9.2%	1,065	411	796	6.5%	3,255	1,344	2,175	31.2%	5,525	2,560	3,276	2,272	6,773	11,361	20,406
- Severe	3.1%	359	139	268	1.8%	901	372	602	11.9%	2,107	976	1,250	765	1,876	4,333	6,974
- Not Severe	6.1%	706	273	528	4.6%	2,303	951	1,539	19.3%	3,418	1,583	2,027	1,506	4,793	7,028	13,327
Used a Wheelchair	1.2%	139	54	104	0.7%	350	145	234	4.5%	797	369	473	296	729	1,639	2,664
Used a Cane/Crutches/Walker	4.1%	475	183	355	2.2%	1,102	455	736	16.9%	2,993	1,386	1,775	1,012	2,293	6,154	9,459
With an Activities of Daily Life Limitation	3.6%	417	161	311	2.5%	1,252	517	837	12.3%	2,178	1,009	1,292	889	2,605	4,479	7,973
- Needed Personal Assistance	2.0%	231	89	173	1.3%	651	269	435	7.1%	1,257	582	746	494	1,355	2,585	4,434
- Did not Need Personal Assistance	1.6%	185	72	138	1.2%	601	248	402	5.2%	921	427	546	395	1,250	1,893	3,539
One or more ADLs or IADLs for which assistance was needed	4.8%	556	215	415	3.1%	1,552	641	1,037	16.3%	2,887	1,337	1,712	1,185	3,230	5,935	10,351

Table 6.11 – Estimate of the ADA Transportation Eligible Population, 2025

	Ages 15-24 Years				Ages 25-64 Years				Ages 65 Years and Over				Total Region			
Disability Status	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Ages 15-24 Yrs.	Ages 25-64 Yrs.	Ages 65+ Yrs.	Total All Ages
Total Population		12,494	4,219	7,880		48,746	19,669	33,220		19,003	8,892	10,990	24,593	101,635	38,885	165,113
Disability Status																
With a Disability	20.8%	2,599	878	1,639	16.3%	7,946	3,206	5,415	52.3%	9,939	4,651	5,748	5,115	16,567	20,337	42,019
- Severe	13.7%	1,712	578	1,080	10.8%	5,265	2,124	3,588	36.9%	7,012	3,281	4,055	3,369	10,977	14,349	28,694
- Not Severe	7.0%	875	295	552	5.5%	2,681	1,082	1,827	15.4%	2,926	1,369	1,692	1,722	5,590	5,988	13,300
Seeing/Hearing Disability																
With a Disability	6.7%	837	283	528	4.8%	2,340	944	1,595	20.5%	3,896	1,823	2,253	1,648	4,878	7,971	14,498
- Severe	1.4%	175	59	110	0.9%	439	177	299	4.4%	836	391	484	344	915	1,711	2,970
- Not Severe	5.3%	662	224	418	3.9%	1,901	767	1,296	16.1%	3,059	1,432	1,769	1,303	3,964	6,260	11,528
Walking/Using Stairs																
With a Disability	11.4%	1,424	481	898	8.0%	3,900	1,574	2,658	38.2%	7,259	3,397	4,198	2,804	8,131	14,854	25,788
- Severe	5.9%	737	249	465	3.6%	1,755	708	1,196	22.1%	4,200	1,965	2,429	1,451	3,659	8,594	13,703
- Not Severe	5.5%	687	232	433	4.4%	2,145	865	1,462	16.1%	3,059	1,432	1,769	1,353	4,472	6,260	12,085
Had Difficulty Walking	9.4%	1,174	397	741	6.5%	3,168	1,278	2,159	31.8%	6,043	2,828	3,495	2,312	6,606	12,365	21,283
- Severe	5.1%	637	215	402	3.1%	1,511	610	1,030	19.5%	3,706	1,734	2,143	1,254	3,151	7,583	11,988
- Not Severe	4.3%	537	181	339	3.4%	1,657	669	1,129	12.3%	2,337	1,094	1,352	1,057	3,456	4,783	9,296
Had Difficulty Using Stairs	9.2%	1,149	388	725	6.5%	3,168	1,278	2,159	31.2%	5,929	2,774	3,429	2,263	6,606	12,132	21,001
- Severe	3.1%	387	131	244	1.8%	877	354	598	11.9%	2,261	1,058	1,308	762	1,829	4,627	7,219
- Not Severe	6.1%	762	257	481	4.6%	2,242	905	1,528	19.3%	3,668	1,716	2,121	1,500	4,675	7,505	13,680
Used a Wheelchair	1.2%	150	51	95	0.7%	341	138	233	4.5%	855	400	495	295	711	1,750	2,756
Used a Cane/Crutches/Walker	4.1%	512	173	323	2.2%	1,072	433	731	16.9%	3,212	1,503	1,857	1,008	2,236	6,572	9,816
With an Activities of Daily Life Limitation	3.6%	450	152	284	2.5%	1,219	492	831	12.3%	2,337	1,094	1,352	885	2,541	4,783	8,209
- Needed Personal Assistance	2.0%	250	84	158	1.3%	634	256	432	7.1%	1,349	631	780	492	1,321	2,761	4,574
- Did not Need Personal Assistance	1.6%	200	68	126	1.2%	585	236	399	5.2%	988	462	571	393	1,220	2,022	3,635
One or more ADLs or IADLs for which assistance was needed	4.8%	600	203	378	3.1%	1,511	610	1,030	16.3%	3,097	1,449	1,791	1,180	3,151	6,338	10,669

Table 6.12 – Estimate of the ADA Transportation Eligible Population, 2030

	Ages 15-24 Years				Ages 25-64 Years				Ages 65 Years and Over				Total Region			
Disability Status	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Percent	Cabell County	Wayne County	Lawrence County	Ages 15-24 Yrs.	Ages 25-64 Yrs.	Ages 65+ Yrs.	Total All Ages
Total Population		13,476	3,726	9,140		48,413	18,931	33,040		19,602	9,262	10,990	26,342	100,384	39,854	166,580
Disability Status																
With a Disability	20.8%	2,803	775	1,901	16.3%	7,891	3,086	5,386	52.3%	10,252	4,844	5,748	5,479	16,363	20,844	42,685
- Severe	13.7%	1,846	510	1,252	10.8%	5,229	2,045	3,568	36.9%	7,233	3,418	4,055	3,609	10,841	14,706	29,156
- Not Severe	7.0%	943	261	640	5.5%	2,663	1,041	1,817	15.4%	3,019	1,426	1,692	1,844	5,521	6,138	13,503
Seeing/Hearing Disability																
With a Disability	6.7%	903	250	612	4.8%	2,324	909	1,586	20.5%	4,018	1,899	2,253	1,765	4,818	8,170	14,753
- Severe	1.4%	189	52	128	0.9%	436	170	297	4.4%	862	408	484	369	903	1,754	3,026
- Not Severe	5.3%	714	197	484	3.9%	1,888	738	1,289	16.1%	3,156	1,491	1,769	1,396	3,915	6,416	11,728
Walking/Using Stairs																
With a Disability	11.4%	1,536	425	1,042	8.0%	3,873	1,514	2,643	38.2%	7,488	3,538	4,198	3,003	8,031	15,224	26,258
- Severe	5.9%	795	220	539	3.6%	1,743	682	1,189	22.1%	4,332	2,047	2,429	1,554	3,614	8,808	13,976
- Not Severe	5.5%	741	205	503	4.4%	2,130	833	1,454	16.1%	3,156	1,491	1,769	1,449	4,417	6,416	12,282
Had Difficulty Walking	9.4%	1,267	350	859	6.5%	3,147	1,231	2,148	31.8%	6,233	2,945	3,495	2,476	6,525	12,674	21,675
- Severe	5.1%	687	190	466	3.1%	1,501	587	1,024	19.5%	3,822	1,806	2,143	1,343	3,112	7,772	12,227
- Not Severe	4.3%	579	160	393	3.4%	1,646	644	1,123	12.3%	2,411	1,139	1,352	1,133	3,413	4,902	9,448
Had Difficulty Using Stairs	9.2%	1,240	343	841	6.5%	3,147	1,231	2,148	31.2%	6,116	2,890	3,429	2,423	6,525	12,434	21,383
- Severe	3.1%	418	116	283	1.8%	871	341	595	11.9%	2,333	1,102	1,308	817	1,807	4,743	7,366
- Not Severe	6.1%	822	227	558	4.6%	2,227	871	1,520	19.3%	3,783	1,788	2,121	1,607	4,618	7,692	13,916
Used a Wheelchair	1.2%	162	45	110	0.7%	339	133	231	4.5%	882	417	495	316	703	1,793	2,812
Used a Cane/Crutches/Walker	4.1%	553	153	375	2.2%	1,065	416	727	16.9%	3,313	1,565	1,857	1,080	2,208	6,735	10,024
With an Activities of Daily Life Limitation	3.6%	485	134	329	2.5%	1,210	473	826	12.3%	2,411	1,139	1,352	948	2,510	4,902	8,360
- Needed Personal Assistance	2.0%	270	75	183	1.3%	629	246	430	7.1%	1,392	658	780	527	1,305	2,830	4,661
- Did not Need Personal Assistance	1.6%	216	60	146	1.2%	581	227	396	5.2%	1,019	482	571	421	1,205	2,072	3,698
One or more ADLs or IADLs for which assistance was needed	4.8%	647	179	439	3.1%	1,501	587	1,024	16.3%	3,195	1,510	1,791	1,264	3,112	6,496	10,873

Stakeholder Interviews

Ironton-Lawrence County Community Action Organization (CAO)

The Ironton-Lawrence County CAO provides management services to the Lawrence County Port Authority who is the recipient of FTA Section 5307 funding. It administers the contract with the Tri-State Transit Authority who operates fixed route and ADA paratransit service in Lawrence County. The CAO also operates some ADA paratransit as well as transportation for Senior Services and Head Start.

The Ironton-Lawrence County CAO also provides a variety of services for senior citizens. This includes the management of a senior center, meals-on-wheels, and the provision of demand response transportation services.

Plans to expand transportation service include:

- Begin Saturday service on the Huntington-Ironton-Proctorville route.
- Begin countywide transportation services for seniors, persons with disabilities, and the general public.
- Expand services targeted for work related trips.

The Ironton-Lawrence County CAO has recently constructed and opened a transfer center in downtown Ironton. Other capital projects in the near future include replacing vehicles used for the Ironton/Ashland route, the ADA paratransit service and the Senior Services transportation program.

Tri-State Transit Authority (TTA)

TTA provides fixed route, ADA paratransit, and non-emergency medical transportation services in Cabell County, West Virginia, and Lawrence County, Ohio. It is based in on Fourth Street in Huntington where its operations/maintenance facility is located.

Plans to expand transportation service include:

- Begin countywide demand response service for the general public in Cabell County.
- Develop a transfer center with Wayne Express and the City of Ashland bus service in Kenova, West Virginia, or some other convenient location.
- Improve the frequency of the Huntington-Ironton route that TTA operates under contract with the Lawrence County Port Authority.

Capital projects over the next five years include replacement vehicles for fixed route and paratransit service. TTA also plans to expand its operations/maintenance facility.

Wayne Express

Wayne Express provides demand response and route deviation service in Wayne County, West Virginia. Wayne Express is a service of WCCSO, Inc., a multipurpose human service agency. It is based in Kenova where its operations and administrative offices are located.

Its public transportation service is supported by FTA section 5311 funding, Wayne County funds, and fares and contract revenues. It has also used FTA section 5310 funding for the purchase of some vehicles. It maintains its vehicles at a local privately-owned business.

Wayne Express does not plan to expand service in the near future as it has been cutting service over the past few years. Capital projects include vehicle replacement and building a transfer center for passengers wanting to transfer to TTA or the Ashland bus system.

Cabell-Wayne Association of the Blind, Inc.

The Executive Director spoke of the importance of the Huntington to Charleston route is to his clients. He cited the need for additional intercity bus service to provide the agency's clients service options beyond the local area. He also noted the need for more Amtrak service to complement the current service into Huntington.

Cabell County Community Services Organization, Inc.

It was noted that vehicles often transport a lone rider due to medical appointments and lack of available lifts. The CCCSO anticipates that it may be 4-5 years before they apply for Section 5310 funding again. They began receiving Section 5310 funding in 1999.

Area Agency on Aging District 7, Inc.

The AAA7 would support greater coordination among transportation providers in the region. Additionally, improved communications about the transportation options of the region would be helpful to the agency's clients.

AAA7 would like to see additional service hours for the transportation provider in Lawrence County, Ohio due to the number of late in the day doctor appointments that cannot be kept because of the limited hours transportation services are available.

Pullman Square Developer

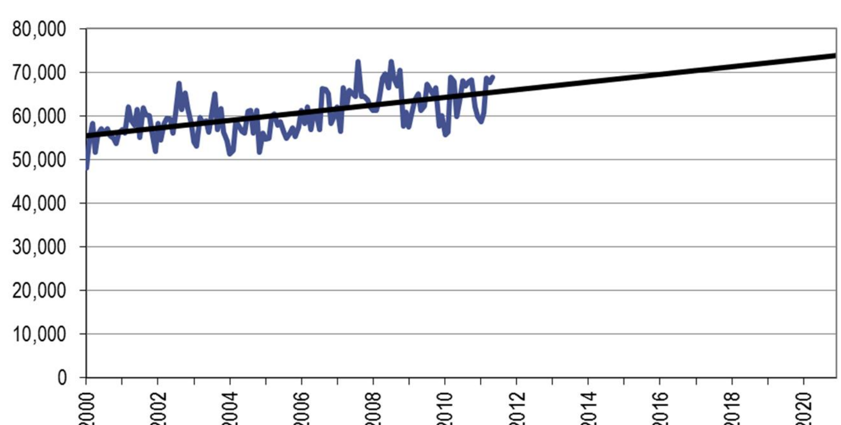
The Pullman Square developer has responsibility for attracting and maintaining tenants for the retail and commercial space in the Pullman Square complex. As a result, it has a vested interest in the economic health and future development of downtown Huntington. It supports the City in its efforts to make its retail core supportive of transit and pedestrian friendly with an attractive streetscape. This company is based in Columbus, Ohio.

Service Analysis

Based on information described in the Existing Conditions section, an evaluation of the current public transportation system in the three-county KYOVA region was conducted. This resulted in the identification of the following issues.

- Gaps in public transportation exist in the rural portions of Cabell and Lawrence Counties. Public transit service in these counties is concentrated in the urban areas. There are some transportation services provided by human service agencies in these areas, though only for those who qualify for an agency program(s).
- There is a low level of coordination of transportation services between human service agencies and public transit providers. Contract revenue is non-existent in the TTA and Wayne Express budgets. The contract revenue for the Lawrence County CAO has been decreasing in recent years.
- TTA fixed route ridership is on an increasing trend. The graph below shows that TTA average ridership should soon exceed 70,000 monthly. Continuation of this trend will bring average monthly ridership to over 80,000 by 2030.
- The frequency of some of the fixed routes is not at a level that would attract the full potential ridership. This is particularly true of the Ironton-Huntington-Proctorville route. Standard frequencies for fixed route bus service should be a minimum of 30 minute peak and 60 minute off-peak.
- The Lawrence County public transportation service is relatively new, starting in 2008. It currently does not have any Saturday service.
- Of the four Lawrence County routes being operated, the Ironton-Huntington route has the highest ridership. The Downtown Ironton circulator has the lowest ridership and is a candidate for elimination or consolidation.
- In recent years, the TTA started evening service on three routes that combine parts of daytime routes. Ridership productivity is currently around the system average, which indicates that TTA should retain or possibly expand evening service.
- Like most areas in the U.S., the KYOVA region's population is aging. This causes a parallel increase in the number of persons with disabilities. The result will likely be a significant increase in the demand for paratransit services, as well as some increase in the demand for fixed route service.
- With three public transportation operators serving the KYOVA region, along with a fourth in neighboring Ashland, there is a need to improve connectivity among them. The bus station in downtown Huntington is the hub for West Virginia and Ohio TTA routes and the intercity bus service (Greyhound). However, no formal transfer centers exist for connections between TTA, Wayne Express, and the Ashland bus service.

TTA Fixed Route Ridership Trend



Service Improvement Alternatives

Potential service improvements are described on the following pages.

Expand Service Area

The non-urbanized portion of Cabell and Lawrence Counties are currently not served with public transportation. The type of service appropriate for these areas is curb-to-curb demand response transportation. In order to estimate the level of service for this mode in these areas, an estimate of potential ridership is necessary.

A methodology was developed to estimate demand for public transportation in rural areas. This is described in Transit Cooperative Research Program (TCRP) Project B-36[1]. This model estimates the potential demand for public transportation based on a combination of demographic factors and the following service factors, including:

- annual vehicle miles;
- annual vehicle hours;
- service area size;
- vehicle miles for individuals with mobility limitations; and
- taxi/non-taxi vehicle miles available to the general public.

The TCRP report defines demand as the estimated number of trips generated within a study area in a given year. Using this methodology, an estimate of potential transit trips for rural Cabell and Lawrence Counties was made.

Estimates of service factors were developed based on existing service provided in Cabell and Lawrence Counties. These include transportation service provided by human service agencies. There is currently no general public transportation provided in these areas. The potential service area is approximately 288 square miles in Cabell County and 457 square miles in Lawrence County. The total annual vehicle-miles available to persons over 60 include programs provided by the Cabell County Community Services Organization, Inc. in Cabell County and the Ironton-Lawrence County CAO in Lawrence County. The total vehicle-miles available to persons with mobility limitations age 16 to 64 is based on services provided by the Cabell County Association for the Blind and the Lawrence County MR/DD. This information is outlined in **Table 6.14**.

Table 6.14 – Available Service Inputs

General Public Service Levels	Cabell County	Lawrence County
Current Rural GP Vehicle Miles	0	0
Current GP Vehicle Hours	0	0
Service Availability Inputs		
Size of Rural Area (sq. mi.)	288	457
Vehicle Miles Availability to Persons Age 60 and Over	40,000	50,000
Vehicle Miles Available to Persons with Mobility Limitations	24,000	50,000
Taxi Vehicle Miles Available to General Public	N/A	N/A
Non-Taxi Vehicle Miles Available to General Public	0	0

[1] Spielberg, Frank, Stoddard, A.T., Erickson, Jeanne, TCRP Project B-36: Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation. Transportation Research Board, National Academies, Washington, D.C., December 2009.

This TCRP model also utilizes demographic information to identify portions of the population likely to use available public transportation. The demand estimation is composed of demographic data relating to the following groups:

- Total population living under poverty level;
- Total population with no vehicles available; and
- State mobility gap.

Table 6.15 contains this information for the study area.

Table 6.15 – Study Area Demographics

Demographic Inputs	Cabell County	Lawrence County
Persons Living Below Poverty	9,157	8,552
Persons With No Vehicles Available	5,288	2,564
State Mobility Gap*	2.4	2.4

**Source: National Household Travel Survey, 2009*

To estimate the population of individuals living below the poverty level, and the persons with no vehicles available, U.S. Census data were used. The resulting analysis indicated approximately 9,157 Cabell County and 8,552 Lawrence County persons are living under the poverty level. Approximately 5,288 Cabell County and 2,564 Lawrence County residents have no vehicle available in their household. The State Mobility Gap was derived from information collected in the 2009 National Household Travel Survey. It is the difference between trips taken by individuals in households with no vehicles available and households with one vehicle available. A different factor was calculated for each State.

This information was then entered into the demand estimation model to predict the transportation need for the study area. **Table 6.16** summarizes the results.

The result was a projected 1,554,700 annual trips in the rural portions of Cabell County and 753,800 in Lawrence County. The number of persons living below the poverty level and the number of persons with no vehicle available were used to estimate the total number of persons with a public transportation need. This totals 14,445 in rural Cabell County and 11,116 in rural Lawrence County.

As can be seen from this estimate, there is a significant amount of demand for transportation from these areas that would require a disproportionately large amount of transportation service. An incremental approach to addressing these needs should be used that is in proportion to existing services provided in other areas of the KYOVA region. Therefore, a rural transportation service consisting of three vehicles in Lawrence County and 4,000 vehicle hours should be provided. In Cabell County, six vehicles and 8,000 vehicle hours should be provided initially.

Table 6.16 – Non-Program Demand Based on TCRP Methodology

Demographic Inputs	Cabell County	Lawrence County
Persons with Need for Public Transportation	14,445	11,116
Total Need Based on Mobility Gap		
Daily Trips	6,346	3,077
Annual Trips	155,4700	753,800

Increase Existing Demand Response Service

As discussed earlier, the population in the KYOVA region is aging. This will result in increased demand for paratransit service. **Table 6.17** summarizes the projections for two primary groups with a high propensity to use paratransit service: persons over 65 years of age and persons with disabilities. As shown, Wayne County shows the highest percentage growth of these groups, while Cabell County is projected to have the greatest increase in the number of persons.

Table 6.17 – Senior/Disabled Population Projections

	2010	2020	% Change 2010-2020	2030	% Change 2020-2030
Cabell County					
65 Years and Older	15,516	17,709	14.10%	19,602	10.70%
Disabled 16-64	2,283	2,108	-7.70%	2,148	1.90%
Total	**17,799**	**19,817**	**11.30%**	**21,750**	**9.80%**
Wayne County					
65 Years and Older	6,454	8,204	27.10%	9,262	12.90%
Disabled 16-64	926	855	-7.70%	766	-10.50%
Total	**7,380**	**9,059**	**22.80%**	**10,028**	**10.70%**
Lawrence County					
65 Years and Older	9,690	10,500	8.40%	10,990	4.70%
Disabled 16-64	1,495	1,452	-2.90%	1,463	0.80%
Total	**11,185**	**11,952**	**6.90%**	**12,453**	**4.20%**

The increasing senior and disabled population will result in greater underlying demand for existing paratransit services. These increases in population can be used to estimate future ridership levels. **Table 6.18** shows the estimated 2020 and 2030 ridership for TTA paratransit service, Wayne Express, and Lawrence County Transit/Senior Transportation Services. Using an average of 2.0 passengers per vehicle hour, an estimate of the increase in service can be made. In order to accommodate this growth, TTA will need to add approximately 3,200 annual revenue hours by 2030. Wayne Express will need to add nearly 13,000 revenue hours annually, and Lawrence County Transit will need to add 300 annual revenue hours.

Table 6.18 – Projected Paratransit Ridership

Paratransit Operator	2010 Ridership	% Change in 2020 Demand	Projected 2020 Ridership	% Change in 2030 Demand	Projected 2030 Ridership
TTA	29,137	11.30%	32,429	9.80%	35,608
Wayne Express	35,739	22.80%	43,887	10.70%	48,583
Lawrence County CAO	5,458	6.90%	5,835	4.20%	6,080

Restructure Lawrence County Routes

The Lawrence County routes include the Ironton-Huntington, Proctorville-Huntington, Ironton-Ashland, and the Downtown Ironton Shuttle. The Ironton-Huntington and the Proctorville-Huntington routes are essentially interlined routes that use the same buses operating through the TTA bus terminal. The Ironton-Ashland and the Downtown Ironton Shuttle are also interlined routes. Ridership is therefore tracked by interlined pair. **Table 6.19** shows the average monthly ridership for the one-year period from June 2010 to May 2011. As shown, ridership is higher on the Ironton-Proctorville route.

Table 6.19 – Lawrence County Routes' Monthly Ridership

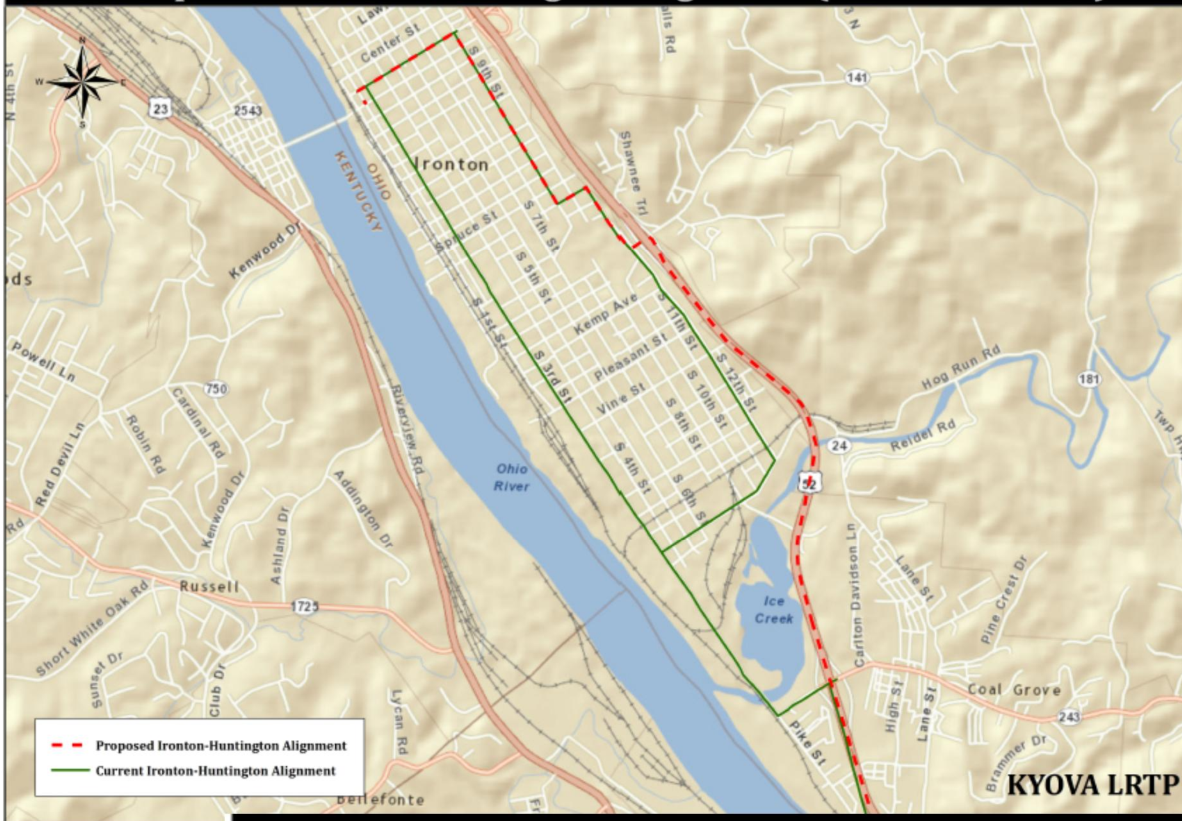
Route	Ridership	Revenue Hours	Passengers/ Hour
Ironton-Proctorville/ Proctorville-Huntington	1,214	356	3.4
Ironton-Ashland/ Downtown Ironton Shuttle	393	224	1.8

The Downtown Ironton Shuttle duplicates a portion of the Ironton-Huntington route and can therefore be eliminated. Local circulation through Ironton can be provided through a combination of the Ironton-Huntington route and the Ironton-Ashland route. The maps on the next page show the proposed alignments of the Ironton-Huntington route and the Ironton-Ashland route. A profile of the proposed routes is shown in **Table 6.20**. Hours from the Downtown Ironton Shuttle were reallocated to the Ironton-Huntington and Proctorville routes to achieve frequencies of 120 minutes. In addition to this change, Saturday service was added to the Huntington-Ironton route. The hours would be from 6:00 a.m. to 7:00 p.m., which matches several TTA routes on Saturdays.

Table 6.20 – Proposed Lawrence County Routes

Route	Service Span		Vehicle Required			Frequency (mins)			Revenue Hrs	
	Weekday	Saturday	Pk	Md	Sat	Pk	Md	Sat	Wday	Sat.
11-Proctorville	7:35a-5:15p	-	0.5	0.5	-	120	120	-	7.3	-
12-Huntington/Ironton	6:20a-7:43p	7:00a-7:00p	1	1	1	120	120	120	17.3	12.0
14-Ironton/Ashland	7:30a-6:30p	-	0.5	0.5	-	7 trips/day		-	5.2	-
TOTAL			**2**	**2**	**-**				**29.8**	**12.0**

Proposed Ironton-Huntington Alignment (Ironton Portion)



Proposed Ironton-Ashland Alignment (Ironton Portion)

Improve Fixed Route Frequencies

Frequencies are one of the most important features of fixed route service that attracts riders. Frequencies generally should be in the 30-minute range to serve work trips effectively. Base frequencies should be at least 60 minutes.

Table 6.21 shows the current and proposed frequencies for the TTA and Lawrence County Port Authority (LCPA) routes. This includes the proposal to restructure the Lawrence County routes. The five routes with the highest ridership were selected to have 30-minute peak period frequencies. All routes currently with frequencies greater than 60 minutes should be improved to 60 minutes.

Fixed-route service also should be improved to include online real-time bus tracking information.

Table 6.21 – Current and Proposed Route Frequencies

Route	Current Frequency (min)				Proposed Frequency (min)			
	Pk	Md	Eve	Sat	Pk	Md	Eve	Sat
1-Westmoreland	60	60	-	60	30	60	-	60
2-Southside	60	60	-	60	30	60	-	60
3-Third Avenue	60	60	-	60	60	60	-	60
4-9th & 11th Avenues	120	120	-	120	60	60	-	120
5-Walnut Hills	60	60	60	60	30	60	60	60
6-Madison Avenue	60	60	-	60	30	60	-	60
7-Barboursville/Altizer	60	60	60	60	30	60	60	60
8-Hal Greer Boulevard	120	120	-	120	60	60	-	120
9-Milton	60	60	60	60	30	60	60	60
11-Proctorville	5 trips/day		-	-	60	60	-	120
12-Huntington/Ironton	5 trips/day		-	-	60	60	-	120
14-Ironton/Ashland	7 trips/day		-	-	60	60	-	-
20-PM South	-	-	60	60	-	-	60	60
30-PM North	-	-	60	60	-	-	60	60
40-PM West	-	-	60	60	-	-	60	60
Pullman-Marshall Shuttle	20	20	20	20	20	20	20	20
Huntington-Charleston	2 trips	-	-	-	30	-	-	-

Consider Addition of Sunday TTA Service

TTA currently operates the same schedule Monday through Saturday in the greater Huntington area with no Sunday service. The Charleston-Huntington Commuter Bus service operates Monday through Friday without Saturday or Sunday service. It is recommended that TTA consider the addition of Sunday service for its traditional service in the Huntington area.

A thorough evaluation should be made which should include adequate opportunity for public comment and input. Initial consideration should be made to providing Sunday service only for the most productive TTA routes and for a limited number of hours. The service could initially be considered a demonstration project to be operated for a limited time, enabling TTA to determine if the service warrants permanent operation. If the additional Sunday service is successfully received, consideration could be made to expand the routes and service hours.

The addition of Sunday service would require funding to offset the additional net operating costs. This service would require the provision of ADA complementary paratransit service. It is anticipated that the current TTA fleet would be adequate and additional equipment would not be required.

Consider TTA Bus Service For Cities of Ceredo and Kenova (Wayne County)

The deviated fixed route and demand response service offered by Wayne Express is currently the only public transportation service for Ceredo and Kenova. It is recommended that TTA evaluate the feasibility of serving Ceredo-Kenova, possibly operating a route(s) that would originate and terminate at the TTA Center for possible transfer to other TTA routes. The service evaluation would determine potential ridership, capital needs, and operating costs for the proposed service, while also providing a recommended service design.

It is envisioned that such service expansion by TTA would require funding support from Ceredo-Kenova and/or Wayne County.

Consider TTA Service to Huntington Tri-State Airport

The Huntington Tri-State Airport (HTS) currently is not served by public transportation. There is no intercity bus service at the airport. Taxi is the only passenger transportation available at the airport.

It is conceivable that public transportation service to the airport could be provided on a daily scheduled basis and/or for special events. However, resources should not be committed to this service without a thorough assessment of potential ridership. The service assessment would also determine the type of service to be provided, operating costs and service frequency.

As noted for other potential services, local financial support would be needed from the Huntington Tri-State Airport and/or other local entities.

Improve Amenities at Bus Stops

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 allows walking and cycling to become more than recreational and leisure activities. By providing amenities and links to other transportation facilities, transit can become a more viable option for travel. TTA should identify high usage bus stops that would be appropriate for enhanced features, including shelters.

Enhance Amtrak Service

Amtrak provides an important link to New York, Washington and numerous other destinations via the Huntington Amtrak Station. Recommendations to enhance the service include:

- Evaluate the need for improved directional signage to the Huntington Amtrak station and make improvements as needed.
- Continue to monitor passenger train service on a regional/national perspective and make recommendations for service changes/improvements as warranted.
- Evaluate the need for improved connections by area public transportation systems to the Amtrak service.

Increase Park-and-Ride Options

Four formal park-and-ride lots in the KYOVA area allow commuters and public transportation passengers to board high-occupancy vehicles. Improvements to the park-and-ride network include:

- Improve existing park-and-ride lots through enhanced directional signage.
- Continue to monitor the park-and-ride network and expand as needed.

Leverage Taxi Service

Numerous human service agencies currently utilize taxi companies for client transportation, which can be more cost effective than an agency operating its own fleet of vehicles. Recommendations for taxi service include:

- Study the potential expansion of cost-effective paratransit service through contracting with local taxi companies.
- Ensure that taxi companies and other private transportation providers in the area are provided the opportunity to participate in the development of local transportation plans and services.
- Work with local agencies and taxi companies to expand fleet with ADA-accessible vehicles.

Monitor the Huntington–Charleston Commuter Bus

Bus service between Huntington and Charleston began as a demonstration project and has become a popular option. The vehicles operate at approximately 80 percent capacity, with standing-room-only buses common. Recommendations for the Huntington – Charleston Commuter Bus include:

- Closely monitor service and make necessary changes as warranted.
- Continue efforts to identify long range funding sources to support service.
- Identify and apply for funding as needed to meet capital costs of service.

Expand Intercity Bus Service

Industry-wide reductions in service routes have left Huntington as the only designated intercity bus stop in the KYOVA region. Recommendations for intercity bus service include:

- Provide convenient connections to local public transportation services for persons using intercity buses.
- Encourage expanded intercity bus services to provide additional transportation options in the area.
- Consider requesting the Greyhound evaluate the extension of service to the Huntington Tri-State Airport.

Management Alternatives

Management alternatives include new or improved ways to manage the public transportation system in the KYOVA Region. Two management alternatives are included. The first is named Management Enhancements, while the second is Management Restructure Options.

Management Enhancements

Management enhancements are short term changes to the existing public transportation management structure. These do not require any new entities or significant changes to existing organizations. Several aspects of this alternative relating to consolidation of management functions were proposed in the *Public Transportation and Human Services Transportation Coordination Plan* completed in 2011.

Mobility Manager

The Coordination Plan proposes to establish an office to promote the coordination of transportation services throughout the KYOVA Region. A Mobility Manager position would be created to implement various human service agency and public transportation coordination programs for the Region. The Mobility Manager would also conduct community outreach, develop agreements for coordinated services, work with each organization to develop coordinated transportation alternatives, and meet with state legislators and state-level human service agencies to promote statewide efforts.

The Mobility Manager should also implement a centralized call center where anyone can call a single number to request a trip; the scheduler/dispatcher at the center will assign the trip to the most appropriate transportation provider. Hiring a Mobility Manager to oversee trip coordination and development of the call center will facilitate implementation of a more coordinated transportation system.

Regional Transportation Advisory Committee

Having a forum in which to discuss mobility issues is vital to the continued development of a public transportation system that includes multiple service providers. A Regional Transportation Advisory Committee (RTAC) should be organized to provide such a forum. Once in place, the group should work toward implementing service improvement strategies. Members of an RTAC should include all public transportation providers.

Marshall U-Pass Program

U-Pass programs are normally tailored to the special needs of local university students and the transit provider. It benefits students from providing free unlimited use of the local public transit system. Local public transit systems are in turn provided with a new revenue source. A Marshall U-Pass program would provide students with improved access to downtown Huntington, malls and other shopping destinations, and medical facilities. It can also provide access to off-campus classroom or research centers. This recommendation was included as a solution in the Downtown Huntington Access Study.

Common ways to finance a U-Pass program are through student fees or a university general fund appropriation. Obtaining student acceptance, designing an easy to use program, and marketing those programs can present challenges. The roles of the transit system and the university must be clearly defined, and effective communications will need to be established if a U-Pass program is to be successful.

Demand Response Programs

As part of the proposed increase in rural and paratransit service, a vanpool service should be implemented that is targeted for individuals who are below the poverty level for employment related activities. These trips could include job-seeking, interviews, education and training classes, taking children to day-care, and maintaining employment. Parameters for the program must include a limited service area and hours of operation that meet the highest level of need such as second and third shifts.

Purchasing Consortium

Joint procurement is a common practice in the transit industry. This is particularly true for vehicle procurement where a transit agency or state department of transportation will establish a procurement process that other transit operators can acquire vehicles.

This practice has several possibilities in the KYOVA Region. For example, a fuel-purchasing consortium can be established for non-profit agencies in the Region. The consortium can solicit quotes from fuel providers in the Huntington area and determine which company would give the best price based upon the total estimated number of gallons of fuel that would be consumed by the agencies each month. Potential fuel providers must be able to provide itemized billings to identify each participating agency and its vehicles. A designated agency, such as the Mobility Manager office, would receive the invoices and process the fuel invoice as well as payments from the consortium agencies.

Participating agencies can also collaborate to purchase various supplies and equipment, as well as vehicle maintenance and training. Joint purchasing will be most effective if managed by a single entity.

Trip Sharing Program

A plan should be implemented for ride sharing/trip sharing to reduce duplication of service. It is suggested that the Mobility Manager establish a mechanism to collect the data necessary to implement this strategy. A database of agencies and their estimated travel patterns and seat availability is suggested as a starting point.

Participating agencies can also collaborate to share vehicles during otherwise idle or down times. Sharing vehicles offers an opportunity for participants to serve more passengers while curtailing both capital and operating costs. Vehicle sharing arrangements are helpful when an agency needs more capacity and another agency is not using its vehicles.

Ironton/Lawrence County CAO Operate Public Transportation

Currently, the CAO provides management services to the LCPA to provide administrative services for its public transportation program. It also operates some of the ADA paratransit service required to complement the fixed route service. In the future, the CAO should operate part of the public transportation system. The Ironton-Ashland route is the most likely candidate for this.

Management Restructure Options

Management restructuring involves significant changes to the current management structure. There would be a number of actions by several parties in order to implement these changes. It is therefore considered to be a long-term management alternative.

Consolidation

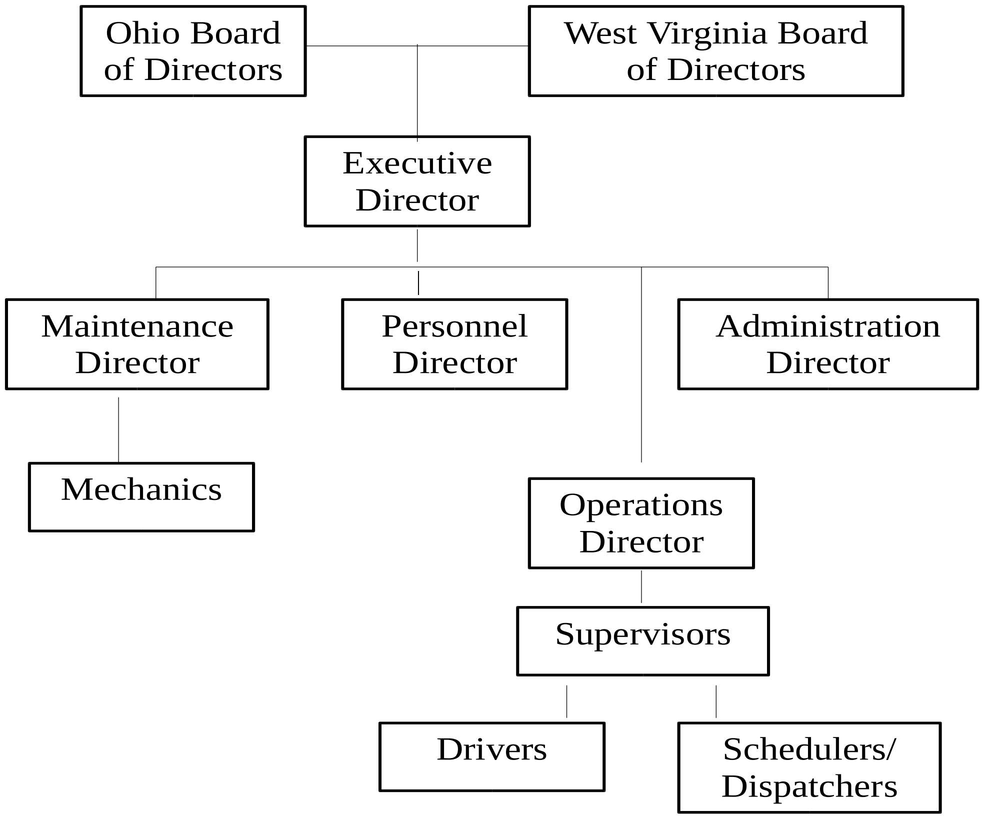
This would bring all public transportation providers in the KYOVA Region under one organization. There would be one central location where the management of public transportation services provided in Cabell, Wayne, and Lawrence Counties would be based.

This would centralize functions such as grant administration, contract management, personnel management, training, maintenance, and scheduling and dispatching. Part of the operations could be subcontracted to outside organizations such as the Ironton-Lawrence County CAO and WCSSO, Inc.

Rules determined by the Ohio Department of Transportation require that a separate board of directors govern the public transportation services provided in that state. Therefore, this regional public transportation agency would be governed by two separate boards, with one Board representing the Ohio communities and the other representing West Virginia communities.

An advantage to consolidation is that it will allow for increased staff specialization. Centralized functions will result in improved expertise when staff dedicate more time to specific activities. For example, a single person can do training for transportation personnel employed by TTA, Ironton-Lawrence County CAO, and WCSSO, Inc.

An organizational chart for this alternative is shown on the following page.



The Executive Director reports to two Boards of Directors. One is made up of persons representing Lawrence County, Ohio, and the other of persons representing Cabell and Wayne Counties in West Virginia. Four department heads report to the Executive Director, with one department head each for maintenance, personnel, operations, and administration. The Maintenance Director would be responsible for all vehicle and building maintenance, and vehicle-related materials and supplies. The Personnel Director would be responsible for recruiting, hiring, drug and alcohol testing, training, and several other personnel functions. The Operations Director would supervise street supervisors, drivers, schedulers, and dispatchers, and be responsible for monitoring service operations. The Administration Director would be responsible for grants, contracts, federal/state compliance, and reporting.

Introduction

The purpose of this chapter of the *KYOVA 2040 Metropolitan Transportation Plan* is to assess the existing freight conditions in the region. For this effort, the project team utilized data available from a variety of sources as well as information obtained through a series of interviews with freight stakeholders in the KYOVA region. Freight by mode, weight, and value is documented, and information related to employment by industry is provided.

A key element of the *KYOVA 2040 MTP* is to evaluate and provide recommendations to improve the existing transportation system to provide efficient and cost-effective transportation of freight and to enhance the future regional economy and trading environment. The freight analysis portion of the *KYOVA 2040 MTP* involved three inputs: 1) a review of existing freight related studies; 2) freight stakeholder interviews; and 3) an evaluation of existing conditions and future trends. The chapter also outlines existing freight flows by mode through the three-county KYOVA region. Several roadway recommendations described in **Chapter 3** and safety and security recommendations mentioned in **Chapter 4** support aviation, freight, maritime, and rail. These recommendations are reiterated in this chapter.

Recent Freight Related Studies

Several recent studies contributed to the understanding of existing issues related to the freight transportation system in the KYOVA region. The summaries that follow supported the development of the *KYOVA 2040 MTP*. The Huntington Tri-State Airport Master Plan is discussed in detail later in the chapter.

KYOVA Freight Planning Study

This study, completed in November 2008 includes a freight profile and description of the importance of freight to the regional economy. The study details the regional freight infrastructure, major freight movements by mode, trading partners, and major shippers and receivers. Recommendations focused on improving goods movement in a cost efficient, time-sensitive, and reliable way. According to the study, the proposed freight planning framework should recognize the importance of strengthening the relationship between transportation and economic development, impacts of freight externalities, and smart growth and land use policy. It also should improve performance of the "last mile" connections to other modes.

West Virginia Multi-Modal Statewide Transportation Plan

This plan, completed in June 2010, evaluated future transportation investments. The focus of the plan was to preserve existing infrastructure and prioritize maintenance; modernize the transportation system to support economic development; and prioritize planning for efficient use of transportation funds. The study focused heavily on transportation revenue and provided a gap analysis of future funding versus transportation needs. In anticipation of future fiscal constraints, the study created a screening and prioritization process for potential transportation projects. The screening process identified: 1) whether a project is justifiable based on its own merit and not dependent upon another project advancing; 2) whether the project duplicates efforts; 3) whether the project represents the best approach; and 4) any local or regional sponsors of a project prior to advancement.

Mid-Ohio Valley Intermodal Study

This study, completed in November 2010, examined potential container-on-barge freight movements in the Mid-Ohio River Valley. It describes the existing transportation infrastructure, feasibility of container on barge, and the potential transportation benefits and savings of diverting freight to barge. Recommendations focus on ways to expand river traffic and connect with inland and national port associations. The final assessment concludes that there is a potential for container on barge operations in the region, but information collected as part of the study suggests that the development of a general cargo terminal requires further investigation.

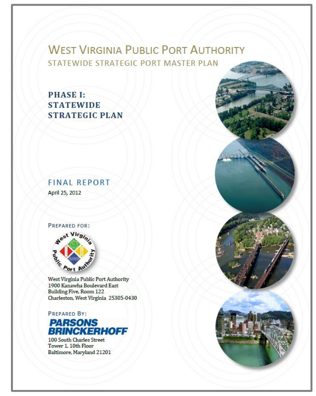
Ohio Statewide Rail Plan

The Ohio Statewide Rail Plan (May 2010) was developed by the Ohio Department of Transportation and Ohio Rail Development Commission to meet the federal requirements for federal rail funds. The rail plan evaluates the current rail and intermodal infrastructure and needs for the future. The plan created strategic recommendations for future investments, and it evaluated the potential impacts. The plan also focused on passenger rail service. The recommendations focus on strategies for rail investment decisions and the creation of a benefits calculation tool similar to USDOT's requirements for Transportation Investment Generating Economic Recovery (TIGER) grants.

West Virginia State Rail Plan

The West Virginia DOT currently is developing a State Rail Plan to provide guidance for future freight and passenger rail investment and to fulfill requirements for future federal rail financial assistance. The anticipated completion date of the plan is December 2013.

West Virginia Public Port Authority – Statewide Strategic Port Master Plan



The West Virginia Public Port Authority (WVPPA) commissioned this plan, completed in April 2012, to outline a vision and process for maximizing landside logistic operations and facilities to transfer cargo to inland destinations efficiently. The plan gives additional consideration for future terminals in Prichard, WV and Chambersburg, PA. The study outlines a proactive plan for future growth of the state's multi-modal system by integrating transportation initiatives into policy, planning, and investment strategies. The study identified the state's existing freight transportation infrastructure, analyzed market conditions, and evaluated business opportunities for successful freight logistics services, specifically for four selected regions within the state. Strategic recommendations and action plans focus on the next 20 years. Eight facilities (active or proposed) were identified for an inland port, intermodal terminal, or logistics facility, including South Point Industrial Park in Ohio. In addition, four regions were identified as strategic focal points for potential site development, including the Huntington/Prichard/U.S. 35 Corridor. Specific strategies for Huntington-Prichard include:

- Develop required highway access to the Prichard Intermodal Terminal
- Develop logistics clusters centered on the Prichard Intermodal Terminal
- Develop logistics infrastructure and services to support extraction and processing of natural gas
- Improve waterside modal transfer capacity
- Adopt the Kansas City Smart Port model to coordinate the region's logistics activities
- Develop information technology capability

Existing Conditions

Freight planning—regardless of mode—differs from planning other transportation modes. For other modes such as highways, bicycle and pedestrian facilities, and transit service, key facilities fall under the jurisdiction of government agencies responsible for developing and maintaining the facilities for the entire community's benefit. Freight remains the only mode in which a significant portion of the main facilities is 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. This section describes the existing conditions relative to the various modes of freight in the KYOVA area.

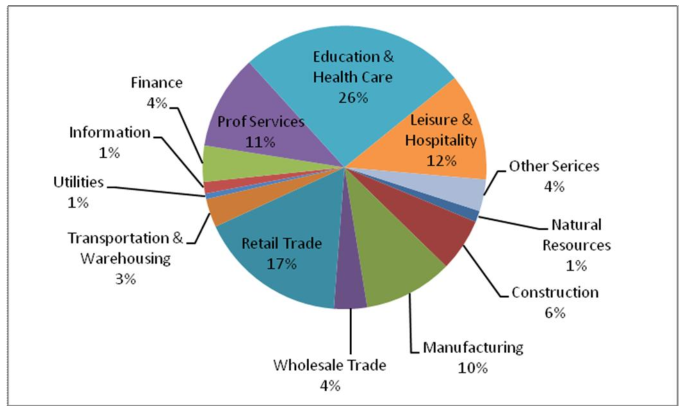
Economic Conditions

Businesses and consumers rely on freight movement daily, which places additional emphasis on an efficient transportation system. Domestic and international trade is impacted by the configuration, condition, efficiencies, and cost of transportation infrastructure. The KYOVA region benefits from its position on the Big Sandy and Ohio Rivers, its local intermodal facilities, and its rail connections to ports. These freight connections are essential to coal and other natural resource industries in West Virginia, which ship large bulk commodities via rail, barge, and truck.

Jobs by Industry

The transportation and logistics sectors in the KYOVA region employed 2,731 people in 2010. In addition, many local construction, manufacturing, warehousing, and distribution businesses rely on critical freight shipments to serve their customers.

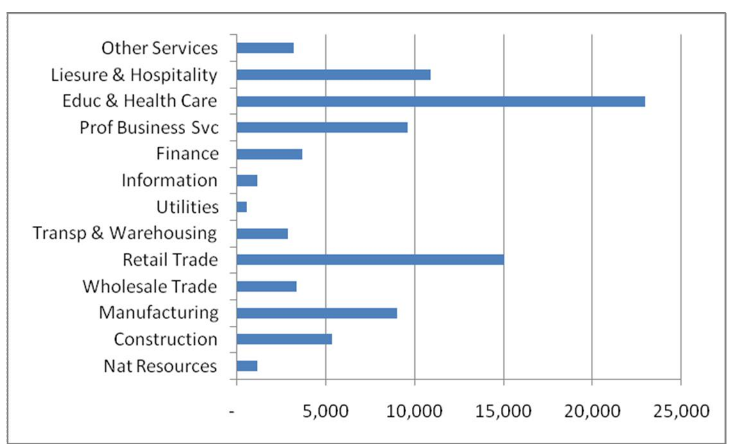
Employment Shares (Huntington MSA, 2009)



Employment Shares

Transportation and warehousing is a critical component of the local supply chain carrying both intermediate goods and finished products to businesses in the region, such as manufacturing and retail trade. The transportation and warehousing industry accounts for 3% of total employment (3,290 jobs) in the KYOVA region, but is an integral part of the greater industry mix.

Jobs by Industry (Huntington MSA)



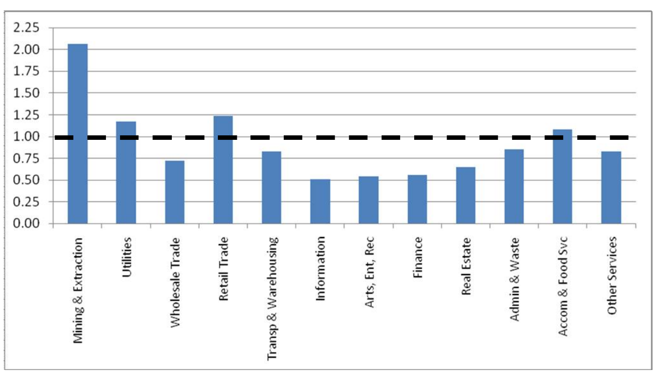
Source (both charts): Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW)

Location Quotients

Location quotients are a measurement of employment activity by industry relative to the United States as a whole. A value of one represents an employment concentration on par with the nation, while a value above one represents a concentration greater than the national average and a value below one less than the national average. The share of mining and extraction jobs in the Huntington MSA is more than twice that of the nation. Other industries in Huntington with a relatively larger share of jobs compared to the United States include retail trade, utilities, and accommodations/food service.

The transportation and warehousing location quotients are slightly below the national average at 0.85. However, transportation and warehousing generates a significant share of the value added, or gross regional product, within the Huntington MSA. Furthermore, transportation plays a major role in the freight dependent industries of retail, natural resources, construction, and manufacturing in the region, which depend on the timely and efficient movement of intermediate and final goods.

Location Quotients (Huntington MSA, 2010)



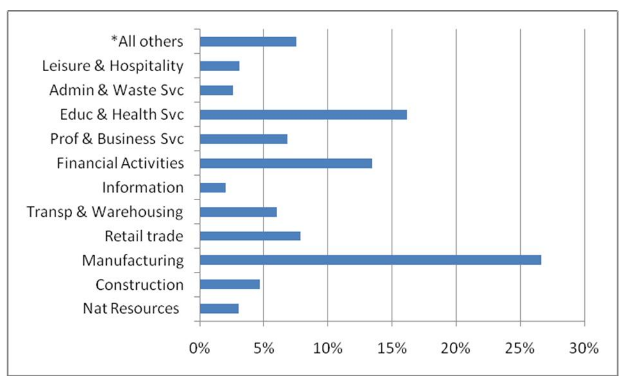
Source: Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW)

Regional Gross Domestic Product

The total dollar amount of goods and services produced in the Huntington MSA in 2009 was $10.4 billion. Nationally, the transportation and warehousing industry accounts for 4.4 percent of total economic activity[1], while the industry accounts for 6.8 percent of the economic activity in the Huntington MSA. This reinforces the importance and strength of the transportation and warehousing industry on the local economy, and it suggests higher productivity per employee.

The figure below shows the composition of the $10.4 billion gross regional product by industry. Locally, manufacturing activity is the largest industry in terms of value-added, followed by education and healthcare and then financial activities. Manufacturing relies heavily on transportation, further reinforcing this industry's relative importance in the region.

Percent Gross Domestic Product by Industry (Huntington MSA)



Source: Bureau of Economic Analysis (BEA)

Note: Detailed data for the industries listed as "All others" in the chart was unavailable or suppressed to avoid disclosure of confidential information.

[1] Bureau of Transportation Statistics, "Transportation Satellite Accounts: A Look at Transportation's Role in the Economy"

Aviation

Huntington Tri-State Airport (HTS) serves Huntington, West Virginia, Ashland, Kentucky, and Ironton, Ohio. The Federal Aviation Administration's (FAA) National Plan of Integrated Airport Systems (NPIAS) for 2011-2015 designates Huntington Tri-State Airport as a primary commercial service airport as defined. 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)

Lawrence County Airpark is a general aviation facility. The NPIAS does not list the latter two airports. Three heliports are located at medical facilities in the KYOVA region—Cabell Huntington Hospital, St. Mary's Hospital, and the VA Medical Center. See **Figure 7.1** for aviation facilities.

Huntington Tri-State Airport

Huntington Tri-State (HTS) Airport is served by Allegiant Air and US Airways 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. While the runway meets width and length FAA runway design standards, the separation distances (i.e. runway centerline to parallel to taxiway centerline) are not in compliance with the standards. The dimensions of the runway protection zone also are not compliant.

The number of enplanements at Huntington Tri-State Airport has increased substantially over the last decade. In 2000, 55,439 enplanements occurred at the airport. In 2010, 117,003 enplanements occurred, a 211% increase. The FAA has identified the Tri-State Airport as the second fastest-growing airport in the northeast.

In 2010, 45 aircraft were based at the airfield with a total average of 36 operations per day. 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 overflow lot are provided, though parking demand at the airport continues to exceed this supply.

Huntington Tri-State Airport Master Plan

The Huntington Tri-State Airport Master Plan (currently is awaiting FAA approval) includes a series of improvements that would allow the airport to meet long-term air transportation needs. The Master Plan forecasts 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 recommends 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 the runway
- 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 later in this chapter for more information.

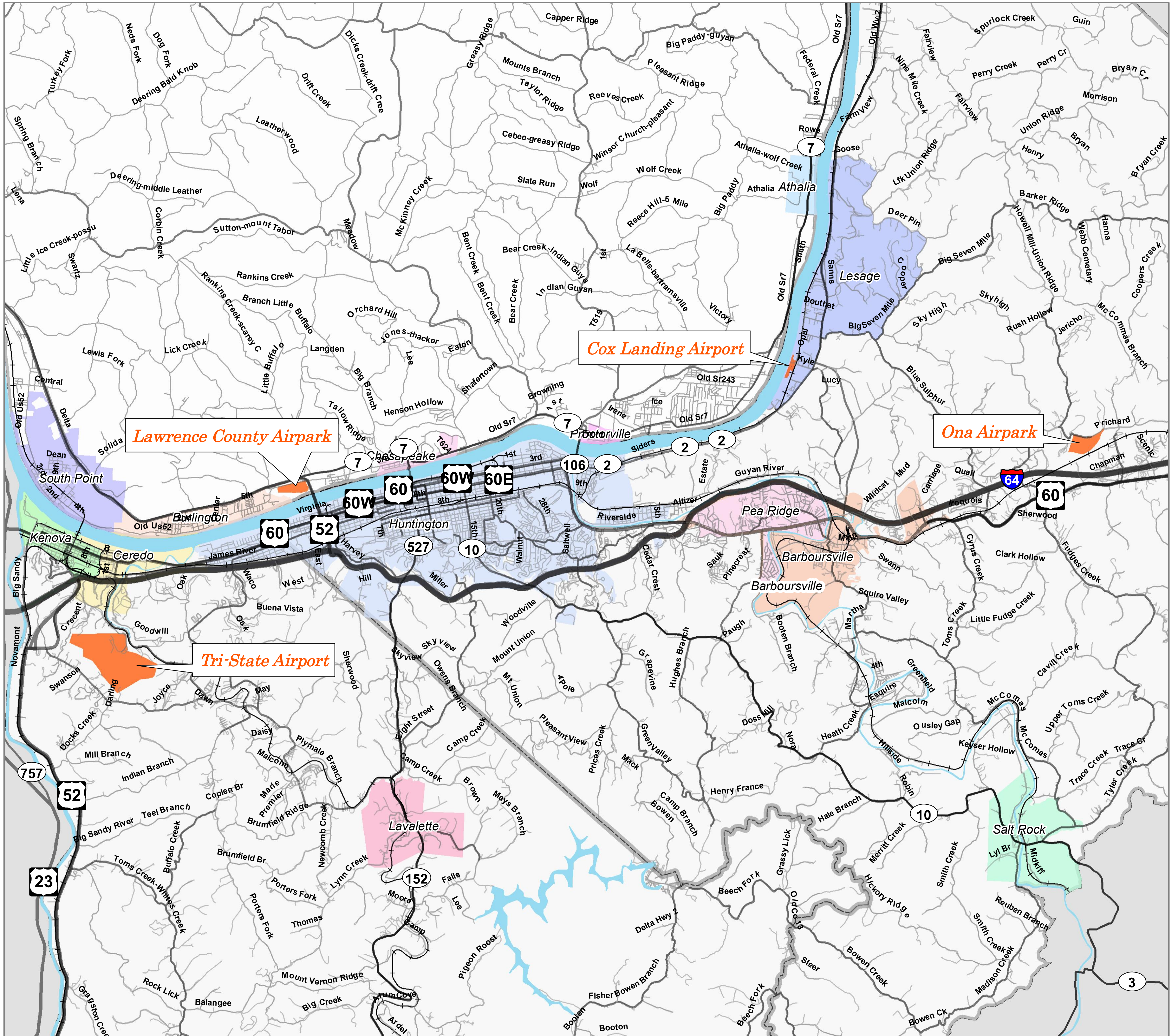
Freight

Highway Infrastructure

KYOVA's highway system connects the region to points in West Virginia, Ohio, and Kentucky 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 and is being upgraded to a four-lane divided highway. US 52 provides the critical connection to the Norfolk Southern railroad site, which will be the home of the Prichard Intermodal Facility currently under construction.
- 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 running state route in Ohio, at 292 miles. It connects Lawrence County with six US routes and six Interstate highways.

According to the Federal Highway Administration's (FHWA) Freight Analysis Framework (FAF) major congestion in the region is isolated to the junction of US 60 and WV 527, which is the Robert C Byrd bridge over the Ohio River between Huntington and Chesapeake. FAF forecasts suggest this point will be a source of major congestion in 2040 if no major improvements are made. Existing congestion levels near US 60 were supported by information collected through interviews with stakeholders.



2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION

KYOVA INTERSTATE PLANNING COMMISSION

Figure 7.1

Aviation Facilities

- Airport
- Interstate Highway
- US Highway
- State Highway
- County Road
- Local Road

0 1 2 Miles

KYOVA INTERSTATE PLANNING COMMISSION

Kimley-Horn and Associates, Inc.

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Distribution Centers and Warehouses

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

Freight Trucking and Highway Operations

The primary mode of freight transportation in the United States is truck, moving 70% of the tonnage in the United States in 2009. Trucks offer flexibility and connectivity between other transportation modes, including airports, intermodal facilities, distribution centers, and ports, which helps explain their relative national dominance. According to the KYOVA Freight Planning Study, truck shipments terminating in KYOVA represent 81% of the total terminating tonnage, a similar modal share to that of the United States. However, truck freight originating in KYOVA represents only 20% of total outbound shipments due to the large bulk volumes of freight handled by the Port of Huntington.

In 2003, commodities either originating or terminating in the KYOVA region via truck accounted for 7.4 million tons. The major commodities originating within the KYOVA region were natural resource-based commodities such as coal, wood, and aggregate. **Table 7.1** shows petroleum or coal products are 39% of tonnage originating in KYOVA. In addition, the major local industries—manufacturing and chemicals—represent more than 27% of the total commodities originating in the KYOVA region.

KYOVA's major inbound, or terminating, commodities include natural resource commodities, food, manufactured goods, and chemicals as shown in **Table 7.2**. By far the largest commodity terminating in the KYOVA region is nonmetallic minerals, which includes aggregates. It represents 43% of all shipments terminating in the region. An additional 11% is clay, concrete, glass or stone.

Table 7.1 – Top 10 Truck Commodities Originating by Tonnage (in Thousands, 2003)

Commodity	Originating	Percent
Petroleum or Coal Products	1,039	39%
Secondary (Truck) Traffic	294.7	11%
Chemicals Or Allied Products	256.5	10%
Transportation Equipment	245.9	9%
Clay, Concrete, Glass or Stone	225.5	9%
Food or Kindred Products	219.5	8%
Lumber or Wood Products	83.5	3%
Fabricated Metal Products	75.9	3%
Primary Metal Products	66.4	3%
Rubber or Misc Plastics	59.4	2%
All Other Commodities	65.1	2%
Total	**2,631.7**	

Source: Global Insight Transearch data via KYOVA "Freight Planning Study" November 2008

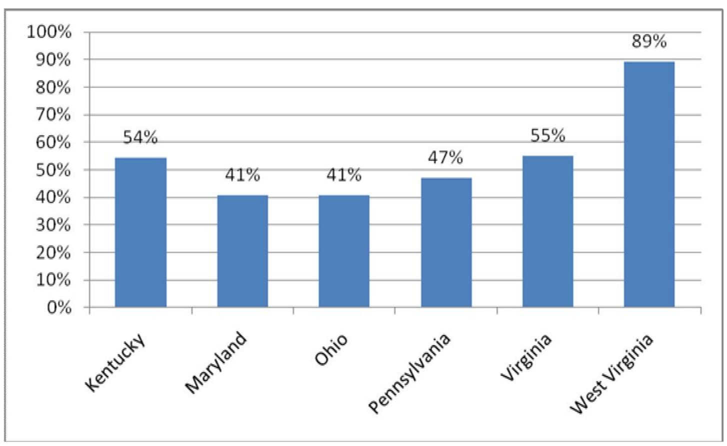
Table 7.2 – Top 10 Truck Commodities Terminating by Tonnage (in Thousands, 2003)

Commodity	Terminating	Percent
Nonmetallic Minerals	2,062,932	43%
Clay, Concrete, Glass or Stone	501,479	11%
Food or Kindred Products	405,478	9%
Chemicals Or Allied Products	319,879	7%
Secondary (Truck) Traffic	316,772	7%
Primary Metal Products	251,070	5%
Petroleum or Coal Products	214,999	5%
Lumber or Wood Products	174,493	4%
Fabricated Metal Products	138,427	3%
Pulp, paper or allied products	88,178	2%
All Other Commodities	296,443	6%
Total	**4,770,150**	

Source: Global Insight Transearch data via KYOVA "Freight Planning Study" November 2008

In both inbound and outbound truck flows, secondary truck traffic represents a relatively large percent of truck volumes in KYOVA. Secondary traffic represents freight movement from wholesalers, warehouses, and distribution centers as well as drayage for rail terminals and airports. Drayage is simply the transport of containers to and from intermodal facilities or ports. Commodity level estimates for through traffic were not available for the KYOVA region, but the chart to the right presents through traffic by state. As shown, West Virginia has a high level of through truck traffic compared to neighboring states, suggesting it is a gateway to east coast ports, inland waterways[2], and intermodal facilities throughout the Appalachian region. It also suggests that a significant amount of freight passes through the state. Distribution centers, warehousing, and intermodal connections likely increase the volume of KYOVA through traffic.

Percentage of Truck Traffic Pass Through by State (based on ton-miles)



Source: Transportation & Potential for Intermodal Efficiency-Enhancements in Western WV

Issues and Constraints

The stakeholder and public involvement process began with establishment of two goals:

- Inform and engage key regional freight stakeholders on the *KYOVA 2040 MTP* process; and
- Receive input from the public and key regional freight stakeholders.

To facilitate these goals and enable the project team to gain an understanding of the freight trends and issues and opportunities, major freight operators in the KYOVA region were interviewed. Feedback was requested on potential strategies to improve the region's freight system. Information was gathered directly from railroads, ports, and trucking and distribution organizations. To facilitate the discussion, a freight survey was distributed to the operators.

Because freight data for the KYOVA region was limited, interviews supplemented the data analysis by providing information to the team on several key issues:

- Origin to destination shipping patterns and modal needs;
- Realistic opportunities to divert freight from truck to other modes; and
- Transportation investments that provide economic development opportunities given current levels of transportation funding.

The interviews provided valuable stakeholder perspectives on the relationships between transportation infrastructure investment, land development, and intermodal connectivity. Based on stakeholder interviews, secondary source data, and the literature review, the major trucking related issues in the KYOVA region include:

- Road maintenance and highway safety improvements;
- Truck stop and service areas along I-64;
- Truck route designations/signage;
- Congestion; and
- Overweight permits.

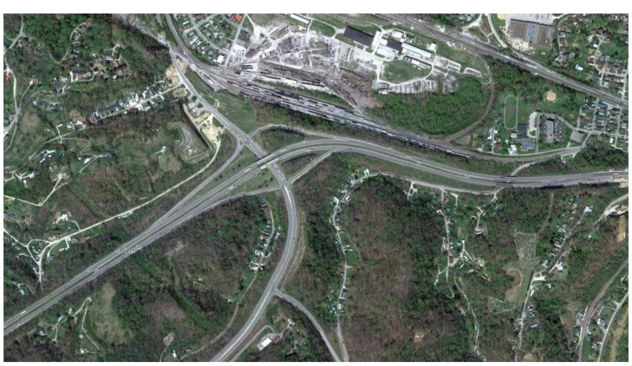
[2] Mid-Ohio Valley Intermodal Study, Nov 2010

Road Maintenance and Highway Safety Improvements

Stakeholder interviews revealed numerous truck routes, including US 52, US 23, and WV 152, required some level of maintenance and safety improvements. Stakeholders from Wayne County were concerned with merge areas on US 52, which have a high incidence of crashes and frequent bottlenecks. Additionally, stakeholders requested improved safety along I-64 through incident management improvements and other signage enhancements.

Truck Stop and Service Areas along I-64

Only two truck stops and service plazas (approximately 38 miles apart) are located along I-64 in the KYOVA region. Stakeholders noted that the lack of rest stops creates truck traffic near Exit 1 of I-64 and the airport. A welcome center and rest stop near this exit would help alleviate truck congestion. An additional truck stop along I-64 is a local priority and may require local funding.



Designated Truck Routes and Congested Roadways

According to stakeholders, trucks have become stuck underneath the 1^{st} Street Bridge in Huntington because appropriate signage on truck routes and height limitations are not prominently displayed. In 2011, the WVDOH installed height restriction signage along the State Highway System routes on the approaches to the viaducts. This action was in response to concerns about trucks exceeding the height restrictions and getting stuck beneath the viaducts. Signs were placed on 1^{st} Street, 8^{th} Street, 10^{th} Street, Hal Greer Boulevard, and 20^{th} Street.

East-west travel also is difficult when I-64 is congested because detour routes do not have sufficient capacity. Some roadway segments (e.g. the junction of US 60 and WV 527) could be improved to address bottlenecks or facilitate flow through traffic.

Overweight Permits for Trucking

Trucks with overweight permits currently are allowed to travel on Coal Resource Transportation System (CRTS) highways, including US 52. These trips may result in a maintenance issue when the Prichard Intermodal Facility is opened or the South Point Intermodal Facility is expanded. Truck growth will result in additional wear and tear on regional highways, particularly US 52. Bridge infrastructure likely will incur more frequent inspections and additional maintenance costs.

Maritime

The Port of Huntington, located on the Ohio River and its major tributary, the Big Sandy River, is the largest inland port in the United States. The Ohio River has been designated as Marine Highway 70. The United States Department of Transportation is identifying major Marine Highway Corridors for investment that would divert containerized freight from truck to Marine Highways. These efforts present a great opportunity for the largest facility within the Port of Huntington, South Point, located on the Ohio side of the river. A detailed discussion of the South Point facility can be found in the Intermodal Connections section later in this chapter for more information.

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 following list of facilities on the West Virginia and Ohio sides was compiled from the West Virginia Port Authority.

Freight Terminal, Pipeline, Storage, and Mooring Facilities

Ohio River

- Adams Trucking & Supply
- Barboursville Block Manufacturing Company
- Mountain Enterprises Inc.
- Kenneth Edward Maxwell
- Ohio River Terminals Company
- Steel of West Virginia, Inc.
- Huntington Coal Transportation Corporation
- Shell Oil Corporation
- Fuchs Lubricants
- Kanawha River Terminals
- Cemex/Kosmos Cement
- Marathon Petroleum
- Tri-State Stone Inc.
- Coal Terminals Inc.
- Aquila Dock Inc.
- Pen Coal Corporation

Big Sandy River

Source: Trainborders.com

- Placer Dock
- P&C Dock
- Big Sandy Terminal (side rail served by NS)
- Tri State Terminals (Arch Coal)
- Riverway North Terminal
- Riverway South Terminal
- Kentucky May Dock (Electric Fuels)
- Wayne County River Terminal (WV side)
- Ashland Materials

As **Table 7.3** and **Table 7.4** show, the Port of Huntington is the eighth largest port in terms of total tonnage and the fourth largest port in terms of domestic tonnage just behind the Port of NY/NJ. Interestingly, the port also ranks higher than Los Angeles, CA, based on weight.

Table 7.3 – Top 10 US Ports by Total Tonnage
(in Thousands of Tons, 2009)

Rank	Port	Total
1	South Louisiana, LA	212,581
2	Houston, TX	211,341
3	New York, NY & NJ	144,690
4	Long Beach, CA	72,500
5	Corpus Christi, TX	68,240
6	New Orleans, LA	68,126
7	Beaumont, TX	67,715
8	**Huntington - Tristate**	**59,172**
9	Los Angeles, CA	58,406
10	Texas City, TX	52,632

Source: US Army Corps of Engineers Waterborne Commerce Statistics

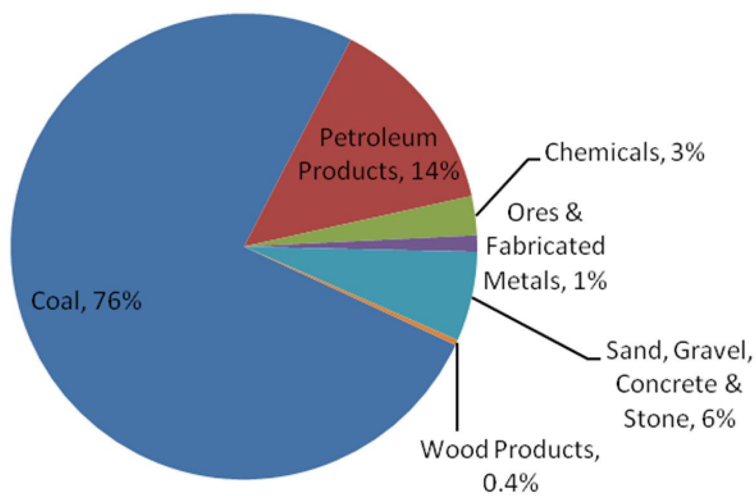
Table 7.4 – Top 10 US Ports by Domestic Tonnage
(in Thousands of Tons, 2009)

Rank	Port	Total
1	South Louisiana, LA	109,503
2	Houston, TX	63,372
3	New York, NY & NJ	61,221
4	**Huntington - Tristate**	**59,172**
5	New Orleans, LA	37,068
6	Plaquemines, LA	34,708
7	Valdez, AK	34,465
8	Baton Rouge, LA	34,084
9	Pittsburgh, PA	32,891
10	St. Louis, MO and IL	31,337

Source: US Army Corps of Engineers Waterborne Commerce Statistics

The port handled 59 million tons in 2009. Freight is shipped by barge through the port and typically consists of heavy bulk commodities including petroleum products, coal, minerals, and chemicals. Coal and petroleum products represent 90% of the total freight traffic in terms of tonnage shipped through the port (see the chart to the right). The remaining 10% of shipments are composed of other bulk commodities including chemicals, sand, gravel, stone, concrete, metallic ores, fabricated metals, and wood products. The port currently does not handle any containerized traffic; however, the South Point Ohio freight terminal has plans to construct a container crane enabling the transfer of containers between truck and barge. The Mid-Ohio Valley Intermodal Study suggests that containerized chemicals and consumer goods have the greatest potential to be diverted to barge.

Share of Major Commodities Shipped Port of Huntington, 2009



Source: US Army Corps of Engineers Waterborne Commerce Statistics

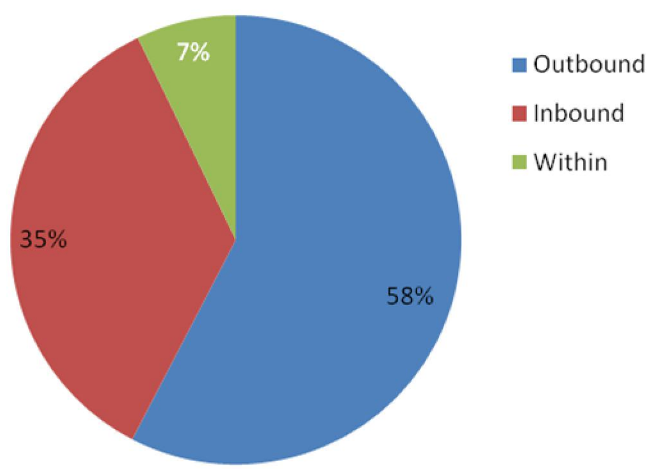
The major commodities by direction are shown in **Table 7.5**. Shipments within the region represent a small portion of total barge freight, but the distribution among commodities is representative of total barge traffic. As the Port of Huntington is on an inland waterway, all freight passing through the Port of Huntington is domestic. Outbound freight shipments represent 58% of total tonnage, which support the large coal and petroleum product industries within the region.

Table 7.5 – Major Commodities Shipped by Direction (in Thousands of Tons, 2009)

Commodity	Originating	Terminating	Within	Total
Coal	27,218	14,448	3,088	44,754
Petroleum Products	5,954	1,421	866	8,241
Chemicals	500	986	122	1,608
Ores & Fabricated Metals	101	523	47	670
Sand, Gravel, Concrete & Stone	88	3,473	117	3,679
Wood Products	220	0	0	220
Total	**34,081**	**20,851**	**4,240**	**59,172**

Source: US Army Corps of Engineers Waterborne Commerce Statistics

Port of Huntington Freight by Direction



Source: US Army Corps of Engineers Waterborne Commerce Statistics

Originating (Outbound)

Thirty-four million tons originated at the port of Huntington. Of this, coal represents the largest share based on weight, 27.2 million tons. Nearly 6 million tons of petroleum products also originate at this port. Other commodities traveling by barge from the port include chemicals; ores and fabricated metals; sand, gravel, concrete and stone; and wood products.

Terminating (Inbound)

Commodities that terminate at Huntington include coal, petroleum products, chemicals, ores and fabricated metals, and sand, gravel concrete and stone. In 2009, 20.8 million tons of freight terminated at this port. Of this, coal represents more than half (14.4 million tons).

Within

As is the case with originating and terminating commodities, coal represents the largest share of cargo shipped at the port. Three million tons of coal was shipped by barge in 2009.

Issues and Constraints

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

- Investment opportunities and private partnerships;
- National trends and opportunities; and
- Coordination with national port authorities and organizations.

Investment Opportunities and Private Partnerships

Further coordination and prioritization of projects through organizations like the Port of Huntington terminals and local agencies can help pool available investment to advance core marine projects. While Huntington is the fourth largest domestic port, it still does not handle intermodal containers. Opportunities should be explored for projects that could stimulate local economic activity and further utilize intermodal facilities.

Further investment into landside infrastructure is necessary for the Port of Huntington to realize any benefit from containerized traffic or the designation of the Ohio River as a Marine Highway. This designation enables the USDOT to work with states, private transportation providers, local and tribal governments to research and recommend solutions to improve network level safety and efficiencies while expanding use of marine highways. Key landside investments include container cranes at South Point, storage, and road extensions and improvements to access roads parallel to the Ohio River. On the water side, key investment funds should be made available for removing underwater debris, lock maintenance, and terminal expansion.

Attracting additional investment partners and active pursuit of funds through federal programs like USDOT's Transportation Investments Generating Economic Recovery (TIGER) should be prioritized. Additionally, opportunities for Public Private Partnerships (PPP) and Tax Increment Financing (TIFs) should be investigated to help stimulate additional private development along the Ohio River. By ensuring that private interests are fully committed to the port, there is a greater likelihood of successful port expansion and sustainability.

National Trends and Opportunities

By 2014, a third set of locks, larger than the existing locks—will be added to the Panama Canal. The new locks will permit the passage of larger ships and expedite their movement. The larger vessels are referred to as post-Panamax vessels. The canal's maximum cargo carrying capacity will double. According to the West Virginia Public Port Authority Statewide Strategic Port Master Plan, the result may be new opportunities for the KYOVA region because the expansion will allow larger ships to directly reach East Coast ports. It also means most rail cargo from East Coast ports must be moved to inland locations before it can be reconfigured into denser and more balanced trains to serve eastern and Midwest markets.

Hydraulic fracturing, or "fracking", is the process of drilling and injecting fluid into the ground at a high pressure to fracture shale rocks to release natural gas. While the practice began more than 65 years ago, modern technology introduced in the last 15 years has made the practice more economical for energy companies. Large volumes of water are required during the process, with some accounts suggesting each gas well requires an average of 400 tanker trucks to carry water and supplies to and from the site. The potential may exist to transport water and supplies to fracking sites by rail and/or boat. The U.S. Coast Guard currently is reviewing a proposal to ship fracking wastewater from Texas via the Ohio River. Shipment by barge is attractive for energy companies because a tanker barge can transport up to 10,000 barrels of waste compared to 80 to 150 barrels for a tanker truck. The practice of fracking and the waste it creates are routinely cited by opponents as environmentally destructive.

Coordination with National Port Authorities

Stakeholder interviews also suggest that the Port of Huntington, the fourth largest domestic port, could become more active. This may help stimulate more growth at the port in terms of freight volumes, businesses along the port, and landside investments.

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. The region's 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. For current system maps, please visit Norfolk Southern's and CSX's websites at:

http://www.nscorp.com/nscportal/nscorp/map.html

http://www.csx.com/index.cfm/customers/maps/csx-system-map/

Rail Corridors

Heartland Rail Corridor

The KYOVA region has access to the Heartland Rail Corridor, which extends from the port region of Norfolk, Virginia to Columbus, Ohio and Chicago, Illinois. The Heartland Corridor improvement project was a public-private partnership between Norfolk Southern Railroad and the Federal Highway Administration to facilitate more efficient movement and increase freight capacity to and from the Norfolk port region. As part of the project, bridge and tunnel clearances were improved to allow double stack container trains and remove various choke points along the corridor. KYOVA's closest operational intermodal facility on the Heartland Corridor is the Rickenbacker intermodal terminal in Columbus, Ohio. Currently, 12 westbound and 18 eastbound intermodal trains pass through KYOVA.

National Gateway Corridor

National Gateway corridor is another major public-private partnership initiative backed by CSX, connecting to the Midwest and Mid Atlantic seaports. Major investments have focused on removing height restrictions to allow double stack trains.

Huntington Rail Connections

CSX maintains two major lines in Huntington, connecting the region to the east coast container market and the Midwest. The Central Corridor Double-Stack Initiative foresees the potential for significant growth once the National Gateway corridor project is complete. Currently, 54 single stack CSX trains pass through Huntington without stopping each day. These through shipments carry coal and travel to Newport News from Kentucky. In addition, Huntington receives 17 cars of chemicals and merchandise as well as a carload for a bakery each week.

West Virginia Freight Rail

More than 167 million tons of freight were shipped via rail in 2007. The primary rail operators transporting this freight are CSX and Norfolk Southern, both of which have a presence in the KYOVA region. Shipments of coal are the largest commodity shipped from the region, accounting for more than 88% of West Virginia's freight rail traffic as shown in **Table 7.6**. Various construction materials, chemicals, and natural products account for another 11% of West Virginia's rail freight.

Issues and Constraints

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 (see page 7-18) and connecting infrastructure; and
- Economic development opportunities for businesses to utilize rail.

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. For more information on TIFs, see page 9-18 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.

Table 7.6 – Inbound and Outbound West Virginia Rail Tonnage
(in Thousands, 2007)

Commodity	Tons	Percent
Coal	147,740	88.3%
Gravel	8,911	5.3%
Petroleum/coal products	3,231	1.9%
Fertilizers	2,088	1.2%
Basic chemicals	2,058	1.2%
Plastics/rubber	1,050	0.6%
Base metals	968	0.6%
Natural sands	302	0.2%
Wood products	219	0.1%
Other foodstuffs	159	0.1%
Newsprint/paper	135	0.1%
Nonmetal mineral products	104	0.1%
Other	353	0.2%
Total	**167,318**	**100.0%**

Source: Transportation and the Potential for intermodal Efficiency-Enhancements in Western West Virginia (Nov 2000)

Intermodal Connections

The KYOVA's major intermodal facility is located in South Point, Ohio. A new intermodal facility is under construction for Prichard, West Virginia. 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, grant funding is being solicited for improvements near the Huntington Tri-State Airport to enhance intermodal connections. The lack of intermodal customers and private investment limits local rail utilization, and hinders the development of the Prichard facility. 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.

Existing and Proposed Facilities

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[3]. 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 Ironton-Russell bridge (connecting Ironton, OH with Russell, KY).

In 2010, ODOT applied for federal discretionary funds through the Transportation Investment Generating Economic Recovery II (TIGER II) program. The grant request focused on capital improvement and rehabilitation projects, including a crane for general cargo and containers. Funds would have been used in conjunction with ODOT's Logistics and Distribution River Port Intermodal project, which will improve the Ohio River's intermodal infrastructure.[4] While the project was not selected for funding, the application highlights several investments that could improve throughput and barge activity. South Point currently is leveraging Congestion Mitigation and Air Quality (CMAQ) funds to partially fund an intermodal crane that would enable the port to transfer containers from truck to barge.

Prichard Facility Development

The proposed Prichard intermodal facility site is on Norfolk Southern property in Wayne County, West Virginia. The facility will 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.[5] Although the Prichard site is located near the Big Sandy River, it does not have water access due to silt covered banks, and the current proposal does not include water access.

The Prichard facility was the recipient of a TIGER III grant in 2012. This grant will fund construction of an access road, overpass, and the intermodal facility itself. The grant awarded $15 million with an additional $15 million provided by WVDOT and $5 million provided by Norfolk Southern.

Train volumes exceed 50 trains per day at some locations along the Norfolk Southern route.[6] It is anticipated that the new intermodal facility will handle 11,000 containers annually, and a significant portion of this container traffic would come from diversions from existing truck traffic. These potential freight volumes suggest an initial three trains per week to the facility.

The commodities with the greatest potential for diversion likely would be containerized chemicals,

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

[4] The Point Intermodal River Port Facility

[5] Central Corridor Double-Stack Initiative

[6] Central Corridor Double-Stack Initiative

and other non-time sensitive containerized drayage. Improvements to existing adjacent infrastructure have begun in preparation for the proposed Prichard Intermodal terminal in Wayne County.

The proposed 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.

The West Virginia Public Port Authority has entered into an agreement with the Rahall Transportation Institute (RTI) to develop and execute a "Marketplace Strategy" for the Heartland Intermodal Gateway at Prichard. This project is currently underway.

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 in current development, 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 notes that improvements are needed to the supporting roadway infrastructure. The KYOVA Interstate Planning Commission applied for the TIGER Discretionary Grant program in March 2012 to fund these improvements. According to the grant application, the project is intended to improve access to the airport by reconfiguring the National Highway System Connector with associated surface transportation infrastructure. These improvements are intended to facilitate the following improvements:

- Enhance interaction between various transportation modes, including automobile, truck, bus/transit, shuttle, bicycle, and pedestrian;
- Increase capacity;
- Improve safety and mobility within the tri-state region; and
- Provide accessibility and connectivity between the roadway, terminal, and freight facilities.

The project is anticipated to cost $15 million.

Performance Measures

To track and prioritize investments from the planning stages through the operational phases, performance measures were created as part of other freight and rail plans completed for the study area. These studies suggest that intermodal performance measures should benchmark current freight volumes, providing a basis for measuring efficiency.

The performance measures developed through these research efforts focus on safety, efficiency, maintaining a state of good repair, improving intermodal connections, environmental considerations, economic development, land use benefits, and linkages to regional initiatives. The intermodal performance measures are presented in **Table 7.7**.

Table 7.7 – Intermodal Performance Measures

Category	Metric
Intermodal Terminals	
Throughput	Increase storage, tonnage, or throughput
Off-site air freight distribution	Acreage and/or building square footage
Domestic Routes	Number
Facility size	Acreage and capacity
Operations efficiency	TEU moves per terminal acre
Warehousing	
Number of facilities	Number
Protection/ expansion of warehousing	Acreage, or number of sites
On & Off site cargo capacity	Acres, TEU capacity

Source: WV Multimodal Statewide Transportation Plan

Issues and Constraints

Major intermodal issues 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.

Funding Opportunities for Intermodal Facilities

Both South Point and the proposed Prichard facility would benefit from additional investment opportunities and partnerships. As mentioned, ODOT unsuccessfully applied for federal discretionary funds through the TIGER II program in 2010. The request for funding focused on capital improvement and rehabilitation projects to improve the intermodal infrastructure on the Ohio River that would improve throughput and barge activity. Alternative funding plans continue to be explored.

Funding Opportunities for Last Mile Infrastructure

Both the proposed Prichard facility and the Huntington Tri-State Airport Intermodal Facility require funding for connecting roadways that would provide access to the site and the facility construction.

Investment Opportunities

Investment partnerships could provide some funding toward intermodal efforts. Facility and last mile projects would facilitate the use of containerized transport for local businesses, which could dramatically reduce shipper costs. The infrastructure improvements also could stimulate industrial growth and economic development in the region, but initially there will need to be commitments from the private sector. The demand threshold must first be met by these commitments. A "build it and they will come" scenario could incur high costs, low utilization, and jeopardize the success of the facility.

Recommendations

The ease of moving goods within and through a region—whether on highways, waterways or railways—is critical in a global marketplace. The importance of reliable, convenient air travel is an important consideration for both quality of life and economic development. Officials at the state, regional, and local levels realize the advantage of having safe and efficient systems to move people and goods. Every indication is that freight activity likely will be more active in 2040, placing additional reliance on the region's multimodal freight network. The recommendations that follow are based on the collective issues and constraints that emerged from stakeholder interviews, secondary sources, and literature review. In summary, they are:

Investment and Economic Development Opportunities. The KYOVA region has access to major rail and marine infrastructure. However, rail and marine transportation remains underutilized. These facilities provide adequate bulk services, but infrastructure for containerized intermodal operations is unavailable. The existing freight rail and marine 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. Economic development and investment opportunities need to be pursued including Tax Increment Financing and Public-Private Partnerships. These mechanisms may become more important in the future as the impact of the Panama Canal widening is felt along the Ohio River corridor, and as additional financial constraints are imposed on transportation spending.

Last Mile Connections and Safety. Numerous truck routes need maintenance and safety improvements. Designated truck routes and signage can reduce congestion. The last mile connections to intermodal facilities are critical, as port operations are likely to grow and container traffic would exacerbate any existing last mile deficiencies. Rail connections and access could be improved to better utilize the current rail operations, and provide a larger customer base for rail providers.

Aviation Recommendations

The aviation recommendations include a series of roadway improvements near the Huntington Tri-State Airport as well as facility improvements identified in the Huntington Tri-State Airport Master Plan. These projects are summarized below. In addition, the creation of the Tri-State Airport Intermodal Transfer Facility would provide the necessary infrastructure to support regional coordination and economic enhancement.

Relevant Roadway Recommendations

Several roadway projects identified in **Chapters 3** and **4** will benefit freight access to the airport as well as passenger access to the facility. The projects listed below and highlighted in **Figure 7.2** are of particular interest to aviation operations in the KYOVA region.

- **Airport Road Connector**—Construct a new 2-lane Airport Roadway Connector from US 52 to Airport Road
- **Walkers Branch Road (CR 3)**—Widen to a 4-lane divided roadway from the Walkers Branch Road bridge to I-64
- **Darling Lane**—Widen to a 4-lane divided roadway from WV 75 to the Tri-State Airport
- **Docks Creek Road (CR 8)**—Widen to a 4-lane divided roadway from US 52 to WV 75
- **US 52 (future I-73/I-74)**—Widen US 52 to a 4-lane divided roadway from Sharps Branch (Cyrus) to Kenova with a new bridge over the Ohio River

Master Plan Recommendations

The Huntington Tri-State Airport Master Plan determines the long-term development plans for the airport. The Master Plan is an important step to ensure adequate resources are allocated to meet identified needs. In general, an airport master plan typically covers up to a 20-year horizon. Recommendations from the Huntington Tri-State Airport Master Plan were introduced earlier in this chapter.

Buildings and Facilities

- Expand or reconstruct the Passenger Terminal Building to alleviate space constraints, terminal age concerns, and accommodate projected growth.
  - 57,000 SF (existing needs), 63,000 SF (2030), 77,000 SF (additional expansion)
- Remove the existing terminal hold room to alleviate apron constraints
- Provide boarding bridges to improve passenger safety, convenience, and comfort.
- Relocate the General Aviation and Operations Terminal to the south side of the airfield to separate secure and non-secure operations.
  - 13,000 to 20,000 SF building
- Construct at least one 10-unit T-hanger bank and one group hanger in the next 1 to 5 years (an additional group hanger and T-hangers may become warranted in the next 6 to 10 years.).

Runways, Taxiways, and Aprons

- Plan and preserve space for 1,000-foot extension to Runway 12-30.
- Plan and preserve space for a full length parallel taxiway A and develop sections according to the 400-foot C-IV standard.
- Develop taxiways to accommodate Group-IV aircraft (i.e. Boeing 757).
- Provide hold aprons on both runway ends to allow bypass capabilities.
- Construct a General Aviation apron on the south side of the airfield in accordance with the development of the relocated General Aviation and Operations Terminal.

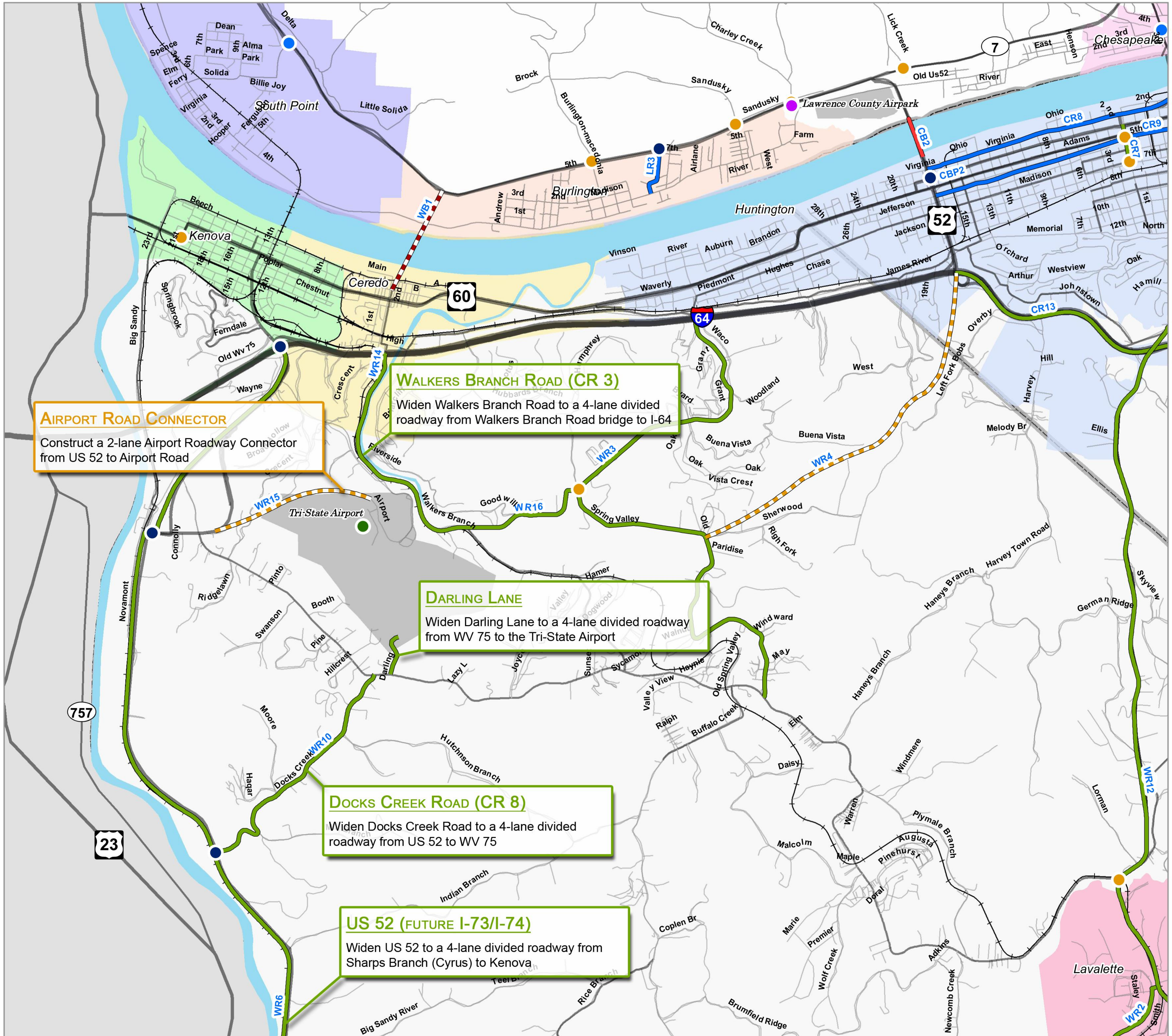
Access and Parking

- Expand parking facilities (preferably covered) to accommodate approximately 600 to 850 parking spaces.
- Improve access signage to the south and north sides of the airfield.

2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION KYOVA INTERSTATE PLANNING COMMISSION

Figure 7.2



Aviation Recommendations

- Committed Improvements
- Interchange Improvements
- Intersection Safety Improvements
- Intersection Operation Improvements
- Intersection Operation Improvements
  - Ironton (Committed)
- Tri-State Airport Intermodal Transportation Center
- Committed
- Roadway New Location
- Roadway Widening
- Multimodal/Downtown Improvements
- Bridge Construction
- Bridge Replacement

0 0.375 0.75 Miles

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Freight, Maritime, and Rail Recommendations

A variety of recommendations from **Chapter 3** (Roadway Element) and **Chapter 4** (Safety and Security Element) reflect freight and economic development opportunities for investment in the KYOVA region. While many of these recommendations represent strategic opportunities, planning and prioritizing projects will be essential. Coordination among agencies and private partners present opportunities for financing and leveraging incremental infrastructure investments.

General Recommendations

Various indicators suggest that the economy is slowly recovering (e.g. declining unemployment rates in the region and nation, increasing new home sales, and expansion of the manufacturing sector). While the economy likely will fluctuate in the coming decades, long-term growth in the energy sectors and improved infrastructure at coastal ports will create opportunities for freight movements through KYOVA via the port, rail, and roadways. The following represent general recommendations to meet future demand.

Rail

- Construct additional rail sidings to relieve points of congestion
- Collaborate with CSX to improve viaducts in Huntington

Maritime

- Consider opportunities presented by improved freight mobility through the Panama Canal (New Panamax)
- Continue to build regional collaboration among port authorities
- Promote accommodations for targeted commodity markets

Intermodal

- Improve last mile connections to South Point, Prichard, and Tri-State Airport

Freight (Roadway)

Roadway improvements should focus on safety and facilitating freight movement. Not accounting for freight growth at the Prichard site, truck Vehicle Miles Traveled (VMT) is anticipated to grow at 2.2% annually along US 52 and I-64 according to the regional travel demand model. As mentioned earlier in this chapter, safety concerns and widening US 52 were identified as important freight projects in the region by interviews with stakeholders, discussions with the project team, and a planning study identified in the WV Statewide Transportation Improvement Plan (STIP). Improvements to US 52 likely will:

- Provide truck and auto travel time savings;
- Increase average speeds and reduce fuel consumption;
- Improve safety and reduce crash incidence along US 52;
- Reduce greenhouse gas emissions; and
- Reduce shippers out of pocket costs including vehicle O&M and labor costs.

As the planning process continues for the US 52 widening study and more information becomes available, additional analysis should be quantitatively revisited with a benefit-cost analysis. The improvements to US 52 are one example of the numerous roadway projects that should improve freight mobility. These projects (highlighted in **Figure 7.3**) include the following:

- **I-64**—Widen to a 6-lane divided freeway from the West 17th Street Bridge to Hurricane
- **US 52 (future I-73/I-74)**—Widen US 52 to a 4-lane divided roadway throughout Wayne County with a new bridge over the Ohio River
- **Ohio River Bridge**—Construct a new 4-lane divided bridge over the Ohio River between WV 193 and the Chesapeake Bypass (SR 7)

- **Culloden Interchange**—Construct a new interchange on I-64 at Benedict Road (CR 60/21)
- **Chesapeake Bypass**—Extension of existing bypass from US 52 to SR 775
- **Airport Road Connector**—Construct a new 2-lane Airport Roadway Connector from US 52 to Airport Road

Though not highlighted on the map, other recommendations will improve freight operations. These include improvements to I-64 Exit 1 near the airport, operations improvements along US 52 in Ohio and replacing the West 17th Street bridge with a four-lane facility.

Maritime

The Port of Huntington is a strategic freight asset for the KYOVA region and a critical catalyst of the regional economy. Investments should focus on leveraging the port site and South Point intermodal facility. These types of investments should focus on the landside connections allowing for freight transfers through South Point, regional port sites, and the airport. Although the airport needs are different than maritime and rail cars, improving connections to the airport will enable more opportunities for high-value, low-weight, and time sensitive cargo. Storage and freight flows also should be considered because of opportunities across the region for private warehouse development based on interview discussions.

Rail

Public-private partnerships will be important for expansion of rail facilities and intermodal connections to improve the movement of freight by rail. The KYOVA region benefits from access to the Heartland Corridor, allocated funding for the Prichard site, and access to the National Gateway Corridor. On the National Gateway corridor, opportunities should be explored for removing height restrictions to allow for double stack trains. Expanding rail capacity and intermodal connectivity to these important corridors will create opportunities for further private investment in rail infrastructure such as rail sidings. More facilities with rail access will provide a strategic advantage and freight opportunities to customers. The public-private partnership between Norfolk Southern, the West Virginia Port Authority, and WVDOT for the TIGER III program award exemplifies the success that can be achieved when pooling funds and resources to push critical projects forward.

Intermodal Facilities

Figure 7.3 also highlights three intermodal transfer facility improvements. These improvements tie the recommendations of the Aviation, Freight, Maritime, and Rail Element together, as they represent the confluence of different modes and are critical to the timely transfer of goods. The three facilities include the following:

- **South Point Intermodal Transfer Facility**—Continue to enhance the intermodal transfer facility and supporting infrastructure
- **Tri-State Airport Intermodal Transfer Facility**—Construct supporting infrastructure for a new intermodal transfer facility
- **Prichard Intermodal Transfer Facility**—Construct a new intermodal transfer facility

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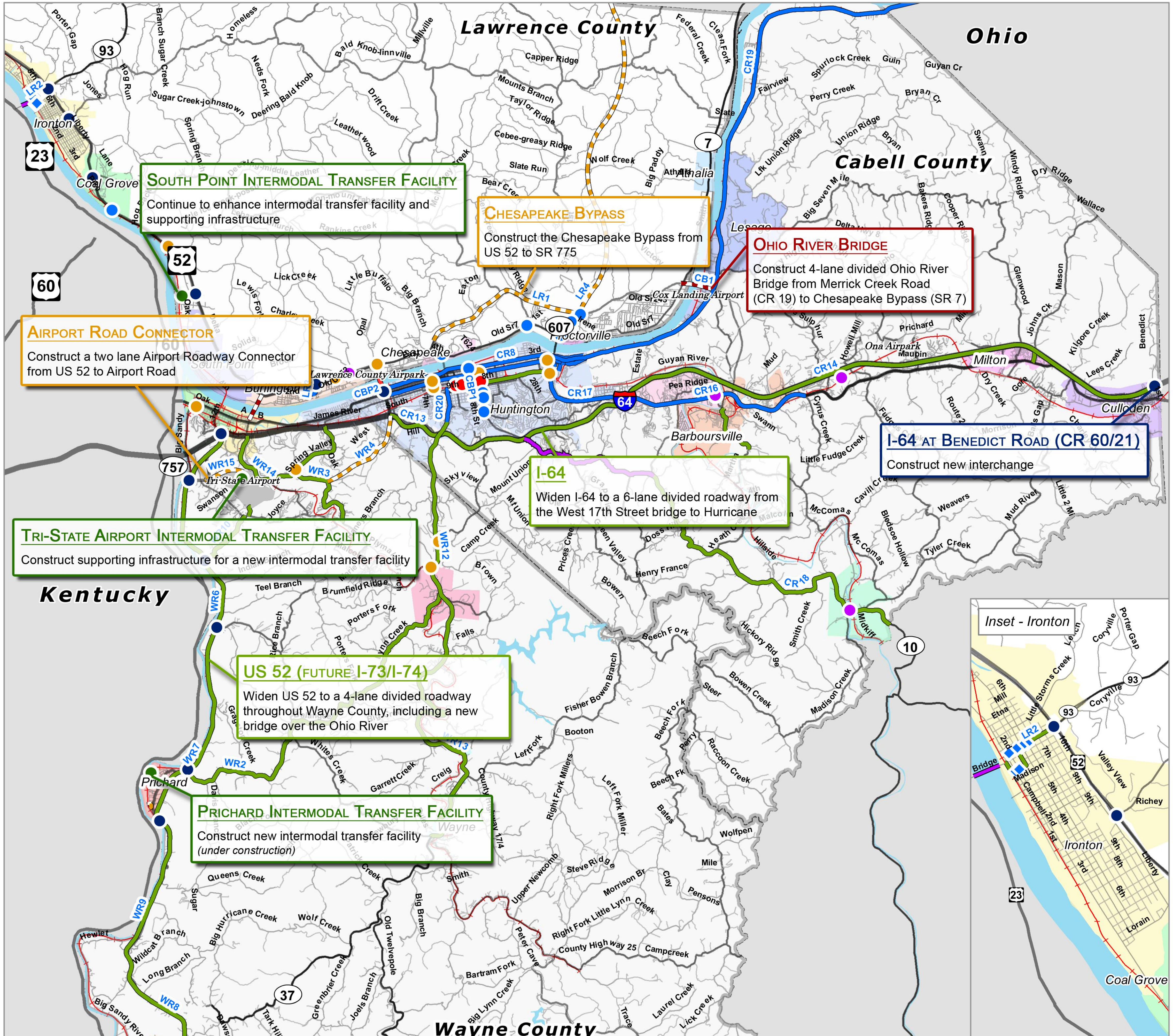
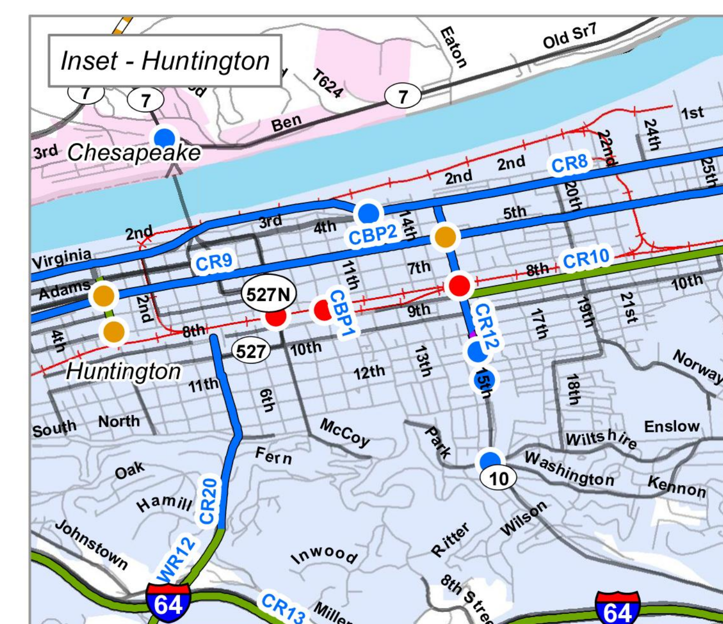
Figure 7.3

Freight, Maritime, & Rail Recommendations

- Committed Improvements
- Interchange Improvements
- Intersection Safety Improvements
- Intersection Operation Improvements
- Intersection Operation Improvements - Ironton (Committed)
- Viaduct Improvements
- Intermodal Facility Improvements
- Committed
- Roadway New Location
- Roadway Widening
- Multimodal/Downtown Improvements
- Bridge Construction
- Bridge Replacement





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Planners and community leaders across the country recently have observed increased public interest in reducing or reversing the trend of urban sprawl and its consequences. These efforts largely are motivated by the impacts associated with suburban development patterns: consumption of sensitive land for development, costly expansion of public infrastructure, and increasing traffic congestion. The physical distance between complementary land uses (e.g., between home and work, home and school, or home and shopping) and a lack of overall street connectivity leads to unintended consequences:

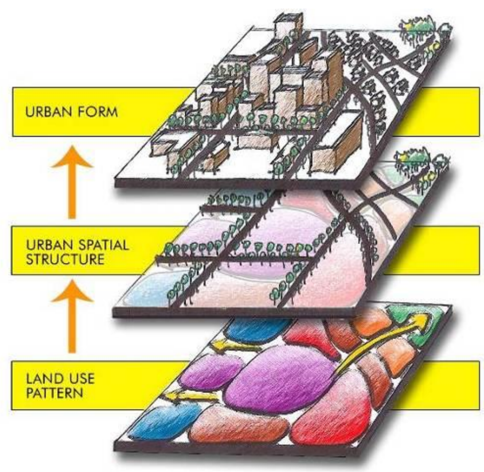
- Increased vehicle miles traveled and energy consumption;
- Longer commute times;
- Increased air pollution;
- Heightened infrastructure and public service costs; and
- Decreased resource lands.

The *KYOVA 2040 Metropolitan Transportation Plan* respects the variety of local smart growth planning initiatives underway—such as investment in downtowns, suburban place-making, and rural preservation—and promotes transportation improvements sensitive to the overall goals of these initiatives within the context of the regional transportation system. Land use and urban form considerations included in the *KYOVA 2040 MTP* focus on the inherent relationship between land use (demand), urban form (design), and transportation (supply) for improving the efficiency of the regional transportation system while promoting livability within local communities.

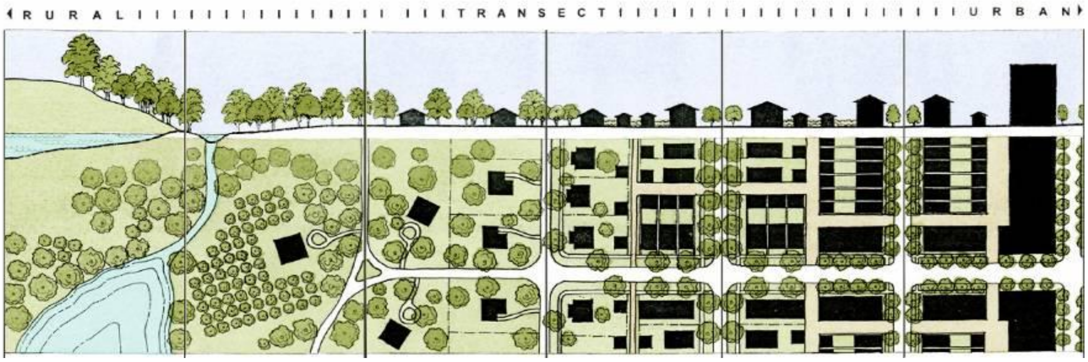
The consideration of land use during the development of the *KYOVA 2040 MTP* is not a replacement for quality land use planning nor does it intend to supplant local planning initiatives of the member jurisdictions. Instead, it serves as an additional piece of information that should be studied. Land use is an important consideration because transportation professionals are quickly concluding that the days of addressing transportation needs through supply side (building more roadway capacity) strategies are limited. This is particularly true in the KYOVA region given its challenging natural environment. In addition, the competition for transportation resources and aging infrastructure suggests that a comprehensive approach that considers both the demand and supply sides of the equation represents a successful strategy. Regions that embrace this approach to planning will be better positioned to maintain quality of life and economic vitality.

Land Use and Urban Form

Land use serves as the foundation of the built environment. It defines the type, mix, and general location of uses within communities and ultimately defines the boundaries for neighborhoods, commercial nodes, and employment centers. Communities make efforts to influence patterns of land use when they develop a future land use map within a comprehensive plan. A comprehensive plan typically represents the community's vision for how to promote local growth and prosperity.

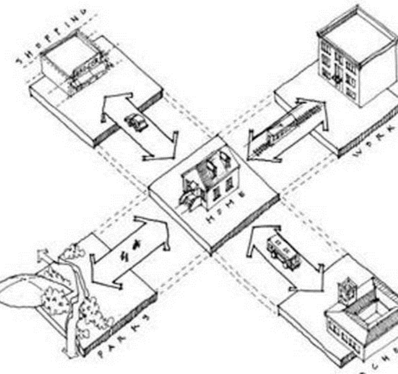


Urban form is the physical expression of land use as vision becomes reality in the physical world. It is commonly measured by street patterns, block lengths, building heights, building setbacks, average residential density, and average non-residential intensity. Putting these design elements in categories allows the region's consistency to be measured and identifies the natural progression from rural to suburban to urban. The components of urban form traditionally are regulated through the community's zoning ordinance, subdivision ordinance, engineering specifications, or architectural design standards.



This diagram illustrates how the transect classifies elements of the human environment from rural to urban, in a left-to-right sequence. (Source: Duany, Plater-Zyberk, 2007)

The transect, popularized most recently by town-planner Andres Duany, provides a framework for organizing design elements that characterize urban form observed in the human environment. It is based on a continuum from natural environment to urban core. Different categories are used for specific urban form types which vary in intensity and urban character (see diagram above). The number of urban form categories in a transect varies from community to community based on the complexity of their built and natural environments.



Urban Form and Travel Behavior

As explained above, urban form represents physical elements of the built environment. These physical elements can influence the comfort, speed, cost, convenience, attractiveness, and safety of movement between places in the community. Transportation infrastructure and systems can affect how land is developed in terms of size, shape, and intensity.

Where land uses fall and how they are designed (i.e., urban form) can favor one mode of travel over others and may influence overall travel behavior by changing the ease of use or accessibility of various modes of travel for meeting daily needs. For example, if low-density development is spread out, residents of such areas must rely almost entirely on automobiles to get from place to place. On the other hand, denser urban centers that combine complementary uses near each other enable greater choice in transportation.

Evaluating the relationship between land use, urban form, and travel behavior produces several benefits. When collectively considered more informed decisions can be made which have a positive impact on the region including:

Impacts to sensitive land uses (such as environmentally-sensitive areas) can be minimized when facilities identified for transportation investments are located after considering appropriate land use patterns and development intensities for the area.

Prime locations for development can be stimulated if transportation investments consider available capacity or appropriate mobility options.

Complementary activities can be placed next to existing or planned transportation infrastructure, making the most of land use opportunities and dedicated transportation investments.

The quantity and location of travel demand can be influenced by land use decisions, highlighting the factors (i.e., trip generation, trip length, and travel mode) that influence the efficiency of a proposed transportation system.

Combining specific streetscape design elements can transform transportation corridors from vehicle-dominated thoroughfares into community-oriented streets that safely and conveniently accommodate all modes of travel.

Influence of Urban Form – The Four D's

The Four Ds—density, diversity, design, and (travel) distance—are characteristics of urban form that influence travel behavior. Regions that understand these characteristics can use them to leverage their growth so that it aligns with their desire for a more effective and efficient transportation system. The following is a brief summary of the four Ds influence on travel behavior.

Density

Some people dislike references to residential density and non-residential intensity because they envision problems associated with traffic congestion or unattractive buildings. Other people view the benefits associated with the availability of housing options. Those who promote residential density and non-residential intensity likely view the diverse housing and travel options as beneficial to the community because of the variety offered.

In general, residential density refers to the number of housing units per area of land. It is most commonly reported in dwelling units per acre but also can be reported in persons per acre using household size characteristics. Dense urban projects sometimes measure residential density in floor-area-ratio (FAR), which is the ratio of gross building floor area to the total lot area. Non-residential intensity (e.g., commercial, office, or industrial uses) is commonly reported in floor-area-ratio for both suburban and urban conditions. In the KYOVA region, location often is the main factor in determining density and intensity. The farther away from the urban core, the more likely an area is to have lower density and intensity.

The Trends and Conditions Report (December 2004) prepared by the Florida DOT and the Center for Urban Transportation Research at the University of South Florida stated: Independent of other factors, increased residential density and non-residential intensity create higher travel demand for a geographic area, but it also encourages shorter trip lengths and more mobility options (i.e., transit, bicycle, and walking) that more efficiently links complementary land uses within a concentrated area.

Diversity

One type of development gaining in popularity is walkable mixed-use development. By creating places where people can live, play, work, and shop in one general area, these developments combine various public amenities with compatible land uses in a centralized location. Successful mixed-use developments around the country generally include residential uses and one or more of the following: commercial, office, light industrial, civic, hotel, public parks or plazas, and dedicated open space. Promoting a mix of land uses in new development often is associated with the initiatives of smart growth, new urbanism, transit-oriented development, and traditional neighborhood development.

While mixed-use developments come in a variety of forms, they typically are categorized as either vertical mixed-use buildings or horizontal mixed-use sites. Both vertical and horizontal mixed-use developments contribute positively to the creation of places that enliven urban districts while meeting the everyday needs of the community. They offer many advantages over single-use developments in fostering a more efficient, livable transportation system: shorter trip lengths, modal choice (i.e., automobile, transit, bicycle, and walking), convenient access, and internal trip capture.

In some communities, hurdles remain to building mixed-use development because of the local government's continued adherence to Euclidean zoning, which generally isolates residential, commercial, office, and industrial uses to separate zoning districts. The KYOVA region can consider establishing flexible, performance-based standards for appropriate locations in the community (e.g., downtown, main street, neighborhood centers, other core areas) to support emerging urban centers through policy.

Design

Urban design is the essence of city-building. It shapes the blocks, neighborhoods, and districts that give our cities identity and provides overall organization to the built environment. Various elements of urban design provide a three-dimensional physical form to the requirements for density and diversity established in locally adopted comprehensive plans or zoning ordinances. The emphasis for urban design is the public realm, which is created by public space (e.g., streets, plazas, open space) and the buildings that define them. Urban design looks at the various elements that influence these spaces and applies design elements to provide connections between people, places, and buildings.

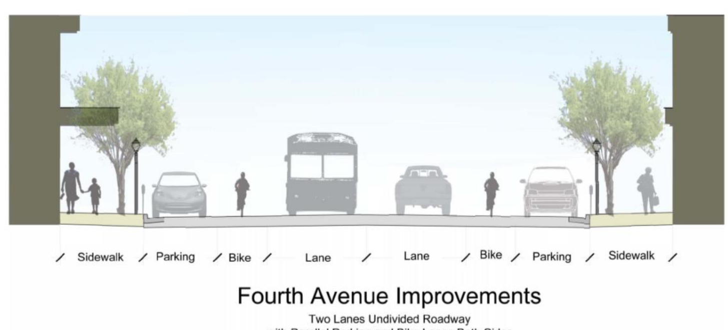
Specific elements of urban design—street pattern, streetscape design, block size, building scale and massing, parking, and landscaping—influence travel mode choice and travel behavior when supported by appropriate minimum densities and diversity of land uses. These design elements provide context to the transportation system and celebrate the street network as the centerpiece to the public realm.

Combining design elements (e.g., bicycle lanes, sidewalks, bus stops, street trees, and on-street parking) in the streetscape can transform transportation corridors from vehicle-dominated thoroughfares to community-oriented streets that safely and conveniently accommodate all modes of travel. The type, placement, and scale of design elements included in the streetscape for transportation corridors generally vary with the context of the surrounding environment.

The orientation, scale, and massing of buildings on a site relative to the adjacent transportation corridor can reinforce those design elements that support a complete street or multimodal corridor concept. Literature from around the country cites safe, predictable connections between adjacent properties, orientation of buildings and parking that favor a park once mentality, and elimination of excessive parking requirements as ways to promote a more balanced transportation system that favors walking between nearby destinations once arriving to the site by automobile or regional transit.

Quality urban design embraces the public realm as a component of the built environment.

Many of the urban design concepts are explored in further detail in the Downtown Huntington Access Study, a sister study to the *KYOVA 2040 MTP*.



Distance

The travel distance between origin and destination is one primary factor (along with travel mode choice) for influencing travel behavior. The physical distance between complementary land uses in more rural or suburban settings tends to promote automobile travel, particularly since safe, convenient facilities usually are not available for pedestrians and bicyclists.

Mixed-use, highly-dense urban environments decrease the travel distance between complementary land uses, and support transit, bicycle, and walking as viable alternatives to the automobile for meeting daily travel needs.

How do communities integrate the land use, urban form, and transportation elements of local smart growth initiatives emerging in the KYOVA region?

Continue to support local initiatives that result in a more efficient, livable transportation system (street connectivity, complete streets, walkable mixed-use developments, etc.).

Partner with local, regional, state, and federal agencies that share a common vision for implementing smart growth development.

Develop livable street design guidelines for major arterial and collector streets (begin with endorsement of the cross-section design recommendations in this report and expand to include the Institute of Transportation Engineers/Congress for the New Urbanism recommendations). Include recommendations for cross-section, lane width, planting specifications, sidewalk, street lighting, etc. Ultimately, this will facilitate standardization of design treatments in the different communities.

Prepare best development practices and conduct design summits to educate and encourage developers to incorporate these principles into their land use planning and development process.

Respect local government control and their desire to implement smart growth initiatives when programming improvements to the regional transportation system.

Build grassroots support for amending the local comprehensive plans to encourage through policy more sustainable development patterns.

Establish flexible, performance-based zoning and subdivision standards that support emerging smart growth initiatives through regulation. Give consideration to form-based codes or unified development codes that better integrate use standards and development controls.

Develop design guidelines that establish development priorities and core design principles for implementing smart growth initiatives.

Prioritize projects in the capital improvements plan that influence the timing and location of new development to better utilize existing infrastructure including roads, transit, and utilities.

Understand that "one size does not fit all" for implementing smart growth development. New plans, programs, or policies adopted by elected officials should acknowledge the differences between rural, suburban, and urban settings.

Reinvest in existing infrastructure and promote infill development or redevelopment that can be served by transit instead of continued sprawl out from the core of the community.

Identify "champions of change" for continuing the momentum of smart growth from initial vision through project ribbon cutting.

Seek state and federal funding supportive of activities to improve the quality of development and protect human health and the environment.

Accommodating Future Growth

The KYOVA study area has experienced modest growth over the years even as the physical geography created challenges to connectivity. Yet, transportation professionals still must predict where, when, what type, and how much growth will occur over time. These predictions become the cornerstone of the growth forecasts used to build travel models that seek to identify future needs in the area. Therefore, the consideration of land use takes on an empirical role in the development of the *KYOVA 2040 MTP*.

Areas of potential growth were identified by geographic constraints analysis, community plans, and local interviews. To develop a uniform way to refer to the form of growth, a series of character areas specific to the region were developed. Character areas are different categories of land use that help define development patterns. Forecasting different categories of land use will improve the accuracy of the socioeconomic characteristics of the region considered as part of the *KYOVA 2040 MTP*. The ten character areas were developed:

Mixed Use

- City Living (CL)
- Town Living (TL)
- Village Living (VL)

Suburban Fringe

- Traditional Suburb (TS)
- Clustered Suburb (CS)
- Rural Living Suburb (RLS)

Redevelopment/Infill Areas

- Urban Industrial (UI)
- Rural Industrial (RI)
- Commercial: Urban Mixed Use (UC)
- Rural/Suburban Mixed Use (R/SC)

The remainder of this chapter focuses on the creation and application of the character areas as well as the identification of areas likely to receive future growth. The section begins with a brief description of each proposed character area as well as supportive graphics.

Mixed Use

City Living (CL)

City living areas such as those found in Huntington are characterized by a mix of residential, office, civic and commercial structures. City centers such as the downtown areas are exciting and vibrant living environments due to their mixture of land uses. Higher population densities can be found in city living areas as individuals live, work, and shop within a central area. The densities and proximity of uses foster a pedestrian-friendly environment. Transit access via local bus service is available in core areas of the City living area. Population densities fluctuate daily as individuals commute from urban and rural areas to work and shop within city living areas. City living areas are served by a complex network of roads including local, regional and interstate facilities.

Town Living (TL)

Town living areas such as those found in Ironton, Barboursville, Wayne, and Milton are characterized by a mix of land uses such as residential, commercial, retail, office, and some industrial. Town living areas are connected to the rural and city areas through enhanced roadway networks. This community type has a medium population density due to the influence of residential land uses. A town environment does contain some pedestrian features, while also catering to vehicle use.

Village Living (VL)

Village living areas are characterized by a mix of residential and agricultural land uses. Village living areas in the long established hamlets of Athalia, Lesage and Lavalette and other similar small communities contain a high degree of separation between structures due to land uses that promote large lot sizes and the preservation of open spaces and wooded areas. Village living areas have lower population levels than those found in urban and city areas. Due to the spacing of land uses, villages cater primarily to the automobile mode of travel.

Suburban Fringe

Traditional Suburb (TS)

Traditional suburbs such as Freeman Estates and Harveytown in West Virginia and Rockwood in Ohio are made up of large-lot residential structures with little to no retail or commercial land uses. These areas contain low to medium population densities. Access is achieved through local streets and collectors.

Clustered Suburb (CS)

Clustered suburbs such as Saddlebrooke and Cornerstone are a mix of single and multifamily residential structures in close proximity to supporting commercial centers. Moderate population densities can be found as land uses are mixed together. Conservation-based cluster subdivisions leave large areas of open space to provide individuals with uninterrupted views of the surrounding environment. Pedestrian access is considered in design, primarily within neighborhoods. Access is achieved through local streets and collectors.

Rural Living Suburb (RLS)

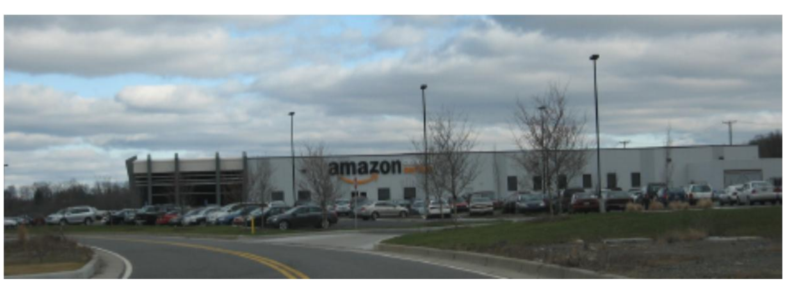
Rural living suburbs such as Amilda, Salt Rock, and Waterloo are made up of large-lot residential structures that have a high degree of separation between buildings. Most of the natural landscape is left intact as structures are sparsely integrated into the rural environment. Access is achieved through local streets and collectors that connect to driveways.

Redevelopment/Infill Areas

Redevelopment/Infill Areas include urban, suburban and rural fringe areas where redevelopment of existing uses, infill within existing developed areas, and adaptive reuse of existing structures can all help to revitalize existing communities. These areas include a variety of uses including industrial, commercial, residential, and mixed uses.

Urban Industrial (UI)

Urban industrial areas such as Kinetic Park in Huntington are in close proximity to a mix of commercial and residential structures. Vehicle as well as pedestrian access between land uses is possible in urban industrial areas. These areas may be targeted for redevelopment efforts that could expand the mixture of uses and change the transportation needs.



Rural Industrial (RI)

Rural industrial areas such as those located near Lesage are usually found in an area isolated from other uses. These isolated areas are typically situated on, or surrounded by, large parcels of open land. Rural industrial areas are often distant from residential or commercial uses. Rural industrial access is limited to vehicles using local streets or collectors.

Commercial: Urban Mixed Use (UC)

Urban commercial areas such as Pullman Square are usually a mix of various types of commercial structures that provide a variety of goods and services. In certain areas, the urban streetscape supports pedestrian access between the residential and commercial areas. Parking lots for vehicle access are also available.

Rural/Suburban Mixed Use(R/SC)

Scattered rural neighborhoods such as Salt Rock, Rome Township, and Prichard are served by commercial stores that provide mainly general services due to the high degree of separation between buildings and neighborhoods. Suburban areas may have a mix of land uses that collectively create centralized commercial areas that are easily accessible by vehicle. However, in both areas, parcel-level access via individual driveways is predominant along regional corridors and collectors.

Table 8.1 communicates the relative density ranges for each of the KYOVA character areas.

Table 8.1 – Character Area Density Range

Character Area	Floor Area Ratio	Dwelling Units per Acre
City Living (CL)	2.0	10 to 15
Town Living (TL)	0.25 to 0.75	4 to 8
Village Living (VL)	0.05 to 0.25	1 to 4
Traditional Suburb (TS)	n/a	1 to 4
Clustered Subdivision (CS)	0.25 to 0.75	4 to 8
Rural Living (RLS)	n/a	0.1 to 0.5
Urban Industrial (UI)	0.25 to 0.5	n/a
Rural Industrial (RI)	0.25 to 0.5	n/a
Urban Mixed Use (UC)	2.0	n/a
Rural/Suburban Mixed-Use (R/SC)	n/a	0.1 to 1

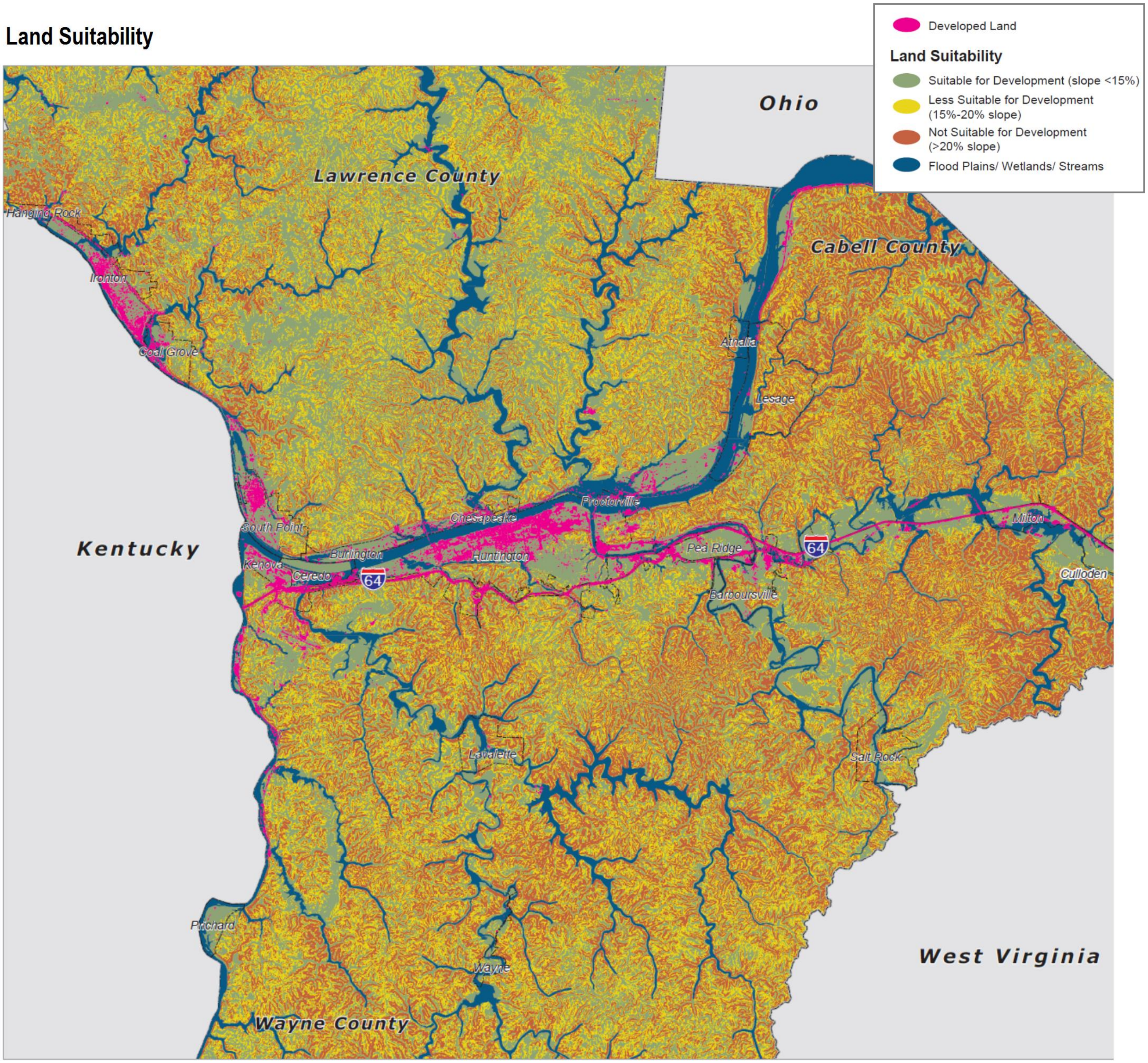
Suitability Assessment

During the planning process, a variety of information was collected to verify the suitability of certain lands for future growth. An inventory of existing conditions was completed for the region using geographic information system (GIS) data, aerial photography, field photos, and windshield surveys. This information was used to characterize the study area based on existing land use patterns and development conditions. Particular attention was paid to physical features in the context of the surrounding environment. Several conditions were noted:

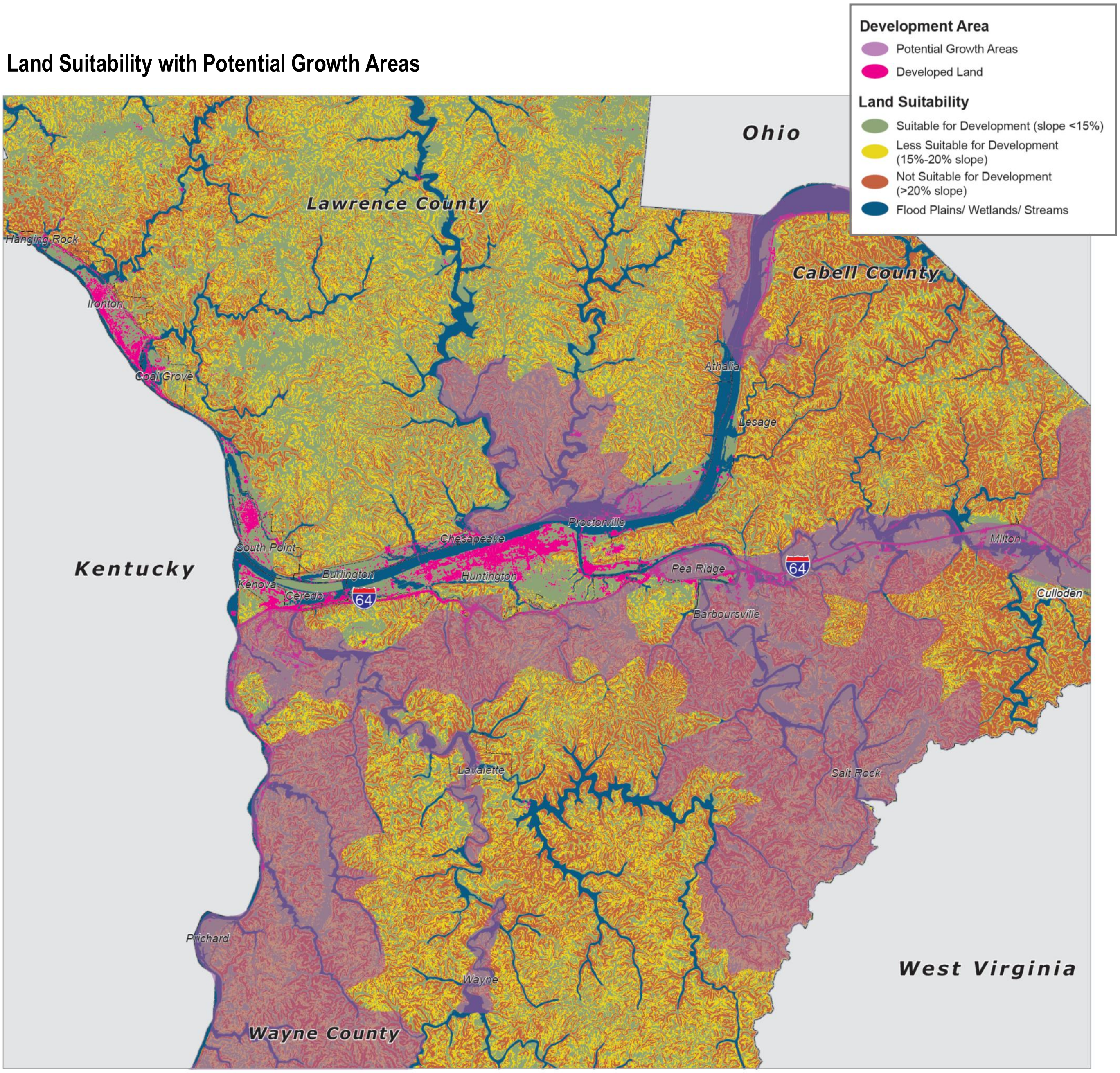
- Distribution of open space
- Size and character of buildings
- Land use mix
- Size and character of streets
- Available travel modes
- Internal and external connections
- Topography and environmental constraints

In addition, a review was conducted of locally adopted plans, programs, and policies administered by the region's member jurisdictions. This information was used to inventory existing development controls for preparing a "business-as-usual" development scenario. The review included local plans, policies and development codes. The result was a series of thematic maps that communicate constraints, suitability, and future growth areas. This information was reviewed and endorsed by plan participants. Ultimately, the information was used to assist with the allocation of forecasted socioeconomic data (housing and employment) and used to feed the "demand" side of the regional travel model. The maps on the following pages are the results of this work.

Land Suitability



Land Suitability with Potential Growth Areas



The Land Suitability map shown above considers the suitability of land to receive future growth. Not to be confused with a regulatory plan, this map is simply an expression of where growth likely will occur based on the suitability of land to receive growth. Suitability is an expression of a combination of market forces, environmental conditions, accessibility to public infrastructure, and proximity to existing development.

Figure 8.1 (Future Growth Classification) on the following page represents the consideration of suitability and then applies the designation of appropriate and predicted character areas described earlier in this chapter. The result is a representation of a likely growth future for the region based upon data available at the time of this plan.

More information regarding the allocation of future growth can be found in the travel demand model documentation available under separate cover.

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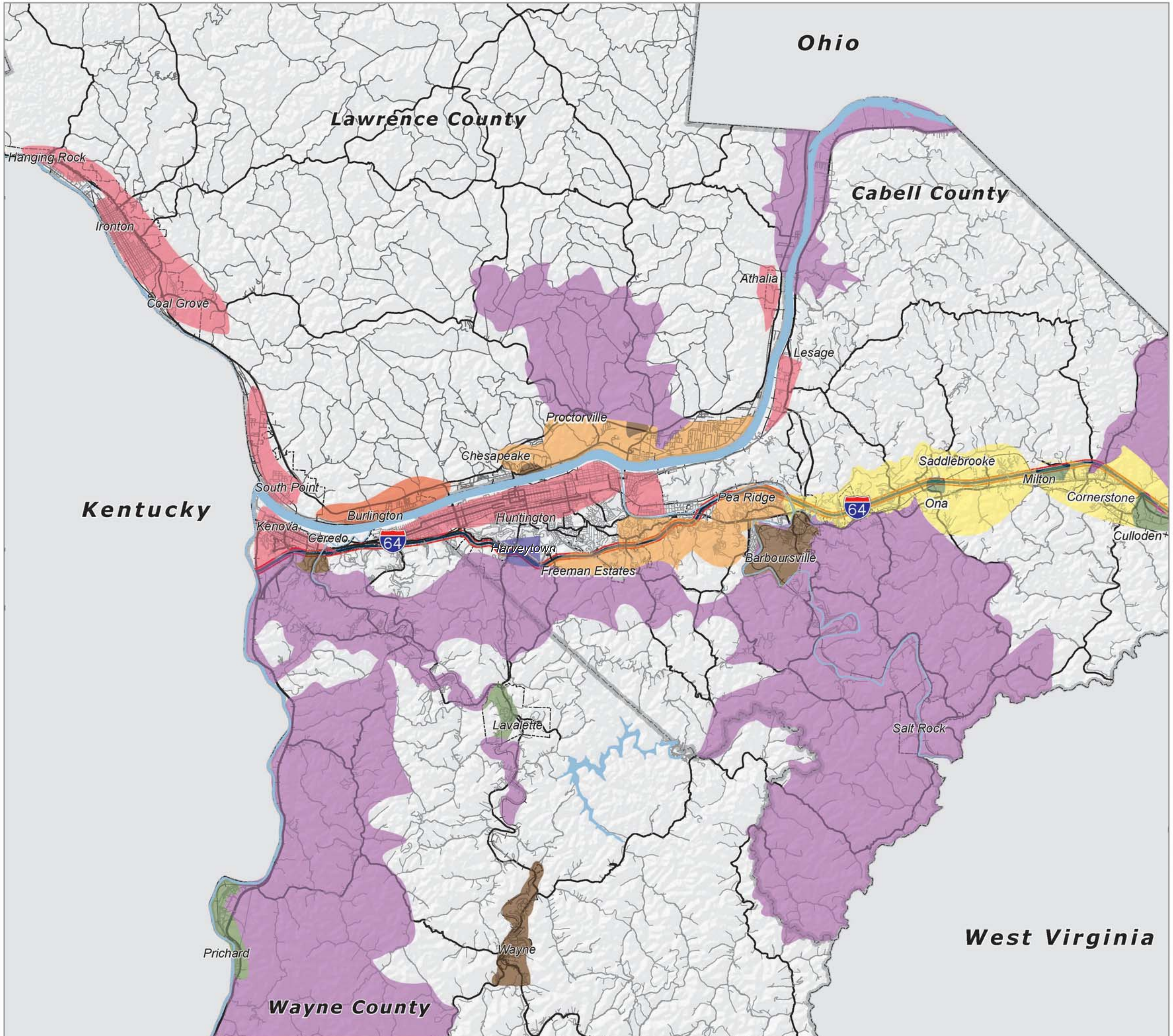

2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION

KYOVA INTERSTATE PLANNING COMMISSION

Figure 8.1

Future Growth Classification

Character Areas

- City Living (CL)
- Town Living (TL)
- Village Living (VL)
- Traditional Suburb (TS)
- Clustered Suburb (CS)
- Rural Living Suburb (RLS)
- Potential Redevelopment or Infill Areas

0 1.5 3 Miles

KYOVA INTERSTATE PLANNING COMMISSION

Kimley-Horn and Associates, Inc.

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Introduction

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) required a financial plan as a part of a Metropolitan Planning Organization's (MPO) Long Range Transportation Plan. The Moving Ahead for Progress in the 21st Century Act (MAP-21), the subsequent surface transportation funding and authorization bill passed on June 29, 2012, makes no substantive changes to this requirement. The financial plan shows proposed investments that are realistic in the context of reasonably anticipated future revenues over the life of the plan and for future network years, set for the purpose of the *KYOVA 2040 Metropolitan Transportation Plan* (*KYOVA 2040 MTP*) as 2030 and 2040. Meeting this test is referred to as "financial constraint." The mix of transportation recommendations proposed to meet metropolitan transportation needs over the next 27 years is consistent with revenue forecasts. The Financial Plan details both proposed investments toward these recommendations and revenue forecasts over the life of the plan.

Financial Plan Development

The proposed recommendations were developed in collaboration with the KYOVA MPO, Cabell, Wayne, and Lawrence Counties, WVDOT, ODOT, the Tri-State Transit Authority (TTA), Wayne Express, and the Lawrence County Port Authority (LCPA). These projects include roadway, freight, bicycle, pedestrian, and transit facilities and services for the life of this plan. The financial plan also reflects existing and committed projects, the Transportation Improvement Program (TIP), and the future plans of KYOVA, WVDOT, ODOT, TTA, Wayne Express, and LCPA. These recommendations also reflect travel demand benefits and socioeconomic impacts studied using the evaluation matrix process detailed in **Chapter 3**. Finally, these projects result from an extensive public participation process that included public workshops (two workshop series in multiple venues), stakeholder interviews, and the participation of a Steering Committee. More information on the public outreach efforts can be found in **Chapter 1**.

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, ODOT, TTA, Wayne Express, and LCPA. All dollar figures discussed in this section initially were analyzed in current year dollars (i.e. 2012) and then inflated to reflect projected year of funding or implementation. Based on current national standards and applicable local forecasts, an annual inflation rate of 3% was used to forecast costs and revenues.

This chapter provides an overview of revenue assumptions, probable cost estimates, and financial strategies along with the detailed research results used to derive these values. Since this is a planning level funding exercise, all funding programs, projects, and assumptions will have to be re-evaluated in subsequent plan updates.

Financial Planning Scenarios

The KYOVA MPO obtains funding for its projects through a combination of local, state, and federal sources. Cabell and Wayne Counties receive 5.8% of West Virginia's statewide improvement funds. Lawrence County's federal funding includes Garvee bonds and state funding includes state bonds. These low funding levels will not be adequate to implement many of the projects identified as a part of this study, thereby leaving many deficiencies unaddressed across all modes of transportation.

These tables indicate that using current funding level estimates, total projected overall revenue during the planning period for the West Virginia and Ohio portions of KYOVA would be approximately $2.3 billion and $713 million respectively. After considering the estimated costs for all modes, the total cost over the planning period would be approximately $2.3 billion and $679 million respectively.

System Costs and Revenues

Tables 9.1 and 9.2 show the forecasted revenues and costs for Cabell and Wayne Counties for the *KYOVA 2040 MTP*, assuming the continuation of current state and federal funding levels.

Tables 9.3 and 9.4 show the forecasted revenues and costs for Lawrence County for the *KYOVA 2040 MTP*, assuming the continuation of current state and federal funding levels. Funding is divided to reflect a 2030 interim year and a 2040 final plan year. Highway capital projects, highway maintenance projects, bicycle and pedestrian, transit operations, and transit capital each are divided into individual costs and revenues.

Table 9.1 - 2040 LRTP Revenue Forecast (Cabell and Wayne Counties, in Thousands)

Period	Highway	Transit Capital	Transit Operations	Pedestrian/ Bicycle	Maintenance	Total
2012-2030	$215,660	$39,400	$155,440	$7,630	$799,810	$1,217,930
2031-2040	$173,910	$31,300	$125,360	$6,110	$750,890	$1,087,570
Total	$389,570	$70,690	$280,800	$13,740	$1,550,710	$2,305,500

Table 9.2 - 2040 LRTP Costs (Cabell and Wayne Counties, in Thousands)

Period	Highway	Transit Capital	Transit Operations	Pedestrian/ Bicycle	Maintenance	Total
2012-2030	$214,660	$39,400	$155,440	$7,630	$799,810	$1,216,930
2031-2040	$173,880	$31,300	$125,360	$6,110	$750,890	$1,087,540
Total	$388,540	$70,690	$280,800	$13,740	$1,550,710	$2,304,470

Table 9.3 - 2040 LRTP Revenue Forecast (Lawrence County, in Thousands)

Period	Highway	Transit Capital	Transit Operations	Pedestrian/ Bicycle	Maintenance	Total
2012-2030	$326,360	$4,580	$18,090	$16,560	$84,700	$450,290
2031-2040	$170,870	$3,670	$14,760	$13,260	$59,800	$262,350
Totals	**$497,230**	**$8,250**	**$32,850**	**$29,820**	**$144,500**	**$712,650**

Table 9.4 - 2040 LRTP Costs (Lawrence County, in Thousands)

Period	Highway	Transit Capital	Transit Operations	Pedestrian/ Bicycle	Maintenance	Total
2012-2030	$293,930	$4,580	$18,090	$16,560	$84,700	$417,860
2031-2040	$169,760	$3,670	$14,760	$13,260	$59,800	$261,240
Totals	**$463,680**	**$8,250**	**$32,850**	**$29,820**	**$144,500**	**$679,100**

Highway Funding

Tables 9.5 and **9.6** reflect the proposed costs and revenues for highway projects with current funding sources. The costs and revenues are broken up between highway capital projects and maintenance. An estimated $1.9 billion and $642 million will be available for highway capital and maintenance projects within the West Virginia and Ohio portions of the KYOVA area, respectively, in the funded plan.

Maintenance Funding

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. This funding source is not expected to increase. Instead, it is shown here as keeping pace with inflation. Projecting these funding sources through the 2040 horizon year of the MTP, the total maintenance funding available for Cabell and Wayne Counties is approximately $1.6 billion. Maintenance funding available for Lawrence County totals approximately $145 million. The maintenance costs generated annually are assumed to equal the revenue available.

Capital Highway Funding

The available capital highway funding for Cabell and Wayne Counties totals approximately $388 million and the available capital highway funding for Lawrence County totals approximately $464 million.

Once the funding levels have been established, the next step is to consider what needs to be filled within the two horizon year periods of the plan. To do this, the evaluation matrix and recommendations shown in **Chapter 3** have been consulted. Proposed project recommendations were analyzed to determine social and environmental conditions as well as public feedback and transportation network effects. 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 rated projects were considered for implementation prior to lower rated projects.

The following tables and figures divide the projects in the evaluation matrix into 2030 and 2040 funded horizon years and a vision plan. **Tables 9.7**, **9.8**, and **9.9** show projects for each of these three horizons. The map displayed as **Figure 9.1** shows the highway projects organized by funding horizon year. **Figure 9.2** shows the projected congestion in the KYOVA area with all of the financially constrained projects in place.

The cost of unfunded capital highway projects (referred to as the Vision Plan) is $11.6 billion for the West Virginia portion of the KYOVA area and $264 million for the Ohio portion of the KYOVA area (in 2041 dollars).

Table 9.5 - Highway Costs and Revenues (Cabell and Wayne Counties, in Thousands)

Period	Costs			Revenue			Difference
	Highway	Maintenance	Total	Highway	Maintenance	Total	
2012-2030	$214,660	$799,810	$1,014,470	$215,660	$799,810	$1,015,470	$1,000
2031-2040	$173,880	$750,890	$924,770	$173,910	$750,890	$924,800	$30
Total	$388,540	$1,550,710	$1,939,240	$389,570	$1,550,710	$1,940,270	$1,030

Table 9.6 - Highway Costs and Revenues (Lawrence County, in Thousands)

Period	Costs			Revenue			Difference
	Highway	Maintenance	Total	Highway	Maintenance	Total	
2012-2030	$293,930	$84,700	$378,630	$326,360	$84,700	$411,060	$32,430
2031-2040	$169,760	$59,800	$229,560	$170,870	$59,800	$230,670	$1,110
Totals	**$463,680**	**$144,500**	**$608,190**	**$497,230**	**$144,500**	**$641,730**	**$33,540**

Table 9.7 - Roadway Project Cost Estimates (2030 Horizon)				
ID	Project Facility	Project Location	Funding Year	Cost
West Virginia				
Roadway Widening				
CR 10	8th Avenue	Huntington, WV	2018	$17,911,000
Roadway New Location				
WR 1	Access Road	Prichard, WV	2015	$3,278,000
Roadway Multimodal/Downtown and Operations Improvements				
CR 19a	WV 2	Cabell County, WV	2018	$4,179,000
-	Downtown Huntington Signal System - Phase III	Huntington, WV	2018	$1,813,000
-	Downtown Huntington Signal System - Phase IV	Huntington, WV	2020	$2,383,000
Bridge/Viaduct Construction/Replacement				
CB 2	W 17th Street Bridge (Phase 1)	Huntington, WV	2025	$60,210,000
CN17	8th Street & Railroad	Huntington, WV	2020	$443,000
CN19	Hal Greer Boulevard & Railroad	Huntington, WV	2025	$16,154,000
Intersection Beautification and Multimodal/Downtown Improvements				
CN2	16th Street & Washington Boulevard	Huntington, WV	2026	$227,000
CN5	8th Avenue & 8th Street	Huntington, WV	2030	$255,000
CN20	Hal Greer Boulevard & 11th Avenue	Huntington, WV	2028	$241,000
CN21	Hal Greer Boulevard & 13th Avenue	Huntington, WV	2022	$202,000
Intersection Safety Improvements				
CN9	5th Avenue & 31st Street	Huntington, WV	2020	$317,000
CN10	5th Avenue & 16th Street	Huntington, WV	2022	$336,000
CN12	US 60 & East Pea Ridge Road	Barboursville, WV	2014	$1,080,000
WN1	US 60 & 21st Street	Kenova, WV	2022	$336,000
WN2	WV 152 & WV 75	Lavalette, WV	2024	$356,000
WN3	8th Street (CR 11) & WV 152 Connector	Lavalette, WV	2022	$336,000
WN10	Spring Valley Road & Goodwill Road	Wayne County, WV	2025	$367,000
Interchange Improvements				
CN14	I-64 & Benedict Road (CR 60/21)	Culloden, WV	2018	$8,478,000
WN4	I-64 & US 52	Kenova, WV	2028	$16,047,000
Intermodal Facilities				
-	Prichard Intermodal Terminal	Prichard, WV	2015	$31,722,000

Table 9.7 - Roadway Project Cost Estimates (2030 Horizon) - continued				
ID	**Project Facility**	**Project Location**	**Funding Year**	**Cost**
Ohio				
Roadway Widening				
LR 2	Park Avenue (SR 93)	Ironton, OH	2018	$25,075,000
Roadway New Location				
LR 1	Chesapeake Bypass	Lawrence County, OH	2018	$83,584,000
Roadway Operations Improvements				
LR 3	Walmart Way	Burlington, OH	2025	$23,056,000
Bridge/Viaduct Construction/Replacement				
CB 2	W 17th Street Bridge (Phase 1)	Huntington, WV	2025	$10,573,000
Intersection Operations Improvements				
LN8	Park Avenue & 6th Street	Ironton, OH	2020	$168,000
LN9	Park Avenue & 5th Street	Ironton, OH	2020	$162,000
LN10	Park Avenue & 4th Street	Ironton, OH	2020	$162,000
LN11	Park Avenue & 3rd Street	Ironton, OH	2020	$170,000
LN12	Adams Street & 2nd Street	Ironton, OH	2020	$203,000
LN13	Adams Street & 3rd Street	Ironton, OH	2020	$183,000
LN20	US 52 & Solida Road (CR 18)	South Point, OH	2018	$209,000
LN23	SR 775 & Chesapeake Bypass	Proctorville, OH	2018	$1,194,000
LN24	SR 775 & Irene Road	Proctorville, OH	2022	$134,000
LN26	SR 775 & Old SR 7	Proctorville, OH	2023	$1,384,000
Intersection Safety Improvements				
LN1	US 52 & CR 144	Burlington, OH	2018	$29,000
LN2	US 52 & CR 276	Burlington, OH	2018	$29,000
LN3	US 52 & CR 410	Burlington, OH	2020	$30,000
LN4	US 52 & CR 120	Burlington, OH	2020	$30,000
Interchange Improvements				
LN14	US 52 & Old US 52 (CR 1A)	Hanging Rock, OH	2022	$5,510,000
LN15	US 52 & Park Drive (SR 93)	Ironton, OH	2020	$8,696,000
Intermodal Facilities				
-	South Point Intermodal Facility	South Point, OH	2025	$37,125,000

Table 9.8 - Roadway Project Cost Estimates (2040 Horizon)				
ID	Project Facility	Project Location	Funding Year	Cost
West Virginia				
Roadway Widening				
CR 7	1st Street	Huntington, WV	2034	$13,030,000
CR 15	Johns Branch Road/Mason Road	Milton, WV	2032	$13,907,000
WR 11	Darling Lane	Wayne County, WV	2031	$12,450,000
Roadway Multimodal/Downtown and Operations Improvements				
CR 1	Bridge Street	Guyandotte, WV	2031	$9,118,000
CR 2	Main Street	Guyandotte, WV	2031	$3,156,000
CR 12	Hal Greer Boulevard	Huntington, WV	2031	$27,179,000
CR 16	US 60	Barboursville, WV	2033	$4,651,000
CR 17	US 60	Huntington, WV	2035	$3,552,000
CR 20	WV 527	Huntington, WV	2037	$6,281,000
Bridge/Viaduct Construction/Replacement				
CB 2	W 17th Street Bridge (Phase 2)	Huntington, WV	2031	$62,249,000
CN18	10th Street & Railroad	Huntington, WV	2035	$691,000
Intersection Beautification and Multimodal/Downtown Improvements				
CN1	5th Street & Miller Road	Huntington, WV	2035	$296,000
CN3	3rd Avenue & 31st Street	Huntington, WV	2036	$305,000
CN6	8th Avenue & 5th Street	Huntington, WV	2037	$314,000
CN7	5th Street & 4th Avenue	Huntington, WV	2038	$323,000
CN8	14th Street West & Adams Avenue	Huntington, WV	2039	$333,000
CN16	3rd Avenue & 13th Street	Huntington, WV	2033	$1,860,000
Intersection Safety Improvements				
CN4	8th Avenue & 31st Street	Huntington, WV	2032	$722,000
CN11	1st Street & 7th Avenue	Huntington, WV	2035	$493,000
CN13	1st Street & 5th Avenue	Huntington, WV	2037	$523,000
Interchange Improvements				
CN15	US 52 & Washington Avenue	Huntington, WV	2031	$12,450,000

Table 9.8 - Roadway Project Cost Estimates (2040 Horizon) - continued

ID	Project Facility	Project Location	Funding Year	Cost
Ohio				
Roadway New Location				
LR 4	SR 7/US 35 Connector (Phase 1)	Lawrence County, OH	2038	$95,968,000
Bridge/Viaduct Construction/Replacement				
CB 2	W 17th Street Bridge (Phase 2)	Huntington, WV	2031	$11,047,000
Intersection Operations Improvements				
LN18	US 52 & Ashland Bridge (US 60)	Coal Grove, OH	2031	$6,839,000
LN21	3rd Avenue & 6th Street Bridge (SR 7)	Chesapeake, OH	2035	$789,000
LN22	SR 7 & SR 243	Proctorville, OH	2031	$1,368,000
LN25	SR 775 & East End Bridge	Proctorville, OH	2031	$1,754,000
Intersection Safety Improvements				
LN5	US 52 & CR 1	Perry, OH	2035	$493,000
LN6	US 52 & CR 15	Perry, OH	2033	$24,184,000
LN7	SR 7 & CR 15	Burlington, OH	2035	$493,000
Interchange Improvements				
LN16	US 52 & Campbell Drive (SR 141)	Ironton, OH	2032	$1,084,000
LN17	US 52 & Marion Pike (SR 243)	Coal Grove, OH	2035	$839,000
LN19	US 52 & Grandview Avenue	South Point, OH	2031	$24,900,000

Table 9.9 - Roadway Project Cost Estimates (Vision Plan)

ID	Project Facility	Project Location	Funding Year	Cost
West Virginia				
Roadway Widening				
CR 11	College Avenue/Martha Road (CR 30/2)	Barboursville, WV	2041	$88,371,000
CR 13	I-64	Cabell County, WV	2041	$395,903,000
CR 14	I-64	Cabell County, WV	2041	$351,128,000
CR 18	WV 10	Cabell County, WV	2041	$1,712,516,000
CR 19b	WV 2	Cabell County, WV	2041	$916,704,000
WR 2	Centerville-Prichard Rd. (CR 20) / Lynn Creek Rd.	Wayne County, WV	2041	$608,701,000
WR 3	Spring Valley Road	Wayne County, WV	2041	$464,715,000
WR 5	US 52	Wayne County, WV	2041	$2,945,471,000
WR 6	US 52	Wayne County, WV	2041	$662,666,000
WR 7	US 52	Wayne County, WV	2041	$246,497,000
WR 8	US 52	Wayne County, WV	2041	$519,623,000
WR 9	US 52	Wayne County, WV	2041	$175,093,000
WR 10	Docks Creek Road (CR 8)	Wayne County, WV	2041	$182,163,000
WR 12	WV 152	Wayne and Cabell Counties, WV	2041	$592,912,000
WR 13	WV 152	Wayne County, WV	2041	$538,947,000
WR 14	Walkers Branch Road (CR 3)	Ceredo, WV	2041	$419,940,000
WR 16	Goodwill Road	Wayne County, WV	2041	$49,959,000
Roadway New Location				
WR 4	Spring Valley Road Connector	Wayne County, WV	2041	$170,851,000
WR 15	Airport Road Connector	Wayne County, WV	2041	$41,947,000

Table 9.9 - Roadway Project Cost Estimates (Vision Plan) - continued				
ID	**Project Facility**	**Project Location**	**Funding Year**	**Cost**
West Virginia - continued				
Roadway Multimodal/Downtown and Operations Improvements				
CR 3	Buffington Street	Guyandotte, WV	2041	$5,420,000
CR 4	5th Avenue	Guyandotte, WV	2041	$12,490,000
CR 5	Guyan Street	Guyandotte, WV	2041	$4,242,000
CR 6	Short Street	Guyandotte, WV	2041	$2,828,000
CR 8	3rd Avenue	Huntington, WV	2041	$14,139,000
CR 9	5th Avenue	Huntington, WV	2041	$14,139,000
Bridge/Viaduct Construction/Replacement				
CB 1	Ohio River Bridge	Lesage, WV	2041	$200,308,000
WB 1	I-73/74 Bridge	Ceredo, WV	2041	$180,277,000
Interchange Improvements				
WN5	US 52 & WV 75	Wayne County, WV	2041	$16,732,000
WN6	US 52 & Docks Creek Road (CR 8)	Wayne County, WV	2041	$16,732,000
WN7	US 52 & Whites Creek Road (CR 19)	Wayne County, WV	2041	$16,732,000
WN8	US 52 & Centerville-Prichard Road (CR 20)	Prichard, WV	2041	$16,732,000
WN9	US 52 & Old US 52	Prichard, WV	2041	$16,732,000
Intermodal Facilities				
-	Huntington Tri-State Airport Intermodal Facility	Huntington, WV	2041	$35,348,000
Ohio				
Roadway New Location				
LR 4	SR 7/US 35 Connector (Phase 2)	Lawrence County, OH	2041	$197,245,000
Bridge/Viaduct Construction/Replacement				
CB 1	Ohio River Bridge	Lesage, WV	2041	$35,348,000
WB 1	I-73/74 Bridge	Ceredo, WV	2041	$31,814,000

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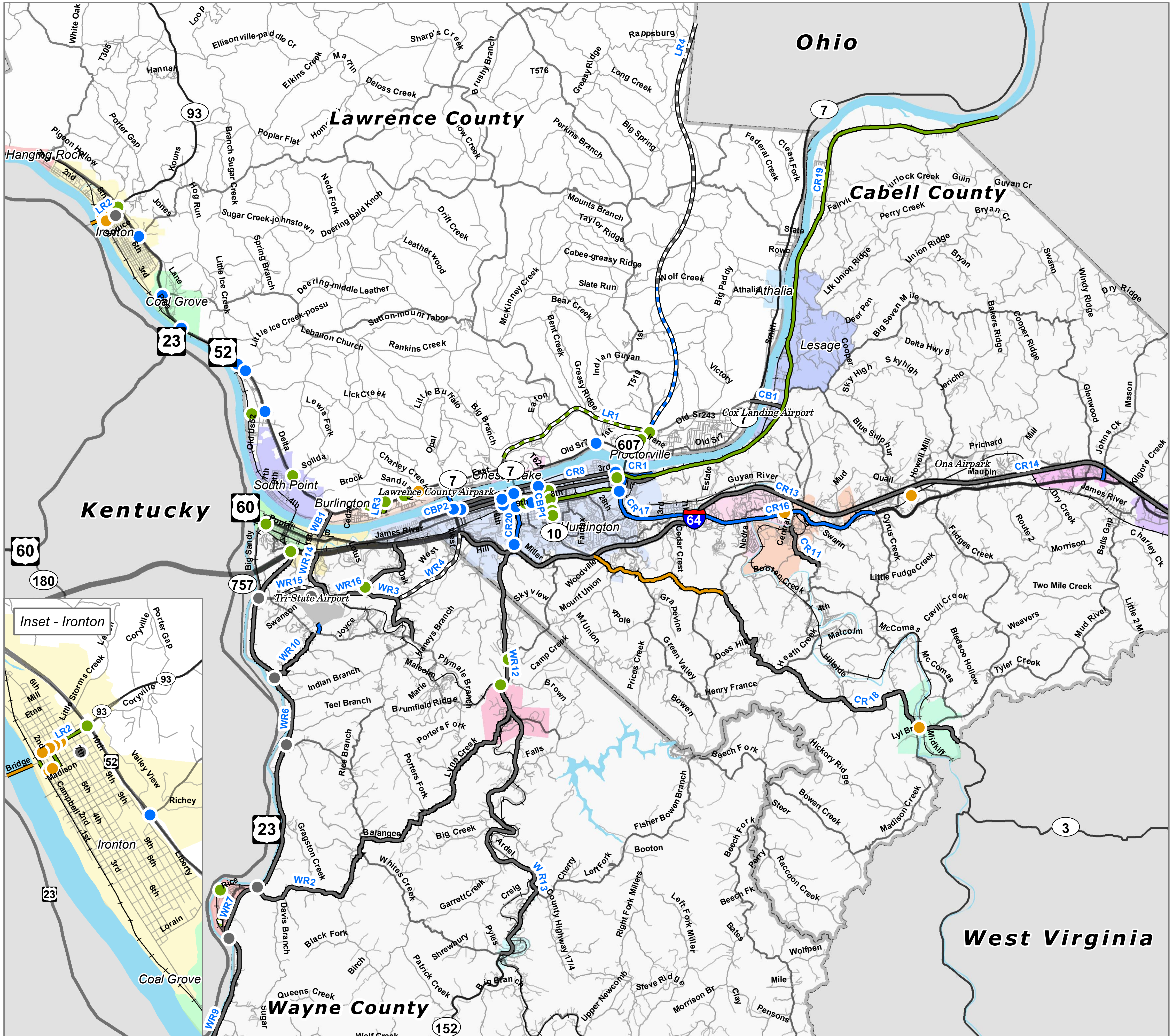


Figure 9.1

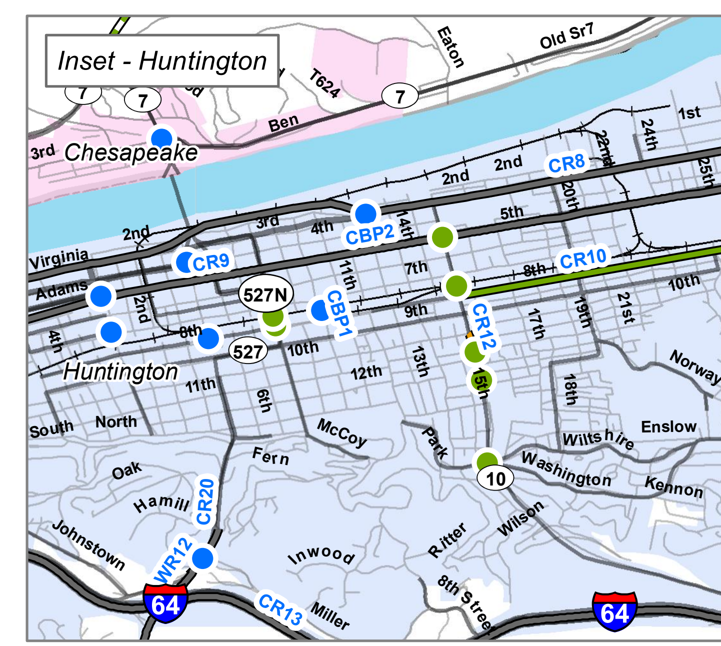
Financially Constrained Roadway Recommendations

Intersection Projects

- Committed
- 2030 Interim Year
- 2040 Horizon Year
- Vision Plan

Roadway Projects

- Committed
- 2030 Interim Year
- 2030 Interim Year, New Location
- 2040 Horizon Year
- 2040 Horizon Year, New Location
- Vision Plan
- Vision Plan, New Location



0 1.5 3 Miles

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2040 Metropolitan Transportation Plan

BRIDGING THE GAP IN REGIONAL TRANSPORTATION

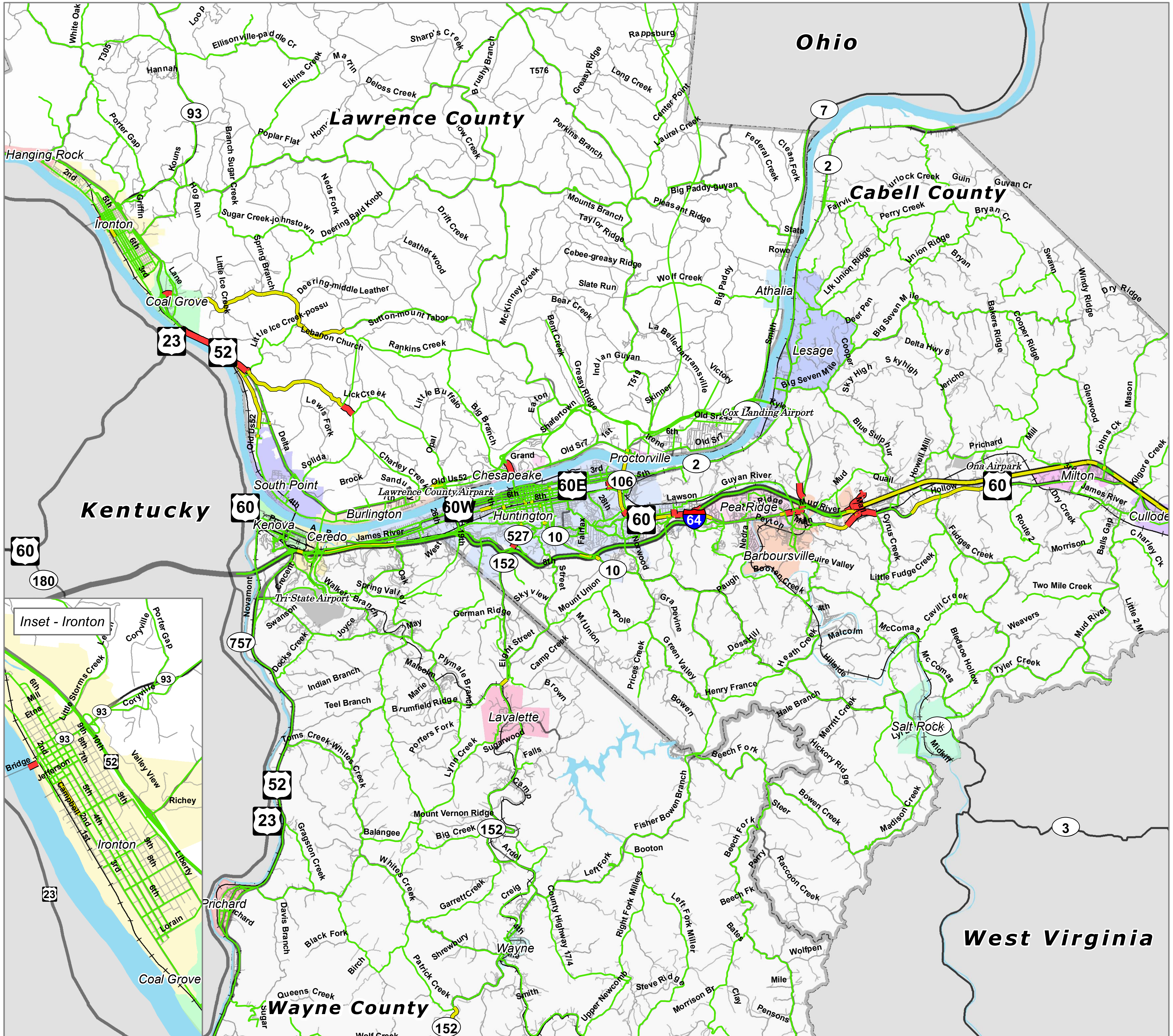
KYOVA INTERSTATE PLANNING COMMISSION

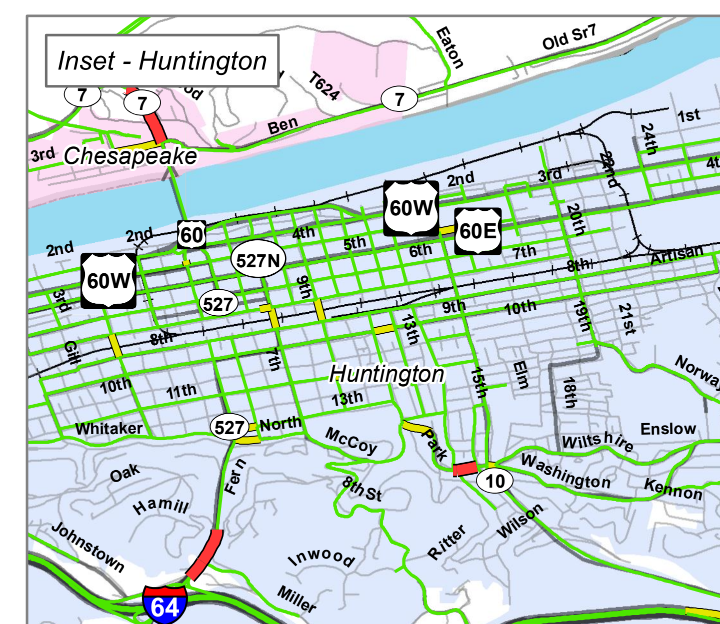
Figure 9.2

Financially Constrained Congestion (2040)

2040 Financially Constrained Volume-to-Capacity Ratio

- Below Capacity (v/c < 0.80)
- At Capacity (0.8 < v/c < 1.0)
- Above Capacity (v/c > 1.0)





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Pedestrian and Bicycle Funding

Tables 9.10 and **9.11** reflect the proposed costs and revenues for bicycle and pedestrian projects. Currently, new bicycle and pedestrian facilities in the KYOVA region are primarily funded using federal programs including Safe Routes to School, the Congestion Mitigation and Air Quality Improvement Program, and the Surface Transportation Program. Although many likely sources of bicycle and pedestrian project funds have been combined into the Transportation Alternatives (TA) funding source, the KYOVA region's funding levels are assumed to remain the same. To be conservative, these funds are assumed to rise with inflation but not to outpace it. The available bicycle and pedestrian funding for the duration of the 2040 MTP totals $13.7 million for Cabell and Wayne Counties and $29.8 million for Lawrence County.

Table 9.10 - Pedestrian & Bicycle Costs and Revenues* (Cabell and Wayne Counties, in Thousands)

Period	Costs	Revenues	Difference
2012-2030	$7,630	$7,630	$0
2031-2040	$6,110	$6,110	$0
Total	$13,740	$13,740	$0

** Maintenance expenses accounted for under roadways.*

Table 9.11 - Pedestrian & Bicycle Costs and Revenues* (Lawrence County, in Thousands)

Period	Costs	Revenues	Difference
2012-2030	$16,560	$16,560	$0
2031-2040	$13,260	$13,260	$0
Totals	**$29,820**	**$29,820**	**$0**

** Maintenance expenses accounted for under roadways.*

Transit Funding

Tables 9.12 and **9.13** reflect the proposed costs and revenues for transit capital and operations projects. To better understand the dynamics of transit funding, capital funding is considered separately from operations and maintenance funding.

Table 9.12 - Transit Costs and Revenues (TTA and Wayne Express, in Thousands)

Period	Costs			Revenue			Difference
	Capital	Operations	Total	Capital	Operations	Total	
2012-2030	$39,400	$155,440	$194,840	$39,400	$155,440	$194,840	$0
2031-2040	$31,300	$125,360	$156,660	$31,300	$125,360	$156,660	$0
Total	$70,690	$280,800	$351,500	$70,690	$280,800	$351,500	$0

Table 9.13 - Transit Costs and Revenues (Lawrence County Port Authority, in Thousands)

Period	Costs			Revenue			Difference
	Capital	Operations	Total	Capital	Operations	Total	
2012-2030	$4,580	$18,090	$22,670	$4,580	$18,090	$22,670	$0
2031-2040	$3,670	$14,760	$18,430	$3,670	$14,760	$18,430	$0
Totals	**$8,250**	**$32,850**	**$41,100**	**$8,250**	**$32,850**	**$41,100**	**$0**

Capital Transit Costs and Revenues

In the current TIP, capital funding is designated for TTA and LCPA between 2012 and 2015. Capital funding for Wayne Express was based on the ratio of operating revenues between Wayne Express and TTA. To project future capital funding amounts, a 3% inflation rate was applied to the TIP funding, beginning in 2016. As with bicycle and pedestrian funds, locally available transit funding sources may have changed due to MAP-21 and the Huntington urbanized area's Transportation Management Area (TMA) status. Since new projections are not available for these modified programs, current funding levels are assumed to continue. Approximately $63.4 million, $7.3 million, and $8.3 million will be available in capital revenues for TTA, Wayne Express, and LCPA respectively. The desired fleet expansion and replacement schedule currently outpaces the revenues available. As a result, transit capital and operating costs are assumed equal to available revenue levels.

Transit Operations Funding

Transit operations funds are anticipated to increase with inflation. Over the planning period, a total of $252.7 million in maintenance and operations costs are assumed for the TTA system, $28.1 million for Wayne Express, and $32.9 million for LCPA. For more information on these transit agencies, visit: www.tta-wv.com and www.waynexpress.com.

Transportation Funding Sources

KYOVA MPO Funding

The KYOVA MPO receives federal funds for transportation related projects for its area. Transportation-related projects funded by federal dollars for the area must be considered and approved by the KYOVA Policy Board. The Policy Board consists of representatives and elected officials from the counties and municipalities in the area. All transportation related projects, presented to the Policy Board are first examined by the KYOVA Technical Advisory Committee for recommendation. The Technical Advisory Committee consists of technical representatives from various agencies and departments in the area as well as state and federal resource agencies. Projects approved by the Policy Board are then presented to WVDOT and ODOT for final approval. The approved projects must be listed in the KYOVA TIP, which is updated biannually. In addition, these projects are listed in the corresponding State TIPs.

Federal law requires each state to establish a fiscally constrained STIP. Projects located on a federally-eligible highway must be placed in the STIP to protect their federal eligibility. Before any project in the STIP can move forward to construction, federal law requires that it must undergo extensive review. Besides engineering concerns, the plans for each project must consider environmental mitigation, national security, safety, bicycle and pedestrian needs, and consistency with planned growth and development plans.

Transit Funding

TTA, Wayne Express, and LCPA receive federal funds through the FTA programs. As authorized by the Moving Ahead for Progress in the 21st Century Act (MAP-21), the FTA provides stewardship of combined formula and discretionary programs totaling more than $10 billion each year to support a variety of locally planned, constructed, and operated public transportation systems throughout the United States. Transportation systems typically include buses, subways, light rail, commuter rail, streetcars, monorail, passenger ferry boats, inclined railways, or people movers.

Federal funds awarded to the three transit agencies are listed in the KYOVA TIP. Providing planning assistance to these transit providers in the KYOVA area helps the efficiency of the current transportation network by promoting transportation choice and by potentially removing traffic from area roadways.

Rail Funding

The Department of Homeland Security (DHS) has provided roughly $18 billion in awards to state and local governments for programs and equipment that help to manage security. Through the Transit

Security Grants Program (TSGP), DHS has provided $374.7 million to date to 60 of the country's rail mass transit, ferry, and intra-city bus systems in 25 states and the District of Columbia. In addition to this funding, under certain conditions states and localities can tap into other Homeland Security Grant Program and Urban Area Security Initiative funds for rail security projects and initiatives. The majority of railroads—regionally and nationally—are private entities. While regulated at the federal level, these private entities determine the use or abandonment of railroad right-of-way. As a result, public-private partnership is essential.

Airport Funding

The Federal Aviation Administration (FAA) is an agency of the United States Department of Transportation with authority to regulate and oversee all aspects of civil aviation in the U.S. Federal grant funds or federal property transfers for airport purposes are obtained through the FAA. The FAA enforces certain obligations to fund recipients through its Airport Compliance Program.

Alternative Funding Sources

State revenues alone will not sufficiently fund a systematic program to construct transportation projects in the KYOVA MPO area. Therefore, jurisdictions within the KYOVA region must consider alternative funding measures that could help implement this plan. Alternative funding measures being considered and applied in areas around the state and the nation are included here.

Impact Fees

Developer impact fees and system development charges provide a funding option for communities looking for ways to fund collector streets and associated infrastructure. While most commonly used for water and wastewater system connections or police and fire protection services, impact fees recently have been used to fund school systems and pay for the impacts of increased traffic on existing roads. Impact fees place the costs of new development directly on developers and indirectly on those who buy property in the new developments. Impact fees free other taxpayers from the obligation to fund costly new public services that do not directly benefit them. Currently, restrictive state law makes the use of impact fees difficult in West Virginia. However, one county in the state has met all the requirements and has implemented an impact fee. The major challenge of using impact fees in the KYOVA area is that enabling legislation is required in all three states: Kentucky, Ohio, and West Virginia. Other incentives to encourage growth would need to be implemented before impact fees will yield success in the region.

Transportation Bonds

Transportation bonds have been instrumental in the strategic implementation of local roadways and non-motorized travel throughout West Virginia and Ohio. Voters in communities both large and small regularly approve the use of bonds to improve their transportation system. Projects that historically have been funded through transportation bonds include sidewalks, road extensions, new road construction, and streetscape enhancements.

Developer Contributions

Through diligent planning and earlier project identification, regulations, policies, and procedures could be developed to protect future arterial corridors and require contributions from developers when the property is subdivided. These measures would reduce the cost of right-of-way and would in some cases require the developer to make improvements to the roadway that would result in a lower cost when the improvement is actually constructed. To accomplish this goal, it will take a cooperative effort between local planning staff, WVDOT and ODOT planning staff, and the development community.

One area where developers can be expected to assist in the implementation of transportation improvements is for new collector streets. Collector streets support the traffic impacts associated with local development. For this reason, developer contributions should be responsible sharing the cost of these improvements.

Oversize Agreement

An oversize agreement provides cost sharing between the city/county and a developer to compensate a developer for constructing a collector street instead of a local street. For example, instead of a developer constructing a 28-foot back-to-back local street, additional funding would be provided by the locality to upgrade the particular cross-section to a 34-foot back-to-back cross section to accommodate bike lanes.

Grant Anticipation Revenue Vehicles (GARVEE) Bonds

GARVEE Bonds can be utilized by a community to implement a desired project more quickly than if they waited to receive state or federal funds. These bonds are let with the anticipation that federal or state funding will be forthcoming. In this manner, the community pays for the project up front, and then receives debt service from the state. Historically, the state of West Virginia has paid for GARVEE bonds. However, it is possible for a community to use GARVEE bonds through their own initiative. GARVEE bonds also are an excellent way to capitalize on lower present-day construction and design costs, thereby finishing a project more quickly and economically than if it was delayed to meet state timelines. GARVEE bonds already are being used in the KYOVA area. For more information, visit:

www.fhwa.dot.gov/innovativefinance/garguid1.htm

Tax Increment Financing

As mentioned in **Chapter 7**, Tax Increment Financing (TIFs) use future gains in taxes resulting from current improvements to fund the implementation of the improvements. In regions that do not have the available funds to pay for improvement projects, Tax Increment Financing allows the region to construct the project and pay back the debt using the increase in tax revenues that results from the project.

Public-Private Partnerships

Public-private partnerships are approved by the State of West Virginia in the §17-21-1 Article 27 Public-Private Transportation Facilities Act. Under a true public-private partnership, the public sector retains ownership, defines the rules of conduct of the partnership under terms of a strict contract, and is able to share the risks and the rewards of the effort. An example of a successful public-private partnership lies within the KYOVA area. A TIGER III grant was awarded to Prichard to construct their Intermodal Transfer Facility. The public-private partnership consists of USDOT, WVDOT, and Norfolk Southern. USDOT and WVDOT are both responsible for funding $15 million of the project, while Norfolk Southern is responsible for contributing $5 million.

Bicycle and Pedestrian Funding

Bicycle and pedestrian projects are often eligible for their own funding sources. For instance, the Robert Wood Johnson Foundation funds a grant program called Active Living by Design. The purpose of this program is to provide communities with a small grant to study bicycle, pedestrian, or other healthy living initiatives. There are other such grant programs in existence for bicycle and pedestrian projects, which would help to supplement the funding currently received by these modes. For more information, visit:

www.activelivingbydesign.org

www.walkinginfo.org/funding/sources.cfm.

Transportation Alternatives Program Grants

State and federal grants can play an important role in implementing strategic elements of the transportation network. Several grants have multiple applications, including Transportation Alternatives Program (TAP) Grants as well as state and federal transit grants. TAP, established by Congress through MAP-21, combines the Enhancement Grant program, Recreational Trails program, and Safe Routes to School (SRTS) program into one competitive funding source. TAP ensures the implementation of projects not typically associated with the road-building mindset. While the construction of roads is not the intent of the grant, the construction of bicycle and pedestrian facilities is one of many enhancements that the grant targets.

Tolling

Toll roads are direct "user fees" collected at the point where the vehicle enters the toll facility. The West Virginia Parkways Authority and Ohio Turnpike Commission are the oversight agencies responsible for determining toll facility feasibility. Before tolling is considered to fund a roadway, a toll feasibility study is important to ensure that tolling is a viable and acceptable funding strategy. When implemented strategically and responsibly, tolling can be a successful method of funding roadway construction and maintenance.

Sales Tax

Several MPO's have successfully implemented sales taxes to generate additional funding for transportation projects. Sales tax revenues can be used to complete strategic regional projects, spot safety improvements, or access management priorities. To successfully enact a sales tax, the public must vote in favor of the tax through the election process. As a result, it is vitally important that a public education process be initiated to explain the benefits that would result from the tax. It is important to note that at this time, West Virginia state law prohibits the use of a local or county sales tax. If this option is considered as a possibility, additional legislation at the statewide level will need to be implemented.

State Infrastructure Bank

The State Infrastructure Bank (SIB) is a revolving loan program that maximizes the use of federal and state funds, making direct loans to eligible projects. The intent of this program is to increase the number of transportation projects completed in the state that would not be considered for traditional financing. The SIB was created with $87 million in federal funds, $40 million in general revenue funds, and $10 million in motor fuel tax funds. The current availability depends on SIB activity and loan repayment. There is no set limit and 100% financing is available for any highway or transit project eligible under Code of Federal Regulations' Title 23. Financing terms are 2 to 10 years, with interest rate determined at time of financing.

Appalachian Development Highway System

The Appalachian Development Highway System (ADHS) was created from the Appalachian Regional Development Act of 1965. The core purpose of this program was to spur economic development in the Appalachia region, which did not have a viable road network to support this necessary growth. The ADHS aimed to create a highway system that would link Appalachia communities to each other and the Interstate system, creating economic growth in the region. The ADHS is currently located in Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

The funding for ADHS roadways, provided by the Appalachian Regional Commission (ARC) and the Federal Highway Administration (FHWA), may be used for the construction, reconstruction, or improvement of highways on the designated 3,090 miles of ADHS highway. In total, 24 corridors are in the ADHS system (Corridor A – X). Corridor B, which travels between Asheville, North Carolina and Portsmouth, Ohio, contains a short portion of US 52 between Wheelersburg and Portsmouth.

Ohio-Specific Alternative Funding Sources

Transportation Review Advisory Council

The Transportation Review Advisory Council (TRAC) selects major new capacity projects to be constructed in a six-year period. Major new capacity projects include those that cost more than $5 million and accomplishes one of the following objectives: increase mobility, provide connectivity, increase the accessibility of a region for economic development, increase the capacity of a transportation facility, or reduce congestion. ODOT typically determines the amount of money available for major new projects after basic maintenance and operational needs have been met. ODOT has generally allocated $500 million per year for TRAC projects. Funding may be used for preliminary engineering, right-of-way acquisition, and construction. Eligible projects include highway lane additions, bypasses, corridor upgrades, and roadway extensions that increase the system's ability to handle more traffic.

ODOT County Local Bridge Program

The ODOT County Local Bridge Program provides federal funds to counties for bridge replacement or rehabilitation. The Local Bridge Program is funded annually at approximately $32 million. The federal match is typically 90% of construction cost, based on the availability of toll revenue credits. Each county has a $5 million federal funding limit within a four-year program period. Funding is typically only provided for construction, unless the program manager determines that preliminary engineering and right-of-way costs are warranted. Eligibility is based on several factors:

- The structure must carry vehicular traffic
- The structure must meet the federal definition of a bridge (greater than 20 feet long)
- The structure must be listed in the ODOT bridge management system (sufficiency rating less than 80 for rehabilitation and less than 50 for replacement)
- The structure must be classified as structurally deficient or functionally obsolete
- The structure must have a general appraisal rating less than 7 for rehabilitation and less than 5 for replacement

Counties with the worst bridge conditions (deficiencies greater than the state average) are provided greater opportunities for funding, with up to $10 million earmarked for these areas. After funding is provided for these bridges, the remaining locations are ranked according to condition and importance to the community. Counties that do not receive funding for six years or more are given priority.

ODOT Local Major Bridge Program

The ODOT Local Major Bridge Program provides federal funding to counties and municipalities for bridge replacement or major bridge rehabilitation project. The program receives approximately $25 million per year. ODOT provides an 80% match for construction only on selected projects. The county or municipality is responsible for the remaining 20% of construction, as well as all costs for preliminary design, environmental study, final design, and right-of-way. The local match is required to be cash. Eligible projects must be vehicular carrying local major bridges with a deck area greater than 35,000 square feet.

ODOT Municipal Bridge Program

The ODOT Municipal Bridge Program provides federal funding to municipalities for bridge replacement or rehabilitation. The program receives approximately $8 million per year. ODOT provides an 80% match for construction only on selected projects. The county or municipality is responsible for the remaining 20% of construction, as well as all costs for preliminary design, environmental study, final design, and right-of-way. The local match is required to be cash.

- Eligibility is based on several factors:
- The structure must carry vehicular traffic
- The structure must meet the federal definition of a bridge (greater than 20 feet long)
- The structure must be listed in the ODOT bridge management system (sufficiency rating less than 80 for rehabilitation and less than 50 for replacement)
- The structure must be classified as structurally deficient or functionally obsolete

Credit Bridge Program

The Credit Bridge Program was an ODOT program in place during the 1990s that provided cities and counties "soft match credit" by spending local money on bridge projects that would otherwise qualify for federal funding. The program was suspended when Toll Revenue Credit balances became too high during the capital expansion of the Ohio Turnpike. ODOT decided to reinstate the program once the Toll Revenue Credit balance started depleting. The Credit Bridge Program is currently available to local governments that use federal funding to replace or rehabilitate bridges. The program allows counties and municipalities to replace or rehabilitate a bridge that is not on a federal-aid highway and receive credit for up to 80% of the construction cost. The credit then serves as the 20% non-federal share for a future federal-aid bridge project. Bridges must meet the eligibility requirements for federal bridge funding to be eligible for the Credit Bridge Program.

ODOT County Surface Transportation Program

The ODOT County Surface Transportation Program is set up to provide funding for eligible roadway improvements and safety studies. The safety study portion of the program is administered by the Ohio Department of Public Safety. The program receives approximately $20 million per year; of this total, $750,000 is set aside for safety studies. Federal matching on selected projects is 80% on roadway projects and 100% on safety studies and projects. To receive funding, the project must be on a facility classified at or above an Urban Collector or Rural Major Collector. Eligible projects include new construction, major reconstruction, center line and edge line striping, and raised pavement markers. Eligible safety projects include guardrail reconstruction and construction, center line and edge line striping, raised pavement markers, and traffic signs and signals.

ODOT Metropolitan Planning Organizations and Large Cities Program

The ODOT MPO and Large City Program provide funding for multimodal transportation system improvements. The program provides funding for multimodal maintenance, operational, and new construction projects within urban areas. Enhancement funds are also available for historic, scenic, and bicycle/pedestrian projects. The funding is sub-allocated from the ODOT County Surface Transportation Program.

ODOT Safety Program

The ODOT Safety Program provides funding for highway safety treatments or corrective measures designed to alleviate safety problems and potentially hazardous situations. The program receives $64 million per year. ODOT provides a 90% match for preliminary engineering, detailed design, right-of-way, or construction. Project priority is based on crash frequency/density, crash rate, relative severity index, equivalent property damage only rate, percent trucks, and rate of return. Eligible projects include signalization, turn lanes, pavement markings, traffic signs, guardrails, impact attenuators, concrete barrier end treatments, and break away utility poles. Applications are due by April 30 and September 30, and must be approved by the respective District Safety Review Team. Each application must be accompanied by a safety engineering study, unless the application is for funding to perform that study.

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Introduction

The *KYOVA 2040 Metropolitan Transportation Plan* provides a long-range plan for documented issues related to multimodal transportation in Cabell and Wayne County, West Virginia and Lawrence County, Ohio. As a regional plan with state and federal oversight and local initiatives, successful implementation will depend greatly on collaborative efforts from the KYOVA Interstate Planning Commission, West Virginia Department of Transportation, Ohio Department of Transportation, and numerous local, private, and agency stakeholders.

The following vision statement guided the *KYOVA 2040 MTP* planning process:

> We envision a growing region serviced by a safe 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.

An action plan, or framework, for fulfilling this vision has been embedded in the modal elements presented in previous chapters as noted in the following selected examples.

- The prioritization matrix in the Roadway Element (**Table 3.3** in **Chapter 3**) summarizes the systematic evaluation of projects, both quantitatively and qualitatively, and places each project in one of three tiers.
- A set of 31 project sheets in the Roadway Element were created with the express purpose of helping local governments and KYOVA solicit funding and implement specific projects.
- The Safety and Security Element (**Chapter 4**) is highlighted by the detailed field review, description of observations, and recommended countermeasures for 15 priority safety locations in the region. For intersections along US 52, the recommended countermeasures provide interim solutions until more advanced recommendations can be programmed.
- A detailed approach to systems management is provided in **Chapter 4** as a way to maximize the efficiency of the existing, and in the future the recommended, roadway network.
- A table of recommendations in the Bicycle and Pedestrian Element (**Table 5.2** in **Chapter 5**) prioritizes nearly 50 bicycle projects and provides cost estimates and potential funding sources.
- The expansion of transit service to the non-urbanized areas of Cabell and Lawrence Counties, a featured recommendation presented in **Chapter 6**, is based on proven research methodology to ensure adequate resources (capital and operating) are allocated for full implementation.
- Recommendations in the Aviation, Freight, Maritime, and Rail Element (**Chapter 7**) are presented by mode with special consideration for intermodal connections. The intentional focus on intermodal connections maximizes return on investment.

The financial plan presented in **Chapter 9** is based on a federal requirement for fiscal constraint. As a result, the *KYOVA 2040 MTP* does not require all recommendations be completed in unison. Instead, the recommendations promote flexibility and partnership between the MPO, its member jurisdictions, the state and federal agencies providing oversight, and private entities to implement the full vision of the MTP. Completion of the *KYOVA 2040 MTP* represents an important initial step toward creating a safe, efficient multimodal transportation system. The Implementation Plan provides a blueprint for the necessary steps to ensure its vision is fulfilled.

Implementation Philosophy

With limited funding resources available today, implementation can be challenging and time-consuming. The *KYOVA 2040 MTP* was developed with an understanding of these challenges, and the recommendations reflect a focused effort to identify strategic initiatives that can help expedite implementation of the plan. With funding gaps expected to continue during the life of this plan, a new approach must be considered. The *KYOVA 2040 MTP* implementation philosophy focuses on allocating resources to smaller, more cost-effective and geographically dispersed solutions balanced by larger infrastructure improvements.

This philosophy is borne out by the financially constrained project lists for both West Virginia and Ohio, which display a mix of large-scale widening and new location projects, operational and downtown mobility projects, and intersection and interchange projects. By advocating a healthy mix of projects, KYOVA will be able to see projects funded consistently over the life of the plan, rather than waiting for a select few heavy infrastructure projects to move forward.

Partnerships & Responsibilities

Partners charged with carrying forward the recommendations of the *KYOVA 2040 MTP* represent an important collection of stakeholders at the local, state, and federal levels committed to successful actions that encourage a diversity of options for traveling to, from, and within the region. Many of these partners actively participated on the project Steering Committee and other outreach events, or they have a role on the KYOVA Policy Board or Technical Advisory Committee. These partners include:

- Citizens and businesses
- West Virginia Department of Transportation
- Ohio Department of Transportation
- KYOVA Interstate Planning Commission
- Cabell and Wayne County, West Virginia
- Lawrence County, Ohio
- Cities, towns, and villages in the region
- Tri-State Transit Authority (TTA)
- Marshall University
- Huntington Tri-State Airport
- Port of Huntington Tri-State
- Elected leadership in the state legislatures, counties, and local municipalities
- Goods movement industry
- Healthcare providers

Priorities & Initiatives

To implement the *KYOVA 2040 MTP*, the region must identify stable, timely, and equitable methods of funding. Evolution toward a creative and effective mix of funding from various sources and stakeholders in the economy and transportation system of this region is a worthy goal. KYOVA has long been a proponent of partnering with other agencies and interest groups to advance projects of local and regional interest.

Implementing policy and program initiatives largely will occur at the local level. Some of the proposed transportation improvements will encompass right-of-way owned by different public or private agencies, and some improvements will occur as part of development and redevelopment opportunities. However, the majority of responsibility for implementing these recommendations will require a coordinated effort between KYOVA and its state and federal partners. However, even maximizing these methods will not fulfill the region's wish list for transportation improvements.

I-73/I-74

Upgrades to US 52 to freeway standards would complete a vital link in the I-73/I-74 system planned to connect West Virginia north to Ohio and ultimately Detroit, Michigan and south through Virginia and North Carolina to Myrtle Beach, South Carolina. Upgrades to US 52 including five new interchanges and improvements to the existing interchange at I-64 are not in the financially constrained plan. The lack of dedicated funding as part of the *KYOVA 2040 MTP* should not undermine the importance of this facility. Indeed, these improvements were ranked in the top two tiers in terms of priority (see **Table 3.3**). Instead, the exclusion from the financially constrained plan is simply a reflection of the lack of funds for large-scale infrastructure improvements. Allocating nearly 100% of regional transportation dollars to a single initiative is not politically feasible or fiscally responsible. This type of project in which benefits extend beyond regional boundaries is more appropriate as a federal priority and local officials and KYOVA should leverage it as such.

As an interim step, it is recommended that a corridor study be conducted for the portions of US 52 within the KYOVA region. The corridor study would encompass a small area around the current location to enable consideration of alternate and supporting routes. The purpose of this study would be to analyze the local, regional, and national financial benefits of improving this corridor to interstate conditions. Additionally, this study would help identify smaller breakout projects that could then be incorporated into future MTPs and TIPs. The end result of this study would be to better position KYOVA to move forward with improvements along the US 52 corridor.

Port Authorities

The West Virginia Public Port Authority developed a Statewide Strategic Port Master Plan to outline a vision and process for maximizing landside logistic operations and facilities. The focus of the study was to identify ways to transfer cargo from water vessels to inland destinations, including locations in KYOVA region. Funding is not necessarily programmed for improvements identified in the strategic plan, and many of its recommendations for the KYOVA region fall outside the financially constrained portion of the *KYOVA 2040 MTP*. To implement recommendations, stable, timely, and equitable methods of funding will be necessary.

One option for freight improvements is to form a multi-state port authority with bonding authority. A multi-state port authority could promote a consolidated marketing strategy to develop freight and intermodal needs. Bonds released by such an authority could be used to raise funds for strategic initiatives mentioned in the West Virginia Public Port Authority plan, intermodal facility improvements across the Tri-State, and the *KYOVA 2040 MTP*.

Guiding Principles

The Guiding Principles introduced in **Chapter 1** and summarized below represent a set of value statements for six major transportation priorities identified for the *KYOVA 2040 MTP*. These priorities were considered as multi-modal strategies were developed and prioritized. As a result, the recommendations of the *KYOVA 2040 MTP* will have a positive impact on goods movement and commerce, travel safety and mobility, diversity of mode choice, livability and health, and the visual appeal of the region.

Goods Movement

Promotes freight movement and enhances intermodal connections

Congestion Mitigation

Tackles issues identified in the travel demand model through strategic capacity improvements

Barriers to Mobility

Addresses concerns related to natural and manmade obstacles to safety and mobility

Livability and Complete Streets

Enhances gateways and improves beautification while making corridors more multimodal

Multimodal Integration

Creates a coordinated network of bicycle and pedestrian facilities and transit/passenger rail services

Tourism and Recreation

Protects the character of communities and promotes economic vitality

Table 10.1 – Roadway Element Recommendations and the Guiding Principles

Project ID	Project Type	Project Road/Description	Guiding Principles
CB 1	Bridge Construction	Ohio River Bridge – Lesage, WV	
CB 2	Bridge Replacement	W 17th Street Bridge – Huntington, WV	
CR 1	Multimodal/ Downtown	Bridge Street – Guyandotte, WV	
CR 2	Multimodal/ Downtown	Main Street – Guyandotte, WV	
CR 3	Multimodal/ Downtown	Buffington Street – Guyandotte, WV	
CR 4	Multimodal/ Downtown	5th Avenue – Guyandotte, WV	
CR 5	Multimodal/ Downtown	Guyan Street – Guyandotte, WV	
CR 6	Multimodal/ Downtown	Short Street – Guyandotte, WV	
CR 7	Widening	1st Street – Huntington, WV	
CR 8	Multimodal/ Downtown	3rd Avenue – Huntington, WV	
CR 9	Multimodal/ Downtown	5th Avenue – Huntington, WV	
CR 10	Widening	8th Avenue – Huntington, WV	
CR 11	Widening	College Avenue/Martha Road (CR 30/2) – Barboursville, WV	
CR 12	Multimodal/ Downtown	Hal Greer Boulevard – Huntington, WV	
CR 13	Widening	I-64 – Cabell County, WV	
CR 14	Widening	I-64 – Cabell County, WV	
CR 15	Widening	Johns Branch Road/Mason Road – Milton, WV	
CR 16	Operations	US 60 – Barboursville, WV	
CR 17	Multimodal/ Downtown	US 60 – Huntington, WV	
CR 18	Widening	WV 10 – Cabell County, WV	
CR 19a	Operations	WV 2 – Cabell County, WV	
CR 19b	Widening	WV 2 – Cabell County, WV	
CR 20	Multimodal/ Downtown	WV 527 – Huntington, WV	

Table 10.1 – Roadway Element Recommendations and the Guiding Principles (continued)

Project ID	Project Type	Project Road/Description	Guiding Principles
LR 1	New Location	Chesapeake Bypass – Lawrence County, OH	
LR 2	Widening	Park Avenue (SR 93) – Ironton, OH	
LR 3	Operations	CR 410 (Sams Walmart Way) – Burlington, OH	
LR 4	New Location	SR 7 - US 35 Connector – Lawrence County, OH	
WB 1	Bridge Construction	I-73/74 Bridge – Ceredo, WV	
WR 1	New Location	Access Road – Prichard, WV	
WR 2	Widening	Centerville-Prichard Rd (CR 20)/Lynn Creek Rd – Wayne County, WV	
WR 3	Widening	Spring Valley Road – Wayne County, WV	
WR 4	New Location	Spring Valley Road Connector – Wayne County, WV	
WR 5-9	Widening	US 52 (future I-73/I-74) – Wayne County, WV	
WR 10	Widening	Docks Creek Road (CR 8) – Wayne County, WV	
WR 11	Widening	Darling Lane – Wayne County, WV	
WR 12	Widening	WV 152 – Wayne and Cabell Counties, WV	
WR 13	Widening	WV 152 – Wayne County, WV	
WR 14	Widening	Walkers Branch Road (CR 3) – Ceredo, WV	
WR 15	New Location	Airport Road Connector – Wayne County, WV	
WR 16	Widening	Goodwill Road – Wayne County, WV	

Table 10.2 – Safety and Security Element Recommendations and the Guiding Principles

Project ID	Project Type	Project Road/Description	Guiding Principles
LN 7	Intersection Improvement	SR 7 (Chesapeake Bypass) and CR 15 (Buffalo Creek Road) – Burlington, OH	
LN 4	Intersection Improvement	US 52 and CR 120S (Burlington-Macedonia Road) – Burlington, OH	
LN 1	Intersection Improvement	US 52 and CR 144 (Charley Creek Road) – Burlington, OH	
LN 2	Intersection Improvement	US 52 and CR 276 – Burlington, OH	
LN 3	Intersection Improvement	US 52 and CR 410 (Walmart Way) – Burlington, OH	
LN 5	Intersection Improvement	US 52 and CR 1 (Old US 52) – Perry Township, OH	
LN 6	Intersection Improvement	US 52 and CR 15 (Lick Creek Road) – Perry Township, OH	
CN 13	Intersection Improvement	5th Avenue and 1st Street – Huntington, WV	
CN 11	Intersection Improvement	7th Avenue and 1st Street – Huntington, WV	
CN 10	Intersection Improvement	5th Avenue and Hal Greer Boulevard – Huntington, WV	
CN 9	Intersection Improvement	US 60 (31st Street) at 5th Avenue – Huntington, WV	
CN 4	Intersection Improvement	US 60 at 8th Avenue – Huntington, WV	
WN 1	Intersection Improvement	US 60 at 21st Street – Kenova, WV	
CN 12	Intersection Improvement	US 60 at East Pea Ridge Road – Barboursville, WV	
WN 2	Intersection Improvement	WV 152 at WV 75 – Lavalette, WV	
LN 8-13	Intersection Improvement	Signal, poles, and light upgrades – 6 locations – Ironton, OH	
-	Intersection Improvement	Turning radii enhancements – 7 locations – Ironton, OH	
-	Systems Management	I-64/US 60 Integrated Corridor Management	
-	Systems Management	I-64/US 60/US 52/US 23 Incident Management Corridor	
-	Systems Management	US 52 Freight Management/Incident Management Corridor	
-	Systems Management	Back of Queue Detection and CCTV Surveillance – 31st Street Bridge – Huntington, WV/Proctorville, OH	
-	Systems Management	Back of Queue Detection and CCTV Surveillance – 5th Street Bridge – Huntington, WV/Chesapeake, OH	
-	Systems Management	Back of Queue Detection and CCTV Surveillance – 12th/13th Street Bridge – Ashland, KY/Coal Grove, OH	
-	Systems Management	Back of Queue Detection and CCTV Surveillance – Ironton/Russell Bridge – Ironton, OH/Russell, KY	

Table 10.3 – Bicycle and Pedestrian Element Recommendations and the Guiding Principles

Project ID	Project Type	Project Road/Description	Guiding Principles
-	Trail System	Ironton Trails and Walkways – Ironton, OH	
-	Trail System	Union-Rome Trails and Walkways – Union-Rome, OH	
-	Bicycle Lanes	SR 7 from Chesapeake to Proctorville – Lawrence County, OH	
-	Signed Bicycle Route	Ironton Bike Circulator Route – Ironton, OH	
-	Bicycle Lanes	SR 141 from US 52 to SR 775 – Lawrence County, OH	
-	Signed Bicycle Route	Proctorville Circulator Bike Route – Proctorville, OH	
-	Signed Bicycle Route	CR 107 Bike Lanes – Proctorville, OH	
-	Bicycle Lanes	CR 1 from Chesapeake to South Point – Lawrence County, OH	
-	Signed Bicycle Route	South Point Circulator Bike Route – South Point, OH	
-	Signed Bicycle Route	Ironton-Russell Bridge Bike Route – Ironton, OH	
-	Signed Bicycle Route	Hanging Rock Bike Route – Lawrence County, OH	
-	Bicycle Lanes	1st Street Viaduct from 7th Ave to 8th Ave – Huntington, WV	
-	Bicycle Lanes	8th Street Viaduct from 7th Ave to 8th Ave – Huntington, WV	
-	Bicycle Lanes	10th Street Viaduct from 7th Ave to 8th Ave – Huntington, WV	
-	Bicycle Lanes	Hal Greer Boulevard from 8th Ave to Washington Blvd – Huntington, WV	
-	Signed Bicycle Route	Walkers Branch Rd/WV 75 from I-64 to Spring Valley Rd – Ceredo, WV	
-	Bicycle Lanes	Veterans Memorial Boulevard from David Harris Riverfront Park to W 3rd St – Huntington, WV	
-	Signed Bicycle Route	W. 14th Street from levee to Memorial Blvd – Huntington, WV	
-	Signed Bicycle Route	W. 5th Street from 8th Ave to Memorial Blvd – Huntington, WV	
-	Bicycle Lanes	8th Street from Veterans Memorial Blvd to Ritter Park – Huntington, WV	
-	Bicycle Lanes	10th Street from Veterans Memorial Blvd to Ritter Park – Huntington, WV	
-	Bicycle Lanes	3rd Avenue from 8th St to Guyandotte – Huntington, WV	
-	Bicycle Lanes	4th Avenue from W 1st St to 16th St – Huntington, WV	
-	Bicycle Lanes	5th Avenue from 1st St to 31st St – Huntington, WV	

Table 10.3 – Bicycle and Pedestrian Element Recommendations and the Guiding Principles (continued)

Project ID	Project Type	Project Road/Description	Guiding Principles
-	Bicycle Lanes	WV 2 from Guyandotte to Big Ben Bowen Hwy (SR 193) – Cabell County, WV	
-	Signed Bicycle Route	US 60 from Barboursville to Milton – Cabell County, WV	
-	Signed Bicycle Route	Barboursville Circulator Bike Route – Cabell County, WV	
-	Signed Bicycle Route	Hal Greer Boulevard Viaduct from 7th Ave to 8th Ave – Huntington, WV	
-	Bicycle Lanes	US 60 (Midland Trail) from Washington Blvd to Barboursville – Cabell County, WV	
-	Bicycle Lanes	1st Street from 3rd Ave to 12th Ave – Huntington, WV	
-	Bicycle Lanes	20th Street from 3rd Ave to 12th Ave – Huntington, WV	
-	Bicycle Lanes	24th Street from Oley St to 5th Ave – Huntington, WV	
-	Bicycle Lanes	6th Avenue from W 5th St to 20th St – Huntington, WV	
-	Bicycle Lanes	7th Avenue from W 5th St to 20th St – Huntington, WV	
-	Signed Bicycle Route	9th Avenue from 8th St to 20th St – Huntington, WV	
-	Bicycle Path	Abandoned CSX railroad bridge over Guyandotte River – Huntington, WV	
-	Signed Bicycle Route	Merritts Creek Rd from WV 2 to Barboursville – Cabell County, WV	
-	Signed Bicycle Route	Altizer Park - Riverside Drive from Washington Blvd to Guyan River Rd – Huntington, WV	
-	Signed Bicycle Route	Madison Avenue from W 21st St to Carson St – Huntington, WV	
-	Bicycle Lanes	Washington Boulevard Bike Lanes from Hal Greer Blvd to US 60 – Huntington, WV	
-	Bicycle Connection	Jackson Avenue Bike/Ped Tunnel under US 52 – Huntington, WV	
-	Bicycle Connection	5th Street Bike/Ped Tunnel between 7th Ave and 8th Ave – Huntington, WV	
-	Bicycle Lanes	US 60 Bike Lanes from Carson St (Huntington) to B St (Ceredo) – Wayne County, WV	
-	Bicycle Lanes	WV 152 from I-64 to Lavalette – Wayne County, WV	
-	Multi-Use Path	Harvey Road from Johnstown Rd to CR 6 at WV 152 – Wayne County, WV	
-	Signed Bicycle Route	Bike Route from Huntington to Beech Fork State Park – Wayne County, WV	

Table 10.4 – Transit Element Recommendations and the Guiding Principles

Project ID	Project Type	Project Road/Description	Guiding Principles
-	Transit Enhancement	Expand demand response service area to non-urbanized portion of Cabell and Lawrence Counties	
-	Transit Enhancement	Increase existing demand response service hours	
-	Transit Enhancement	Restructure Lawrence County Routes	
-	Transit Enhancement	Improve fixed route frequencies	
-	Transit Enhancement	Consider offering Sunday Service by Tri-State Transit Authority	
-	Transit Enhancement	Consider TTA bus service for Ceredo and Kenova	
-	Transit Enhancement	Consider TTA bus service to Huntington Tri-State Airport	
-	Transit Enhancement	Enhance Amtrak Service	
-	Transit Enhancement	Increase park-and-ride options	
-	Transit Enhancement	Leverage taxi service	
-	Transit Enhancement	Expand intercity bus service	

Table 10.5 – Aviation, Freight, Maritime, and Rail Element Recommendations and the Guiding Principles

Project ID	Project Type	Project Road/Description	Guiding Principles
WR 15	New Location	Construct a new 2-lane Airport Road Connector from US 52 to Airport Road	
WR 14	Widening	Widen Walkers Branch Road (CR 3) from the Walkers Branch Road bridge to I-64	
WR 11	Widening	Widen Darling Lane from WV 75 to the Tri-State Airport	
WR 10	Widening	Widen Docks Creek Road (CR 8) to a 4-lane divided roadway from US 52 to WV 75	
WR 5-9	Widening	Widen US 52 throughout Wayne County with a new bridge over the Ohio River	
CR 13-14	Widening	Widen I-64 to a six lanes from the West 18th Street Bridge to Hurricane	
CB 1	Bridge Construction	Construct a new bridge over the Ohio River between CR 19 and the Chesapeake Bypass (SR 7)	
CN 14	Interchange	Construct a new interchange on I-64 at Benedict Road (CR 60/21) in Culloden	
LR 1	New Location	Extend the existing bypass from US 52 to SR 775 around Chesapeake	
-	Aviation Facility	Expand or reconstruct the Passenger Terminal Building	
-	Aviation Facility	Provide boarding bridges	
-	Aviation Facility	Relocate the General Aviation and Operations Terminal to the south side of the airfield	
-	Aviation Facility	Construct at least one 10-unit T-hanger bank and one group hanger	
-	Aviation Facility	Plan and preserve space for 1,000-foot extension to Runway 12-30	
-	Aviation Facility	Plan and preserve space for a full length parallel taxiway A that can accommodate Group-IV aircraft	
-	Aviation Facility	Provide hold aprons on both runway ends	
-	Aviation Facility	Construct a General Aviation apron on the south side of the airfield	
-	Rail	Construct additional rail sidings to relieve points of congestion	
-	Rail	Collaborate with CSX to improve viaducts in Huntington	
-	Intermodal	Continue to enhance the South Point Intermodal Transfer Facility and supporting infrastructure	
-	Intermodal	Construct supporting infrastructure for a new intermodal transfer facility at Tri-State Airport	
-	Intermodal	Improve last mile connections to South Point, Prichard, and Tri-State Airport	
-	Intermodal	Construct a new intermodal transfer facility in Prichard	

Conclusion

The *KYOVA 2040 Metropolitan Transportation Plan* identifies a total of $6.1 billion for highway capital and maintenance projects that can be funded in the three-county region through 2040. An additional $43.5 million for bicycle and pedestrian projects and $392 million for transit capital and operating assistance is in the funded plan. However, additional strategies and projects have been documented to completely meet the needs of the region. The *KYOVA 2040 MTP* also includes unfunded roadway projects totaling $11.8 billion for the West Virginia portion of the study area and $67 million for the Ohio portion of the study area in 2041 dollars.

This funding gap was anticipated at the outset of the planning process. In response, the *KYOVA 2040 MTP* purposefully blends the need for additional highway capacity with the region's ongoing acknowledgement that connectivity and alternative modes can be cost-effective ways to address existing and future concerns. The plan outlines strategies for a balanced transportation network built upon the premise of choice and connectivity. It focuses on a multimodal transportation system that fosters economic growth without compromising the region's natural appeal and character.

Introduction

This chapter details the assumptions and procedures used in the air quality conformity analysis for the *KYOVA 2040 Metropolitan Transportation Plan* and 2014-2017 Transportation Improvement Program. This analysis is required to meet the 1997 eight-hour ozone National Ambient Air Quality Standard (NAAQS). The KYOVA Metropolitan Area has a base year 2010 travel demand model with a horizon year of 2040 that was developed for the *KYOVA 2040 MTP* analysis. This air quality conformity analysis seeks to update information contained in the *2035 Huntington-Ironton Area Transportation Study*. This analysis follows all the latest planning assumptions set forth by MAP-21 and applicable state and federal legislation, and included extensive coordination with the regional Interagency Consultation (IAC) group.

Eight-Hour Ozone

The Huntington-Ashland area, comprising Cabell and Wayne Counties in West Virginia and Boyd County in Kentucky, was designated as non-attainment for the 1997 8-hour ozone standard in the April 25, 2004 Federal Register (69 FR 23857). The West Virginia portion of this area was reclassified to attainment on October 16, 2006 (71 FR 39618), while the Kentucky portion of this area was reclassified to attainment on September 4, 2007. As a provision of this attainment designation, the area is required to adhere to a maintenance plan that establishes motor vehicle emission budgets (MVEBs) for nitrogen oxide (NO_x) and volatile organic compounds (VOCs). The West Virginia and Kentucky portions of this area maintain separate MVEBs.

A revision to the 8-hour ozone standard was promulgated on March 27, 2008 (73 FR 16436). Under the 2008 8-hour ozone standard, the Huntington-Ashland area is designated as in attainment. However, the maintenance plan established under the 1997 standard implementation rules remains in effect until July 20, 2013.

Estimates of vehicle emissions are being compared against the budgets established in the area's maintenance plan to determine regional conformity for the ozone precursors. The SIP budget for the West Virginia portion of the Huntington-Ashland area was revised on September 15, 2011. The last year of the 8-hour SIP budget is 2018. Budgets represent emissions in tons per day during the summer months, as that season generates the most severe ozone precursor emissions. The MVEBs are contained in **Table 11.1**.

For the purposes of this analysis, the planning horizon years are 2018, 2020, 2030, and 2040. These years are consistent with the horizon years evaluated in the current travel demand model and represent the conformity years specified for analysis by the West Virginia Department of Environmental Protection (WVDEP) and the United States Environmental Protection Agency (EPA). The emission estimation methodology is consistent with that used to develop the federally approved MVEBs, with appropriate updates to reflect the planning assumptions developed as a part of the *KYOVA 2040 MTP*.

Table 11.1 – 8-Hour Ozone Motor Vehicle Emission Budgets

Budget Year	Pollutants	
	NOx	VOC
2009	14.0 tpd	7.4 tpd
2018	13.5 tpd	6.6 tpd

Source: 76 FR 56975 (September 15, 2011)

Fine Particulate Matter (PM2.5), Annual Standard

The Huntington-Ashland area, consisting of Adams (partial), Gallia (partial), Lawrence, and Scioto Counties in Ohio, and Mason (partial), Wayne, and Cabell Counties in West Virginia, and Boyd County and a portion of Lawrence County in Kentucky, was designated as non-attainment for the annual $PM_{2.5}$ standard in 2005 (70 FR 944, 70 FR 19844). In late 2010, an analysis was begun to reassess the on-road generated $PM_{2.5}$ emissions. This analysis, completed in March 2011, resulted in a report titled *Mobile Source Emissions Inventory for Huntington-Ironton-Ashland $PM_{2.5}$ Nonattainment Area*. Based on this analysis, the EPA determined the entire Huntington-Ironton-

Ashland area had met the criteria for attainment (76 FR 55542, September 7, 2011). Recent rulings, 77 FR 76415 (December 28, 2012), 77 FR 75865 (December 26, 2012), and 76 FR 60492 (September 29, 2011), have formally redesignated the entire Huntington non-attainment area as an attainment area. Furthermore, these rulings find mobile source contributions to be insignificant to the overall $PM_{2.5}$ emissions in the area. As a result, no air quality conformity is needed for the 1997 $PM_{2.5}$ standard.

Methodology

Emissions Modeling

The EPA published a Federal Register notice[1] of availability on March 2, 2010, to approve MOVES2010 (Motor Vehicle Emissions Simulator), hereafter referred to as MOVES. Upon publication of the Federal Register notice, MOVES became the EPA's approved motor vehicle emission factor model for estimating VOCs, NO_x, CO, PM_{10} and $PM_{2.5}$ and other pollutants and precursors from cars, trucks, motorcycles, and buses by state and local agencies. MOVES is a computer program designed by the EPA to estimate air pollution emissions from mobile sources. MOVES replaces EPA's previous emissions model for on-road mobile sources, MOBILE6.2. MOVES can be used to estimate exhaust and evaporative emissions as well as brake and tire wear emissions from all types of on-road vehicles.

An updated version of this software, MOVES2010b, was used for the purposes of this analysis. MOVES2010b is a minor update to MOVES2010. It includes general performance improvements from MOVES2010 and allows users to account for emissions under new car and light truck energy and greenhouse gas standards.

The Clean Air Act (CAA) requires the EPA to regularly update its mobile source emission models. The EPA continuously collects data and measures vehicle emissions to ensure the agency has the best understanding of mobile source emissions. This assessment, in turn, informs the development of the EPA's mobile source emission models. MOVES represents the agency's most up-to-date assessment of on-road mobile source emissions. MOVES also incorporates several changes to the EPA's approach to mobile source emission modeling based upon recommendations made to the agency by the National Academy of Sciences.

On March 2, 2010, the EPA and United States Department of Transportation (USDOT) established a two-year grace period before MOVES is required for new transportation conformity analyses. As a result, MOVES will be the required analysis platform for all conformity analyses after March 2, 2012. Although the air quality conformity analysis for the 2040 KYOVA MTP was conducted prior to this date, the MOVES2010b software was used to take advantage of the most current modeling tools available.

Parameters for this analysis were defined through the interagency consultation process and documented in the "2040 KYOVA Metropolitan Transportation Plan Air Quality Conformity Revised Protocol."

The MOVES software requires additional data not previously required in the MOBILE6.2 emissions modeling software. Values for source type population, vehicle age distribution, alternative vehicle fuel types, and meteorological data were obtained using local data. Default information was used for fuel supply and fuel formulation.

Travel Demand Modeling

The KYOVA Travel Demand Model is the most recent and approved regional travel demand model for the study area. The travel demand model boundary includes all of Lawrence County in Ohio and Cabell and Wayne Counties in West Virginia. Model validation is a joint process between the MPO and the appropriate state review agencies. The KYOVA Travel Demand Model is a three-step model. Trip generation, trip distribution, and trip assignment components are included in the model. Mode choice is not an element. The current base year for the travel demand model is 2010.

[1] http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480ab1f98

Socioeconomic data were forecasted to the year 2040 as a part of the *KYOVA 2040 MTP* development. The TransCAD modeling platform was used to develop this model. Model documentation has been prepared as a part of this effort to provide more information on the assumptions and methodology used to develop the Travel Demand Model.

Pre-Processing

Information was gathered from the travel demand model to generate the average speed distribution, road type distribution, hourly vehicle miles traveled (VMT) distribution, Highway Performance Monitoring System (HPMS) vehicle type VMT, and ramp fraction. To streamline this process, a pre-processor was developed inside the Travel Demand Model. The pre-processor performed many of the calculations and disaggregations needed to produce MOVES-ready spreadsheets for each input. MOVES spreadsheet templates for each input type were developed for the identified model years. A script then was developed to pull the needed data from the model and perform any needed calculations. MOVES files generated through this exercise could then be applied directly in the County Data Manager.

Post-Processing

The conformity analysis was performed using the emission rates method. As a result, post-processing of the data was required to arrive at the overall emissions output. To do this, the rate per distance and rate per vehicle output data were matched with the appropriate geographic area, analysis year, source types, pollutant types, road types, modeling hours, and speed classes. It then was aggregated with the corresponding source type population and vehicle miles traveled information. The resulting information was summarized by pollutant type for each full or partial county being analyzed to generate the overall emissions in tons per year. This post-processing exercise was developed as a script within the travel demand model platform.

Modeling Parameters

The MOVES2010b developed and released by the EPA uses a graphical user interface with a set of input categories. A Runspec can be developed that stores the input values for these categories. The values and information included in the Runspecs developed for this analysis are explained in more detail in the following sections.

The emissions inventory development and emissions projection discussion below identifies procedures used by the KYOVA MPO to obtain emission rates for the 1997 8-hour non-attainment area.

Table 11.2 summarizes the settings used in the MOVES run specification file. **Table 11.3** lists the assumptions used in the MOVES County Data Manager. Further details on the use of MOVES are found in the following sections.

MOVES Runspec

Description

This input window is used to distinguish the individual Runspecs. For this analysis, the description is used to introduce the purpose for the analysis, the area being studied (i.e. Cabell and Wayne Counties), and the year of analysis (i.e. 2018, 2020, 2030, and 2040).

Scale

This input window is used to detail the information needed for the domain/scale of the analysis as well as the calculation type. The county level was selected as the domain for this effort, since it is the appropriate level for use in SIP and regional conformity analysis. The emission rate method was chosen for the calculation type. This calculation type was chosen following a discussion with the involved review agencies to determine the most appropriate calculation method for this analysis.

Time Spans

This input window has a variety of different timescale inputs for understanding the level of temporal aggregation being used in the analysis. The time aggregation level was specified as hours, based on guidance from the EPA and Federal Highways Administration (FHWA) for the preferred aggregation level for SIP runs. Based on the interagency consultation process, the years 2018, 2020, 2030, and 2040 were chosen for the analysis years. 2018 is the budget year, 2020 and 2030 are interim years satisfying the requirement that analysis years be no more than 10 years apart, and 2040 is the plan horizon year. Each year was done within a different Runspec. Since the pollutant analysis being conducted is for the 1997 8-hour ozone standard, July was chosen to represent worst-case summertime conditions. Weekdays were selected as the representative day type since they are considered the worst-case type when compared with weekends. All hours of the day were included in the analysis to represent conditions over a full 24-hour period.

Geographic Bounds

This input window asks for the name of the domain input database. To capture the overall effects of the emissions for the 1997 8-hour ozone non-attainment area, Cabell and Wayne Counties were analyzed as one custom domain. Four input databases were created during this process, reflecting the appropriate Runspec and analysis years.

Vehicles/Equipment

This input window allows the user to specify fuel and vehicle types present within the transportation network. There are 13 vehicle classes (referred to as source use types) and five fuel types. This analysis considers diesel and gas fuel types only, in part to reflect the lack of compressed natural gas and liquefied petroleum gas vehicles in the population and to allow default fuel formulation and fuel supply information to be used in portions of the study area. Within these constraints, all possible vehicle and fuel types were considered. Diesel motorcycles, gas combination long-haul trucks, and gas intercity buses were removed since they are not represented in the vehicle population.

Road Type

The MOVES software incorporates five different roadway types: off-network, rural restricted access, rural unrestricted access, urban restricted access, and urban unrestricted access. Expressways and freeways in the region are considered as restricted access facilities.

For this analysis, all five vehicle types were considered. Off-network emissions are intended to account for vehicle starts and evaporative emissions for parked vehicles. While these emissions are not captured through the information provided by the regional travel demand models, default values can be used to assess their impacts.

Pollutants and Processes

This input window allows the user to specify different pollutants and processes desired for modeling. Since the purpose of this analysis is to assess emissions relating to the 8-hour ozone standard, the interagency consultation specified the inclusion of Oxides of Nitrogen (NO_x), Volatile Organic Compounds (VOC), Non-Methane Hydrocarbons (NMHC), and Total Gaseous Hydrocarbons (THC).

Miscellaneous Strategies

The MOVES software includes input windows where provisions can be specified for specific strategies such as on-road retrofit and rate of progress emissions. Since these strategies are not being applied in this location, no information was entered for this section.

Output

Output for the MOVES program is stored in a user-created database. Output databases were created for each of the four Runspec conditions. As specified in the interagency consultation process, grams, joules, and miles were used as the units of measure in the output database. Based on the parameters already established in these Runspecs, the time measurement for this analysis was set as hourly, and the location was automatically set for the link level. To assist with post-processing aggregation, it was further requested that the source use type information be included with the output.

County Data Manager

Once all of the base parameters have been established for a given MOVES Runspec, the County Data Manager can be used to enter locally-specific data. Input provided in Excel spreadsheet format can be referenced using this tool, which converts the data to MySQL format and incorporates it into the MOVES analysis. For the KYOVA 1997 8-hour ozone non-attainment area, locally specific data could consist of data used for the entire region, statewide, or county-level data. The following sections detail these input criteria, and the methodology and assumptions used to arrive at the information entered for each.

Meteorology Data Importer

This importer requires the average temperature and relative humidity information for each hour of the day. To represent summertime conditions, meteorological data was collected for the month of July. ODOT supplied the information for West Virginia, obtained originally from NOAA data at the Huntington Tri-State Airport. Data from 2002 was used, gathered originally for the Mobile Source Emissions Inventory for Huntington-Ironton-Ashland PM2.5 Non-attainment Area. This data is assumed applicable for the entire non-attainment area and all analysis years.

Source Type Population Importer

This importer allows the user to enter vehicle population data for the local area, sorted by the 13 MOVES vehicle source types. The Protocol Report prepared for this analysis indicated that a combination of default data and local information would be used. The 0.8% annual growth factor established in the Protocol Report was used to determine future year source type population numbers. This information was gathered initially for the Mobile Source Emissions Inventory for Huntington-Ironton-Ashland PM2.5 Non-attainment Area and then adjusted to reflect the two-county area and modified analysis years.

WVDEP supplied the data for Cabell and Wayne Counties. This data was obtained from the West Virginia Division of Motor Vehicles (DMV) and cleaned to fit within the MOVES source types. An inventory of the bus population in the three-county area was used to modify the supplied DMV data. Due to questions about the validity or completeness of some of the data, default values were used for the following source types: 51 (Refuse Truck), 52 (Single Unit Short-Haul Truck), 53 (Single Unit Long-Haul Truck), 61 (Combination Short-Haul Truck), and 62 (Combination Long Haul Truck). Actual data has been used for Motorcycles, Passenger Cars, Passenger Trucks, Light Commercial Trucks, Transit Buses, School Buses, and Motor Homes. Data for source type 41 (Intercity Bus) was obtained by looking at the transit bus number and applying the ratio found in the MOVES default data between intercity and transit buses.

Age Distribution Importer

The Age Distribution Importer allows the user to provide vehicle age distribution data sorted by the MOVES vehicle source types. Vehicle age distribution is divided into 30 years based on vehicle model years. For each vehicle type, the sum of all age distributions will equal one. West Virginia data was provided by WVDEP, based on information from motor vehicle registration data. Data from 2010 was used to assess the age distribution of certain vehicle types. Based on the availability and confidence level about some of the vehicle class data, only certain types were distributed using local data. Cabell and Wayne County age distribution data was used for the following source types: source type 11 (Motorcycle), source type 21 (Passenger Car), source type 31 (Passenger Truck), source type 32 (Light Commercial Truck), and source type 54 (Motor Home). Age distribution data provided by ODOT was used for the remaining source types. As stated in the Protocol Report, the age distribution determined for each state was used for all analysis years. This information was gathered initially for the Mobile Source Emissions Inventory for Huntington-Ironton-Ashland PM2.5 Non-attainment Area, and was then adjusted to reflect the two-county area and modified analysis years.

Vehicle Type VMT and VMT Fractions

This data importer asks the user for the VMT in the study area by HPMS vehicle class type, hourly VMT distributions, daily VMT distributions, and monthly VMT distributions. The HPMS vehicle class VMT is asked for an annual basis. To determine this information, data can be pulled from available travel demand models or from regional HPMS data.

HPMS Vehicle Class VMT

The HPMS vehicle class VMT was determined using the pre-processor developed within the travel demand model. The travel demand model classifies vehicles into automobiles, single unit trucks, and combination unit trucks. The three vehicle classes in the model were divided into the six HPMS vehicle class types through the pre-processor. Since the travel demand model produces daily weekday volumes, the EPA conversion tool was used to convert these daily VMT numbers to annual values.

Following coordination with WVDEP, annual VMTs have been increased by 8% to account for seasonal variability in regional VMT. **Table 11.2** shows the HPMS vehicle class VMTs for each analysis year.

Table 11.2 - HPMS Vehicle Type VMTs

HPMS Vehicle Class	HPMS ID	Annual Vehicle Miles Traveled			
		2018	2020	2030	2040
Motorcycles	10	8,395,119	8,541,761	9,223,101	10,073,723
Passenger Cars	20	1,069,644,772	1,088,328,820	1,175,140,125	1,283,520,244
Other 2 axle-4 tire vehicles	30	254,518,689	258,964,500	279,620,984	305,409,701
Buses	40	11,888,401	12,233,066	13,855,709	15,755,339
Single Unit Trucks	50	64,515,206	66,385,611	75,191,262	85,500,054
Combination Trucks	60	44,479,068	45,813,424	52,311,950	60,188,508

Daily VMT Fraction

The EPA conversion tool for Annual Average Weekday VMT was used to determine the daily VMT fraction for each analysis year.

Monthly VMT Fraction

The EPA conversion tool for Annual Average Weekday VMT was used to determine the daily VMT fraction for each analysis year. Monthly VMT fractions are different on leap years (2020 and 2040) than on non-leap years (2018 and 2030).

Hourly VMT Fraction

The hourly VMT fraction was determined using the pre-processor developed within the travel demand model. In order to produce the information needed for the MOVES input file, the three vehicle classes in the model had to be expanded to the 13 MOVES vehicle source types. In addition, the four time-of-day periods in the model had to be expanded to represent each hour of the day. The default mix of off-network hourly distribution percentages was used for all vehicle classes.

Average Speed Distribution Importer

This importer gives the user the opportunity to enter locally specific average speed data, disaggregated by vehicle source type, road type, weekday/weekend, and hour of the day. The MOVES model uses 16 speed bins, dividing speed distributions into a fraction of driving within each speed bin for each of the criteria listed previously. The average speed distribution was determined using the pre-processor developed within the travel demand model. The vehicle classes in the model were expanded to the 13 MOVES vehicle source types, and the hourly distribution was expanded from the four time periods in the model to each hour of the day.

Road Type Distribution Importer

This importer can be used to incorporate locally specific roadway distribution information. The average speed distribution was determined using the pre-processor developed within the travel demand model. The vehicle classes in the model were expanded to the 13 MOVES vehicle source types.

Ramp Fraction Importer

This importer allows the user to input the percentage of traffic on urban restricted and rural restricted roadways that is traveling on ramp facilities. The ramp fractions were determined using the pre-processor developed within the travel demand model.

Fuel Formulation and Fuel Supply Importer

These importers are used to input locally specific fuel properties into the model. The Protocol Report specified that default values would be used for this category.

Fueltype and Technologies Importer

This importer value considers the alternative vehicle fuels and technologies (AVFT). If no information is entered for AVFT, MOVES assumes a default mix of alternative fuels. There are currently no alternative fuel vehicles in the transit fleet for Cabell and Wayne Counties. While there is one electric vehicle charging station in Downtown Huntington, there is no available detail on the quantity of electric vehicles in the area. As a result, the default AVFT file was modified to exclude alternative fuel types. The modified file reflects only diesel and gasoline fuel types.

Inspection and Maintenance (I/M) Importer

This importer allows local inspection and maintenance data to be entered for the study area. The KYOVA region has no I/M program in place. When default data is exported for this, the file indicates no I/M programs in place for the area. Since this is an accurate representation of the I/M program in the area, no further data was entered.

Post-Processing of MOVES Output

Once the appropriate data was input into the MOVES Runspecs and the County Data Manager, the four scenarios were run using the MOVES program. The following MOVES output databases were produced:

- KYOVA_2018
- KYOVA_2020
- KYOVA_2030
- KYOVA_2040

Since the emission rates method was used for this analysis, only two tables within each output database are used. The tables are called rateperdistance and ratepervehicle. Ultimately, information from both tables is used to determine overall emissions, aggregating the information for the running emissions (rateperdistance) and idling emissions (ratepervehicle).

The rateperdistance and ratepervehicle tables all represent scenarios for one geographic area (Cabell and Wayne Counties), one analysis year (2018, 2020, 2030, or 2040), one month (July), and one day type (weekdays). Results within the rateperdistance tables are disaggregated by hour of the day, pollutant type, process type, vehicle source type, roadway type, and speed category. Temperature and relative humidity data vary by the hour of the day. Results within the ratepervehicle tables are disaggregated by hour of the day, pollutant type, process type, and vehicle source type. Temperature data within these tables varies by the hour of the day.

The final output desired for this analysis summarizes the total emissions by pollutant type for each analysis year and geographic area. As a result, information contained in each scenario's rateperdistance and ratepervehicle has to be matched with corresponding VMT and source population data. To do this, a set of supporting tables were created that match these criteria with information contained in the rateperdistance and ratepervehicle tables such as vehicle source types, road types, speed categories, and hour of the day. The creation of those tables and the process used to calculate total emissions are detailed in the subsequent sections.

Output Tables

VMT and Source Type by County

This table displays the daily and annual VMTs and the source type population for all of the analysis years in this effort. The daily VMTs were pulled for each area from the spreadsheets used to develop the HPMS vehicle type VMTs. Annual VMTs for each county were determined using the EPA converter spreadsheet.

Source Type Population Fraction and VMT Fraction

This table separates the vehicle population into the different source types and determines the fraction of the population represented in each type as well as the fraction of total VMT represented in each type. The source type populations were pulled from the adjusted default data used for the MOVES runs. Within the MOVES format, VMTs were gathered by the six HPMS vehicle classes rather than the 13 MOVES source types. As a result, a translation was needed to match up the appropriate HPMS vehicle classes with the MOVES source types. Once the two classification types were matched to one another, the source type fractions established based on the vehicle populations were used to factor VMTs of different source type classifications that fell within the same HPMS vehicle class.

Hourly Distribution Fractions

This table provides the hourly VMT fractions, separated by source type, road type, hour of the day, and state. Hourly distribution fractions were pulled from the table created for use in the MOVES program.

Road Type Distribution Fractions

This table provides the road type VMT fractions separated by vehicle source types. Road type fractions were pulled directly from the MOVES input file developed earlier.

Average Speed Distribution Fractions

This table provides the average speed fraction sorted by source type, road type, hour of the day, and speed class. This file is the same as the MOVES input file used earlier in this analysis.

Aggregation Tables

Once the supporting tables were created, the information within them needed to be combined in a way that matched the independent variables shown in the rateperdistance and ratepervehicle tables. Due to the large number of records and computations required to perform this exercise, an advanced database and/or scripting tool was necessary. Since the KYOVA Travel Demand Model is operated in the TransCAD platform, it was determined that a programming script developed and run in TransCAD would be an effective way to summarize this information.

To create a step within this scripting process that could later be referenced and checked, two intermediate tables were developed. The tables developed were designated as the VMT Summary Table and the Source Type Population Summary Table. Each table's intent and composition is described below.

VMT Summary Table

The VMT Summary Table contains many of the same independent variables found in the rateperdistance output tables—state, analysis year, source type, road type, hour of the day, and average speed bin. This table further divides the information by the individual counties in the analysis. The intent is to determine the proportion of daily and annual VMT for a given county and analysis year that is represented within each combination of vehicle source type, road type, hour of the day, and speed category. This table references the source type VMT fraction generated in the Source Type Population Fraction and VMT Fraction table, the road type VMT fraction generated in the Road Type Distribution table, the hour VMT fraction generated in the Hourly Distribution Fraction table, and the average speed fraction from the Average Speed Distribution Fraction table. These four values are multiplied together to determine an overall fraction, which is then multiplied by the corresponding daily and annual VMT established in the VMT and Source Type table. When the daily VMT proportions and annual VMT proportions are summed for a particular county and analysis year combination, they will equal the corresponding VMT values shown in the VMT and Source Type table.

Source Type Population Summary Table

The Source Type Population Summary Table contains many of the same independent variables found in the ratepervehicle output tables; namely, state, analysis year, source type, road type, and hour of the day. This table further divides the information by the individual counties in the analysis. The intent of this table is to determine the proportion of the source type population for a given county and analysis year that is represented within each combination of vehicle source type and hour of the day. Since this is intended to represent idling conditions, only off-network roadway type was considered for the source type population summary. This table references the source type population fraction generated in the Source Type Population and VMT Fraction table and the hour VMT fraction generated in the Hourly Distribution Fractions table. These two values are multiplied together to get an overall fraction, which is then multiplied by the corresponding source type population information found in the VMT and Source Type table. The population proportion should be equal to the corresponding source type population value shown in the VMT and Source Type table.

Results Summary

As mentioned in the previous section, a TransCAD script was developed to quickly match the information in the rateperdistance and ratepervehicle tables with corresponding VMT and source type population information. This script also summed the matched information by county, analysis year, and pollutant type to create the final output format needed for this process. Results from this script are produced in a form that is easily formatted to show the overall emissions information contained in the main body of this report.

The results of this analysis and summary for the 1997 8-hour ozone standard, shown in **Table 11.3**, indicate that the future area-wide mobile source emissions of the ozone precursors NOx and VOC for an average summer day will be less than the emissions budgeted in the maintenance plan.

The results indicate a steady decline in NOx and VOC emissions in future analysis years. The one exception to this is a slight increase in VOCs in 2040. This can be attributed to the fact that overall improvements in the vehicle fleet are anticipated to taper off after 2030.

As demonstrated in the preceding analysis, the projected mobile source emissions for VOC and NOx will be less than the allotted budget through the year 2040. Therefore, the *KYOVA 2040 MTP* and the corresponding 2014-2017 Transportation Improvement Program conform to the 1997 8-hour ozone NAAQS.

Table 11.3 – Projected NO_X and VOC Emissions

Year	NOx (tons/day)		VOC (tons/day)	
	Budget	Modeled	Budget	Modeled
2018	13.5	2.76	6.6	0.79
2020	13.5	2.29	6.6	0.68
2030	13.5	1.43	6.6	0.53
2040	13.5	1.38	6.6	0.55

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