

July 31, 2026

Transportation Land Use Study for Cabell and Wayne Counties, WV

Project Summary and Key Findings



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BACKGROUND

The Kentucky, Ohio, West Virginia Interstate Planning Commission (KYOVA) is the Metropolitan Planning Organization (MPO) for the Tri-State area of the three States. The MPO serves as the focal point for making transportation decisions within the area. KYOVA's planning boundary covers all of Cabell and Wayne counties in West Virginia. The MPO regularly develops and updates a host of federally required long-range and short-range planning documents, tools and supporting studies impacting transportation throughout the region, such as the current Metropolitan Transportation Plan (MTP) that has a time horizon of 2050 and its four-year Transportation Improvement Program (TIP) covering FY 2026 through 2029, to ensure that funding is targeted fairly and consistently to aid and address the safe and efficient movement of people, goods and services. KYOVA uses a regional Travel Demand Model (TDM) to assess the local highway network operating conditions. The TDM is updated and calibrated regularly to reflect ongoing changes in socio-economic conditions and changes in physical infrastructure.

Since KYOVA's last MTP was developed and its TDM updated, multiple economic developments have occurred or are proposed that could potentially impact KYOVA's 2050 Existing Conditions Baseline. As such, Michael Baker International (MBI) was tasked with identifying a finite list of economic developments or areas of interest that may not have been fully addressed in KYOVA's 2050 MTP, evaluating their potential network impacts under multiple development scenarios, identifying possible network deficiencies, developing conceptual solutions to address identified deficiencies, and evaluating and grouping solutions to inform and supplement future updates of KYOVA's MTP and TDM and guide State and local planners in the decision making process.

To fully explain MBI's approach and document the interim findings, a series of four separate technical memorandums were developed and submitted to the Study's Steering Committee for review and concurrence prior to moving forward with subsequent phases. The four technical memorandums (listed below) are in turn being used as the basis of this report and are included in their entirety in Appendices A through D.

- Memo #1: Existing Conditions and Asset Inventory (Appendix A)
- Memo #2: Existing Deficiency and Needs Identification (Appendix B)
- Memo #3: Alternative Growth Scenarios and Deficiencies (Appendix C)
- Memo #4: Assessment Methodology and Project Identification (Appendix D)

PURPOSE

The purpose of this Study is to identify and evaluate a range of potential impacts and deficiencies on the transportation network stemming from unanticipated changes in land use and growth primarily in Cabell and Wayne counties and identify conceptual solutions for eliminating or partially mitigating them to preserve the economic vitality and viability of the area. The purpose of this report is to summarize the key findings and takeaways from the four interim technical memorandums developed during the course of the Study.

SCOPE

The scope of this Study was limited primarily to Cabell and Wayne counties in West Virginia, with influences and impacts associated with new developments in Mason and Putnam counties also being considered. While this Study examined all modes of transportation, its primary focus is on highway and transit impacts associated with three alternative growth scenarios (i.e., Revised 2050 Existing, Moderate and Aggressive Growth) prepared for 23 separate economic development initiatives or areas of interest in the region. The analysis of network-level impacts was limited to a subset of Major and Secondary corridors in Cabell and Wayne counties totaling roughly 280 miles and the 634 links of KYOVA's TDM corresponding to those roadways.

Worst case network-level conditions and quantitative deficiencies were determined by comparing the projected Level of Service (LOS) and Volume to Capacity (V/C) ratios from KYOVA's existing TDM outputs for the 2050 Existing Conditions Baseline under the assumption that all fiscally constrained projects contained within KYOVA's 2050 MTP would be implemented by that date (i.e., KYOVA Original 2050 Baseline) with their output under the Revised 2050 Aggressive Growth Scenario conditions. Five indicators of qualitative deficiency were selected for this Study which were as follows:

- Unprogrammed Poor or Posted Bridges,
- Higher Risk At-Grade Railroad Crossings,
- Recurring Roadway Flooding Issues,
- Unprogrammed High Priority Safety Issues, and
- Lack of or Insufficient Transit Service.

Potential solutions for identified qualitative deficiencies were drawn from existing planning studies where available. Where no existing project or study was identified, MBI developed conceptual solutions for each deficiency identified. Due to the broader impact associated with the quantitative LOS deficiencies and ripple effects, rather than attempting to solve the 39 individual LOS deficiencies, a broader analysis approach was employed. Quantitative solutions were limited to vision plan initiatives of KYOVA's 2050 MTP which were anticipated to have major network impacts and address multiple LOS deficiencies associated with the Aggressive Growth Scenario.

Quantitative and qualitative solutions were both evaluated and scored in three areas: Delivery Difficulty, Implementation Time Frame, and Overall Impact on Economic Development. Only the ultimate implementation phase of a construction-based project was scored for Overall Impact on Economic Development. The scoring for preliminary engineering or design phases was developed for information only. Solutions were then grouped into three priority categories based upon the overall score they received.

In addition to the scoring and grouping employed for all solutions, the network impacts of a single MTP Vision Plan project (CAB-29), which corresponds to a new Ohio River Crossing at Merritt's Creek Connector (WV 193), were examined.

DEPTH

Given that this Study evaluates the potential impacts from only a small subset (23 locations) of the economic developments and areas of interest in and around Cabell and Wayne counties and the fluid nature of the developments themselves, the depth of analysis for addressing identified deficiencies was limited. Maximum use was made of existing studies and readily available information.

As KYOVA's existing TDM is well-calibrated, no attempt was made to make broad revisions to the general growth rates, trip distribution and land use assumptions it contains. Only input data for Traffic Analysis Zones (TAZs) and External Nodes in the immediate vicinity of identified developments were examined for consistency and comparison purposes. Trip generation and system impacts reflected post-construction conditions and ignored potential spikes associated with construction or special events.

No new traffic counts or crash information was collected. While some of the 23 economic development sites and areas of interest were field reviewed during discussions with local developers and planners, most locations were reviewed using a combination of Google Earth, WV Tax Map and Flood Zone imagery to gauge development potential as it relates to the local transportation network. Additionally, efforts were made to discuss with local and State economic development personnel anticipated future land use associated with certain parcels of interest. Neither the availability of utilities (primarily water, sanitary sewer and power) nor a private landowner's willingness to sell or develop property was a deciding factor concerning possible development of a parcel or group of parcels.

Where available, Traffic Impact Studies (TIS's) were used as the basis for adjusting changes in traffic volume. Estimates of development size and composition relied heavily on information obtained from discussions with local developers, planners and press releases. Where limited site-specific information was available, engineering judgement was used regarding construction phasing and the development's potential impacts on surrounding population, employment, households and trips.

METHOD

To maintain a logical progression for this Study's development, ensure that local and regional planners were kept abreast, and to gain vital feedback, the Study was divided into eight discrete tasks:

- Existing Conditions and Asset Inventory;
- Existing Deficiency and Needs Identification;
- Future Visioning;
- Future Needs Analysis;
- Project Screening;
- Project Identification and Evaluation;
- Project Grouping; and
- Project Summary Final Report.

For conciseness and clarity, the analysis and interim findings of the Study's tasks were aggregated into a series of four separate technical memorandums, which are provided in their entirety in Appendices A, B, C and D. Each of these technical memos was submitted to the Study's Steering Committee (composed of representatives of KYOVA, the Cabell County Commission, the Wayne County Commission, the WV Division of Highways, and the Federal Highway Administration (FHWA)) for review and concurrence prior to proceeding. In addition, presentations outlining the Study's progress and findings were presented multiple times to KYOVA's Technical Advisory Committee and its Policy Board and placed on KYOVA's website to keep the public at-large informed. Rather than repeat and reiterate information contained in the technical memos, this report will provide a high-level summary of key findings and takeaways from those documents.

RESULTS

Demographic Challenges

Over the last 50-plus years the Study area has experienced significant demographic challenges stemming from population loss, as shown in Figure #1. Population losses in Wayne and Mason counties are generally associated with the evolving nature and efficiencies of the oil, gas and coal extraction industries and their need for a smaller overall workforce. Similarly, Cabell County has experienced population loss stemming from the local economy following national trends of shifting from labor intensive heavy industries like steel and alloys to a smaller and more technical workforce needed for advanced manufacturing facilities. The populations of Cabell County and the City of Huntington have also been impacted by the trend of people relocating from city centers to surrounding suburban and rural settings like Putnam County, which have been facilitated by improvements in the existing transportation network. Putnam County has seen substantial population growth due to improved access and available land, as well as its location between Huntington and Charleston.

LOCATION	YEAR						
	1970	1980*	1990**	2000	2010***	2020****	2025est*****
Cabell County	106,918	106,835	96,827	96,784	96,319	94,350	91,276
Wayne County	37,581	46,021	41,636	42,903	42,481	38,982	37,098
Putnam County	27,625	38,181	42,835	51,589	55,486	57,440	56,760
Mason County	24,306	27,045	25,178	25,957	27,324	25,453	24,473
Huntington (City)	72,970*****	63,684	54,844	51,475	53,745	46,842	44,400
West Virginia	1,744,237	1,950,186	1,793,477	1,808,344	1,852,994	1,793,716	1,769,460
* US Dept of Commerce, Bureau Of the Census, Detailed Population Characteristics WV 1980 PC80-1D50 ** US Dept of Commerce, Bureau Of the Census, Census 90, 1990-CP-1-50 *** US Dept of Commerce, WV 2010 Census of Population and Housing, CPH-2-50 **** Census.gov, 2020 Population and Housing, State Data ***** Worldpopulationreview.com ***** WV "Blue Book," 1970							

Figure 1: Regional Population Trends, 1970-2025 (estimated)

Leading up to and during the course of this Study, there have been numerous economic development and housing projects that have either been publicly announced or for which design and construction has begun, such as the Nucor steel manufacturing facility in Mason County, the IDEA District in Downtown Huntington, the Hamer Property in Kenova, and Woodworth Farm in Putnam County. Ultimately, it is anticipated that these and other initiatives can help reverse the trend in population loss and preserve and enhance the economic viability and vitality of Cabell and Wayne counties by expanding the number and quality of job opportunities and creating additional housing opportunities.

Transportation Network

The two Study counties possess a robust multi-modal transportation network enabling the effective movement of both freight and passengers. In addition to a wide range of public trails and bicycle facilities, the area possesses two Class 1 rail carriers (CSX and Norfolk Southern), three commercially navigable waterways (Big Sandy, Kanawha, and Ohio rivers), and Huntington Tri-State Airport, which provides commercial, general aviation, military and air cargo services. Each of the other modes of transportation is supported by two transit operators (Tri-State Transit Authority and Tri River Transit Authority) and an extensive highway network with its backbone being roughly 280 miles of Major and Secondary corridors comprised of a combination of Interstate, US, WV State, and County Routes, of which roughly 130 miles are located in Cabell County and 150 miles are located in Wayne county (see Figures 2 and 3).

Major Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
I-64	I-64 (Direction of Survey-EB)	25.9
	OTHER *	9.51
US 52	US 52 (Direction of Survey-EB)**	1.30
	US 52 NB	0.46
	OTHER *	0.83
US 60	US 60 (Direction of Survey-EB)	26.79
	US 60 ALT	0.49
	OTHER *	0.20
WV 2	WV 2 (Direction of Survey-NB)	17.99
	WV 2 TRUCK	0.39
WV 10	WV 10 (Direction of Survey-NB)	18.58
	WV 10 ALT	2.56
	OTHER *	0.01
WV 152	WV 152 (Direction of Survey-NB)	1.44
WV 193	WV 193 (Direction of Survey-NB)	3.55
	OTHER *	0.08
MAJOR CORRIDOR SUBTOTAL		110.09
Secondary Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
WV 101	WV 101 (Direction of Survey-EB)	0.75
	OTHER *	0.12
WV 106	WV 106 (Direction of Survey-NB)	0.67
	WV 106 SB	0.27
	OTHER *	0.01
WV 527	WV 527 (Direction of Survey-NB)	2.93
	WV 527 ALT	0.51
	WV 527 NB	0.45
	OTHER *	0.07
CO 13	CO 13 (Direction of Survey-NB)	5.51
CO 60/21	CO 60/21 (Direction of Survey-NB)	4.24
CO 60/89	CO 60/89 (Direction of Survey-NB)	0.76
CO 101/1	CO 101/1 (Direction of Survey-WB)	3.27
SECONDARY CORRIDOR SUBTOTAL		19.56
CABELL COUNTY STUDY CORRIDORS TOTAL		129.65
* OTHER CATEGORY INCLUDES MEDIANS, EMERGENCY CROSSOVERS, RAMPS, TURN LANES AND REST AREAS		
** US 52 SIGNED NORTH/SOUTH BUT DIRECTION OF SURVEY IS WEST TO EAST		
*** MILEAGE EXCLUDES PARALLEL MULTILANE SEGMENTS OPPOSITE DIRECTION OF SURVEY		

Figure 2: Major and Secondary Routes, Cabell County

Major Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
I-64	I-64 (Direction of Survey-EB)	5.87
	OTHER *	0.84
US 52	US 52 (Direction of Survey-EB)**	49.91
US 60	US 60 (Direction of Survey-EB)	5.60
	OTHER *	0.07
WV 152	WV 152 (Direction of Survey-NB)	40.05
	OTHER *	0.01
MAJOR CORRIDOR SUBTOTAL		102.35
Secondary Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
WV 37	WV 37 (Direction of Survey-EB)	36.89
	OTHER *	0.01
WV 75	WV 75 (Direction of Survey-EB)	10.3
	OTHER *	0.01
SECONDARY CORRIDOR SUBTOTAL		47.21
WAYNE COUNTY STUDY CORRIDORS TOTAL		149.56
* OTHER CATEGORY INCLUDES MEDIANS, EMERGENCY CROSSOVERS, RAMPS, TURN LANES AND REST AREAS ** US 52 SIGNED NORTH/SOUTH BUT DIRECTION OF SURVEY IS WEST TO EAST *** MILEAGE EXCLUDES PARALLEL MULTILANE SEGMENTS OPPOSITE DIRECTION OF SURVEY		

Figure 3: Major and Secondary Routes, Wayne County

I-64, which serves as the primary east/west highway corridor within the area, has seen major improvements in capacity and access. The long-awaited construction of a new interchange at Culloden, as well as the expansion of I-64 from four to eight lanes from Barboursville to the Merritts Creek Connector (WV 193) and from four to six lanes between the Merritts Creek Connector and the 29th Street Interchange, will not only have a significant impact on operations, but may influence population shifts due to the availability of developable land and documented demand for additional housing in the region. The improvements were made possible by a combination of State-Issued General Obligations Bonds and increased funding available federally from the Infrastructure Investments and Jobs Act (IIJA). Wayne County also benefited from these funding sources, generally with respect to the replacement or improvement of critical highway bridges. The highway network in both counties has identified high priority safety needs that have been documented in recent planning studies. Crashes in the southern portions of Wayne County tend to be fewer in number but of greater severity due to higher speeds and poor geometrics associated with the region's topography, whereas crashes in the northern portions of Wayne County and much of Cabell County have a much higher frequency, but are less severe due to lower speeds of the urban setting.

KYOVA's 2050 MTP utilized a broad range of metrics and performance measures to prioritize transportation investments in Cabell and Wayne counties. For the purposes of this Study, all fiscally constrained projects identified in KYOVA's 2050 MTP along Major or Secondary corridors were assumed to be completed by 2050. The listing and general location of those projects are shown in Figures 4 through 6.

Project	Name	Description of Work
CAB-01	Guyandotte Streetscaping Improvements - Bridge Street and Main Street	Streetscaping improvements (landscaped medians, mast arm signals, and street trees) along Bridge St (WV 106 to 39th St) and along Main St (Riverside Dr to Water St) in Guyandotte
CAB-02	Eighth Avenue and 31st Street (US 60) Intersection Safety Improvements	Intersection safety improvements (remove existing slip ramp; construct dual right-turn lanes at the signal) at Eighth Ave and 31st St
CAB-03	Eighth Avenue Improvements and Intersection Beautification	Eighth Avenue improvment (Hal Greer Blvd to US 60) in Huntington
CAB-04	Third and Fifth Avenue Complete Streets	Retrofit (ncorporate green infrastructure, complete streets principles, placemaking) Third Ave (US 52 to 31st St) and Fifth Ave (17th St to 31st St) in Huntington
CAB-07	First Street and Fifth Avenue Intersection Safety Improvements	Intersection Safety Improvements (install crosswalk markings and signage; pedestrian buttons and countdown signals) in Huntington
CAB-09	Hal Greer Boulevard Complete Street: Third Avenue to Washington Boulevard	Modifications (reduce number of lanes, beautification) along Hal Greer Blvd (Third Ave to Washington Blvd) in Huntington
CAB-10	Hal Greer Boulevard Complete Street: Washington Boulevard to Highlander Way	Modifications (install multiuse sidepath) along Hal Greer Blvd (Third Ave to Washington Blvd) in Huntington
CAB-11	Culloden Interchange Project	Construct new I-64/Benedict Rd (CR 60/21) interchange at Culloden, including new connector road between Virginia Ave and US 60
CAB-12	Jones Branch Road/Mason Road Improvements	Widen to four-lane boulevard Jones Branch Rd / Mason Rd in Milton
CAB-13	Midland Trail (US 60) at E Pea Ridge Road Intersection Safety Improvements	Intersection safety improvements at US 60 and E Pea Ridge Rd in Barboursville
CAB-14	Midland Trail (US 60) Roadway Improvements	Improve US 60 (Bonnie Blvd to Cyrus Creek Rd) in Barboursville
CAB-15	US 60 Roadway Improvements	Improve US 60 (Eighth Ave to Bonnie Blvd) in Huntington
CAB-17	Fifth Street (WV 527) Corridor Improvements	Improve Fifth St (I-64 to 8th Ave) in Huntington
CAB-18A	WV 2 Operational Improvements	Improve (intersection enhancements; truck pull-out lanes) WV 2 (Huntington to Point Pleasant)
CAB-19	Fifth Street West Bridge	Replace Fifth St West Bridge over Fourpole Creek with a wider and longer structure that includes sidewalk and shoulders
CAB-22	Adams Avenue (US 60) and 19th Street West	Convert to 3-lane section with two-way left-turn lane existing 4-lane section of US 60 (W 18th St and W 21st St)
CAB-26A	Washington Boulevard and Midland Trail (US 60) Intersection Safety Improvements	Construct EB right-turn lane
CAB-32A	Washington Avenue (US 60) and W 17th Street (US 52) Safety Improvements	Vehicular and pedestrian safety improvements potentially including signalization and other improvements
WAY-01	Oak Street (US 60) and 21st Street Intersection Safety Improvements	Intersection Safety Improvements
WAY-02	WV 152 and WV 75 Intersection Safety Improvements	Intersection Safety Improvements
WAY-03	8th Street (CR 11) and Fifth Street Road (WV 152) Connector Intersection Safety Improvements	Intersection Safety Improvements
WAY-10		Widen to a 4-lane divided roadway Darling Ln (WV 75 to Tri-State Airport) in Wayne County
WAY-14	Airport Road Connector / Airport Industrial Access Road	Realign existing access road to Tri-State Airport in Wayne County, and provide a new parking structure
WAY-18	5th Street Road (WV 152) and Food Fair Plaza	Install signage; extend two-way left-turn lane
WAY-19	German Ridge Road and WV 152	Install warning sign for the NB approach; install SB right-turn lane
WAY-21	WV 152 from Bloss Branch Road to Big Creek Road ("All Day Curve") Safety Improvements	Install advanced warning signs with calculated advisory speeds, chevrons, and large arrow boards, and install centerline rumble strips
WAY-22	WV 152 at German Ridge Hill Safety Improvements	Install High Friction Surface Treatment along a mile of WV 152; modify cross-slope of road
WAY-23	WV 152 from CR 11 Access to 8th Street Intersection Safety Improvements	Construct right-turn lane at the Triple-H Drive-In and Camp Creek Plaza
WAY-24	WV 75 and Spring Valley Drive Intersection Safety Improvements	Remove or trim trees to the north of WV 75; install flashing beacon approaching intersection

Figure 4: Committed 2050 MTP Projects, Cabell and Wayne counties

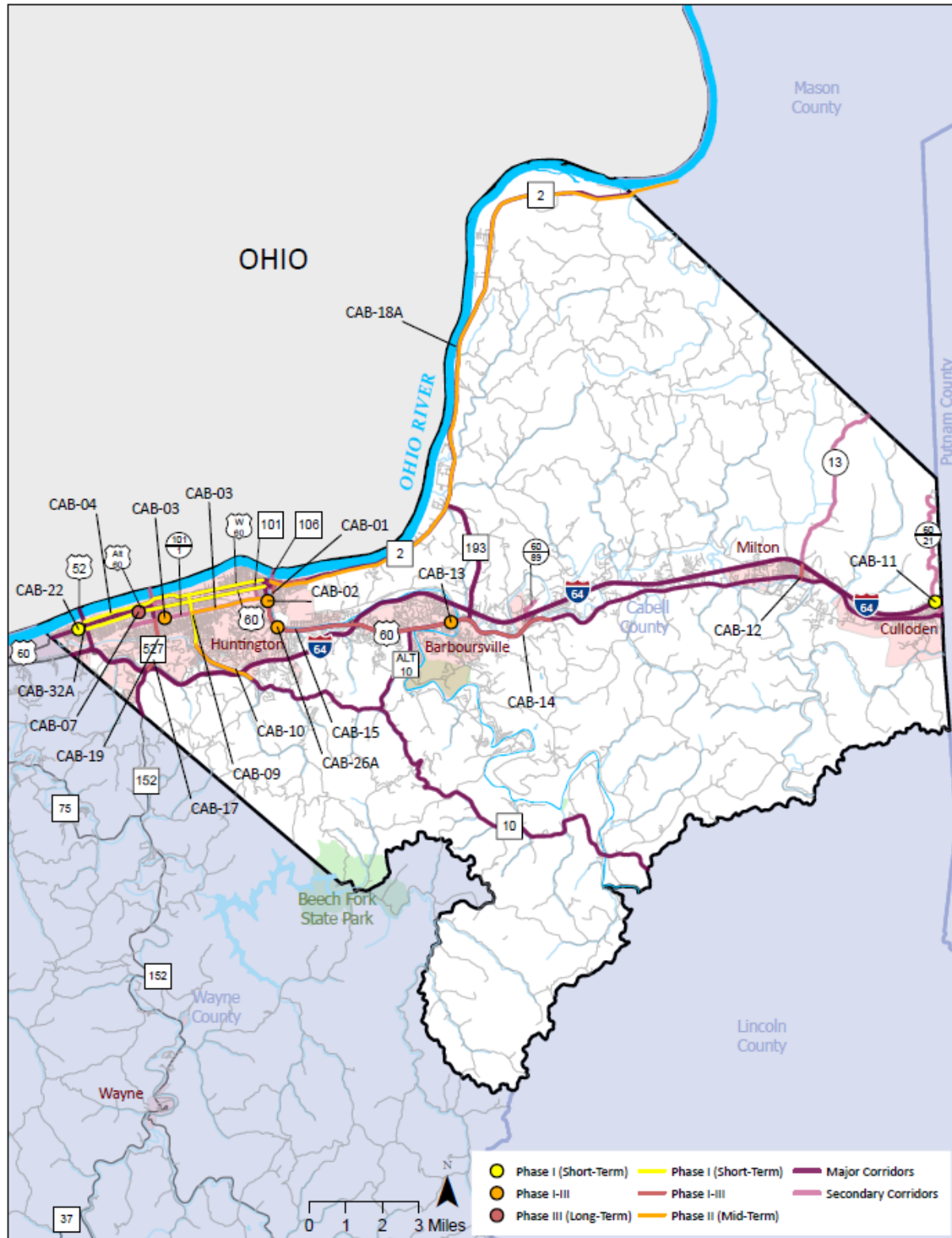


Figure 5: Committed MTP Projects, Cabell County



Analysis conducted during the course of this Study revealed the overall resiliency of the Major and Secondary corridors of the local highway network to absorb added passenger and freight traffic associated with the unanticipated economic developments.

Economic Developments and Areas of Interest

As this Study progressed, the difficulty in accurately identifying the location, type, size and implementation schedules of commercial, educational, industrial, and residential developments in the region became readily apparent. While initiatives like Nucor Steel, Alcon and the Culloden Interchange were fairly well-defined, new proposals like Frontieras near Point Pleasant and the Hamer Property in Kenova were unveiled when the Study was already underway. Some other initiatives (e.g., Google data center and an additional expansion of Alcon) were excluded from the Study because they were announced after the listing of developments to be analyzed was finalized. The listing of 23 specific developments and/or areas of interest and their locations are shown in Figures 7 through 9. A brief description of each development location is contained in Technical Memorandum #2 *Existing Deficiency and Needs* located in Appendix B.

Identified Economic Developments/Areas of Interest	
Prichard Building (108 units)	WV National Guard/Airport Business Park
IDEA District	Heritage Farms (Snowpark Expansion)
HBIZ Part 1 Foundry Center/University Park	Fort Gay Community Complex (8 units)
HBIZ (former ACF property) Part 2	Beech Fork Lake Marina
Imperial Lofts (36 units)	Central Appalachia Inland Port
Barnett Commons (32 units)	ICL
Proposed Welcome Center	Nucor & APG
Childers Crossing (70 units)	EDA Property
Alcon	Frontieras
Milton & Culloden I/C N. (Cabell/Putnam County)	Culloden I/C property S. of I-64 (Putnam County)
Culloden I/C South, Grand Patrician	Woodworth Farm
Hamer Property (Kenova)	

Figure 7: Finalized List of Economic Developments and Areas of Interest

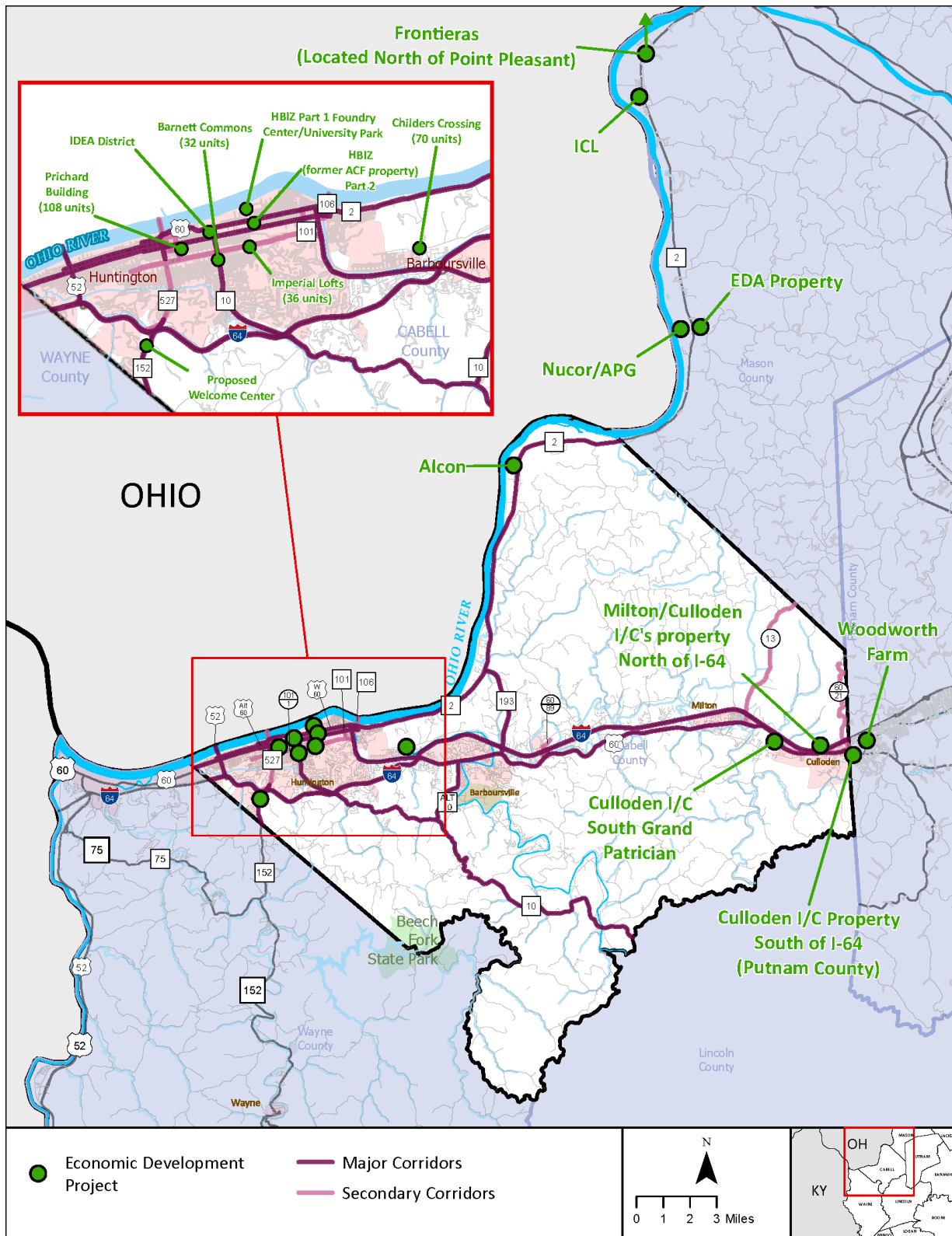


Figure 8: Economic Development and Areas of Interest, Cabell, Mason and Putnam counties

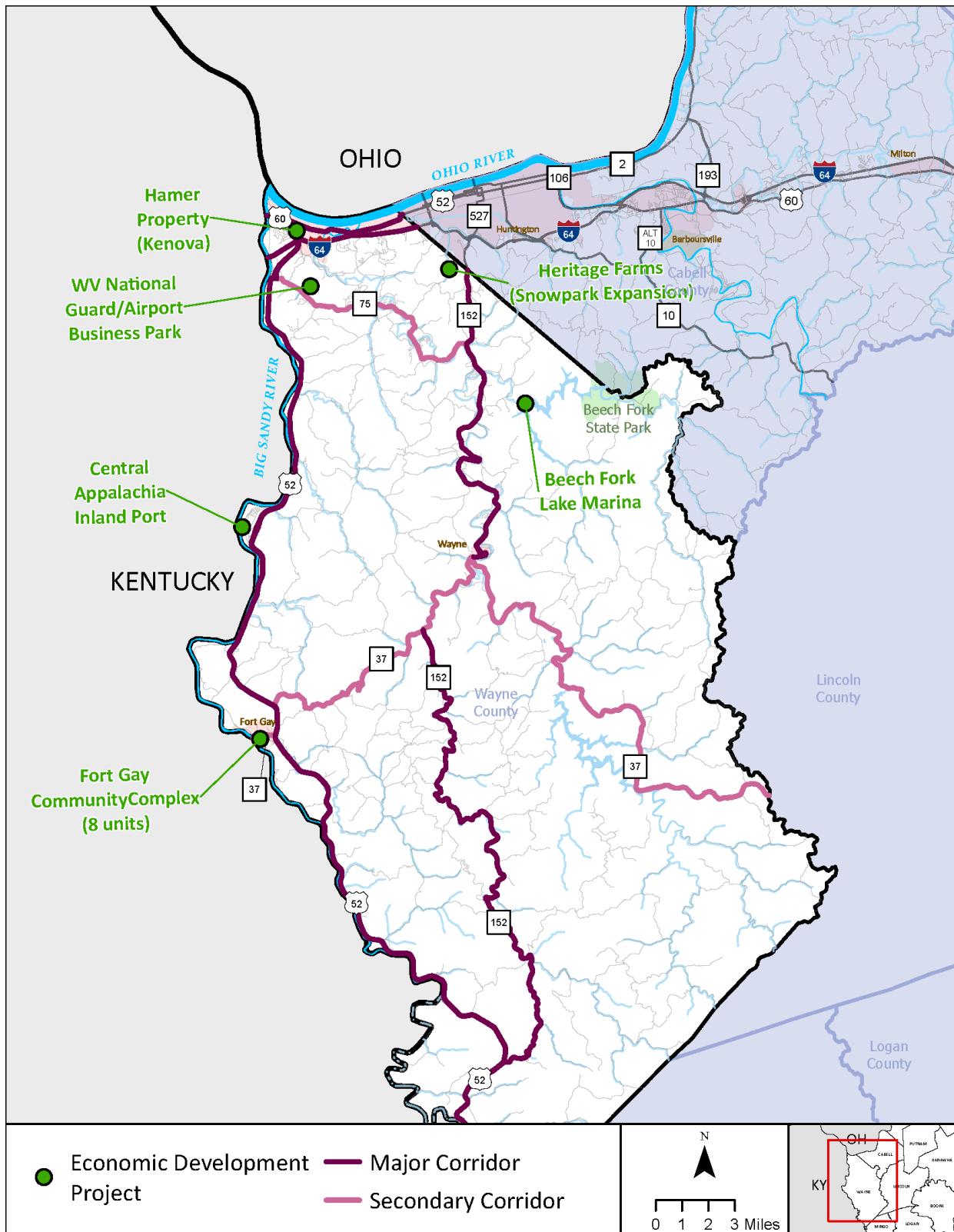


Figure 9: Economic Developments and Areas of Interest, Wayne County

Inclusion Review and Impact Analysis

In order to establish a “Revised 2050 Existing Conditions Baseline” it was necessary to determine if the anticipated growth impacts associated with the finalized listing of 23 economic developments or areas of interest were reflected in KYOVA’s 2050 Existing Conditions. For this analysis, each of the locations was reviewed with respect to either what TAZ or External Node of KYOVA’s TDM would be directly impacted. The review revealed that 17 TAZ’s and four External Nodes would be impacted. The locations of each can be seen in Figures 8 and 9 of Technical Memorandum #2 in Appendix B.

For each of the 17 TAZ’s, the three TDM inputs (i.e., Total Employment, Population and Number of Households) values used in KYOVA’s prior analysis were reviewed for changes between 2020 and 2050. Apart from the Hamer Property, which was excluded at this point due to its very preliminary nature, any TAZ that reflected no or negative growth was generally assumed to have not been included in the prior analysis. In addition, information contained in the *Multimodal Economic Impact Study for Huntington Tri-State Airport* suggests the WV National Guard / Airport Business Park developments may have been underrepresented in the previous analysis due to changes in the proposed development scope. A review of projected trip growth between 2020 and 2050 was conducted to determine whether the developments located outside or on the periphery of KYOVA’s planning boundary, had been incorporated previously. While each of the four External Nodes reviewed exhibited significant growth with values ranging from 40 to 53 percent, where recent TIS’s had been conducted as was the case of Nucor and Woodworth Farm those trips were added to the nodes assumed to be directly impacted.

After determining which initiatives had been included in KYOVA’s prior analysis, MBI staff used multiple technical resources and techniques to make general growth assumptions for each location and estimate the impact to several TDM inputs: Total Employment, Population, Households, Land Use, and Trips associated with each. Estimates of the number of Full Time Employees (FTEs) created by the individual developments were calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual and broader “rules of thumb” for FTEs/SF of representative development (i.e., warehousing, office space, food service, etc.). Where local developers were able to provide estimates of FTEs those values were used in the analysis. The general assumptions for each of the economic developments or areas of interest used to develop a Revised 2050 Existing Condition Baseline are shown in Figure 10.

IDENTIFIED DEVELOPMENT / AREA OF INTEREST	REVISED 2050 EXISTING CONDITION BASELINE ASSUMPTIONS
Prichard Building (108 units)	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario
IDEA District	Brad Smith and Cyber Security and Intuit/Foundever facilities operating. Brad Smith - 11 new employees -0 growth over time, Cyber Security - most faculty/staff relocated (assume 0), Outside Vendors-estimated at 20% of total staff (3floorsx18,250Sf)/150 SF per EMP x 20% = 73 round to 70, Food Service- 18,250 SF/250SF per employee =73 employees (round down to 70) ,Note 250 value avg between fast food and sit down, Foundever/Intuit Prosperity Hub (20,000 SF) constructed but currently unoccupied (projected 200 part time student employees in 2027) Assume 20hrs a week (0.5 FTE)= 100 FTE's, Assume Employment, Pop, HH values stable 2025-2050
HBIZ Part 1 Foundry Center/University Park	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario
HBIZ (former ACF property) Part 2	For Revised Existing use TIS info, Pop and HH unchanged
Imperial Lofts (36 units)	Revised Pop and Housing, No employment change
Barnett Commons (32 units)	Revised Pop and Housing, No employment change
Proposed Welcome Center	Assume Accounted for previously, no change for Revised Existing
Childers Crossing (70 units)	potential 5 phases, assume existing conditions is first two phases @ 70units (35/phase), add 1 phase (35) units for moderate (105 total), add 2 more phases for aggressive (175 total), Use population info from prior model splits, increase employment & population in Mod and Agg Scenario
Alcon	Assume Accounted for previously, no change from prior run
Milton & Culloden I/C North (Cabell/Putnam County)	For Existing Conditions assume development north of Milton and Culloden I/C's adequate use as is Assign jobs and pop increases from Putnam County properties north of I-64 to TAZ 140
Culloden I/C South, Grand Patrician	Assume Grand Patrician and growth south of I/C accounted for, leave as baseline for existing conditions
Hamer Property (Kenova)	For Existing Conditions Assume Model Information Correct regarding Hamer Property
WV National Guard/Airport Business Park	MU 2018 study indicates 438 on-airport jobs, which includes National Guard personnel (100-200 personnel), For existing revise to 438 initial and grow employment at previous rate (+ 317 by 2050), Assume Aeroplex not included in existing , No change in Pop or HH for existing
Heritage Farms (Snowpark Expansion)	Assume prior Land Use underestimated TAZ employment from Heritage Farm expansion, For Existing conditions use current employment values plus snowpark and remain static through 2050, Facility spits TAZ's (535/537) assign all employment to 535
Fort Gay Community Complex (8 units)	Revise populationand apply info from prior model splits for all scenarios, no change in employment
Beech Fork Lake Marina	Assume prior Land Use overestimated TAZ employment decline around Lavalette and Beech Fork. Existing conditions (assume employment drop mimics population drop), Adjust population & employment for Mod & Agg Scenario
Central Appalachia Inland Port	Assume prior Land Use overestimated TAZ employment decline around Prichard @ Industrial Park due to Intermodal facility closure, Assume 2020 to 2025 employment reduction due to Intermodal Closure (-52 FTE), For Existing conditions assume 2025 employment increased by 12 FTE's from RJ Corman and employment to remaind flat through 2050
ICL	Assume Accounted for previously, no change from prior run
Nucor & APG	Add NuCor TIS trips to Existing
EDA Property	For Existing Conditions Assume Model Information Correct regarding EDA Property
Frontieras	For Existing Conditions Assume Model Information Correct regarding Frontieras Development
Culloden I/C's property South of I-64 (Putnam County)	For Existing Conditions assume Putnam County Development south of I-64 (excluding woodworth farms) included in previous external node data (9007)
Woodworth Farm	All TIS trips added to 9007 for all scenarios

Figure 10: Assumptions for Revised 2050 Existing Conditions Baseline

Using the methodologies outlined above, TDM inputs for the impacted TAZ's and External Nodes were developed and the TDM was rerun to generate a Revised 2050 Existing Condition Baseline. A summary of the revisions by TAZ and External Node can be seen in Figure 11. It is estimated that Total Employment would be 1,900 FTEs higher in Cabell and Wayne counties due to the additional economic developments. Likewise, Population and number of Households were estimated to increase by 752 and 458, respectively, in the Revised 2050 Existing Condition Baseline scenario. Under the Revised 2050 Existing Condition Baseline most of the development occurring outside of Cabell and Wayne counties was assumed to have been represented in KYOVA's existing model run; however, 1,743 trips per day were added in response to the Nucor and Woodworth Farm developments.

Revised Values for 2050 Existing Conditions Based on Assumptions										
IDENTIFIED ECONOMIC DEVELOPMENTS / AREAS OF INTEREST	TAZ or EXTERNAL NODE	Total Employment			Population (Pop)			Households (HH)		
		KYOVA 2050	REVISED 2050	2050 DIFFERENCE	KYOVA 2050	REVISED 2050	2050 DIFFERENCE	KYOVA 2050	REVISED 2050	2050 DIFFERENCE
IDEA District	22	428	679	251	644	644	0	401	401	0
HBIZ (former ACF property) Part 2	44	421	749	328	365	365	0	167	167	0
Barnett Commons (32 units)	73	123	123	0	473	553	80	189	221	32
Imperial Lofts (36 units)	63	71	71	0	606	697	91	241	277	36
Prichard Building (108 units)	20	1,127	1,127	0	60	201	141	46	154	108
HBIZ Part 1 Foundry Center/University Park	40	546	978	432	10	260	250	8	208	200
Proposed Welcome Center	94	47	71	24	573	574	1	296	297	1
Alcon	137	207	207	0	339	348	9	133	136	3
Culloden I/C South, Grand Patrician	151	702	702	0	3,284	3,284	0	1,386	1,386	0
Childers Crossing (70 units)	117	1,225	1,225	0	669	832	163	287	357	70
Fort Gay Community Complex (8 units)	546	312	312	0	705	722	17	323	331	8
WV National Guard/Airport Business Park	529	274	755	481	503	503	0	200	200	0
Central Appalachia Inland Port	558	30	222	192	2,329	2,329	0	907	907	0
Beech Fork Lake Marina	557	0	113	113	930	930	0	355	355	0
Hamer Property (Kenova)	513	70	70	0	244	244	0	124	124	0
Heritage Farms (Snowpark Expansion)	535	1	80	79	666	666	0	249	249	0
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,425	1,425	0	1,636	1,636	0	695	695	0
EXTERNAL ECONOMIC DEVELOPMENTS / AREAS OF INTEREST	EXTERNAL NODE	ADDITIONAL TRIPS			NODE LOCATION	EXTERNAL NODE TRIPS				
						KYOVA 2050	REVISED 2050	2050 DIFFERENCE		
ICL	9004	0			WV 2 Cabell/Mason CL	8,020	8,485	465		
Nucor & APG		465								
EDA Property		0								
Frontierias		0								
ICL	9005	0			(CR's 41&13) Mason/Cabell CL Ashton Upland Rd	2,322	2,322	0		
Nucor & APG		0								
EDA Property		0								
Frontierias		0								
Milton/Culloden I/C's property North of I-64	9006	0			I-64 (Putnam/Cabell CL) @ Culloden	63,220	63,220	0		
Milton/Culloden I/C's property North of I-64		0								
Culloden I/C's property South of I-64 (Putnam County)		0								
Woodworth Farm		0								
Culloden I/C's property South of I-64 (Putnam County)	9007	0			US 60 (Putnam/Cabell CL) @ Culloden	13,460	14,738	1,278		
Woodworth Farm		1,278								

Figure 11: Summary of Input Revisions by TAZ and External Node

Alternative Growth Scenarios and Impacts

Due to the inherent uncertainty surrounding the preparation of long-term projections regarding the size, composition and timing of economic initiatives that primarily are expected to be implemented by private entities, MBI was charged with developing two alternative growth scenarios as a means of testing the transportation network's ability to absorb higher levels of traffic and determine where the network would be unduly impacted. The two scenarios are reflective of not only the input received from the Steering Committee and KYOVA staff but are also guided by the Study's Vision Statement and are described broadly as "Moderate Growth" and "Aggressive Growth". For each economic development location identified, the previous assumptions associated with the Revised 2050 Existing Conditions Baseline shown in Figure 10 were reevaluated and adjusted to reflect more robust levels of socioeconomic activity. The assumptions associated with each alternative growth scenario are shown in Technical Memorandum #3 *Alternative Growth Scenarios and Deficiencies*.

The alternative growth scenarios provide valuable context to the range of potential impacts and ancillary deficiencies generated by each of the developments and allow the aggregate impacts to the transportation network to be observed. The projected changes in Total Employment, Population and Number of Households for each development by TAZ and Additional Trips generated by External Node for the Moderate Growth and Aggressive Growth Scenarios are shown in Figures 12 and 13, respectively. The values from KYOVA's 2050 Existing Conditions and the differences are provided for comparison purposes.

Revised Values for 2050 Moderate Growth Scenario Conditions Based on Assumptions

IDENTIFIED DEVELOPMENTS	TAZ or EXTERNAL NODE	Total Employment			Population (Pop)			Households (HH)		
		KYOVA 2050	MODERATE 2050	2050 DIFFERENCE	KYOVA 2050	MODERATE 2050	2050 DIFFERENCE	KYOVA 2050	MODERATE 2050	2050 DIFFERENCE
Prichard Building (108 units)	20	1,127	1,317	190	60	201	141	46	154	108
IDEA District	22	428	829	401	644	644	0	401	401	0
HBIZ Part 1 Foundry Center/University Park	40	546	1,076	530	10	286	276	8	229	221
HBIZ (former ACF property) Part 2	44	421	824	403	365	402	37	167	184	17
Imperial Lofts (36 units)	63	71	78	7	606	767	161	241	305	64
Barnett Commons (32 units)	73	123	135	12	473	608	135	189	243	54
Proposed Welcome Center	94	47	78	31	573	631	58	296	327	31
Childers Crossing (70 units)	117	1,225	1,348	123	669	914	245	287	392	105
Alcon	137	207	228	21	339	383	44	133	150	17
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,425	1,496	71	1,636	2,460	824	695	1,045	350
Culloden I/C South, Grand Patrician	151	702	737	35	3,284	3,448	164	1,386	1,455	69
Hamer Property (Kenova)	513	70	1,270	1,200	244	244	0	124	124	0
WV National Guard/Airport Business Park	529	274	1,055	781	503	553	50	200	220	20
Heritage Farms (Snowpark Expansion)	535	1	100	99	666	733	67	249	274	25
Fort Gay Community Complex (8 units)	546	312	343	31	705	794	89	323	364	41
Beech Fork Lake Marina	557	0	181	181	930	1,487	557	355	625	270
Central Appalachia Inland Port	558	30	280	250	2,329	2,562	233	907	998	91
EXTERNAL DEVELOPMENTS	EXTERNAL NODE	ADDITIONAL TRIPS			NODE LOCATION	EXTERNAL NODE TRIPS				
						KYOVA 2050	MODERATE 2050	2050 DIFFERENCE		
ICL	9004	0			WV 2 Cabell/Mason CL	8,020	8,889	869		
Nucor & APG		488								
EDA Property		281								
Frontierias		100								
ICL	9005*	0			(CR's 41&13) Mason/Cabell CL Ashton Upland Rd	2,322	2,554	232		
Nucor & APG		0								
EDA Property		0								
Frontierias		0								
Milton/Culloden I/C's property North of I-64	9006*	0			I-64 (Putnam/Cabell CL) @ Culloden	63,220	66,381	3,161		
Milton/Culloden I/C's property North of I-64		0								
Culloden I/C's property South of I-64 (Putnam County)		0								
Woodworth Farms		0								
Culloden I/C's property South of I-64 (Putnam County)	9007	1,278			US 60 (Putnam/Cabell CL) @ Culloden	13,460	16,016	2,556		
Woodworth Farm		1,278								
*NOTE: A FLAT GROWTH RATE (%) WAS APPLIED TO THE EXTERNAL NODES PROJECTED 2050 TRIPS IN KYOVAS CURRENT MODEL TO ACCOUNT FOR ADDITIONAL TRIPS STEMMING FROM ALL DEVELOPMENTS IN THE AREA										

*NOTE: A FLAT GROWTH RATE (%) WAS APPLIED TO THE EXTERNAL NODES PROJECTED 2050 TRIPS IN KYOVAS CURRENT MODEL TO ACCOUNT FOR ADDITIONAL TRIPS STEMMING FROM ALL DEVELOPMENTS IN THE AREA

Figure 12: Summary of Input Revisions by TAZ and External Node, Moderate Growth Scenario

Revised Values for 2050 Aggressive Growth Scenario Conditions Based on Assumptions

IDENTIFIED DEVELOPMENTS	TAZ or EXTERNAL NODE	Total Employment			Population (Pop)			Households (HH)		
		KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE	KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE	KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE
Prichard Building (108 units)	20	1,127	1,436	309	60	201	141	46	154	108
IDEA District	22	428	925	497	644	708	64	401	441	40
HBIZ Part 1 Foundry Center/University Park	40	546	1,174	628	10	312	302	8	250	242
HBIZ (former ACF property) Part 2	44	421	899	478	365	438	73	167	200	33
Imperial Lofts (36 units)	63	71	85	14	606	836	230	241	332	91
Barnett Commons (32 units)	73	123	148	25	473	664	191	189	265	76
Proposed Welcome Center	94	47	85	38	573	689	116	296	356	60
Childers Crossing (70 units)	117	1,225	1,470	245	669	1,077	408	287	462	175
Alcon	137	207	248	41	339	418	79	133	163	30
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,425	1,568	143	1,636	3,284	1,648	695	1,395	700
Culloden I/C South, Grand Patrician	151	702	772	70	3,284	3,612	328	1,386	1,525	139
Hamer Property (Kenova)	513	70	2,870	2,800	244	293	49	124	149	25
WV National Guard/Airport Business Park	529	274	1,355	1,081	503	604	101	200	240	40
Heritage Farms (Snowpark Expansion)	535	1	125	124	666	799	133	249	299	50
Fort Gay Community Complex (8 units)	546	312	374	62	705	866	161	323	397	74
Beech Fork Lake Marina	557	0	217	217	930	1,784	854	355	682	327
Central Appalachia Inland Port	558	30	337	307	2,329	2,795	466	907	1,088	181

EXTERNAL DEVELOPMENTS	EXTERNAL NODE	ADDITIONAL TRIPS	NODE LOCATION	EXTERNAL NODE TRIPS		
				KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE
ICL	9004	0	WV 2 Cabell/Mason CL	8,020	9,294	1,274
Nucor & APG		512				
EDA Property		562				
Frontierias		200				
ICL	9005*	0	(CR's 41&13) Mason/Cabell CL Ashton Upland Rd	2,322	2,786	464
Nucor & APG		0				
EDA Property		0				
Frontierias		0				
Milton/Culloden I/C's property North of I-64	9006*	0	I-64 (Putnam/Cabell CL) @ Culloden	63,220	69,542	6,322
Milton/Culloden I/C's property North of I-64		0				
Culloden I/C's property South of I-64 (Putnam County)		0				
Woodworth Farm		0				
Culloden I/C's property South of I-64 (Putnam County)	9007	2,556	US 60 (Putnam/Cabell CL) @ Culloden	13,460	17,294	3,834
Woodworth Farm		1,278				

*NOTE: A FLAT GROWTH RATE (%) WAS APPLIED TO THE EXTERNAL NODES PROJECTED 2050 TRIPS IN KYOVAS CURRENT MODEL TO ACCOUNT FOR ADDITIONAL TRIPS STEMMING FROM ALL DEVELOPMENTS IN THE AREA

Figure 13: Summary of Input Revisions by TAZ and External Node, Aggressive Growth Scenario

A review of Figure 12 indicates that under the Moderate Growth Scenario, it is estimated that Total Employment would be 4,369 FTEs higher in Cabell and Wayne counties due to the additional economic developments. Likewise, Population and number of Households were estimated to increase by 3,081 and 1,481, respectively in this scenario over the current KYOVA 2050 Existing Conditions. Likewise, a review of Figure 13 demonstrates that under the Aggressive Growth Scenario, those same inputs would increase by 7,079 FTE's, 5,344 individuals and 2,392 Households over the current KYOVA 2050 Existing Condition Baseline. While all the developments increased TAZ total employment under the alternative growth scenarios, the Hamer Property and the Airport Business Park were assumed to have the greatest impact; whereas the property located north of the Milton and Culloden Interchanges of I-64 had the most impact on population.

As discussed previously, it was assumed that most of the developments reviewed that were located outside of Cabell and Wayne counties were accounted for in KYOVA's existing model run; however, 1,743 trips were still added to External Nodes in response to Nucor and Woodworth Farm initiatives. It is anticipated that the construction of warehousing and light industrial facilities on the West Virginia Economic Development Authority's property (i.e., the EDA Property) in the vicinity of Nucor, growth of Nucor itself, as well as the recently announced Frontieras development farther north near Point Pleasant will each contribute to trip growth coming from the north. Similarly, it is anticipated that the improved access provided by the new Culloden Interchange will spur additional economic developments, especially residential in Putnam County, impacting trips entering the region from the east on I-64 and US 60. It is estimated that the number of trips added to External Nodes from Study locations will increase substantially to 6,818 and 11,894 for the Moderate and Aggressive Growth Scenarios, respectively as the locations build out over time.

It is noted that multiple economic development announcements have occurred since the list of developments to be analyzed was finalized. Investments by Google and yet another expansion by Alcon are welcome news for the economic vitality of the region and will most certainly have an impact on KYOVA's traffic network, but their consideration remains outside the scope of this Study. Likewise, MBI staff were informed of potential expansions and developments in conjunction with Cabwaylingo State Forest and Rustic Ravines in southern Wayne County; due to timing issues, these new developments also lie outside the scope of this Study but should be addressed as part of KYOVA's next MTP update.

Deficiencies

Based upon guidance from the Steering Committee, multiple items of concern were identified that could inhibit or detract the economic growth and vitality of the Study area and its environs. For the purposes of this Study, these items of concern were considered "deficiencies" and were broadly categorized as being either quantitative or qualitative in nature.

The quantitative deficiencies for this Study are based on negative impacts to Level of service (LOS) and Volume to Capacity (V/C) ratios as measured by KYOVA's TDM on 634 segments of the Major and Secondary corridors caused by the 23 economic developments or areas of interest. A quantitative deficiency was determined to exist on any identified TDM segment with an LOS that dropped to D or below compared to KYOVA's 2050 Existing Condition output. In addition, any subset segment that was previously identified in KYOVA's 2050 Existing Condition output as being at LOS F was also considered a deficiency. The number

of quantitative deficiencies varied with each of the growth scenarios. A summary of the quantitative deficiencies under each development scenario follows:

- **Revised 2050 Existing Conditions Baseline:** 14 Study links totaling 3.43 miles, all of which are located in Cabell County, meet the criteria. Eight of the 14 deficiencies totaling 2.32 were associated with links that were rated at LOS F in KYOVA's 2050 Baseline without added development impacts.
- **Revised 2050 Moderate Growth Scenario:** 29 Study links totaling 6.40 miles meet the criteria in both Cabell and Wayne counties. Under the Moderate Growth Scenario, development of the Hamer Property in Kenova triggers LOS deficiencies on WV 75 in that area and new and expanded developments in Mason County and along WV 2 in general trigger LOS deficiencies on the southern end of that corridor.
- **Revised 2050 Aggressive Growth Scenario:** 39 Study links, which impact 9.05 miles of roadway. The Aggressive Growth Scenario causes a broader erosion of LOS on US 60 and Benedict Road in connection with the buildout of properties in Cabell and Putnam counties around the Culloden interchange. In addition, the full buildout potential of the Hamer Property further degrades WV 75 between Maple Street and I-64 to a LOS F.

The locations of the quantitative deficiencies under each scenario are shown in tabular and graphical format in Figures 9 through 14 of Technical Memorandum #3 Alternative Growth Scenarios and Deficiencies, which is in Appendix C of this document.

Unlike their quantitative counterparts, the number of qualitative deficiencies identified does not vary by growth scenario but remains constant. For the purposes of this Study five items of concern on Major and Secondary corridors that could negatively impact commercial, passenger, transit and pedestrian/non-motorized traffic were identified as deficiencies. The items selected were predominantly driven by asset inventory and condition information collected at the outset of the Study, the details of which are provided in Technical Memorandum #1 Existing Conditions and Asset Inventory located in Appendix A. The general items selected for evaluation by the Steering Committee were deficient bridges, at-grade railroad crossings, roadway flooding issues, safety issues, and transit issues. The specifics regarding how each general item was defined as a "deficiency" as well as figures displaying their location are provided in Technical Memorandum #2 Existing Deficiency and Needs, which is contained in Appendix B.

In total, 23 qualitative deficiencies were identified for the five categories. The potential impact that these deficiencies may have on the transportation network will be evaluated and are intended to supplement the quantitative output of the TDM and highlight further locations or sources of concern at the corridor level. A brief summary of how a deficiency was defined, and the result of the investigation is provided below:

- **Unprogrammed Poor or Posted Bridges:** The current development status and condition of the 21 "Poor" conditioned rated and/or Posted bridges identified in Technical Memorandum #1, was obtained and checked against current long-range and short-range planning documents. Of the 21 bridges initially identified, only the Purdue Brothers Memorial Bridge and the Below Dam Bridge had not been programmed for repair or replacement. Both structures are located in Wayne County.
- **Higher Risk At-grade Railroad Crossings:** The potential for injury and loss of life because of highway/rail incidents is significant. Initial reviews documented that there were 296 at-grade highway

crossings located in Cabell and Wayne counties, of which 23 were on Major and Secondary corridors. Reviews also included two at-grade crossings on WV 2 in Mason County due to their significance. The Federal Railroad Administration's (FRA's) Grade Crossing Accident Prediction System (GXAPS) database was used to identify the top 10 railroad crossings in Cabell, Wayne and Mason counties with the greatest potential for a highway/rail incident and whether they were located on Study routes. Any of the top 30 at-grade crossings located on a Study corridor was deemed to be a deficiency. Five locations meet the criteria: two crossings in Wayne County; one crossing in Cabell County located on WV 2; and both crossings on WV 2 in Mason County.

- **Recurring Roadway Flooding Issues:** Roadway flooding during periods of inclement weather will not only delay or divert passenger and commercial traffic but also has the possibility of causing damage and loss of life due to its infrequent nature. While all roadways have the potential to flood during high intensity events, locations on Major and Secondary corridors which flood regularly (more than three times per year) making the roadway partially or entirely impassable were deemed to be a deficiency. Areas of recurrent roadway flooding on Major and Secondary Corridors within the Study area were obtained predominantly from discussions with personnel at the State, City and Local level responsible for roadway maintenance and existing studies. Local maintenance personnel identified eight (8) locations in Cabell and Wayne counties (four in each county) along Study corridors that experience recurring roadway flooding. Three of the four locations in Cabell County are associated with railroad underpasses and three of the four locations in Wayne County are associated with spot locations on WV 152.
- **Unprogrammed High Priority Safety Issues:** The effort to limit or eliminate traffic incidents and fatalities is a longstanding priority of the region, State and Nation. As such, local safety issues and needs are well-documented by both the MPO and WVDOH. Safety deficiencies were drawn from existing safety and planning studies, that included KYOVA's 2050 Metropolitan Transportation Plan (MTP), and West Virginia's Vulnerable Road User (VRU) Assessment. High priority intersections, segments and High Injury Network (HIN) segments identified in those documents located on Major and Secondary Corridors that are currently unprogrammed at the time of this report's preparation were deemed deficiencies. KYOVA's MTP identified 32 high priority safety issues and the VRU Assessment identified three locations within the Study area. A review of the projects in KYOVA's fiscally constrained MTP and West Virginia's Statewide Transportation Improvement Program (STIP), indicated that all but four locations are programmed for some level of development or study. All four unprogrammed locations are in Wayne County, with three of the locations in close proximity to one another along US 60 within the Huntington City limits and the fourth location at the intersection of WV 37 and US 52 in Fort Gay.
- **Lack of or Insufficient Transit Service:** The lack of or limitations in modal choice can be a serious issue for individuals who need access to jobs, education, commercial and medical services. The completion of any detailed analysis identifying the specific need for additional routes or frequency is well beyond the scope of this Study. Therefore, for the purposes of this Study, a transit deficiency was considered to exist where an identified economic development initiative or area of interest is not located within a one-mile radius of the Transit Routes serving the area offered by Tri-State Transit Authority (TTA) or Tri-River Transit.

Analysis indicated that all economic developments and areas of interest examined as part of this Study would have access to some level of transit service. Conversely, only two of the six areas located in Wayne County

would have access to transit. The four unserved locations (i.e., Fort Gay Community Complex, Central Appalachian Inland Port, Beech Fork Lake Marina, and the WV National Guard / Airport Business Park) are situated slightly away from Major or Secondary Corridors or are in areas of relatively low population density. Surprisingly, the area around the WV National Guard facility and proposed Business Park at the Huntington Tri-State Airport is not currently served by TTA or Tri-River, but both have routes nearby that could potentially be extended or altered as development occurs.

Project Solutions

A two-pronged approach divided between quantitative and qualitative deficiencies was used for the identification, development and evaluation of conceptual solutions. The full details on the development of this approach are provided in Technical Memorandum #4 *Assessment Methodology and Project Identification*, which is in Appendix D. Since the qualitative deficiencies remain static under the various development growth scenarios, to best gauge the “worst-case” network conditions, only the deficiencies associated with the Aggressive Growth Scenario were reviewed.

Due to the relatively limited number of qualitative deficiencies (i.e., 23) and their site-specific nature, a conceptual solution for each identified deficiency was developed. Where no prior projects were found in existing documents, MBI staff used engineering judgment to develop conceptual solutions for the location that would eliminate or mitigate the deficiency. In most instances, even where prior studies exist, the design solution has not yet been identified, making any evaluation or determination of impacts difficult. The full list of solutions for qualitative deficiencies and their source document, if available, is shown in Figure #6 of Appendix D.

Under the Aggressive Growth Scenario, 39 study links totaling 9.05 miles were deemed quantitative deficiencies. Due to their broader impacts and ripple effects, rather than trying to address each individual location, a network level solution was drawn from the vision plan components of KYOVA's MTP. KYOVA's vision plan projects for Cabell and Wayne counties are shown in Figure #7 of Appendix D. While all the vision plan projects would have an impact on the transportation network, two projects (CAB 18B, which would expand WV 2 to the Cabell/Mason county line to four lanes, and CAB 29, which construct a new Ohio River bridge linking WV 2 and Ohio State Route 7) would likely have more impact on the deficiencies generated from growth at the economic developments examined in this Study. While both vision plan projects were anticipated to address multiple LOS deficiencies identified under the Aggressive Growth Scenario due to the concentration of developments along the WV 2 corridor, the construction of the Culloden Interchange, and the migration of population towards northern and eastern Cabell County, the documented capacity issues at existing Ohio River crossings, and the system linkage benefits of CAB-29 point to the specific need for the completed link's impact on LOS deficiency to be examined as opposed to CAB-18B. In addition, KYOVA's fiscally constrained MTP contains project CAB-18A, which will implement spot improvements to WV 2 and may address some of the roadway capacity issues associated with the Aggressive Growth Scenario.

Project Evaluations and Grouping

Due to the preliminary nature of this Study, extensive analysis of the benefits and costs associated with individual solutions is outside its scope. To allow a general evaluation and comparison of each project's relative priority, MBI staff evaluated and scored the Delivery Difficulty, Implementation Time Frame, and Overall Impact on Economic Development of each solution. Delivery Difficulty was categorized as Low, Medium or High based upon its status in the development pipeline, scope and independent utility. Implementation Time Frame was categorized as Short-, Medium- or Long-Term based primarily on the anticipated level of Right of Way and Utility impact as well as multi-state coordination effort required. Overall Impact on Economic Development was categorized as being either Low, Medium or High depending on the perceived impact on corridor safety, travel times and predictability. The results of the evaluations for qualitative and quantitative solutions are shown in Figures 8 and 9, respectively, of Appendix D. Each element evaluated was given a score of 1 to 3 points. Only the ultimate implementation phase of a construction-based project was scored for Overall Impact on Economic Development. The scoring for preliminary engineering or design phases of conceptual solutions is for information only. The limited number of evaluation categories and scoring options lent itself to a tight range of results, with possible outcomes being 3 to 9 points. After all qualitative and quantitative solutions were scored and ranked, they were grouped in three priority categories:

- High Priority: 7-9 points,
- Medium Priority: 5-6 points; and
- Low Priority: 3-4 points.

The results of the scoring and project grouping are shown below in Figure 14.

DEFICIENCY TYPE	DEFICIENCY LOCATION/DESCRIPTION	COUNTY	PROJECT#	IMPROVEMENT / INITIATIVE DESCRIPTION	SCORE	GROUPING 3-4 = LOW 5-6 = MED 7-9 = HIGH
ROADWAY FLOODING	US 60 AT JUNCTION WITH ARLINGTON BLVD (MNS 352)	CABELL	15-A	IMPLEMENT CONSTRUCTION PHASE OF WVDOH CULVERT REPLACEMENT PROJECT (U306CULV25 00)	8	HIGH
AT-GRADE RXR CROSSING	RR CROSSING #147906R ON WV 2-ASHTON	MASON	3-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	7	HIGH
AT-GRADE RXR CROSSING	RR CROSSING #147873F ON WV 2-GALLIPOLIS FERRY	MASON	4-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	7	HIGH
TRANSIT	CENTRAL APPALACHIAN INLANDPORT	WAYNE	24-A	EXPLORE FEASIBILITY/DEMAND FOR PROVIDING A WILLIAMSON TO VA FACILITY/BARBOURSVILLE MALL ROUTE FOLLOWING US 52	7	HIGH
TRANSIT	FORT GAY COMMUNITY COMPLEX	WAYNE	25-A	EXPLORE FEASIBILITY PROVIDING/EXTENDING ON-DEMAND SERVICE FROM SANDY VALLEY TRANSPORTATION SERVICES (SVTS)	7	HIGH
BRIDGE	BELOW DAM BRIDGE BAR S#50A078	WAYNE	8-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
SAFETY	WAVERLY ROAD (US 60) AT CARSON STREET	WAYNE	10-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
ROADWAY FLOODING	WV 152 AT MOSES FORK	WAYNE	20-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
ROADWAY FLOODING	WV 152 AT DUNLOW AT JUNCTION WITH CR 52/24	WAYNE	21-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
ROADWAY FLOODING	WV 152 AT GENOA	WAYNE	22-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
TRANSIT	WV NATIONAL GUARD/AIRPORT BUSINESS PARK	WAYNE	23-A	AS AIRPORT BUSINESS PARK AND HAMER FACILITY DEVELOP THE POTENTIAL EXISTS FOR EXTENDING TTA'S ROUTE #6 TO INCLUDE WV 75 AND US 52 OR EXTENDING TRI RIVER'S WAYNE TO HUNTINGTON MALL ROUTE ON WV 75 TO PROVIDE MOBILITY OPTIONS FOR WORKERS AT THOSE LOCATIONS	6	MEDIUM
TRANSIT	BEECH FORK LAKE MARINA AREA	WAYNE	26-A	AS BEECH FORK LAKE ACCESS ROAD DEVELOPS, SERVICE CAN BE PROVIDED VIA TRI RIVER'S WAYNE ROUTE	6	MEDIUM
LOS	39 INDIVIDUAL LOS DEFICIENCY LOCATIONS	CABELL & WAYNE	1B	CONSTRUCT PREFERRED ALTERNATIVE FOR KYOVA VISION PLAN PROJECT CAB-29 (OHIO RIVER BRIDGE AT MERRITT'S CREEK)	5	MEDIUM
AT-GRADE RXR CROSSING	RR CROSSING #147948C ON WV 2-HUNTINGTON	CABELL	5-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	5	MEDIUM
AT-GRADE RXR CROSSING	RR CROSSING #471601H ON US 52-CRUM	WAYNE	7-B	US 52 RELOCATION IN THIS AREA WOULD SIGNIFICANTLY DECREASE THE HIGHWAY TRAFFIC AT THIS CROSSING AND WOULD LIKELY LOWER ITS RANKING SUBSTANTIALLY-WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN	5	MEDIUM
BRIDGE	PERDUE BROTHERS MEMORIAL BRIDGE BARS #50A220	WAYNE	9-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	5	MEDIUM
SAFETY	COURT STREET (WV 37) AT US 52 IN FORT GAY	WAYNE	13-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	5	MEDIUM
SAFETY	COURT STREET (WV 37) AT US 52 IN FORT GAY	WAYNE	14-B	DESIGN AND CONSTRUCT RELOCATION OF US 52	5	MEDIUM
ROADWAY FLOODING	WV 10/16TH STREET AT CSX RR UNDERPASS (INV# 225668P)	CABELL	17-A	KYOVA FISCALLY CONSTRAINED MTP INCLUDES ADDITIONAL RECOMMENDED GREEN INFRASTRUCTURE (CAB-04) THAT MAY FURTHER MITIGATE FLOODING AT THIS LOCATION. IMPLEMENT PHASE 4 (HAL GREER STORM SEPARATION) FROM HUNTINGTON STREET FLOODING MITIGATION PLAN TO FULLY ADDRESS PROBLEM LONG TERM.,	5	MEDIUM
ROADWAY FLOODING	WV 527/8TH STREET AT CSX RR UNDERPASS (INV# 225670R)	CABELL	18-A	IMPLEMENT PROJECT 7B FROM HUNTINGTON STREET FLOODING MITIGATION PLAN, CONVERT TO 3 LN WITH ELEVATED BIKE PED PATH, PROJECT NOT INCLUDED IN KYOVA MTP	5	MEDIUM
ROADWAY FLOODING	US 52 FROM CRUM TO STEPTOWN	WAYNE	19-B	US 52 RELOCATION FROM KERMIT TO HUBBARDSTOWN WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN	5	MEDIUM
SAFETY	WAVERLY ROAD (US 60) AT CAMDEN / AUBURN ROAD	WAYNE	11-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	4	LOW
SAFETY	WAVERLY ROAD (US 60) AT BURLINGTON ROAD	WAYNE	12-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	4	LOW
ROADWAY FLOODING	US 60 AT CSX RR UNDERPASS (INV# 225636J)	CABELL	16-A	ANY MAJOR IMPROVEMENT WOULD LIKELY BE DONE IN CONJUNCTION WITH CSX OVERPASS REPLACEMENT COORDINATE DESIGN AND CONSTRUCTION WITH CSX	4	LOW
AT-GRADE RXR CROSSING	RR CROSSING #471645H ON WV 37-FORT GAY	WAYNE	6-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION AS PART OF BRIDGE REPLACEMENT	3	LOW

Figure 14: Project Scores and Grouping

In addition to the assessment shown in Figure 14, a supplemental analysis of network impacts was also conducted for comparison to the No Build Alternative for the quantitative deficiency solution. For this analysis KYOVA's TDM was used to evaluate how many of the 39 LOS deficiencies identified under the Aggressive Growth Scenario were eliminated with the CAB-29 project in place. Due to the project's regional impact, the remaining subset of TDM links evaluated as part of this Study were also reviewed to determine if LOS degraded and created another deficiency at another location due to traffic diversion or improved a link's LOS by a letter grade compared to KYOVA's 2050 Existing Condition as a result of the project's implementation. The results of the analysis are shown in Figures 15 and 16. It is noted that Figure 15 primarily reflects the new bridge's impact on LOS; whereas additional details are shown in Figure 10 of Appendix D.

ID	Link Distance (miles)	Sign System 1 = INT 2 = US 3 = WV 4 = CR	Route Number	County	Daily LOS KYOVA Original 2050 Baseline Both Directions	Daily LOS Revised 2050 Aggressive Growth Both Directions	Daily LOS Revised 2050 Aggressive Growth W/Bridge Both Directions
5312	0.18	1	64	Cabell	C+	C+	D
5362	0.4	1	64	Cabell	C+	D	D
5351	0.22	1	64	Cabell	C+	D	D
5348	0.49	1	64	Cabell	C+	D	D
5314	0.23	1	64	Cabell	D	D	E
4437	0.32	1	64	Cabell	D	D	E
8610	0.29	2	52	Cabell	F	F	E
5691	0.19	2	52	Cabell	D	D	C+
5702	0.18	2	52	Cabell	D	D	C+
4722	0.31	2	52	Cabell	F	F	E
5713	0.14	2	52	Cabell	D	E	D
8634	0.12	2	52	Cabell	D	E	D
8638	0.22	2	52	Cabell	D	E	D
8609	0.31	2	52	Cabell	F	F	E
4544	0.23	2	60	Cabell	C+	D	D
4529	0.19	2	60	Cabell	C+	D	D
3703	1.28	2	60	Cabell	D	E	E
4543	0.04	2	60	Cabell	C+	D	D
5412	0.12	2	60	Cabell	D	E	E
5328	0.21	2	60	Cabell	F	F	F
5302	0.28	2	60	Cabell	F	F	F
5239	0.14	2	60	Cabell	E	E	D
5198	0.32	2	60	Cabell	E	E	D
5146	0.21	2	60	Cabell	D	E	D
5356	0.22	2	60	Cabell	C+	D	D
5357	0.46	2	60	Cabell	C+	D	D
3717	0.04	2	60	Cabell	D	E	E
5141	0.11	2	60	Cabell	D	E	D
5169	0.15	2	60	Cabell	E	E	D
5168	0.19	2	60	Cabell	E	E	D
5166	0.3	2	60	Cabell	D	E	D
4382	0.14	3	2	Cabell	C+	D	C+
4381	0.07	3	2	Cabell	C+	D	C+
4310	0.32	3	2	Cabell	C+	D	C+
3073	0.52	3	2	Cabell	C+	C+	D
3079	0.14	3	2	Cabell	C+	C+	D
6308	0.12	3	10	Cabell	C+	D	D
4965	0.12	3	10	Cabell	C+	D	C+
5040	0.07	3	10	Cabell	C+	D	C+
4313	0.1	3	106	Cabell	D	E	C+
4329	0.02	3	106	Cabell	E	E	D
4320	0.12	3	106	Cabell	E	E	C+
4321	0.04	3	106	Cabell	E	E	C+
4312	0.13	3	106	Cabell	E	E	C+
4326	0.1	3	106	Cabell	E	E	C+
4339	0.06	3	106	Cabell	E	E	C+
4338	0.03	3	106	Cabell	E	E	C+
4328	0.14	3	106	Cabell	E	E	C+
3630	0.64	3	106	Cabell	F	F	D
5792	0.18	3	527	Cabell	F	F	F
5793	0.1	3	527	Cabell	F	F	F
4539	0.26	4	60/21	Cabell	C+	D	D
6174	0.04	2	52	Wayne	C+	D	D
5579	0.23	2	60	Wayne	C+	D	D
6173	0.08	3	75	Wayne	D	F	F
6145	0.22	3	75	Wayne	C+	F	F
6151	0.09	3	75	Wayne	C+	F	F
6165	0.08	3	75	Wayne	C+	D	D
3072	0.41	N/A	NEW	Cabell	N/A	N/A	C+
3074	0.23	N/A	NEW	Cabell	N/A	N/A	C+
3077	0.41	N/A	NEW	Cabell	N/A	N/A	C+
3078	0.17	N/A	NEW	Cabell	N/A	N/A	C+
3081	0.16	N/A	NEW	Cabell	N/A	N/A	C+
NO IMPACT ON AGGRESSIVE GROWTH LOS DEFICIENCY							
CAUSED A LOS DEFICIENCY ON ANCILLARY LINKS							
ELIMINATED AGGRESSIVE GROWTH LOS DEFICIENCY							
IMPROVED LOS ON ANCILLARY LINKS							
LOS F IN KYOVA ORIGINAL 2050 BASELINE							

Figure 15: New Ohio River Bridge Impact on LOS Deficiencies

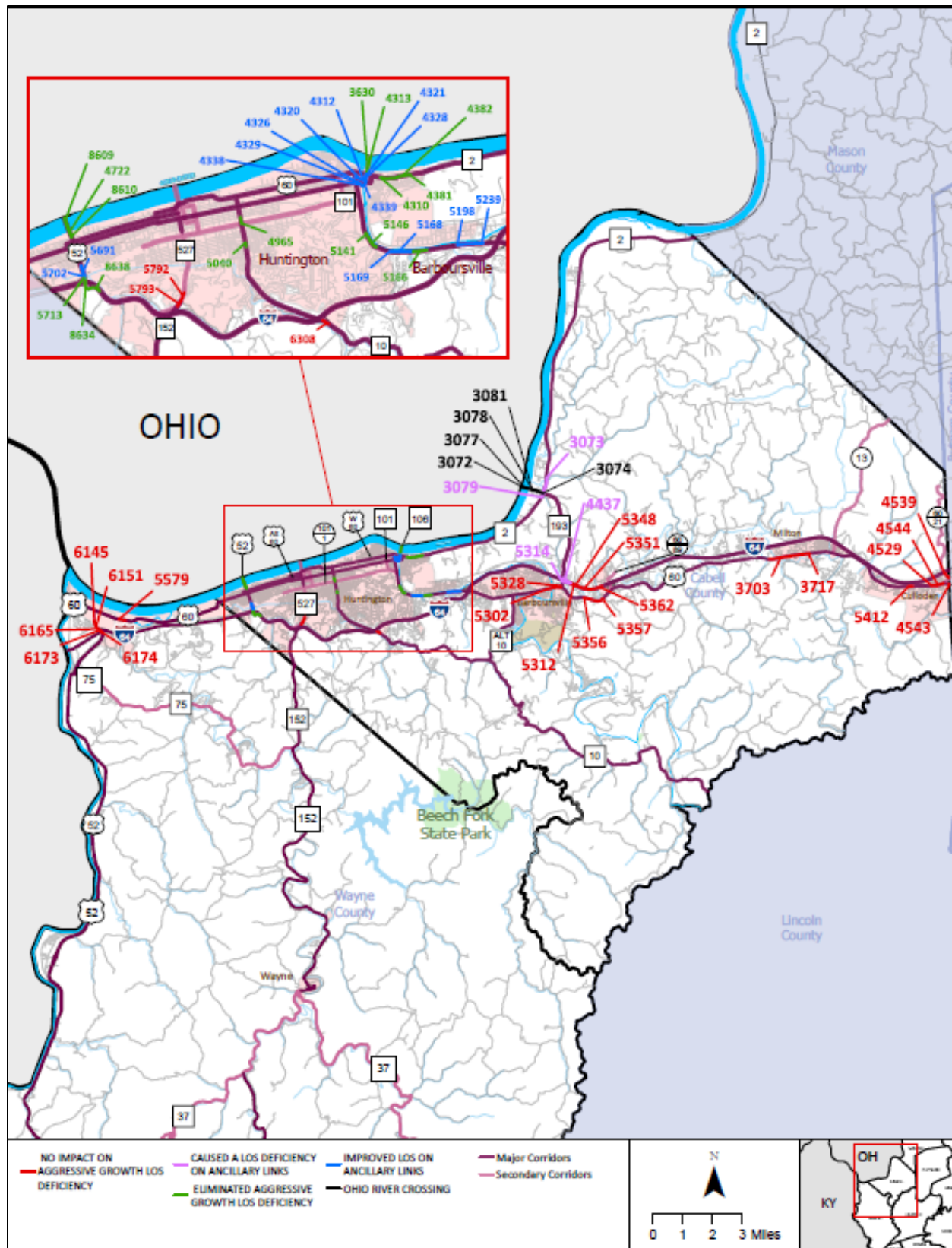


Figure 16: New Ohio River Bridge Impact on LOS Deficiencies

A review of Figures 15 and 16 indicates that implementation of the CAB-29 Vision Plan project would have a significant impact on the Aggressive Growth LOS deficiencies (39 links totaling 9.05 miles). Adding the connection eliminated deficiencies on 16 links (shown in green) totaling 3.47 miles, which is roughly 38 percent of the deficient mileage. In addition, the project also resulted in an improved LOS on 14 links (shown in blue) totaling 1.81 miles, further enhancing network operation. Conversely, the project's implementation did result in 4 new links (shown in purple) totaling 1.2 miles being deemed deficient, which are associated with the WV 193 ramps to I-64 and approaches on WV 2.

CONCLUSIONS

Both Cabell and Wayne counties have experienced significant population decline over the last 50 years. While a portion of the decline stems from the need for a smaller workforce locally caused by shifting energy sector needs, advances in automation, and national shifts away from labor intensive heavy industries to smaller more technical workforces needed for advanced manufacturing, the populations of both counties have also been impacted by the migration of households away from city centers to suburban bedroom communities in Putnam County that now are easily reachable by an improved transportation network. Despite these challenges, current economic developments identified during this Study and new announcements that have occurred since the Study began provide optimism of increased employment opportunities that might improve the economic vitality of both counties and reverse the long-term population declines.

The area possesses an extensive transportation network providing modal opportunities and access for both freight and passenger traffic. The backbone of the transportation network for the movement of goods and freight both within and through the Study area is the 280 miles of Major and Secondary highway corridors. A review of highway asset condition and capacity reflects a long-term commitment to maintaining and improving the operational, safety and capacity capabilities of these facilities is evident and will be further enhanced by steady progress and implementation of the fiscally constrained projects of KYOVA's MTP. The effectiveness and efficiency of the local highway network gauged by KYOVA's TDM is demonstrated by the fact that only eight study links of the Major or Secondary corridors within Cabell and Wayne counties are projected to be at LOS F in 2050 under the current Baseline Conditions. The portions of the network with capacity issues that were unaddressed by KYOVA's MTP were predominantly associated with bottlenecks at, and approaches to, major river crossings, interchanges and intersections.

The analysis prepared for the Revised 2050 Baseline indicated that roughly half of economic developments and areas of interest were assumed to be accounted for in KYOVA's previous analysis or were excluded due to their preliminary nature, which muted their impacts. The remaining developments were anticipated to increase the Total Employment of Cabell and Wayne counties by 1,900 FTE's and Population by 752. Similarly, the developments occurring on the periphery of the Study area were anticipated to increase the number of trips into the region by 1,743. The changes in inputs of KYOVA's TDM resulted in six additional locations being identified as a deficiency. All six locations had V/C ratios that were within 0.01 of a change in LOS in KYOVA's 2050 Baseline. Overall, the additional population and employment generated by the developments analyzed under the Revised Existing 2050 Conditions Baseline had minimal impact on the regional transportation network due to its resiliency. Despite the limited impact the new developments had at

the lowest growth level, the bottleneck locations that remain unaddressed by KYOVA's fiscally constrained MTP will deter economic growth in the Study area over time.

The additional trips and impacts generated by Moderate and Aggressive Growth Scenarios developed for the 23 economic developments and areas of interest further point to the overall resiliency of KYOVA's primary roadway network to accommodate additional vehicular traffic; however, capacity bottlenecks at river crossings, intersections and interchanges in the area remain a concern. Overlapping safety issues on US 60 will present additional challenges that are pointed out in KYOVA's MTP. The anticipated growth around Culloden will only exacerbate the current problem and suggest the need for a corridor-based approach to identify remedies for that facility. The Hamer Property in Kenova has the potential to significantly impact WV 75 due to limited ingress and egress options. This proposed development is in the very early stages and should be monitored closely by local planning staff to ensure it is reflected appropriately in future TDM iterations. KYOVA's fiscally constrained MTP includes projects for adding capacity to WV 75 near the developments surrounding the Huntington Tri-State Airport, as well as for improvements to the WV 2 corridor and a host of safety projects on US 60. While MBI was instructed to assume all fiscally constrained projects were implemented by 2050, failure to progress with any or all of these initiatives will impact the future performance of KYOVA's transportation network. Ensuring that MTP projects identified move into and through the development process is vital to the economic health of Cabell and Wayne counties and the KYOVA region as a whole.

It is understood that the evaluation of the 25 conceptual solutions to deficiencies developed for this Study are by their very nature subjective, since most of the design solutions are not formalized. As they progress through the development pipeline, the hurdles to be overcome associated with each will become clearer, impacting their overall scoring and priority. New developments that have been announced since the listing developed for this Study was finalized will need to be taken into account, highlighting the fluidity and complexity in predicting and projecting where and what types of economic development (primarily by private companies) will occur over a 25-year time horizon. The changes in developments that occurred during this Study reinforce the need for regular updates to the TDM and MTP and continuous, cooperative and comprehensive transportation planning.

A review of Figure 14 reveals that two of the high priority solutions, projects 3B and 4B that correspond to the at-grade railroad crossings at Ashton and Gallipolis Ferry, are located in Mason County, outside KYOVA's planning boundary. Despite being outside the KYOVA boundary, the implementation of these two projects, in conjunction with the third at-grade crossing project (5B) on the WV 2 corridor in Huntington, will benefit the operation of the WV 2 corridor within the Study area and are anticipated to improve the safety, reliability and travel times for freight and passenger trips while improving the economic viability of the area.

Since project 3B and 4B are located outside KYOVA's planning boundary they are not constrained or included in KYOVA's MTP or Transportation Improvement Program (TIP). The inclusion of all phases of their development should be pursued in West Virginia's STIP, which is in the process of being updated. Likewise, initial development phases of the two unprogrammed "deficient" bridges in Wayne County (8B and 9B) should also be addressed as part of the ongoing STIP update. The network impact on the Aggressive Growth Scenario deficiencies of a new Ohio River crossing (project 1B) at Merritt's Creek is considerable as shown

in Figures 10 and 11. While the crossing's overall benefit to the network appears to be indisputable, the current analysis is based upon only a small subset of the KYOVA region's economic initiatives and roadways in Cabell and Wayne counties, and was analyzed using the TDM information available at the time. Going forward, the crossing's impact on KYOVA's entire network should be re-examined using the latest TDM data available supplemented with growth information developed for this Study to get a clearer picture of the crossing's potential impact.

RECOMMENDATIONS

The findings of this Study are premised on ongoing development and implementation of the fiscally constrained projects contained in KYOVA's 2050 MTP. Many of these initiatives, which are not only needed to maintain the efficiency and effectiveness of the highway network but also a key component of improving the economic viability of the Study area, are highly complex and will require years and in some cases decades to complete. As such, it is recommended that KYOVA staff and board members continue to work closely with their transportation partners to ensure these projects demonstrate continued progress and are represented and incorporated into short-term planning and financial documents like the TIP and the STIP. While this recommendation may appear to be a forgone conclusion, shrinking workforces, fiscal limitations, long planning horizons and competing priorities make it difficult to maintain the level of effort and enthusiasm needed to see these projects through to completion. The expansion of Darling Lane from WV 75 to Tri-State Airport (WAY-10) in Wayne County and the operational improvements of the WV 2 Corridor (CAB-18A) are an example of two projects that could have economic development ramifications if not advanced as projected.

In line with the prior recommendation, the WVDOH is currently in the process of updating its STIP and KYOVA needs to monitor the status and timing of planned development phases for its current MTP and TIP projects and advocate for their timely obligation and completion to avoid delays and cost increases. The construction phase of the Arlington Boulevard / US 60 Culvert (SPN#U306CULV 25 00) is a prime example.

It is recommended that KYOVA work with WVDOH staff to examine existing inspection reports and program the initial development phases (i.e., "200 series") of the Purdue Brothers Memorial Bridge and the Below Dam Bridge in Wayne County to evaluate what work is required on these structures to eliminate the Poor condition ratings and identify potential environmental concerns. The projects would have a relatively low capital cost and would be "groupable" for programming purposes.

It is recommended that KYOVA staff take an active role in the development of the Railroad Crossing Elimination (RCE) Planning Grant evaluations being led by the WVDOH for six at-grade crossings along/adjacent to the WV 2 corridor. While five of the crossings are located outside of KYOVA's planning boundary, the success of these initiatives will play a significant role in improving the safety and reliability of the entire WV 2 corridor and potentially impact the size, scope and implementation timeframes of identified economic initiatives in northern Cabell and Mason counties.

It is recommended that KYOVA continue to work with State and Local leaders and representatives in West Virginia and Ohio to pursue discretionary transportation grant funding, such as MEGA, INFRA, SS4A, etc., for fiscally constrained and vision projects in its MTP. Any additional financial resources that can be brought

to bear can only improve the speed with which they are advanced. To the extent possible, KYOVA should continue to develop preliminary studies, such as Planning and Environmental Linkage (PEL) studies for these projects to demonstrate their merit and provide grant writers with valuable data needed for successful submittals. Many of the grant opportunities at the federal level have tight expenditure deadlines for awarded projects, so projects farther along in the development pipeline have a clear advantage. Teeing up MTP projects by conducting preliminary engineering and environmental studies and PELs will expand the pool of candidate projects for these submissions at the regional, State and local level.

While lack of or insufficient transit service may be less of a hindrance to economic development than other issues, it still plays a significant role in providing access and mobility options to reach commercial, medical and educational facilities. Exploring the possibility of / and need for the Sandy Valley Transportation Service (SVTS) to provide on-demand transit services to residents in Fort Gay, WV, or for Tri-State Transit to offer a route along US 52 through the Study area would be relatively easy to perform at low cost.

While not required to do so, it is recommended that a Traffic Impact Study be prepared for the IDEA District. Various elements of the initiative are either complete or under construction, such as the Brad D. Smith Center for Business and Innovation and the Institute for Cybersecurity. While some aspects of the overall development remain fluid, an examination of the potential traffic impacts of the entire development as currently envisioned would help ensure that adequate measures are taken as individual components come online and avoid interruptions and need to retrofit infrastructure after completion. In conjunction with addressing traffic circulation concerns, an examination of parking and pedestrian amenities needed, depending on the final composition of the IDEA District, will be crucial to its success.

This Study has highlighted how fluid economic developments are and the benefits of doing a deeper dive into the impacts that these developments may have on the regional network. KYOVA may wish to pursue similar studies within their planning boundary in Ohio and Kentucky to supplement future updates of the MTP.

MBI presented the Transportation Land Use Study to the Wayne County Commission and provided an Executive Summary at their July 20, 2026, County Commission meeting. Mr. Jim Boggs, Wayne County Administrator, who served as a member of the Study Steering Committee was in attendance. MBI also made a presentation to the Cabell County Commission at their July 23, 2026, meeting. Ms. Beth Zerkle, Cabell County Administrator, who served as a member of the Study Steering Committee was in attendance as well as Mr. Chris Chiles, Executive Director of the KYOVA Interstate Planning Commission.

The agenda of each meeting as well as the Executive Summary is included in Appendix E.

APPENDICES

- Appendix A: Memo #1: Existing Conditions and Asset Inventory
- Appendix B: Memo #2: Existing Deficiency and Needs Identification
- Appendix C: Memo #3: Alternative Growth Scenarios and Deficiencies
- Appendix D: Memo #4: Assessment Methodology and Project Identification
- Appendix E: County Commission Presentations and Executive Summary



Appendix A

*Memo #1: Existing Conditions
and Asset Inventory*

December 2025

Transportation Land Use Study

Existing Conditions and Asset Inventory
Technical Memo



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Appendix C: Existing Transportation System, Pertaining to Study Route

INTRODUCTION

The purpose of this KYOVA Transportation Land Use Study (Study) is to evaluate land use and growth in Cabell and Wayne counties and the resultant effect on the transportation network; assess congestion, mobility and safety issues; and develop recommendations and guidance for implementation of strategies to develop proposed improvements. The results of analysis of growth associated with major developments and transportation projects in adjacent counties, such as the Nucor steel manufacturing facility in Mason County and the area in Putnam County surrounding the I-64 interchange at Culloden, will be used to assess housing and transportation in the area.

As part of the Study, specific areas of growth in Cabell and Wayne counties are being analyzed to evaluate the extent to which development within those areas may influence housing and impact the transportation network. While river, rail and aviation modes also are being examined, emphasis has been placed on highway and transit impacts along the major corridors (I-64, US 52, US 60, WV 2, WV 10, WV 152, WV 193 and any supplemental route designations) in Cabell and Wayne counties. In addition to the major corridors identified, several other secondary corridor routes (WV 37, WV 75, WV 101, WV 106, WV 527, Cabell County Route (CO) 13, CO 60/21, CO 60/89 and CO 101/1) within the Study region also have been included due to their local and regional importance. A description of the major and secondary corridor routes that are being considered for this Study, as well as any supplemental route designations (collectively called “Study Routes”), is provided in Figures 1 through 4. For the purposes of this Study, mileages associated with parallel lanes opposite the direction of survey were not tabulated. Due to their limited mileage, for conciseness, supplemental route designations associated with ramps, medians, crossovers, rest areas and turns lanes were aggregated into an “Other” category but still are considered in the evaluation.

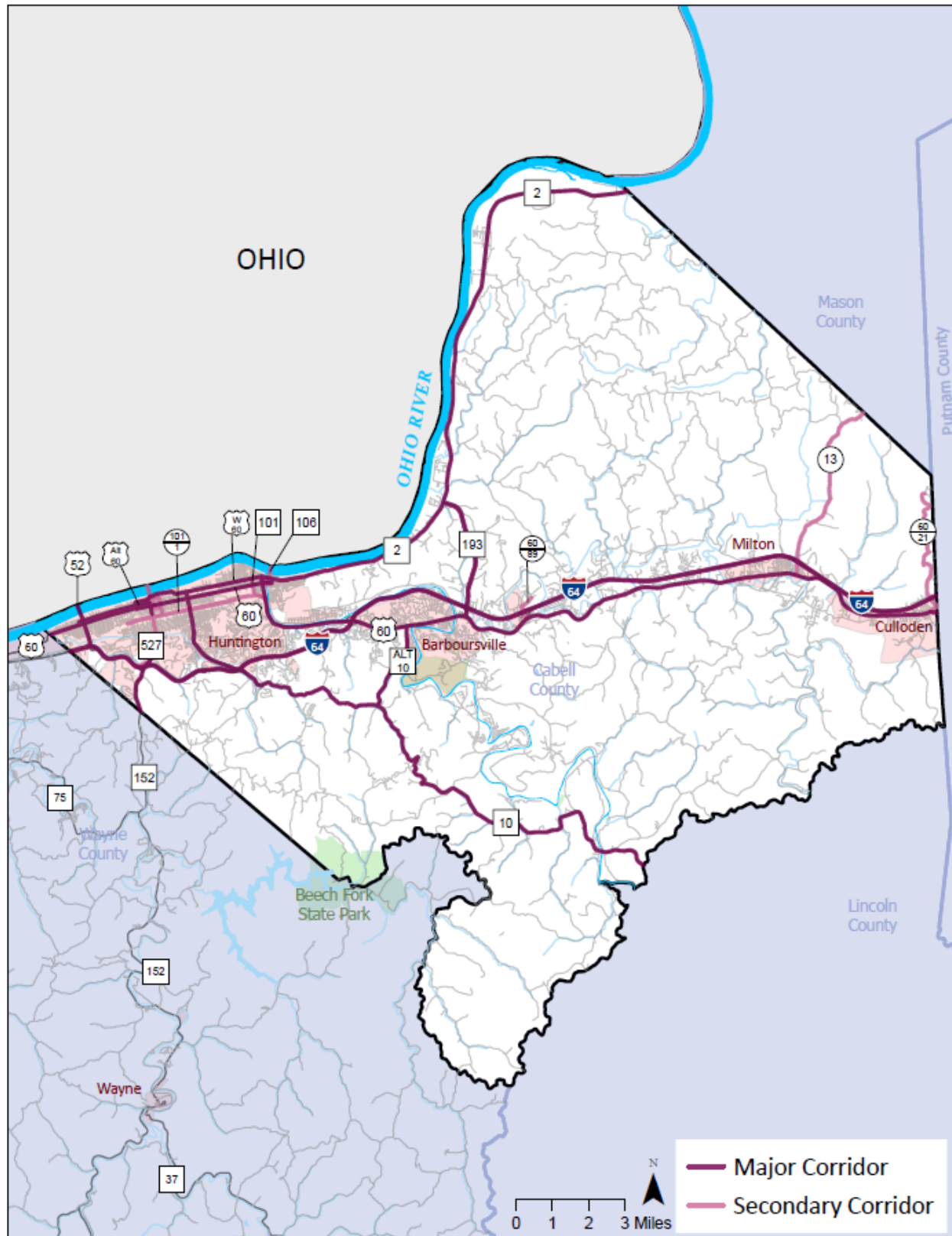


Figure 1: Study Routes, Cabell County

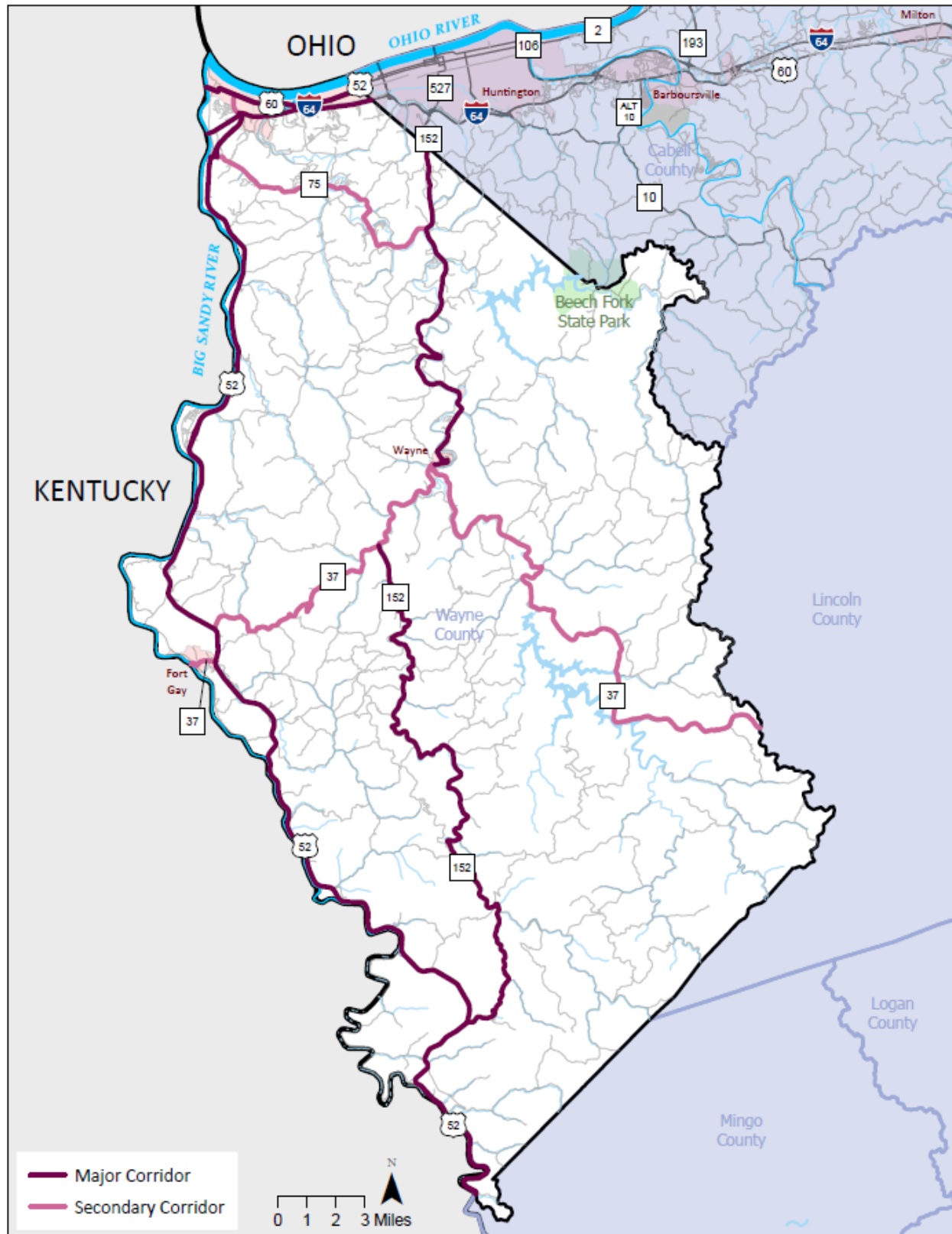


Figure 2: Study Routes, Wayne County

Major Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
I-64	I-64 (Direction of Survey-EB)	25.9
	OTHER *	9.51
US 52	US 52 (Direction of Survey-EB)**	1.30
	US 52 NB	0.46
	OTHER *	0.83
US 60	US 60 (Direction of Survey-EB)	26.79
	US 60 ALT	0.49
	OTHER *	0.20
WV 2	WV 2 (Direction of Survey-NB)	17.99
	WV 2 TRUCK	0.39
WV 10	WV 10 (Direction of Survey-NB)	18.58
	WV 10 ALT	2.56
	OTHER *	0.01
WV 152	WV 152 (Direction of Survey-NB)	1.44
WV 193	WV 193 (Direction of Survey-NB)	3.55
	OTHER *	0.08
MAJOR CORRIDOR SUBTOTAL		110.09
Secondary Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
WV 101	WV 101 (Direction of Survey-EB)	0.75
	OTHER *	0.12
WV 106	WV 106 (Direction of Survey-NB)	0.67
	WV 106 SB	0.27
	OTHER *	0.01
WV 527	WV 527 (Direction of Survey-NB)	2.93
	WV 527 ALT	0.51
	WV 527 NB	0.45
	OTHER *	0.07
CO 13	CO 13 (Direction of Survey-NB)	5.51
CO 60/21	CO 60/21 (Direction of Survey-NB)	4.24
CO 60/89	CO 60/89 (Direction of Survey-NB)	0.76
CO 101/1	CO 101/1 (Direction of Survey-WB)	3.27
SECONDARY CORRIDOR SUBTOTAL		19.56
CABELL COUNTY STUDY CORRIDORS TOTAL		129.65
* OTHER CATEGORY INCLUDES MEDIANS, EMERGENCY CROSSEOVERS, RAMPS, TURN LANES AND REST AREAS ** US 52 SIGNED NORTH/SOUTH BUT DIRECTION OF SURVEY IS WEST TO EAST *** MILEAGE EXCLUDES PARALLEL MULTILANE SEGMENTS OPPOSITE DIRECTION OF SURVEY		

Figure 3: Study Routes, with Mileage, Cabell County

Major Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
I-64	I-64 (Direction of Survey-EB)	5.87
	OTHER *	0.84
US 52	US 52 (Direction of Survey-EB)**	49.91
US 60	US 60 (Direction of Survey-EB)	5.60
	OTHER *	0.07
WV 152	WV 152 (Direction of Survey-NB)	40.05
	OTHER *	0.01
MAJOR CORRIDOR SUBTOTAL		102.35
Secondary Corridors		
<i>Primary Route</i>	<i>Supplemental Designations</i>	<i>Mileage***</i>
WV 37	WV 37 (Direction of Survey-EB)	36.89
	OTHER *	0.01
WV 75	WV 75 (Direction of Survey-EB)	10.3
	OTHER *	0.01
SECONDARY CORRIDOR SUBTOTAL		47.21
WAYNE COUNTY STUDY CORRIDORS TOTAL		149.56
* OTHER CATEGORY INCLUDES MEDIANS, EMERGENCY CROSSEOVERS, RAMPS, TURN LANES AND REST AREAS		
** US 52 SIGNED NORTH/SOUTH BUT DIRECTION OF SURVEY IS WEST TO EAST		
*** MILEAGE EXCLUDES PARALLEL MULTILANE SEGMENTS OPPOSITE DIRECTION OF SURVEY		

Figure 4: Study Routes, with Mileage, Wayne County

Specifically, the Study is to include examination of unanticipated growth stemming from:

- Nucor Corporation project on WV 2 in Mason County;
- Alcon facility expansion on WV 2 in Cabell County;
- New I-64 Interchange at Culloden in Cabell/Putnam Counties;
- Unspecified developments on US 52 in Wayne County; and
- Unspecified developments along other major routes in Cabell and Wayne counties.

Factors considered within the Study include primarily the existing and anticipated residential housing clusters, employers, and travel demand.

METHODOLOGY

A Steering Committee, composed of representatives of the KYOVA Interstate Planning Commission, the Cabell County Commission, the Wayne County Commission, the WV Division of Highways, and the Federal Highway Administration (FHWA), was formed to provide guidance concerning the Study, including concurrence with certain assumptions, identification of pertinent stakeholders, and verification of committed transportation and economic development projects. A group of stakeholders representing various public and private organizations and that have knowledge and expertise concerning the many facets of the Study have been asked to provide comments, concerns, and insight regarding existing and proposed development projects and transportation-related issues. These stakeholders are identified in Figure 16 in Appendix A.

Data regarding existing and announced economic development and/or residential projects, large employers, and population were obtained from various sources. A review of the previous inputs, data, and results of KYOVA's Travel Demand Model¹ was performed to identify the scope of developments considered, and to assess transportation patterns, travel times and delay, and other pertinent factors pertaining to origins and destinations of area motorists. Several recent studies concerning area housing needs, employment, economic outlook, and transportation have been reviewed to evaluate pertinent issues and concerns that already might have been identified; a summary of these studies is included in Figure 17 in Appendix B.

The committed short-, medium-, and long-term transportation projects within the current KYOVA 2050 Metropolitan Transportation Plan, that pertain to the Study Routes, have been identified and are assumed, for the purposes of this Study, to be completed by 2030, 2040, and 2050, respectively. An illustration of existing transportation facilities (highways, rail lines, airports, marine terminals, bicycle and pedestrian routes, and public transit services) in Cabell and Wayne counties is included as Figures 18 through 21 in Appendix C. Additionally, more detailed illustrations of the Study Routes, including a summary of existing bridges along the Study Routes that have weight restrictions, have been developed to identify constraints that might adversely affect economic development.

DEMOGRAPHICS^{2,3,4,5,6}

Cabell County encompasses a land area of 281.02 square miles, and includes three municipalities⁷: the City of Huntington, which also is the County Seat (Class II); the City of Milton (Class III); and the Village of Barboursville (Class III). To assess the long-term population trends throughout the region and the State, census data for the last 50 years as well as estimated 2025 values were obtained. As illustrated in Figure 5, both Cabell County and the City of Huntington experienced population loss between 1970 and 2025 (estimated). While the City of Huntington lost 39.2 percent (28,570 people) of its population, Cabell County lost only 14.6 percent (15,642 people) during the same period, with the primary reason for this difference being that a significant portion of the individuals relocated from Huntington to smaller communities and into newer housing and residential subdivisions located throughout Cabell County as improvements in the region's transportation network made longer commutes less time consuming. It should be noted also that a portion of Huntington's population resides in Wayne County, as the municipality is within both Cabell and Wayne counties.

¹ The limits of KYOVA's Travel Demand Model extend throughout Cabell and Wayne counties, but not within Mason or Putnam counties.

² www.westvirginia.gov/interactive-data/community-profile.

³ US Census Bureau, State Profiles, US Census 2020.

⁴ US Census Bureau, Detailed population Characteristics of WV 1980, 1990, 2010.

⁵ West Virginia Legislature, Senate Clerk's Office, West Virginia Blue Book 1970.

⁶ www.worldpopulation.com

⁷ Under the provisions of Chapter 56, Acts of the Legislature, regular session, 1937, municipal corporations are classified by population as follows: population in excess of 50,000, Class I city; population more than 10,000 and not more than 50,000, Class II city; and population more than 2,000 and not more than 10,000, Class III city. Municipal corporations not included in these classifications are known as towns or villages.

LOCATION	YEAR						
	1970	1980*	1990**	2000	2010***	2020****	2025est*****
Cabell County	106,918	106,835	96,827	96,784	96,319	94,350	91,276
Wayne County	37,581	46,021	41,636	42,903	42,481	38,982	37,098
Putnam County	27,625	38,181	42,835	51,589	55,486	57,440	56,760
Mason County	24,306	27,045	25,178	25,957	27,324	25,453	24,473
Huntington (City)	72,970*****	63,684	54,844	51,475	53,745	46,842	44,400
West Virginia	1,744,237	1,950,186	1,793,477	1,808,344	1,852,994	1,793,716	1,769,460
* US Dept of Commerce, Bureau Of the Census, Detailed Population Characteristics WV 1980 PC80-1D50							
** US Dept of Commerce, Bureau Of the Census, Census 90, 1990-CP-1-50							
*** US Dept of Commerce, WV 2010 Census of Population and Housing, CPH-2-50							
**** Census.gov, 2020 Population and Housing, State Data							
***** Worldpopulationreview.com							
***** WV "Blue Book," 1970							

Figure 5: Regional Population Trends, Study Area, 1970-2025 (estimated)

A total of 46,125 housing units were available in Cabell County in 2020, which total is 0.1 percent lower than the 2010 figure. The housing unit vacancy rate in 2020 was 13.5 percent, and just over 60 percent of the residents own their homes. The median age within the county is 38 years, 90.1 percent of the residents have a high school degree or higher, 40.6 percent have an associate's degree or higher, and the Median Household Income (MHI) in the county is \$50,507. In 2024, the leading industries in Cabell County were Health Care and Social Services, Retail, Education, and Accommodation and Food Services. During the 2024-2025 academic year, 11,178 students were enrolled in the four high schools⁸, four middle schools, 18 elementary schools, and one virtual school in Wayne County. Cabell County is home to two higher education institutions: Marshall University, which offers more than 120 degree programs; and Mountwest Community and Technical College, which offers 59 associate degree programs and 23 certificate programs, as well as non-credit and non-traditional options.

Wayne County encompasses a land area of 505.98 square miles, and includes five municipalities: the Town of Wayne, which also is the County Seat; the City of Ceredo; the City of Kenova (Class III); the Town of Fort Gay; and the City of Huntington, a portion of which also is in Cabell County (Class II). Unlike Cabell County, the population of Wayne County fluctuated between 1970 and 2025. Wayne County's population grew from 37,581 in 1970 to 46,021 in 1980, due to a revitalization of the coal industry spurred by the energy crisis of the 1970s. The County's population also increased between 1990 and 2000 (from 41,636 to 42,903), due to growth in natural gas extraction from fracking. The population has declined steadily since 2000, and the 2025 estimated population of 37,098 is approximately 24 percent below the County's 1980 population.

A total of 18,150 housing units were available in Wayne County in 2020, which total is 5.6 percent lower than the 2010 figure. The housing unit vacancy rate in 2020 is 11.4 percent, and about 75 percent of county residents own their homes. The median age within the county is 44 years, 85.0 percent of the residents have a high school degree or higher, 29.2 percent have an associate's degree or higher, and the Median Household Income (MHI) in the county is \$54,111. In 2024, the leading industries in Wayne County were Health Care and Social Services, Education, Retail, and Public Administration. During the 2024-2025 academic year, 5,915 students were enrolled in three high schools, four middle schools, and 11 elementary schools in Wayne County. The decline in student enrollment over the past decade has led to consideration by the Board of Education of possible consolidation of or closure of Genoa and Dunlow Elementary Schools⁹, and of consolidation of Buffalo Elementary and Buffalo Middle School into a single new K-8 facility¹⁰.

In addition to Cabell and Wayne County, the study has regional touchpoints to both Mason and Putnam counties in relation to economic development initiatives that likely will impact the Study area's transportation network. Putnam County's population generally has grown as the county developed into a popular "bedroom community" for both Charleston and Huntington. Similar to Wayne County, Mason County's population has fluctuated with the rise and fall of the gas and oil extraction industries.

⁸ Includes Cabell County Career Technology Center and Crossroads Academy.

⁹ WSAZ, *School board considers closure or consolidation*, published by Luke Hamilton November 20, 2024.

¹⁰ WSAZ, *Wayne County School district seeks funding for school consolidation project as deadline looms*, published by Kimberly Keagy November 13, 2023.

EXISTING TRANSPORTATION SYSTEM AND FACILITIES

As indicated previously, this Study examines all modes of transportation in Cabell and Wayne counties, but places emphasis on highway and transit needs that may arise from unanticipated economic developments. Furthermore, the highway and transit scope of the Study is limited to a subset of approximately 279 miles of major and secondary corridor facilities in those two counties (previously identified in Figures 3 and 4) that are regionally significant. A general description of the termini of the routes being evaluated in this Study follows:

Cabell County (Major Corridors)

- I-64 (25.90 miles) from the Cabell/Wayne County line near Exit 6 towards Hurricane (Putnam County), including the area surrounding the I-64 interchange under construction at the Cabell/Putnam County line at Culloden;
- US 52 from the West Virginia/Ohio state line on the Nick Rahall Bridge eastward 1.3 miles to I-64 Exit 6¹¹;
- US 52 NB (0.46 mile) from I-64 EB off-ramp of Exit 6 to junction I-64 WB off-ramp;
- US 60 (26.79 miles) from Wayne/Cabell County line near the Colonel Justice M. Chambers Memorial Bridge to the Cabell/Putnam County line on the US Army SPC4 William L. Amos Memorial Bridge in Culloden;
- US 60 ALT (Fourth Avenue) for 0.49 mile from the junction of WV 527 near the Sixth Street (Robert C. Byrd) Bridge to the junction of US 60 and First Street;
- WV 2 northward from the junction of US 60 in Huntington near the Guyandotte River (17.99 miles) to the Cabell/Mason County line;
- WV 2 TRUCK (Fifth Avenue) from the junction of US 60 (31st Street) across the Guyandotte River 0.39 mile to the junction of WV 2 and Main Street (Municipal Non-State (MNS) 2032);
- WV 10 northward 18.58 miles from the Lincoln/Cabell County line near Salt Rock to the junction US 60 (Third Avenue) in Huntington;
- WV 10 ALT northward for 2.56 miles from the junction of WV 10 at Melissa to the junction of US 60 at Pea Ridge in Barboursville;
- WV 152 from the Wayne/Cabell County line south of I-64 (Exit 8) northward 1.44 miles to the junction of WV 527 just north of I-64 (Exit 8); and
- WV 193 (Big Ben Bowen Highway) from junction of US 60 in Barboursville at Tanyard Station northward 3.55 miles to the junction of WV 2 at Cox Landing.

Cabell County (Secondary Corridors)

- WV 101 (8th Avenue & 29th Street) from the junction of US 60 near Rotary Park westward for 0.75 mile to the junction of US 60 (Third Avenue) and 29th Street;
- WV 106 (31st Street Bridge) from the junction US 60 northward for 0.67 mile to the West Virginia/Ohio state line;
- WV 106 SB (31st Street Bridge off-ramp)¹² from the junction of US 60 at Fourth Avenue 0.27 mile northward to the 31st Street Bridge.

¹¹ Signs along US 52 in the area designate North/South, however the milepoints run West/East.

¹² Signs along 31st Street Bridge off-ramp in the area designate Southbound, however the milepoints run in the Northbound direction.

- WV 527 (Fifth Street) travels southward from the Ohio/West Virginia state line on the Sixth Street (Robert C Byrd) Bridge for 0.6 mile to the junction of US 60 at Fifth Avenue, then follows US 60 for 0.29 mile before continuing south for 2.33 miles to the Junction of I-64 (Exit 8);
- WV 527 ALT (Sixth Street) from the junction of WV 527 at Sixth Avenue for 0.51 mile to the Sixth Street (Robert C. Byrd) Bridge;
- WV 527 NB (Eighth Street) from the junction of WV 527 and Sixth Avenue for 0.45 mile to the Sixth Street (Robert C. Byrd) Bridge;
- CO 13 from US 60 in Milton, south of I-64 (Exit 28) north 5.51 miles to the Cabell/Putnam County line;
- CO 60/21 (Benedict Road) from US 60 in Culloden, south of the new Culloden Interchange, north for 4.24 miles toward the Culloden Community Cemetery;
- CO 60/89 (East Mall Road and Melody T. Farm Road) from US 60 south of I-64 Exit 20 north for 0.76 mile to the junction of Bradley Road and Nichols Drive; and
- CO 101/1 (8th Avenue) in Huntington proceeds from the junction of WV 101 (29th Street) west 2.56 miles to the junction of WV 527 and McCoy Road and then follows WV 527 for 0.29 mile before continuing westward for 0.71 mile to the junction of West 5th Street.

Wayne County (Major Corridors)

- I-64 (5.87 miles) from the Kentucky/West Virginia state line on the Perry & Gentry Bridges over the Big Sandy River to the Wayne/Cabell County line near Exit 6;
- US 52 from I-64 (Exit 1) east for 49.91 miles to the Wayne/Mingo County line near Kermit¹³;
- US 60 for 5.6 miles from the Kentucky/West Virginia state line on the Kenova to Cattlesburg KY Bridge over the Big Sandy River east through Kenova and Ceredo to the Wayne/Cabell County line in the City of Huntington; and
- WV 152 northward from the junction of US 52 north of Crum for 25.02 miles to the junction of WV 37 at Echo, WV 152 then follows WV 37 for 4.54 miles to Wayne and then continues north for 15.03 miles through Lavalette to the Wayne/Cabell County line south of I-64 (Exit 8).

Wayne County (Secondary Corridors)

- WV 37 proceeds eastward from the Kentucky/West Virginia state line on the Tug Fork Bridge in Fort Gay for 0.97 mile to the junction of US 52 near the Fort Gay Veterans Memorial Park, WV 37 then follows US 52 west past Mineral Springs for approximately 1.1 miles before continuing eastbound for 35.92 miles through Echo, Wayne, East Lynn and Cove Gap to the Wayne/Lincoln County line; and
- WV 75 from the junction of US 60 in Kenova eastward for 0.73 mile to the junction of US 52 at I-64 (Exit 1), WV 75 then follows US 52 eastward for approximately 1.8 miles before continuing eastbound for 9.57 miles past the Booth Road Access of the Huntington Tri-State Airport and onward through the communities of Buffalo Creek and Shoals and terminating at the junction of WV 152 north of Lavalette.

The characteristics of these major and secondary corridor facilities in Cabell and Wayne counties vary with respect to number of lanes; shoulder widths; pedestrian, bicycle and transit facilities; and average daily traffic.

According to the National Bridge Inventory Data as of February 25, 2025, there are 400 structures located in Cabell and Wayne counties, of which 156 are located on Study Routes (96 in Cabell and 60 in Wayne,

¹³ Signs along US 52 in the area designate North/South, however the milepoints run West/East.

respectively). Of the 156 structures located on Study Routes, 19 have “Poor” condition ratings (12 in Cabell and 7 in Wayne) and five currently are Posted with Weight Restrictions (2 in Cabell and 3 in Wayne) The locations of the structures with Poor condition ratings and/or with Weight Restrictions are shown in Figures 6 and 7. It is important to note, however, that for most of these bridges, construction of a replacement structure is underway or complete, or design of a replacement structure is underway, which ultimately will result in those structures no longer being rated in Poor condition nor having posted weight restrictions.

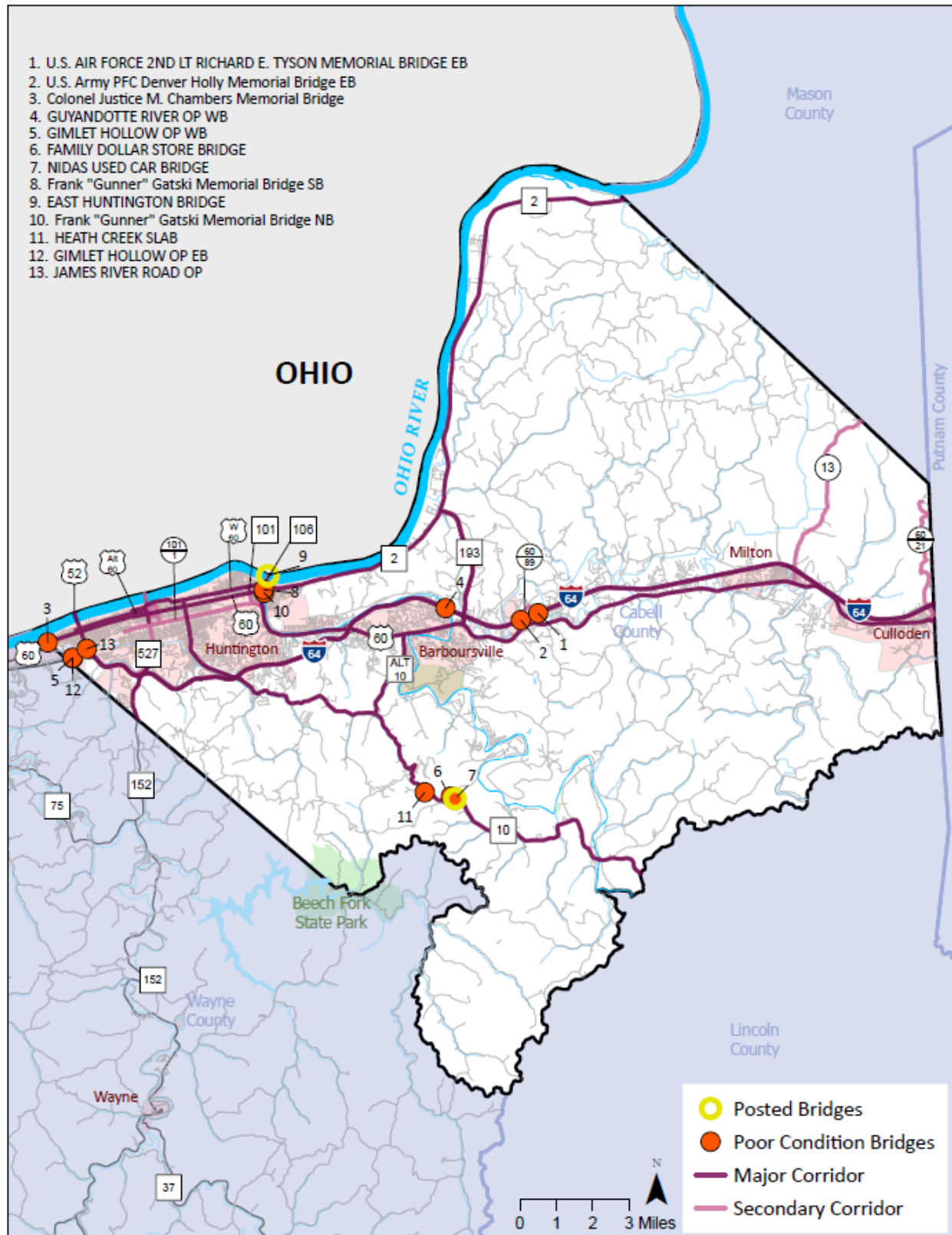


Figure 6: Bridges with Poor condition rating and/or with Weight Restriction, along Study Routes, Cabell County

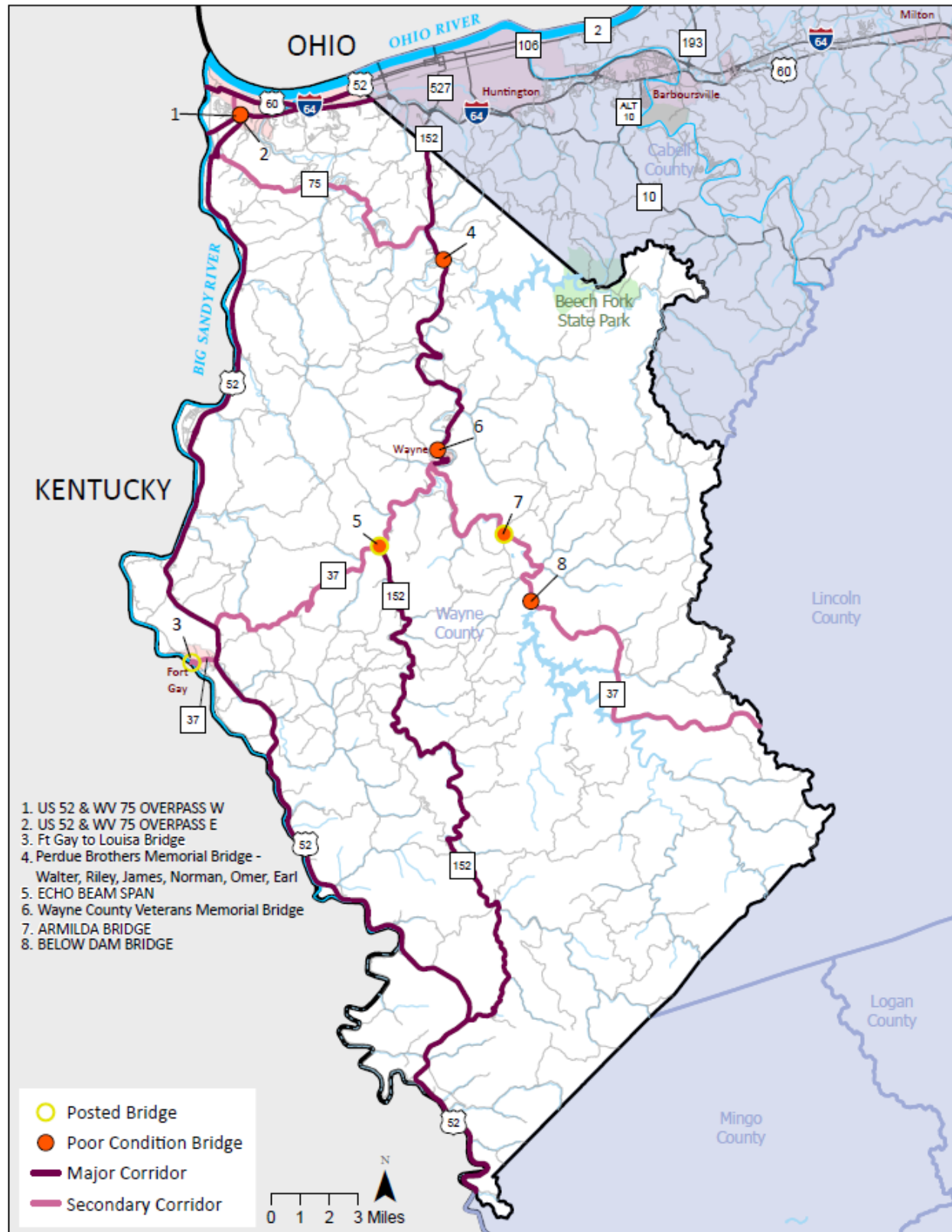


Figure 7: Bridges with Poor condition rating and/or with Weight Restriction, along Study Routes, Wayne County

There are a total of 296 at-grade highway/rail crossings located in Cabell and Wayne counties, with 108 in Cabell and 188 in Wayne¹⁴. Of those 296 crossings, 119 are on public roadways and the remainder are private. Within the touchpoint counties of Mason and Putnam, there are 220 at-grade highway/rail crossings, with 152 in Mason and 68 in Putnam. Mason and Putnam have a much smaller subset of public crossings, with only 77. A total of 23 at-grade highway/rail crossings exist along the Study Routes in Cabell (9) and Wayne (14) counties, all but one of which crossings have flashing lights, while four of these crossings also have gates. Some of the crossings in Wayne County are located along sections of rail line that are no longer in service, however the crossings remain. Two at-grade highway/rail crossings are located along the section of WV 2 in Mason County that is included in this Study, and those two crossings also have flashing lights. Additional information regarding the crossings along the Study Routes is included in Figures 8 through 10.

Study Route	County	Crossing Number	Latitude	Longitude	Active Warning Devices	Passive Warning Devices
WV 10	Cabell	226516W	38°19'22.15"N	82°13'7.48"W	Flashing lights, gates	Pavement markings, signs
WV 2	Cabell	147948C	38°25'59.84"N	82°21'41.47"W	Flashing lights	Pavement markings, signs
US 60 WB	Cabell	225701M	38°24'45.17"N	82°28'54.54"W	Flashing lights	Pavement markings, signs
US 60	Cabell	225714N	38°25'3.49"N	82°27'13.49"W	Flashing lights	Pavement markings, signs
US 60 WB	Cabell	225718R	38°25'12.54"N	82°27'15.93"W	Flashing lights	Pavement markings, signs
US 60	Cabell	225702U	38°24'41.36"N	82°28'52.83"W	Flashing lights	Pavement markings, signs
US 60 ALT	Cabell	225716C	38°25'8.43"N	82°27'14.89"W	Flashing lights	Pavement markings, signs
US 60 WB	Cabell	225736N	38°25'34.94"N	82°25'6.91"W	Flashing lights	Pavement markings, signs
US 60	Cabell	225739J	38°25'26.27"N	82°25'2.68"W	Flashing lights	Pavement markings, signs
WV 2	Mason	147873F	38°47'1.15"N	82°12'1.70"W	Flashing lights	Pavement markings, signs
WV 2	Mason	147906R	38°37'26.87"N	82° 9'53.88"W	Flashing lights	Pavement markings, signs
US 60	Wayne	473268D	38°24'11.73"N	82°35'27.68"W	Flashing lights	Pavement markings, signs
WV 75	Wayne	473398A	38°23'39.39"N	82°34'39.00"W	Flashing lights	Pavement markings, signs
US 60	Wayne	225690C	38°23'50.79"N	82°33'55.36"W	Flashing lights, gates	Pavement markings, signs
WV 37	Wayne	471645H	38° 7'3.81"N	82°35'51.90"W	Flashing lights, gates	Pavement markings, signs
WV 37	Wayne	473309F	38°10'3.10"N	82°22'43.04"W	Flashing lights	Pavement markings, signs
WV 75	Wayne	473382D	38°21'19.28"N	82°30'36.75"W	Flashing lights	Pavement markings, signs
WV 75	Wayne	473375T	38°20'11.76"N	82°29'28.36"W	Flashing lights	Pavement markings, signs
WV 152	Wayne	473368H	38°20'9.28"N	82°27'15.55"W	Flashing lights	Pavement markings, signs
WV 152	Wayne	473363Y	38°19'25.01"N	82°26'52.77"W	Flashing lights	Pavement markings, signs
WV 152	Wayne	473351E	38°17'39.40"N	82°26'47.47"W	Flashing lights	Pavement markings, signs
WV 152	Wayne	473326W	38°15'33.46"N	82°26'41.40"W	Flashing lights	Pavement markings, signs
WV 152	Wayne	473314C	38°13'30.05"N	82°26'44.51"W	none	Pavement markings, signs
WV 37	Wayne	473280K	38°12'57.68"N	82°26'55.16"W	Flashing lights	Pavement markings, signs
US 52	Wayne	471601H	37°54'5.37"N	82°26'22.67"W	Flashing lights, gates	Pavement markings, signs

Figure 8: At-Grade Highway/Rail Crossings, along Study Routes, Cabell and Wayne counties, and along section of WV 2 in Mason County

¹⁴ <https://data.transportation.gov/stories/s/Crossing-Inventory-Detailed-Summary>

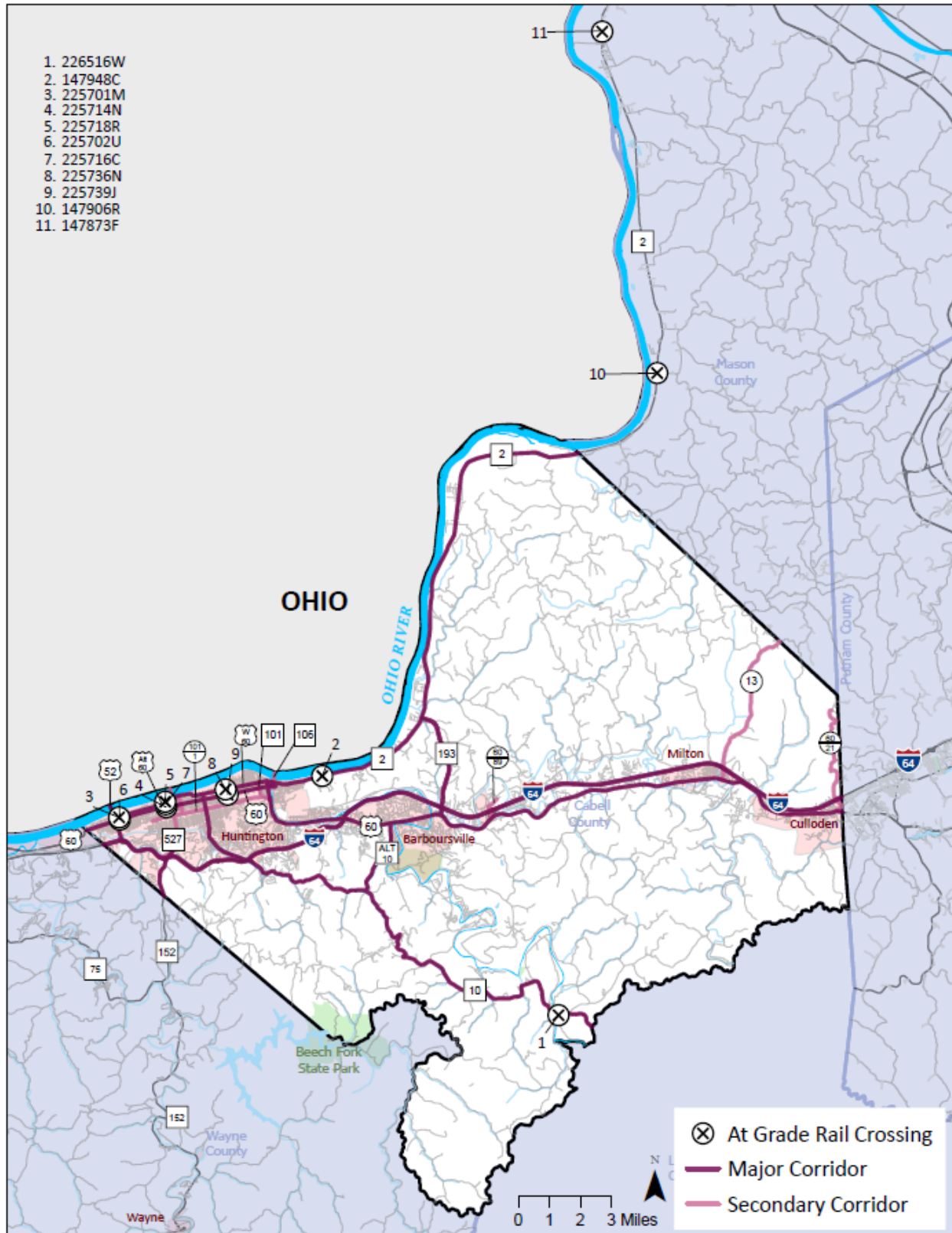


Figure 9: At-Grade Highway/Rail Crossings, along Study Routes, Cabell County

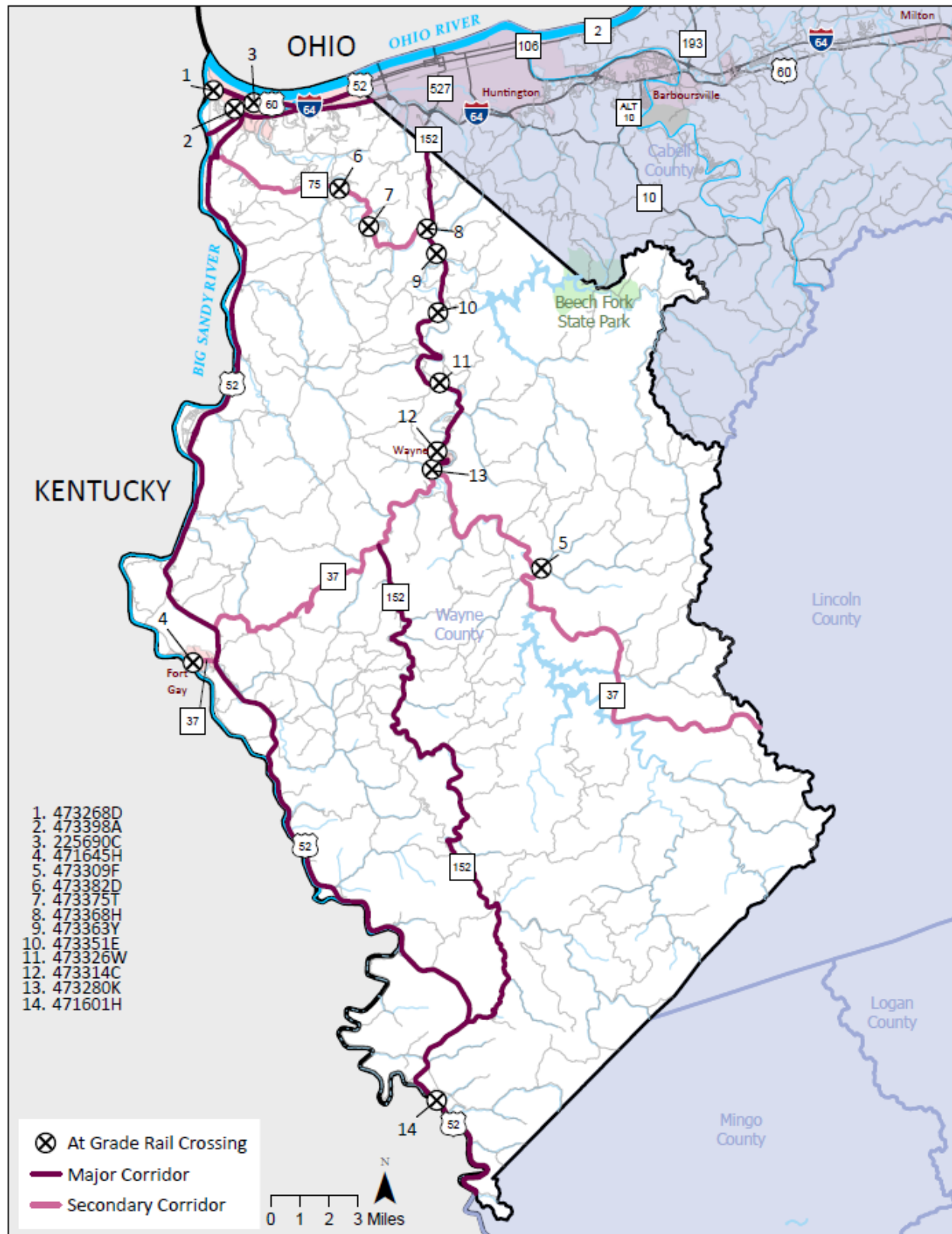


Figure 10: At-Grade Highway/Rail Crossings, along Study Routes, Wayne County

Tri-State Transit Authority (TTA)¹⁵ provides bus and paratransit service within Wayne and Cabell counties, with routes extending from Huntington to Culloden, including service at Barboursville and Milton, Monday through Saturday from 5:45 a.m. to 11:30 p.m.¹⁶ The basic TTA bus fare is \$1.00, with two fare zones: passengers traveling into or outside Huntington city limits pay an additional charge of \$0.25, passengers pay an additional charge of \$0.25 between Milton and Culloden. The fare for those with disabilities, seniors, and Medicare cardholders is half the regular fare. For those whose disability prevents them from riding TTA buses, TTA operates Dial-A-Ride service during the same days and hours within three-fourths mile of its routes; Dial-A-Ride customers ride for double the basic bus fare and pay an additional charge of \$0.50 for each additional zone through which the customer travels.

Tri River Transit¹⁷ provides access to jobs, educational opportunities, medical services, and shopping within its service area that includes primarily Lincoln, Logan, Boone and Mingo counties, but also serves a portion of WV 2 in Cabell and Mason counties (Monday, Wednesday and Friday only) and provides service to both Wayne County and Cabell County with a Monday through Friday route between the Town of Wayne and the Huntington Mall. Tri River Transit operates several routes to the Huntington Mall with stops outside the Study region. The company has a fleet of 32 vehicles, including 26 handicap accessible vehicles, and also operates route deviation bus service, meaning that in addition to boarding the bus at the specified stops listed on this bus schedule, passengers can request to be picked up or dropped off up to three-fourths mile off the bus route, if reservations are made at least the day before such service. One-way bus fare is \$1.00 each time a passenger boards a bus, and an additional \$1.00 if the passenger travels past a zone line. One way curb-to-curb service is \$2.00 each time a passenger boards a bus, and an additional \$1.00 if the passenger travels past a zone line. Attendants for a person with a disability might be eligible to ride for free. Those receiving a Medical Card may be eligible for free transportation. Rates vary based on monthly income levels for those Individuals who do not have a Medical Card.

Two Class I Railroads, CSX and Norfolk Southern (NS), operate within Cabell and Wayne counties. Amtrak's Cardinal provides service between New York and Chicago, offering departures three days a week including a stop in Huntington along the CSX line. The Wayne County Commission's Central Appalachian Inland Port at Prichard, served by NS and operated by R. J. Corman, is designed to transfer shipping containers between rail cars and trucks.

Several river terminals operate along the waterways adjacent to Cabell and Wayne counties. The designated Port of Huntington Tri-State¹⁸ includes 100 miles of the Ohio River from the mouth of the Scioto River near Portsmouth, Ohio, stretching upstream to the northern boundary of Gallia County, Ohio; 9 miles of the Big Sandy River, extending south from Kenova, Wayne County; and 90 miles of the Kanawha River, extending east from Point Pleasant. This Port is the largest inland shipping port in the United States and the sixth largest among all ports, including those on the coasts.

¹⁵ <https://www.tta-wv.com>.

¹⁶ TTA transit service is not available on major national holidays.

¹⁷ <https://tririver.org>.

¹⁸ <https://www.huntingtonwaterways.com>.

Huntington Tri-State Airport (Milton J. Ferguson Field), located in Wayne County, is one of seven commercial airports in West Virginia. In addition to commercial air service, the airport serves air cargo, military, and general aviation traffic. Two major airlines (Allegiant Air and American Airlines) provide non-stop service to several destinations, including Charlotte, North Carolina; Orlando and St. Petersburg/Clearwater in Florida; and Myrtle Beach, South Carolina. General Aviation services are provided by the Huntington Jet Center (FBO) located next to the main terminal. Cabell County is home to two general aviation airports: Robert Newlon Field (north of Huntington) and Ona Airpark.

LAND COVER

Both Cabell and Wayne counties, despite being within the KYOVA metropolitan planning boundary, have Land Cover that is primarily forested (i.e., Deciduous, Evergreen and Mixed), with 210.69 square miles (mi²) of Cabell and 442.41 mi² of Wayne falling within those classifications in 2024 according to the Multi Resolution Land Characteristics Consortium, which amounts to 75.0 percent and 87.4 percent of each county's land area, respectively. Developed land cover classifications (High Intensity, Medium Intensity, Low Intensity and Developed Open Space) for each county are much lower, at 50.59 mi² (18.0 percent) for Cabell and 41.40 mi² (8.2 percent) for Wayne County, with other land cover classifications making up the remainder. The land cover classification distributions for Putnam County and Mason County, which have touchpoints to this Study for economic development and housing perspectives, are similar to Cabell and Wayne counties, with Putnam County being 75.9 percent forested and 12.9 percent developed and Mason County being 69.6 percent forested and 7.7 percent developed. Mason County is somewhat dissimilar from the other three counties in that a substantial amount (89.94 mi², 20.9 percent) of its remaining land cover is dedicated to cultivated crops and pastureland. While all four counties have had increases in "developed" land cover classifications from 2020 to 2024, Wayne County reflects the least amount of change at 0.04 percent during that time, whereas Cabell and Putnam counties each had a 0.14 percent increase in "developed" land cover and Mason County a 0.21 percent increase. A review of land cover mapping indicates that the NuCor development was at least partially responsible for the uptick in Mason County.

LAND USE

As mentioned previously in this Study, weight restrictions along the Study Routes can represent constraints that might adversely affect economic development. Similarly, economic development opportunities can be affected by other factors, such as regulations concerning the allowable type of development in an area, permitting issues, or the availability of land outside flood zones. No countywide land use restrictions have been enacted in either Cabell County or Wayne County. Building permits for construction of new developments and substantial improvements of existing structures are required outside the municipal boundaries of Cabell County, with site plans and plans for the structure to be included at the time of permit submission. Ordinances and regulations are in place in certain areas concerning construction within flood zones and stormwater management.

Flood Zones

A floodplain is a flat, low-lying area that is formed by the erosion and deposition of sediment over time adjacent to a river or lake and that periodically floods. While these areas provide significant benefits, such

as flood control, water quality improvement, groundwater recharge, and wildlife habitat, the total floodplain area within a community limits the available land in which to construct residential, commercial, or industrial development, due to the likelihood of flooding. The purpose of floodplain management is to reduce flood damage: flooding causes more than 90 percent of the disaster-related property damage in the US each year and accounts for over 75 percent of all Presidential disaster declarations¹⁹.

Floodplain management is the operation of community programs for preventative and corrective measures that take a variety of forms and generally include zoning, subdivision or building requirements, and special-purpose floodplain ordinances. Communities agree to adopt and enforce floodplain management ordinances to make flood insurance available to home and business owners. To date, 55 counties and 214 communities in West Virginia have voluntarily adopted and are enforcing local floodplain management ordinances that provide flood loss reduction building standards for new and existing development²⁰. For the purposes of the National Flood Insurance Program® (NFIP), flood risk is identified as High, Moderate, or Lower. The High-Risk Flood Area is known also as the Special Flood Hazard Area (SFHA) or the 100-year floodplain, and property owners in a high-risk zone and possessing a government-backed mortgage must purchase flood insurance. Although some lenders may not require flood insurance, FEMA recommends flood insurance to protect property owners from financial losses, particularly because most homeowner and renter insurance policies don't cover flood damage. The risk of flooding exists within the Moderate or Lower Flood Risk Zones. In fact, nearly one third of NFIP claims filed between 2014 and 2024 concerned properties outside high-risk flood areas.

August 2024 data from the West Virginia Flood Resiliency Framework (WVFRF) indicate that 14,505 (4.4 percent) of the 327,860 acres of land in Wayne County are located within the 100-year floodplain²¹; 2,485 (7.6 percent) of the 32,497 buildings in the county are in a High-Risk Flood Zone; one third of single-family dwellings in the floodplain within the county are manufactured homes; 11.7 percent of roads in the county are inundated by flood waters of one foot or more during a major 100-year flood event; and Wayne County ranks 7th of the 55 counties in the state with a Cumulative Flood Risk Score²² of 88.8 percent. The WVFRF data indicate also that 11,807 (6.4 percent) of the 184,269 acres of land in Cabell County are located within the 100-year floodplain²³; 2,808 (6.6 percent) of the 42,538 buildings in the county are in a High-Risk Flood Zone buildings; one fourth of single-family dwellings in the floodplain within the county are manufactured homes; 9.0 percent of roads in the county are inundated by flood waters of one foot or more during a major 100-year flood event; and Cabell County ranks 13th of the 55 counties in the state with a Cumulative Flood Risk Score²⁴ of 77.7 percent.

¹⁹ FEMA Region III, *Building Higher, Building Drier*.

²⁰ WV Emergency Management Division, <https://emd.wv.gov/MitigationRecovery/Pages/Floodplain-Management.aspx>.

²¹ Areas excluded in the total acreage: Open water lakes greater than 10 acres; Large riverbank-to-bank greater than 500 feet; Federal lands greater than 10 acres.

²² A Cumulative Flood Risk Index of 25 flood factors.

²³ Areas excluded in the total acreage: Open water lakes greater than 10 acres; Large riverbank-to-bank greater than 500 feet; Federal lands greater than 10 acres.

²⁴ A Cumulative Flood Risk Index of 25 flood factors.

Stormwater

A Municipal Separate Storm Sewer System (MS4)²⁵ is a conveyance or system of conveyances that is:

- owned by a state, city, town, village or other public entity that discharges to waters of the US;
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches);
- not a combined sewer; and
- not part of a sewage treatment plant, or publicly owned treatment works.

To prevent harmful pollutants from being washed or dumped into MS4's, certain operators are required to obtain National Pollutant Discharge Elimination System (NPDES) permits and develop stormwater management programs (SWMP). The SWMP describes the stormwater control practices that will be implemented, consistent with permit requirements and intended to minimize the discharge of pollutants from the sewer system. Within the Study area, the following entities are subject to MS4 requirements:

- Town of Ceredo;
- City of Hurricane;
- City of Kenova;
- Huntington Stormwater Utility;
- Marshall University;
- City of Milton;
- Village of Barboursville; and
- West Virginia Department of Transportation.

Municipal Regulations

Within the City of Huntington, “Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure” shall first make application to the City and obtain the required permit. The City of Huntington has additional regulations for any development that is to take place within the floodplain, and has established Zoning Districts to address residential, commercial, industrial, and other development. A summary of these Zoning Districts follows.

- The R-1 and R-2 Single-family Residence Districts establish and maintain areas where the use consists of largely single-family residential use at low densities generally in a range of five to nine units per acre. The R-4 Two-family Residence District establishes and provides areas for primarily single-family residential land use at moderate densities of no more than two units per lot. The R-5 Multi-family Residence District is to accommodate, in central locations convenient to services and City institutions, higher density multi-family housing consisting of three or more units.
- The C-1 Neighborhood Commercial District is intended to conveniently provide goods and services to the residents of the neighborhoods while maintaining and promoting the sense of community provided by the commercial hub located in the neighborhood. The C-2 Highway Commercial District is to provide varied professional, personal, and retail services convenient to the neighborhoods in an attractive setting and considerate of traffic safety concerns resulting from location along the major corridors of the City.

²⁵ <https://dep.wv.gov/WWE/Programs/stormwater/MS4/Pages/default.aspx>

The C-3 Central Business District is to ensure continuation of the highly diverse and integrated land uses serving a variety of missions to an assortment of persons, and to provide a cohesive and viable central business district for the City while preventing the intrusion of certain incompatible commercial or industrial uses.

- The I-1 General Light Industrial and Commercial District is to provide an area where various light industrial activities can be accommodated without creating undesirable or incompatible situations with surrounding land uses. The I-2 Heavy Industrial District is to provide an area where various industrial activities can be accommodated without creating undesirable or incompatible situations with surrounding land uses.
- The H-1 Historic Preservation District Overlay is to acknowledge the special and unique character of the City of Huntington's historic districts that include the residential and non-residential land uses representing the community's growth and change during the 19th and 20th centuries. This Zoning District also provides special provisions designed to preserve and protect the historical nature of the community, while encouraging renovation, rehabilitation and new construction compatible with existing aesthetic patterns to promote and continue the revitalization of the City's historic areas.
- The B&O Right-of-Way Special Zoning District is to recognize the unique development issues related to building construction and land use along the former B&O right of way in the Westmoreland area of the City of Huntington and to promulgate zoning restrictions that will allow property owners the maximum use of their properties while protecting the interests of other property owners in the vicinity. The boundaries of the B&O Right-of-Way Special Zoning District are Bradley Road to the south, Waverly Road to the north, Huntington floodwall to the west, and Camden Road to the east.

The Village of Barboursville does not have any zoning ordinances; however, building plan approval is required for all new structures to be built within the Village. All building plans must be stamped and sealed by a WV Architect, and a Building Permit is required for general construction projects pertaining to existing structures. No multifamily development is to have an area of less than one acre, and no townhouse development is to have an area of less than two acres.

The City of Milton appears to have no zoning ordinances. Building permits are required to be obtained prior to construction, with the applicant providing a plat of the site showing the exact size and location of the proposed construction as well as any existing buildings or structures; detailed plans for compliance of storm water management with development equal to or greater than one acre of site property; and pertinent information for compliance with floodplain regulations.

The Town of Ceredo requires individuals undergoing contracting work within city limits to obtain a permit from the Town to ensure safe and skilled craftsmanship in both residential and commercial construction projects. Additionally, any property owner or authorized agent proposing construction, alteration, repair, or installation work regulated by code must obtain a Building Permit before commencing construction.

The City of Kenova requires Building Permits prior to commencement of construction. Additionally, for construction in flood hazard areas, upon placement of the lowest floor, including basement, and prior to further vertical construction, the City building official requires submission of documentation, prepared and sealed by a registered design professional, of the elevation of the lowest floor, including basement.

IDENTIFIED ECONOMIC DEVELOPMENT PROJECTS

Availability of affordable and developable land and utilities, local land use guidelines, project permitting processes, and proximity to transportation facilities typically are the primary factors that dictate likely areas in which proposed development might occur. Additionally, certain sections of the Study corridors have been implemented with full control of access (I-64) or partial control of access (US 52, WV 193, WV 2, WV 10), which results in access to these corridors being available only at certain locations, with some adjacent properties having no direct access to the corridor.

Utilizing information obtained from Stakeholders and various media reports, those private and public economic development projects along the Study Routes that have been completed recently, that are under design or construction, or that have been publicly announced, have been mapped and are tabulated by location, by type of development, and by size (see Figures 11 and 12). For those economic development projects for which a Traffic Impact Study has been approved by the WV Division of Highways and made available for this Study, the recommendations of the TIS are assumed to be fully implemented by the buildout year, with the associated highway network modifications then assumed to be “existing” conditions.

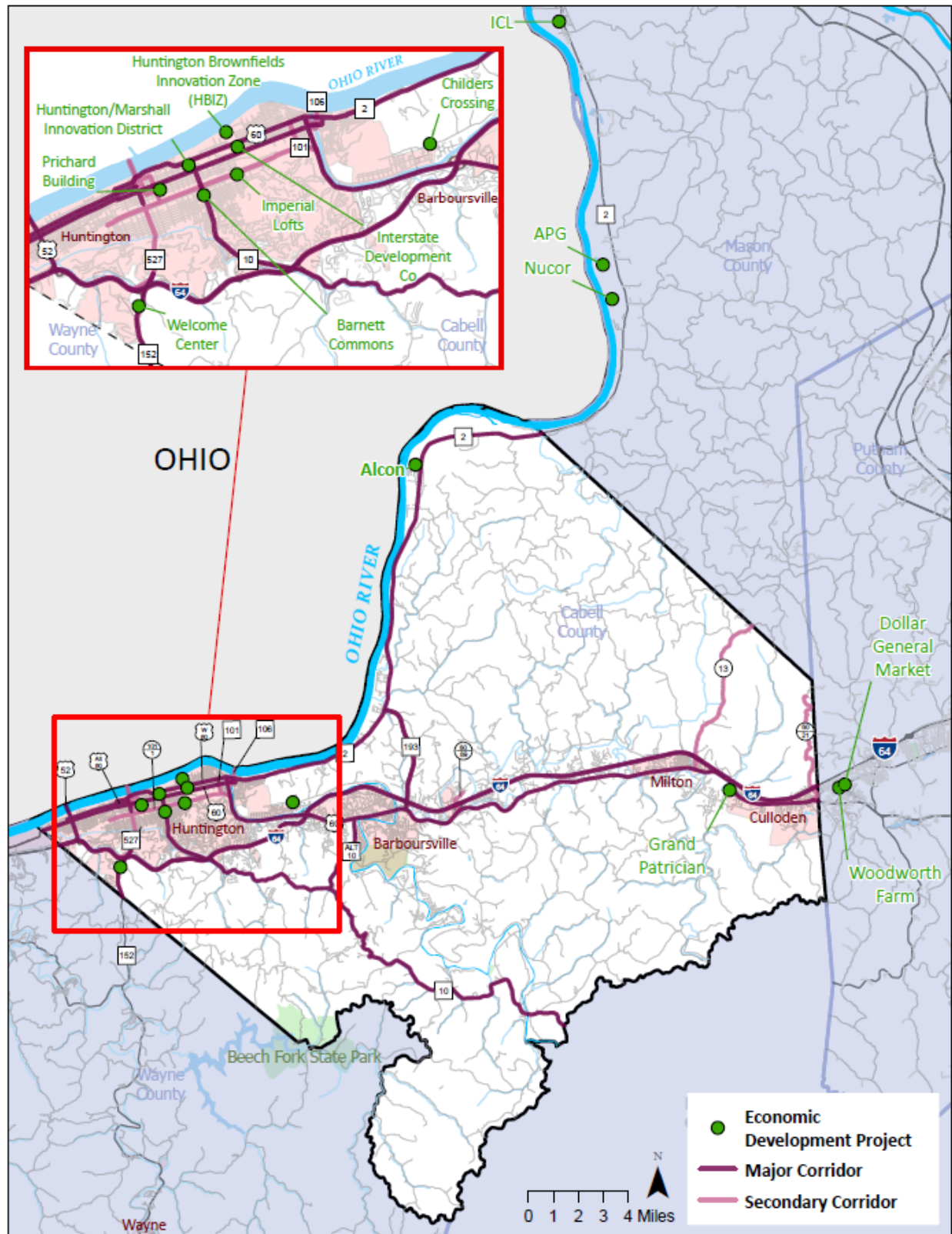


Figure 11: Economic Development Projects, along Study Routes, Cabell County

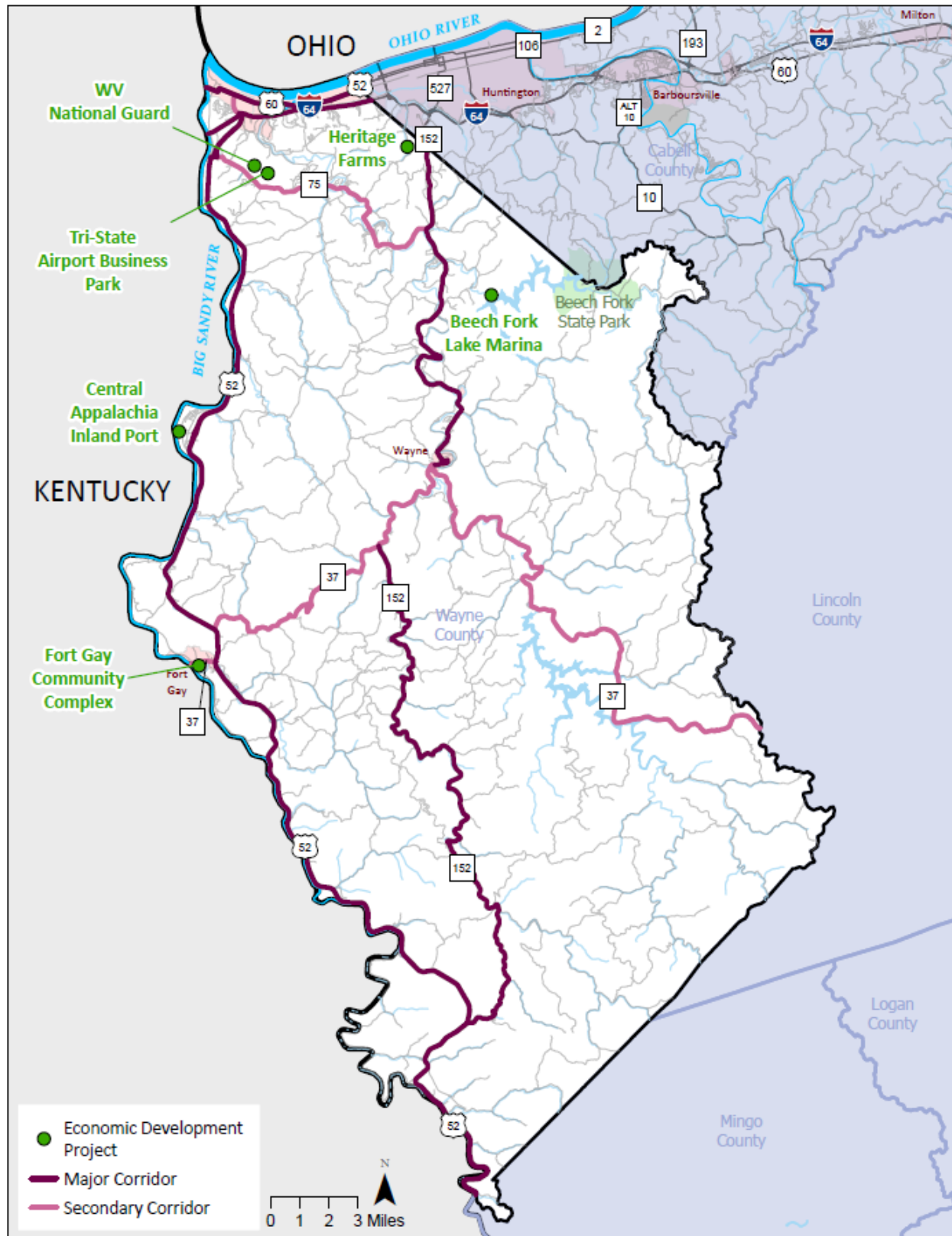


Figure 12: Economic Development Projects, along Study Routes, Wayne County

COMMITTED/FUNDED TRANSPORTATION PROJECTS

The KYOVA 2050 Metropolitan Transportation Plan (MTP) identifies project and policy recommendations to address multimodal transportation needs in Cabell and Wayne counties (as well as a portion of Putnam County; Boyd and Greenup counties in Kentucky; and Lawrence County, Ohio) through the year 2050. Strategic investments in major roadways are balanced with improvements to the bicycle, pedestrian, transit, rail, and freight network to keep people and goods moving, allow better and more equitable access and mobility for residents and visitors, and enhance the area's quality of life. The MTP has been developed based on analysis of current conditions and projected needs, and is intended to conform with federal requirements; incorporate the relationship among transportation facilities, employment, population, goods movement, land use, and air quality; place emphasis on maintaining and increasing the operating efficiency of the existing system before considering expensive new facilities; and recognize that improvement to river, rail, air, trail, and transit systems are important. The MTP is to be updated every five years, and KYOVA estimates that a total of about \$6 billion²⁶ will be available through 2050 to fund capital, maintenance, and operation projects.

The KYOVA 2026-2029 Transportation Improvement Program (TIP) is a biennial statement for state and local governments and transit authorities within the KYOVA area that provides a four-year schedule of anticipated spending on specific transportation projects and improvements. The TIP must be financially constrained, i.e., all projects listed in the TIP must have an identified funding source consistent with regional revenue expectations. The TIP contains a list of all surface transportation projects for which the use of federal funds is proposed, and all TIP projects are consistent with the KYOVA 2050 MTP. KYOVA updates the TIP every two years, or as needed to coordinate with the WVDOT State Transportation Improvement Program (STIP).

Several transportation projects along the Study corridors have been identified within the MTP, as illustrated in Figures 13 through 15. At the direction of KYOVA for the purposes of this Study, all these projects are assumed to be complete and will serve as the baseline of existing conditions.

²⁶ Funding sources include Federal Highway Administration, Federal Transit Administration, WV Department of Transportation, Ohio Department of Transportation, and Kentucky Transportation Cabinet.

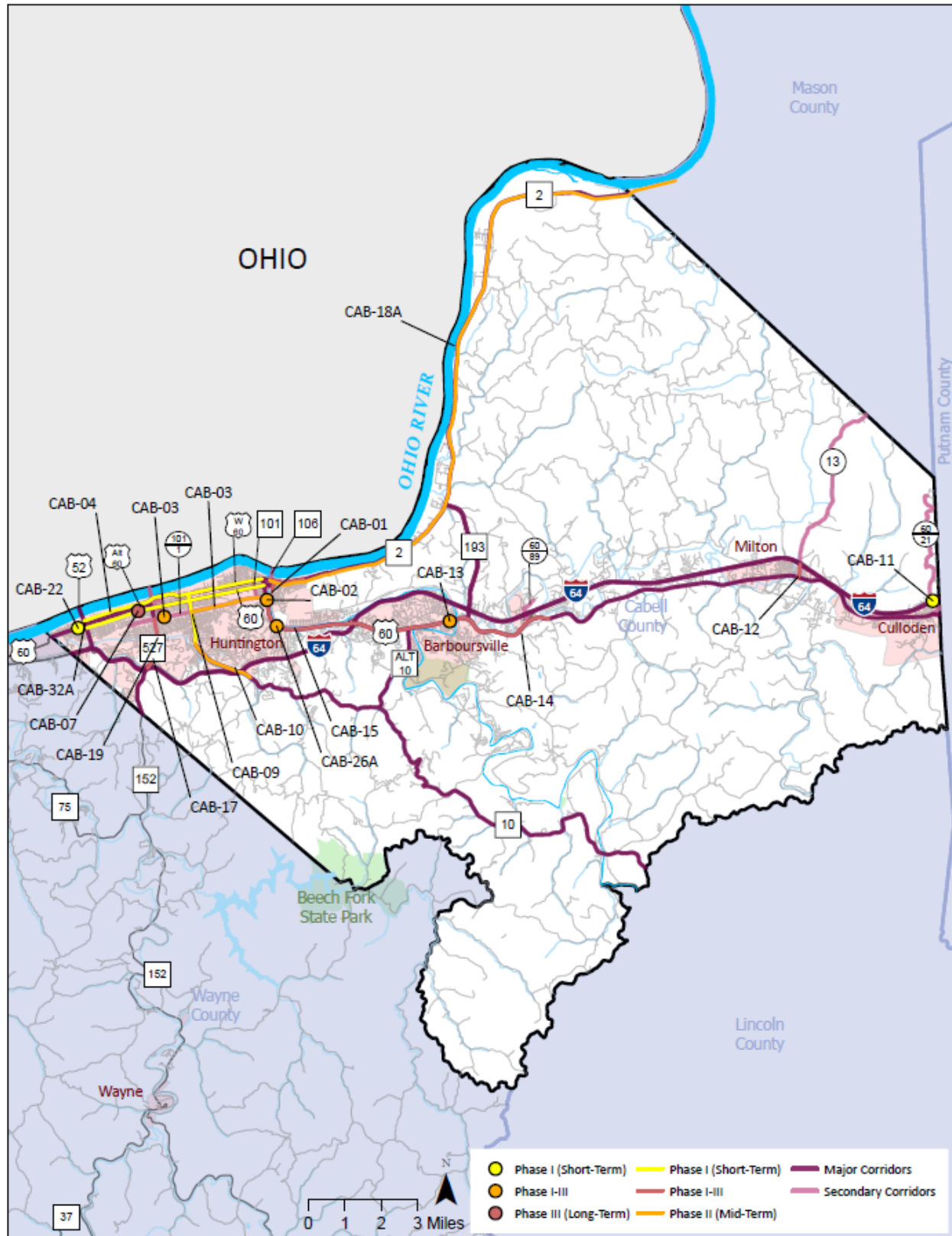


Figure 13: Committed Transportation Projects, along Study Routes, Cabell County

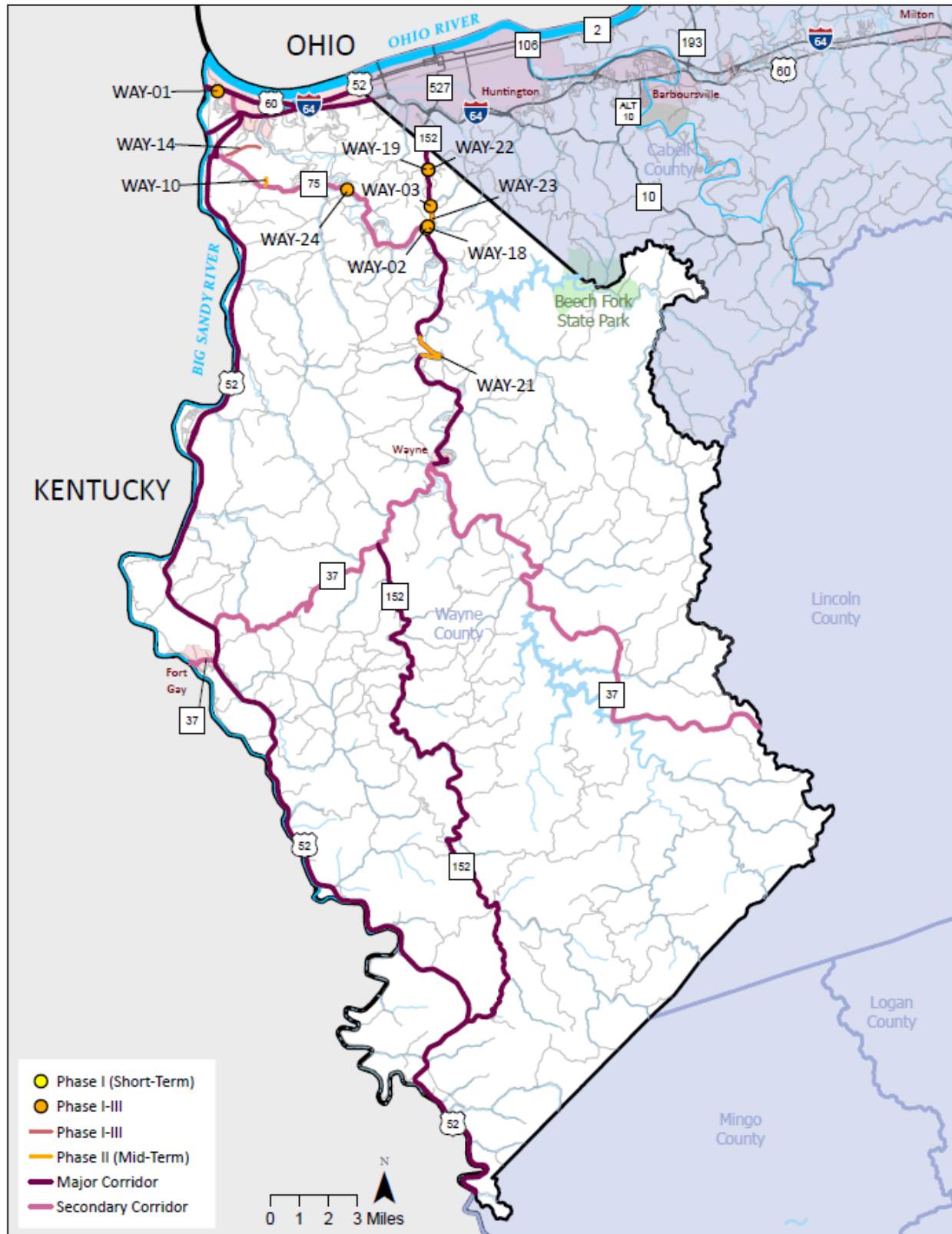


Figure 14: Committed Transportation Projects, along Study Routes, Wayne County

Project	Name	Description of Work
CAB-01	Guyandotte Streetscaping Improvements - Bridge Street and Main Street	Streetscaping improvements (landscaped medians, mast arm signals, and street trees) along Bridge St (WV 106 to 39th St) and along Main St (Riverside Dr to Water St) in Guyandotte
CAB-02	Eighth Avenue and 31st Street (US 60) Intersection Safety Improvements	Intersection safety improvements (remove existing slip ramp; construct dual right-turn lanes at the signal) at Eighth Ave and 31st St
CAB-03	Eighth Avenue Improvements and Intersection Beautification	Eighth Avenue improvment (Hal Greer Blvd to US 60) in Huntington
CAB-04	Third and Fifth Avenue Complete Streets	Retrofit (ncorporate green infrastructure, complete streets principles, placemaking) Third Ave (US 52 to 31st St) and Fifth Ave (17th St to 31st St) in Huntington
CAB-07	First Street and Fifth Avenue Intersection Safety Improvements	Intersection Safety Improvements (install crosswalk markings and signage; pedestrian buttons and countdown signals) in Huntington
CAB-09	Hal Greer Boulevard Complete Street: Third Avenue to Washington Boulevard	Modifications (reduce number of lanes, beautification) along Hal Greer Blvd (Third Ave to Washington Blvd) in Huntington
CAB-10	Hal Greer Boulevard Complete Street: Washington Boulevard to Highlander Way	Modifications (install multiuse sidepath) along Hal Greer Blvd (Third Ave to Washington Blvd) in Huntington
CAB-11	Culloden Interchange Project	Construct new I-64/Benedict Rd (CR 60/21) interchange at Culloden, including new connector road between Virginia Ave and US 60
CAB-12	Jones Branch Road/Mason Road Improvements	Widen to four-lane boulevard Jones Branch Rd / Mason Rd in Milton
CAB-13	Midland Trail (US 60) at E Pea Ridge Road Intersection Safety Improvements	Intersection safety improvements at US 60 and E Pea Ridge Rd in Barboursville
CAB-14	Midland Trail (US 60) Roadway Improvements	Improve US 60 (Bonnie Blvd to Cyrus Creek Rd) in Barboursville
CAB-15	US 60 Roadway Improvements	Improve US 60 (Eighth Ave to Bonnie Blvd) in Huntington
CAB-17	Fifth Street (WV 527) Corridor Improvements	Improve Fifth St (I-64 to 8th Ave) in Huntington
CAB-18A	WV 2 Operational Improvements	Improve (intersection enhancements; truck pull-out lanes) WV 2 (Huntington to Point Pleasant)
CAB-19	Fifth Street West Bridge	Replace Fifth St West Bridge over Fourpole Creek with a wider and longer structure that includes sidewalk and shoulders
CAB-22	Adams Avenue (US 60) and 19th Street West	Convert to 3-lane section with two-way left-turn lane existing 4-lane section of US 60 (W 18th St and W 21st St)
CAB-26A	Washington Boulevard and Midland Trail (US 60) Intersection Safety Improvements	Construct EB right-turn lane
CAB-32A	Washington Avenue (US 60) and W 17th Street (US 52) Safety Improvements	Vehicular and pedestrian safety improvements potentially including signalization and other improvements
WAY-01	Oak Street (US 60) and 21st Street Intersection Safety Improvements	Intersection Safety Improvements
WAY-02	WV 152 and WV 75 Intersection Safety Improvements	Intersection Safety Improvements
WAY-03	8th Street (CR 11) and Fifth Street Road (WV 152) Connector Intersection Safety Improvements	Intersection Safety Improvements
WAY-10		Widen to a 4-lane divided roadway Darling Ln (WV 75 to Tri-State Airport) in Wayne County
WAY-14	Airport Road Connector / Airport Industrial Access Road	Realign existing access road to Tri-State Airport in Wayne County, and provide a new parking structure
WAY-18	5th Street Road (WV 152) and Food Fair Plaza	Install signage; extend two-way left-turn lane
WAY-19	German Ridge Road and WV 152	Install warning sign for the NB approach; install SB right-turn lane
WAY-21	WV 152 from Bloss Branch Road to Big Creek Road ("All Day Curve") Safety Improvements	Install advanced warning signs with calculated advisory speeds, chevrons, and large arrow boards, and install centerline rumble strips
WAY-22	WV 152 at German Ridge Hill Safety Improvements	Install High Friction Surface Treatment along a mile of WV 152; modify cross-slope of road
WAY-23	WV 152 from CR 11 Access to 8th Street Intersection Safety Improvements	Construct right-turn lane at the Triple-H Drive-In and Camp Creek Plaza
WAY-24	WV 75 and Spring Valley Drive Intersection Safety Improvements	Remove or trim trees to the north of WV 75; install flashing beacon approaching intersection

Figure 15: Committed Transportation Projects, along Study Routes, Cabell and Wayne counties

The state of West Virginia, City of Milton, and the US Army Corps of Engineers are working together to implement the Lower Mud River flood control project that will result in the construction of about a 1.5-mile system of concrete and earth floodwalls and levees, with wall heights ranging from 19 to 26 feet, and the relocation of about 1,200 feet of the Mud River. This project will result also in modifications of US 60 within Milton. The completion of the project is expected to provide benefits to more than 600 structures, including residences, businesses, public structures, personal property, and critical infrastructure.

CONCLUSIONS

Despite a decrease in population within both Cabell and Wayne counties over the past decade, current economic development efforts provide optimism that the Study area will experience new employment opportunities that might reverse the decline. Identifying the areas anticipated to develop in the future, as well as the transportation trends and travel demands associated with such future development, will facilitate recommendations for projects and policies that will be expected to address future needs.



APPENDICES





Appendix A

Stakeholders for Study



Appendix A: Stakeholders for Study

Last Name	First Name	Title	Organization
Hardesty	Tim	Superintendent	Cabell County Board of Education
Parsley	Zane	Planning Director	City of Huntington
Skidmore	Andy	City Manager	City of Hurricane
Fritz	Robb	Sr. Manager Site Design	CSX
Liebelt	Michael	Project Manager	CSX
Perry	Audy	Executive Director	Heritage Farms
Lieving	David	President and CEO	Huntington Area Development Council (HADCO)
Brown	Brent	Director	Huntington Tri-State Airport
Sowards	Kent	Director	Marshall University Center for Business and Economic Research
Rittenhouse	Anna	Executive Director	Mason County Development Authority
Taylor	George	Public Project Engineer	Norfolk Southern
Schindler	Markee	Talent and Community Relations Manager	Nucor Steel WV
Skidmore	Andy	Commissioner	Putnam County Commission
Tenney	Morganne	Executive Director	Putnam County Development Authority
Smith	Paula	Executive Director	Tri-River Transit
Davis	Paul	General Manager & CEO	Tri-State Transit Authority
Alexander	Todd	Superintendent	Wayne County Board of Education
Hooker	Todd	Acting Executive Director	West Virginia Development Office
Keller	Perry	Commissioner's Office of Economic Development	West Virginia Division of Highways
Brouse	Joe	Director of Financial Services	West Virginia Economic Development Authority
Rich	Christopher	CES & LAUS Program Manager	Workforce West Virginia
McCormick	Leslie	Manager	Workforce WV Research, Information and Analysis



Appendix B

Studies and Reports Considered for Study



Appendix B: Studies and Reports Considered for Study

Type	Owner	Date
Regional/Countywide Study		
2050 Metropolitan Transportation Plan	KYOVA	March 2022
Community and Economic Development Analysis and Strategic Planning Project - Achieving 20/20 Vision	Wayne County Family Resource Network/Wayne County Commission	August 2009
Cabell County Comprehensive Plan	Cabell County Commission	2015
Safety Studies for Cabell and Wayne Counties	KYOVA	June 2020
Comprehensive Economic Development Strategy 2025-2029	Region II PDC	N/A
Mason County, West Virginia Economic Development Strategic Plan 2021-2025	USEDA	N/A
Putnam County Comprehensive Plan 2024	Putnam County Office of Planning and Infrastructure	2024
Region II Hazard Mitigation	Region II PDC	2024
Housing Needs Assessment, Advantage Valley Region	Advantage Valley	2023
Housing Needs Assessment - County Profiles	West Virginia Housing Development Fund	September 2019
United Way Community Opportunity Plan - Wayne County	United Way of the River Cities	underway
Municipal Study		
Plan 2025: The Future of Huntington	City of Huntington	December 2013
Huntington Truck Route Study	City of Huntington/KYOVA	June 2021
Huntington Street Flooding Mitigation Plan	KYOVA/City of Huntington	August 2017
Downtown Huntington Parking Study	KYOVA	July 2021
City of Huntington Arlington Park Mobility Study	KYOVA	2019
Complete Streets Policy	KYOVA	April 2023
Downtown Huntington, WV, Opportunity Analysis	N/A	August 2021
Huntington Housing Needs Assessment 2024	City of Huntington/Huntington Housing Authority	2024
Marshall University Bicycle Plan	KYOVA	August 2019
Nonmotorized Transportation Plan for the Village of Barboursville	KYOVA	June 2018
Nonmotorized Transportation Plan for the City of Milton	KYOVA	June 2018
Milton Traffic Mobility Study	KYOVA	June 2019
Corridor Study		
Exit 8 / I-64 Mixed Use Development and Traffic Mobility Study	KYOVA	November 2018
Heritage Farm Museum and Village Access Road Study	Cabell County Commission	September 2017
Ohio River Bridge Crossing Feasibility Study	KYOVA	2020
The Huntington Brownfields Innovation Zone (H-BIZ)	City of Huntington	August 2017
WV 2 Corridor - Huntington to Pt Pleasant/Parkersburg	WVDOT	N/A
Beech Fork Connector Road Feasibility Study (Marina - Campground)	WVDOT	N/A
Modal Study		
West Virginia State Freight Plan	WVDOT	October 2023
TTA Transit Impact Study	KYOVA/TTA	April 2018
Public Transit-Human Services Transportation Plan Update FY 2025-2028	KYOVA	December 2024
Tri-State Airport Access Road Study	KYOVA	April 2017
Multimodal Economic Impact Study for Huntington Tri-State Airport	KYOVA	May 2018
Huntington Tri-State Airport Parking Study	KYOVA	November 2021
West Virginia Bicycle System Plan Final Report	WVDOT	August 2017
The Transit Authority Strategic Plan	KYOVA/TTA	October 2007
Congestion update	KYOVA	underway
Freight study	KYOVA	underway

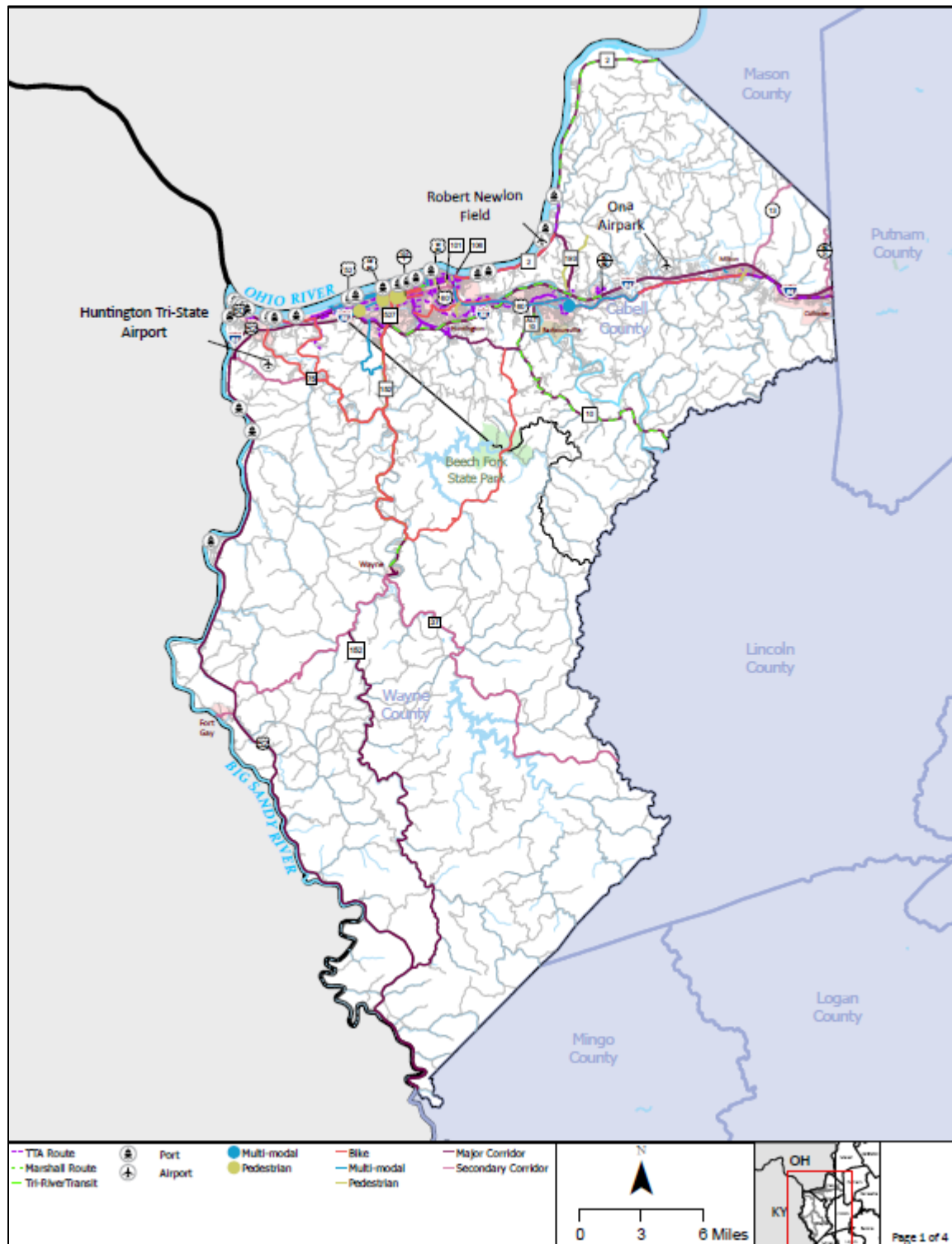


Appendix C

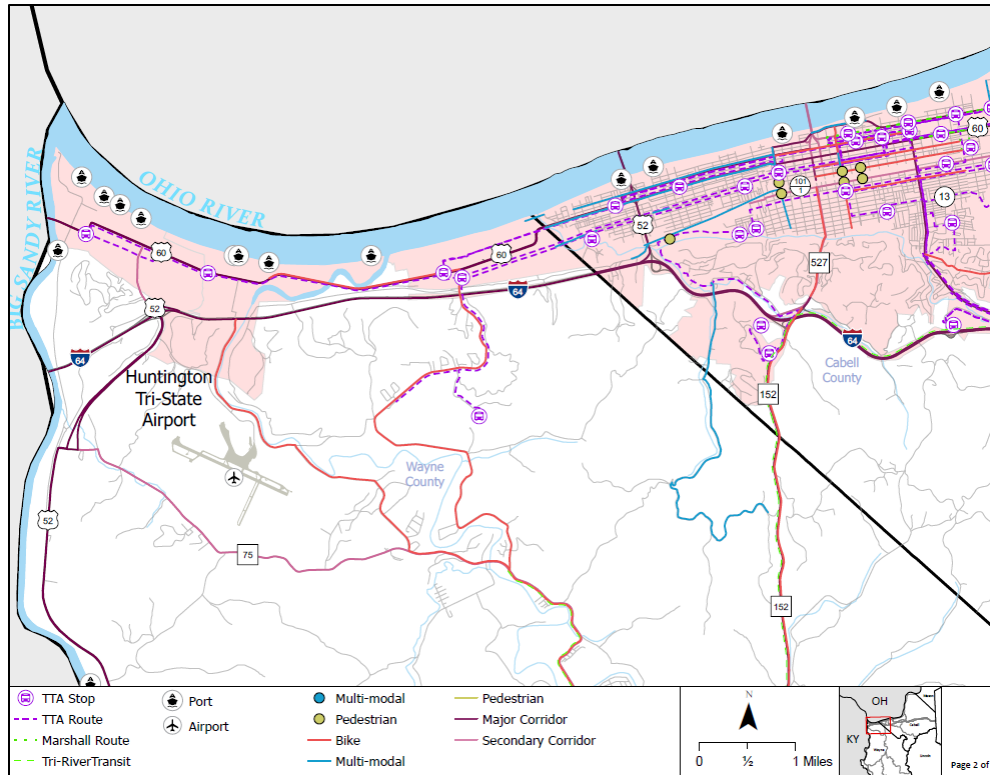
Existing Transportation System, Pertaining to Study Routes



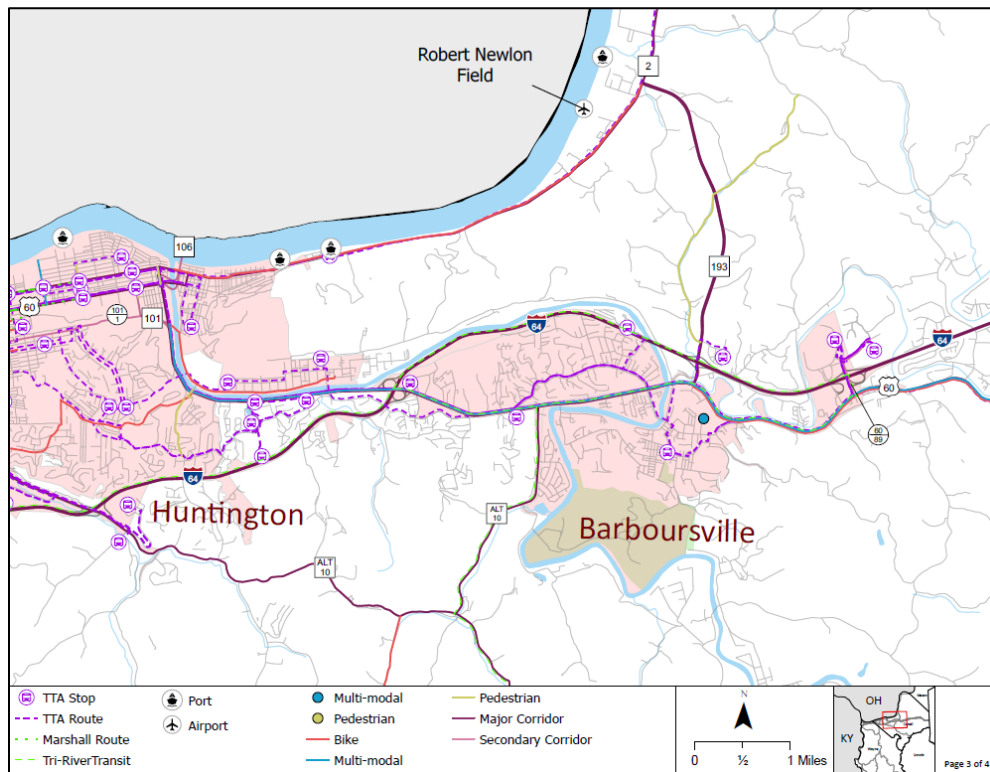
Appendix B: Existing Transportation System, Pertaining to Study Routes



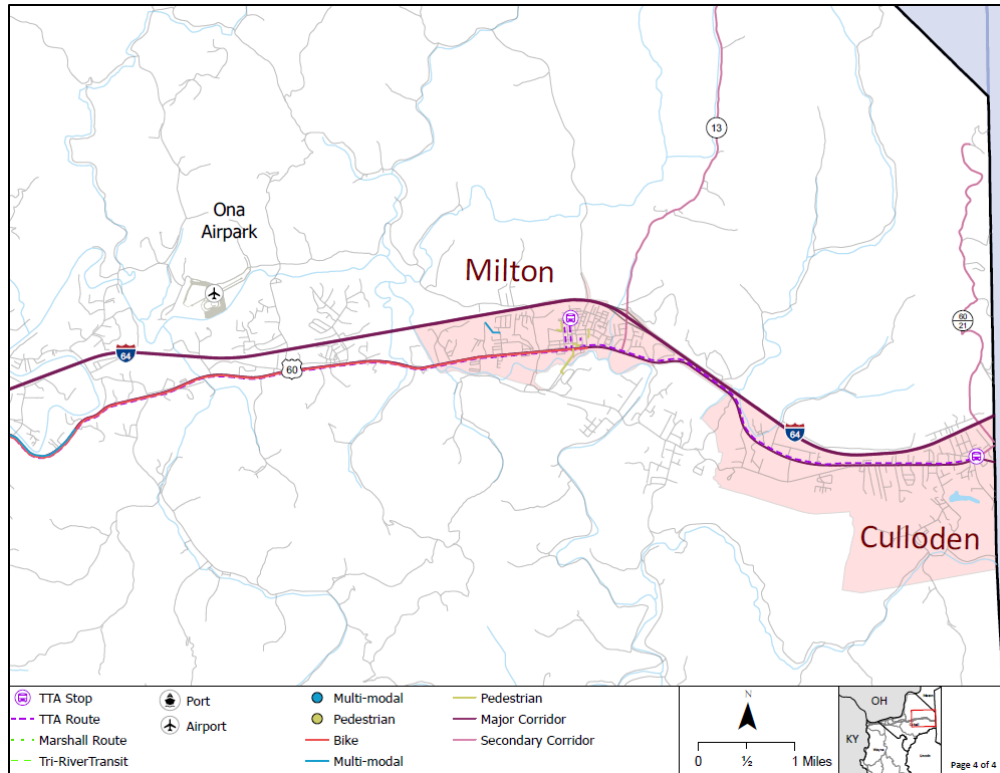
Cabell and Wayne counties



Ceredo-Kenova- Huntington



Huntington-Barboursville



Milton-Culloden



Appendix B

*Memo #2: Existing Deficiency
and Needs Identification*

April 2026

Transportation Land Use Study

Existing Deficiency and Needs
Identification Technical Memo



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Appendix A: Economic Development Projects & Areas of Interest — Site Descriptions

Appendix B: Revised 2050 Existing Conditions Baseline Assumptions

INTRODUCTION

The KYOVA Transportation Land Use Study (Study) is intended to identify areas of potential economic development in Cabell and Wayne counties that were not fully incorporated in KYOVA's 2050 Metropolitan Transportation Plan (MTP), determine corridor-level impacts the developments may be expected to have on the transportation network, and develop recommendations and guidance for implementation of strategies for proposed improvements to mitigate identified impacts. The results of analysis of growth associated with major developments and transportation projects in adjacent counties, such as the Nucor steel manufacturing facility in Mason County and the area in Putnam County surrounding the I-64 interchange at Culloden, will be used to assess housing and transportation in the area.

PURPOSE

The purpose of this Technical Memo is to outline the assumptions used for population, employment, land use, and ultimately trip generation for the developments identified in Task One and to apply those changes to KYOVA's Travel Demand Model (TDM) to generate a Revised 2050 Existing Conditions Baseline. Output will be used to help determine quantitative differences and deficiencies on the Major and Secondary corridors that resulted under the adjusted conditions in contrast to KYOVA's prior 2050 Existing Conditions. In addition to the quantitative analysis, a broader qualitative assessment of corridor-level impacts will also be presented.

SCOPE

The scope of this analysis will be limited to the Major and Secondary corridors (approximately 280 miles) in Cabell and Wayne counties and predominantly the developments identified previously in Task 1 (see Figures 1 through 4). Several new developments which were identified after the completion of Task 1, as well as refinements to some of the Task 1 locations were also incorporated into the study analysis. A full description of the adjustments and additions made will be provided later in this Technical Memo.

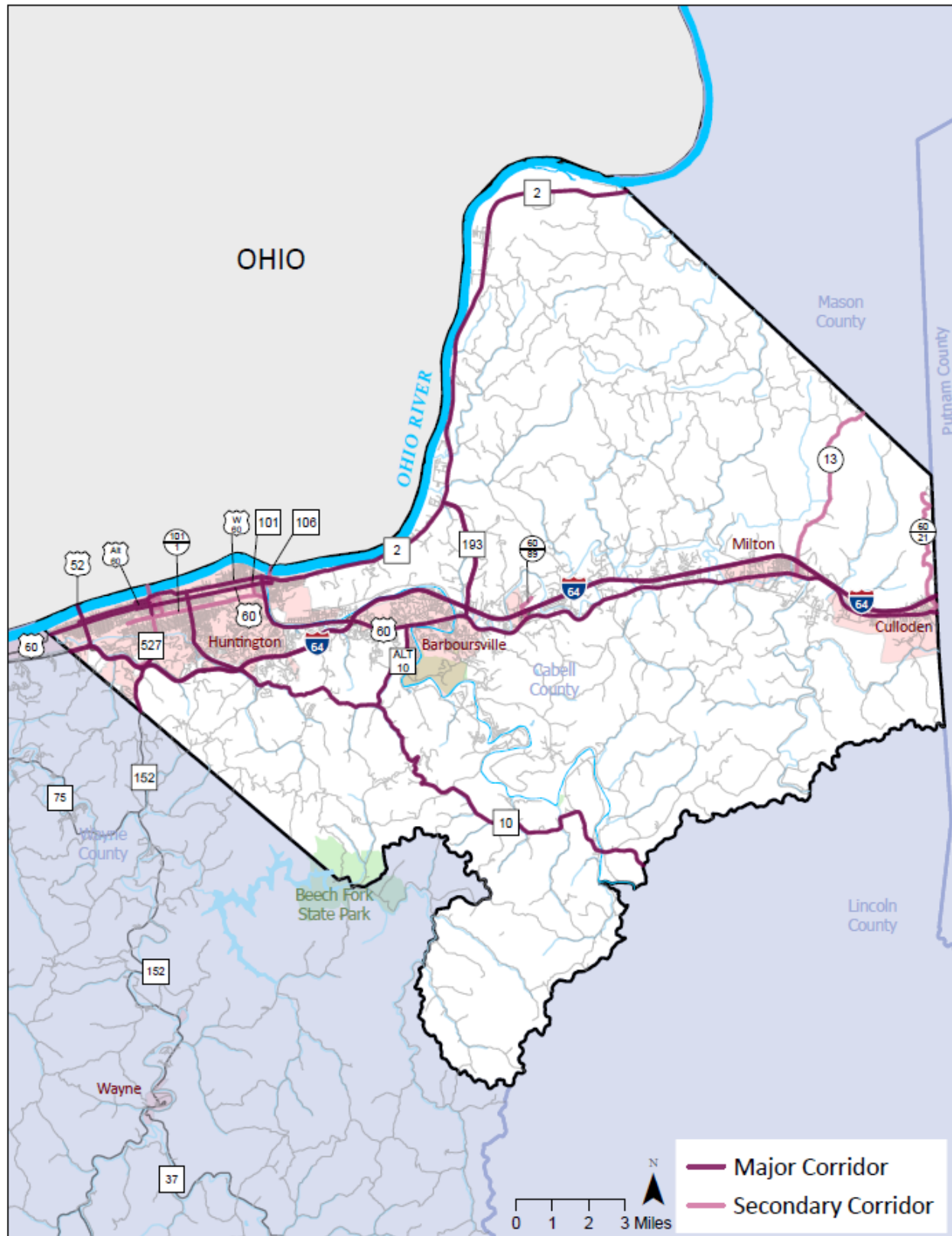


Figure 1: Study Routes, Cabell County

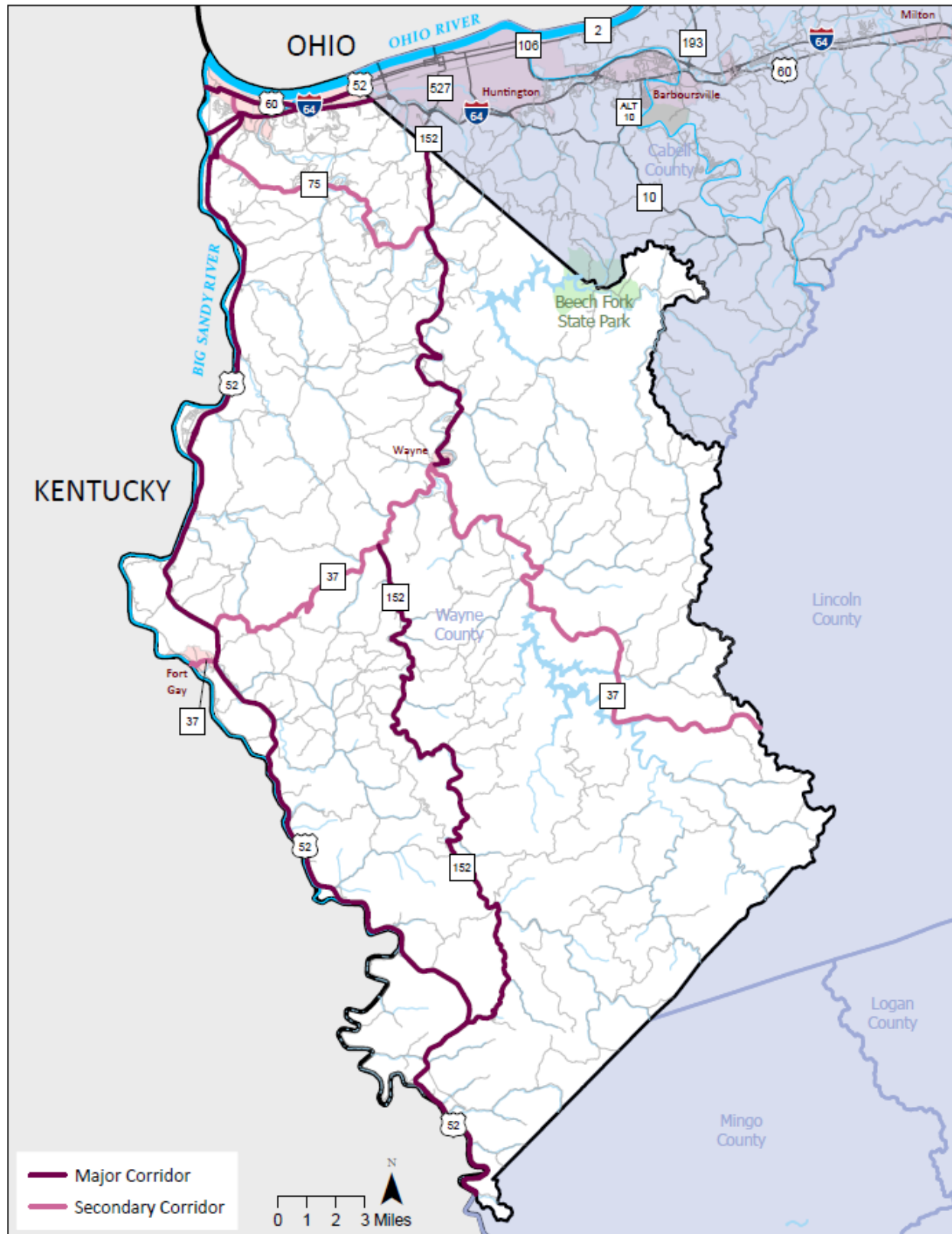


Figure 2: Study Routes, Wayne County

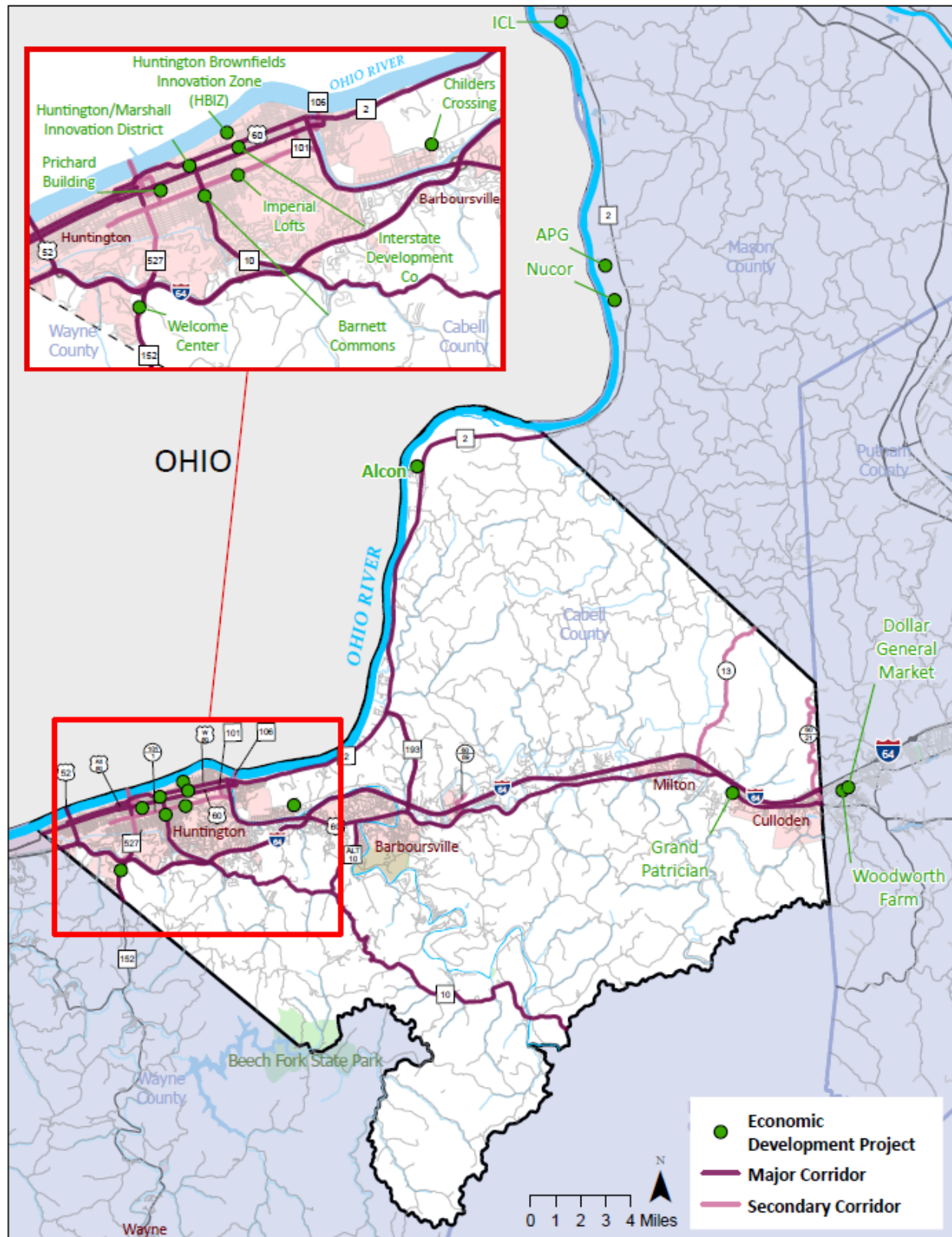


Figure 3: Economic Development Projects from Task 1, along Study Routes, Cabell County

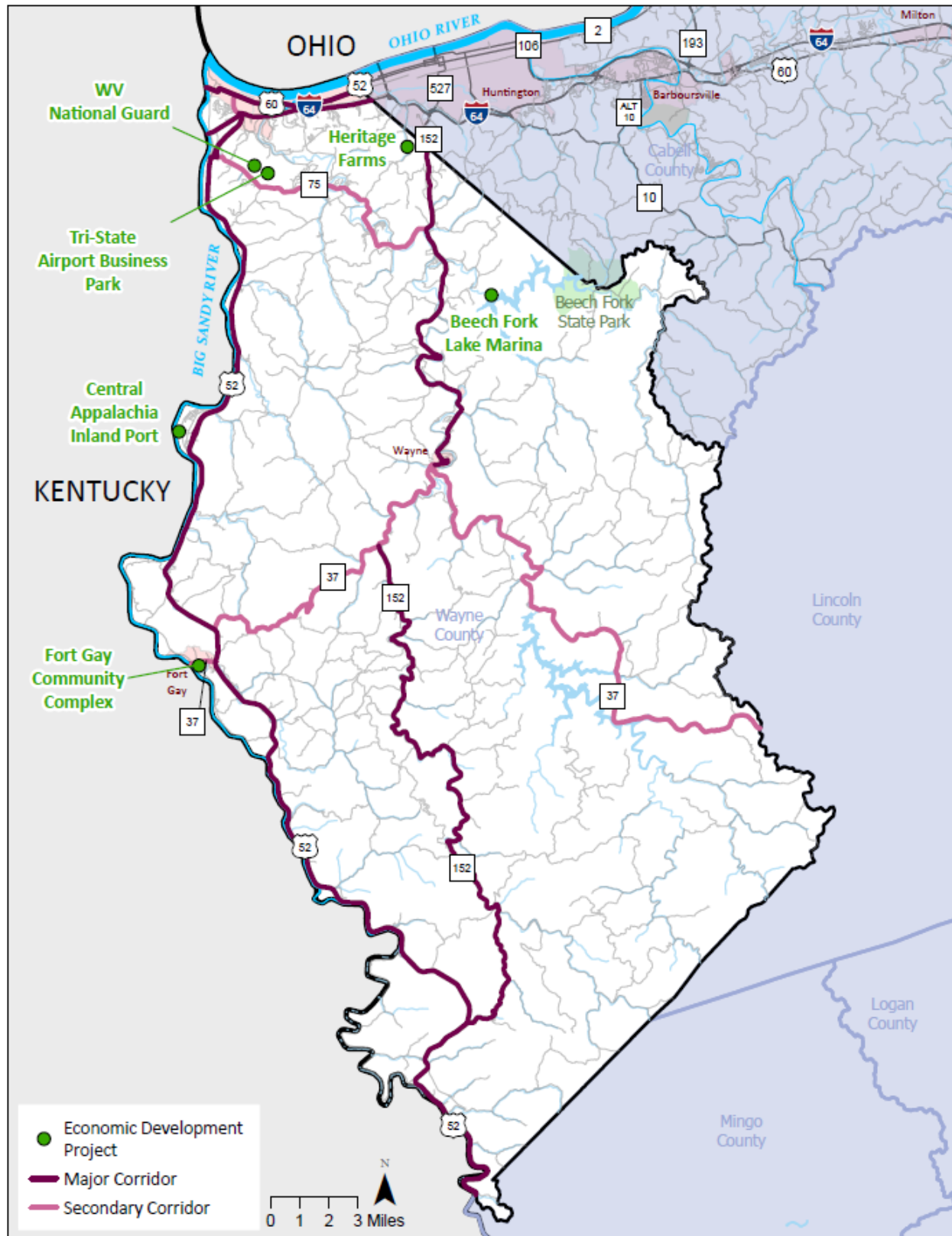


Figure 4: Economic Development Projects from Task 1, along Study Routes, Wayne County

DEPTH

Due to the preliminary and evolving nature of the identified developments and the regional nature of the study, the depth of analysis will be limited. Only input data for Traffic Analysis Zones (TAZs) and External Nodes in the immediate vicinity of identified developments will be examined for consistency and comparison purposes. Trip generation and system impacts reflected post-construction conditions and ignored potential spikes associated with construction or special events. Maximum use was made of existing studies and readily available information. No attempt was made to revise general growth, trip distribution and land use assumptions contained in KYOVA's existing TDM. No updated traffic counts or crash information was collected. While some development sites were field reviewed during discussions with local developers and planners, most sites were reviewed using a combination of Google Earth, WV Tax Map and Flood Zone imagery to gauge development potential as it relates to the local transportation network.

Where available, Traffic Impact Studies (TIS's) were used as the basis for adjusting changes in traffic volume. Estimates of development size and composition relied heavily on information obtained from discussions with local developers, planners and press releases. Where limited site-specific information was available, engineering judgement was used regarding construction phasing and the development's potential impacts on surrounding population, employment, households and trips. For the purposes of this analysis, all fiscally constrained projects identified in KYOVA's 2050 MTP were considered to be implemented.

METHOD

Development Location Assumptions

A Steering Committee meeting was held on January 20, 2026, not only to outline the approach to making input assumptions, but also to finalize the economic development locations and areas of interest to be incorporated in the Revised 2050 Existing Conditions Baseline analysis. During that meeting several additional development locations and refinements to those previously identified in the Technical Memo for Task 1 were discussed. The Frontiers development at Point Pleasant and the West Virginia Economic Development Authority property in Mason County, the Hamer Property in Kenova (Wayne County), as well as the need to further refine the developments in and around Milton and Culloden, were presented for consideration. Once the development locations were finalized, they were plotted to determine which (TAZ) or External Node of KYOVA's TDM would be directly impacted.

Inclusion Assumptions

It is understood that many of the development areas and sites have long histories and may have been incorporated in KYOVA's current 2050 analysis. To avoid potentially double counting the effects of identified developments, MBI initially contacted Kimley Horn staff to determine whether any of the identified economic developments had been incorporated into KYOVA's 2050 TDM analysis and if so, to what extent. Due to time constraints associated with verifying that information, Michael Baker International (MBI) staff utilized an alternative methodology for making that determination that involved evaluating the Total Employment change, Population and Household information for each TAZ and the number of trips for External Nodes in the vicinity of the developments to determine whether the prior model reflected these changes from 2020 to 2050. As a worst-case scenario, any identified development located in a TAZ that did not reflect a positive

change in one or more of the defined categories was assumed to have been omitted from the previous analysis and then was included in the Revised 2050 Baseline analysis. In addition to the TAZ's that reflected no change or negative growth in at least one category, several other TAZ's and External Nodes were reviewed on a case-by-case basis to determine if adjustments to trips, population, employment and households were warranted. Any adjustments made were assumed to emulate the existing splits contained in KYOVA's TDM.

Development and Impact Assumptions

Once the economic initiatives and areas of interest to be included in the analysis were finalized, MBI staff used multiple technical resources and techniques to make general growth assumptions for each location and estimate the impact to several TDM inputs: Total Employment, Population, Households, Land Use and Trips associated with each. Where available MBI made use of TIS's for trip estimates and relied heavily on information provided by local developers and planners regarding future use, size, time horizon and phasing. Individual parcels located near Milton and Culloden were examined using WV Tax Maps and Google Earth to obtain acreage, existing use, and overall topography to gauge the potential for future residential expansion, in part due to the improved access resulting from the construction of the new Culloden Interchange and in part due to the documented need for additional housing in the region. KYOVA's Current 2050 TDM estimates include significant growth in Employment, Population and Households in the TAZ's in these areas as well as trip growth in the nearby External Nodes. As such, for this analysis an assumption was made that the development of those parcels was already incorporated and did not need to be adjusted for the Revised 2050 Existing Baseline condition unless specifically identified, as in the case of Woodworth Farm in Putnam County. It should be noted that adjustments to the locations will be reexamined in alternative growth scenarios to be developed later in this Study.

Estimates of the number of Full Time Employees (FTEs) created by the individual developments were calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual and broader "rules of thumb" for FTEs/SF of representative development (i.e., warehousing, office space, food service, etc.). Where local developers were able to provide estimates of FTEs those values were used in the analysis. Adjustments to employment in TAZ 557 near Beech Fork Lake Marina were made based on engineering judgement to account for businesses known to exist in the area.

Deficiency Assumptions

Deficiencies for this Study were broadly categorized as either quantitative or qualitative in nature. The quantitative deficiencies for this Study are based on negative impacts on select outputs of KYOVA's TDM on segments of the Major and Secondary corridors defined previously. After estimating the impacts on the affected TAZ's and External Nodes, the inputs to KYOVA's TDM were adjusted to generate a Revised 2050 Existing Conditions Baseline. This enabled the differences between KYOVA's current 2050 Existing Conditions outputs to be compared along the individual segments of the Study corridor roadways. Specific areas of emphasis for determining a deficiency will be Level of Service (LOS) and Volume to Capacity (V/C) ratios for links on the Major and Secondary corridors.

As part of this analysis model segments contained in KYOVA's TDM were grouped by Major and Secondary corridor routes. A concerted effort was made to align the TDM output information with the directional mileages

established for each corridor in Task 1. TDM links with incomplete information were eliminated from analysis. After initial grouping, 634 segments of KYOVA's model (433 and 201 in Cabell and Wayne counties, respectively) were included in the review. A check of model output lengths by corridor and county was conducted for reasonableness. While both overages and underages were recorded, the net result for the 634 segments included in the analysis totaled 277.0 miles as opposed to 279.2 miles contained in the Task 1 review, which represents less than a one percent difference. The most significant area of discrepancy was US 60 in Cabell County, with a 6.1-mile difference between LRS and model segments. The main reason for this difference is attributed to the one-way couple of US 60 along 3rd Avenue in Huntington, which is not considered a true westbound route for LRS purposes.

Level of Service (LOS) and Volume to Capacity (V/C)

LOS and V/C go hand-in-hand when evaluating roadway congestion. For planning level network analysis, traditionally only levels of service falling below LOS C (i.e., D, E or F) are considered deficiencies. KYOVA's TDM assigns a LOS D to V/C ratios between 0.7 and 0.84, LOS E to V/C ratios of 0.85 and 0.99 and a LOS F to any V/C ratio at or above 1.0. As such the LOS provides the base level of determination with the V/C providing context in the form of degree (i.e., where is it in the range). For the purposes of this study, any TDM segment that drops a LOS, to D or below compared to KYOVA's 2050 Existing Condition output, as a result of the input changes from the identified developments will be considered a deficiency. In addition, any segment on a Major or Secondary corridor identified at LOS F will be considered a deficiency.

Given the fact that point sources are being adjusted within a regional TDM and no micro-simulations were conducted, overall changes in LOS and V/C on individual links and corridors may not appear overly significant; however, they will still serve as good indicators of system deficiency and "hotspots" where future analysis and more detailed studies are warranted. Sensitivity to revisions in inputs and their impact on system performance will be further demonstrated in the formulation of alternative Moderate and Aggressive growth scenarios to be completed in Task 4.

In addition to the quantitative analysis, a broader qualitative deficiency analysis of areas of concern that could negatively impact commercial, passenger, transit and pedestrian/non-motorized traffic was also conducted. The general items selected for evaluation were as follows: structurally deficient bridges; at-grade railroad crossings; recurrent roadway flooding; traffic safety issues; and lack of or insufficient transit service. The potential impact that these items may have on the transportation network will be evaluated and are intended to supplement the quantitative output of the TDM and highlight further locations or sources of concern at the corridor level.

Structurally Deficient Bridges

Structurally deficient and/or Posted¹ bridges can severely impact the flow of commercial and passenger traffic. As such, a subset of the bridges previously identified as Poor or Posted in Task 1 that are currently unprogrammed for repair or replacement will be identified as potential bottlenecks and deemed a deficiency.

¹ Restrictions placed by posting a sign illustrating gross vehicle weight limitations for various axle configurations.

At-Grade Railroad Crossings

The potential for serious injuries and loss of life at highway/rail interactions is significant. For the purposes of this study, any at-grade railroad crossing previously identified in Cabell, Wayne and Mason counties in Task 1 that is ranked in the top 10 by the Federal Railroad Administration's (FRA's) Grade Crossing Accident Prediction System (GXAPS), as of March 11, 2026, will be considered deficient.

Roadway Flooding

Roadway flooding during periods of inclement weather will not only delay or divert passenger and commercial traffic, but also has the possibility of causing damage and loss of life due to its infrequent nature. Locations of known recurrent roadway flooding on Major and Secondary corridors will be identified from discussions with local planners and West Virginia Division of Highways (WVDOH) personnel. While all roadways have the potential to flood during high intensity events, locations on Major and Secondary corridors which flood regularly (more than three times per year) making the roadway partially or entirely impassable will be deemed to be a deficiency.

Safety Issues

The effort to limit or eliminate traffic incidents and fatalities is a longstanding priority of the region, State and Nation; as such, local safety issues and needs are well documented by both the MPO and WVDOH. Safety deficiencies were drawn from existing safety and planning studies, that included Safety Studies for Cabell and Wayne Counties², KYOVA's 2050 Metropolitan Transportation Plan (MTP)³, and West Virginia's Vulnerable Road User (VRU) Assessment⁴. High priority intersections, segments and High Injury Network (HIN) segments identified in those documents located on Primary and Secondary Corridors that are currently unprogrammed at the time of this report's preparation will be deemed deficiencies. It should be noted that West Virginia's VRU Assessment also used information from KYOVA's MTP in the formulation of the broader statewide analysis.

Lack of or Insufficient Transit Service

The lack of or limitations in modal choice can be a serious issue for individuals who need access to jobs, education, commercial and medical services. The completion of any detailed analysis identifying the specific need for additional routes or frequency is well beyond the scope of this Study. Therefore, for the purposes of this Study, a transit deficiency will be considered to exist where an identified economic development initiative or area of interest is not located within a one-mile radius of the Transit Routes serving the area previously identified under Task 1. It is understood that providing regular public service to any identified location may not be financially feasible, but will serve as an indicator of where local residents, especially the elderly and disabled, will need access to other means of transport for making those necessary trips. In these unserved areas, alternative services such as: Paratransit, Private Caregiver Transport, Volunteer Driver Programs, Private Transport Services, Carpooling and Ridesharing may require a greater presence than in other areas of Cabell and Wayne County to adequately serve the local populace.

² Safety Studies for Cabell and Wayne Counties, June 2020

³ KYOVA 2050 Metropolitan Transportation Plan (MTP), March 2022

⁴ West Virginia Vulnerable Road User Assessment, November 2023

RESULTS

Development Locations

From the research and outreach conducted with stakeholders, 23 specific developments and/or areas of interest were identified for detailed investigation as part of this Study. In addition, potential development areas located near the Milton and Culloden Interchanges were subdivided to better define the TAZ's, External Nodes and roadway segments that would be impacted. The finalized listing of economic developments and areas of interest to be included in the remainder of this Study is identified in Figure 5 and their locations within the Study area are shown in Figures 6 and 7. A brief description of each development site or area is included in Appendix A.

Identified Economic Developments/Areas of Interest	
Prichard Building (108 units)	WV National Guard/Airport Business Park
IDEA District	Heritage Farms (Snowpark Expansion)
HBIZ Part 1 Foundry Center/University Park	Fort Gay Community Complex (8 units)
HBIZ (former ACF property) Part 2	Beech Fork Lake Marina
Imperial Lofts (36 units)	Central Appalachia Inland Port
Barnett Commons (32 units)	ICL
Proposed Welcome Center	Nucor & APG
Childers Crossing (70 units)	EDA Property
Alcon	Frontieras
Milton & Culloden I/C N. (Cabell/Putnam County)	Culloden I/C property S. of I-64 (Putnam County)
Culloden I/C South, Grand Patrician	Woodworth Farm
Hamer Property (Kenova)	

Figure 5: Finalized List of Economic Developments and Areas of Interest

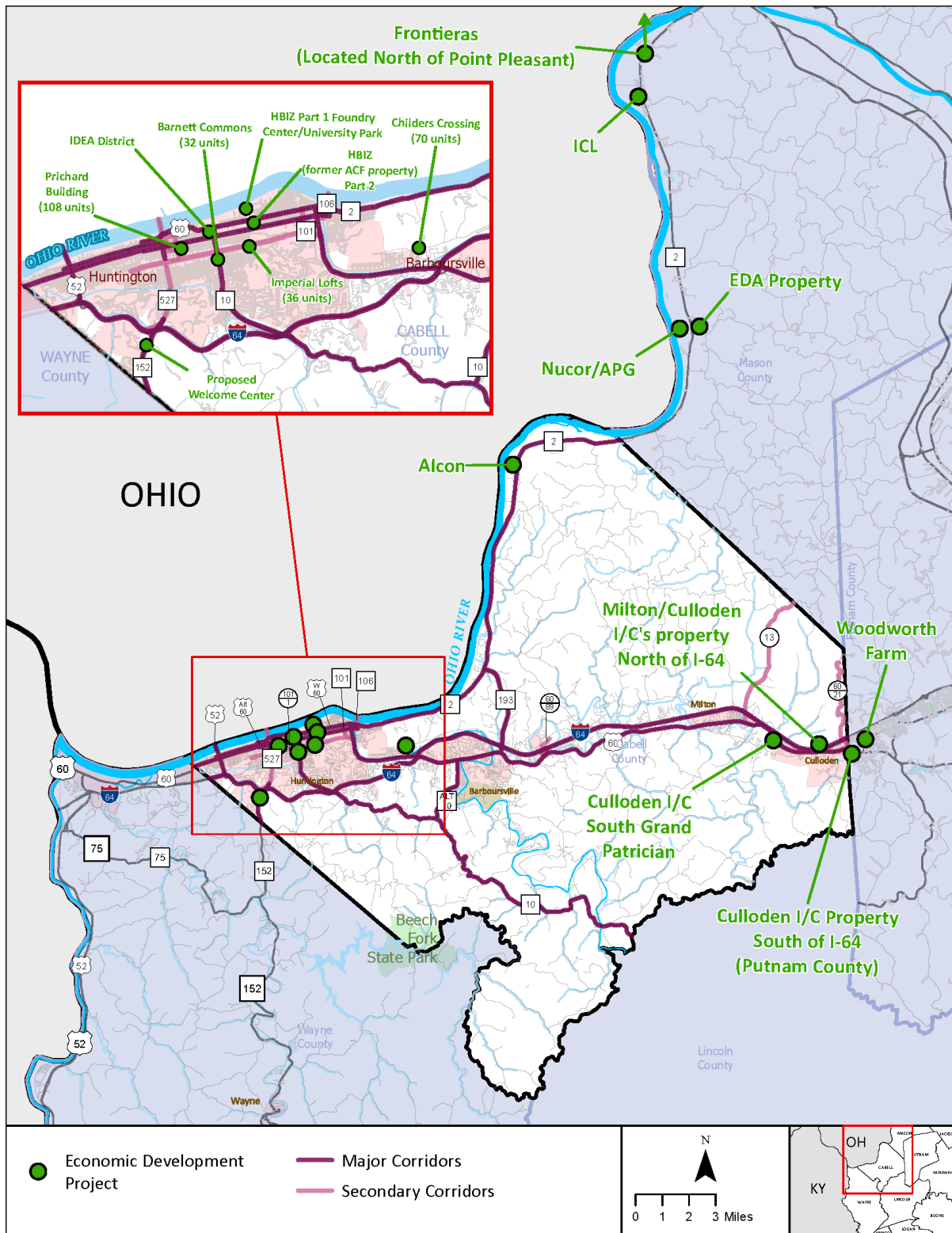


Figure 6: Economic Developments and Areas of Interest, Cabell County

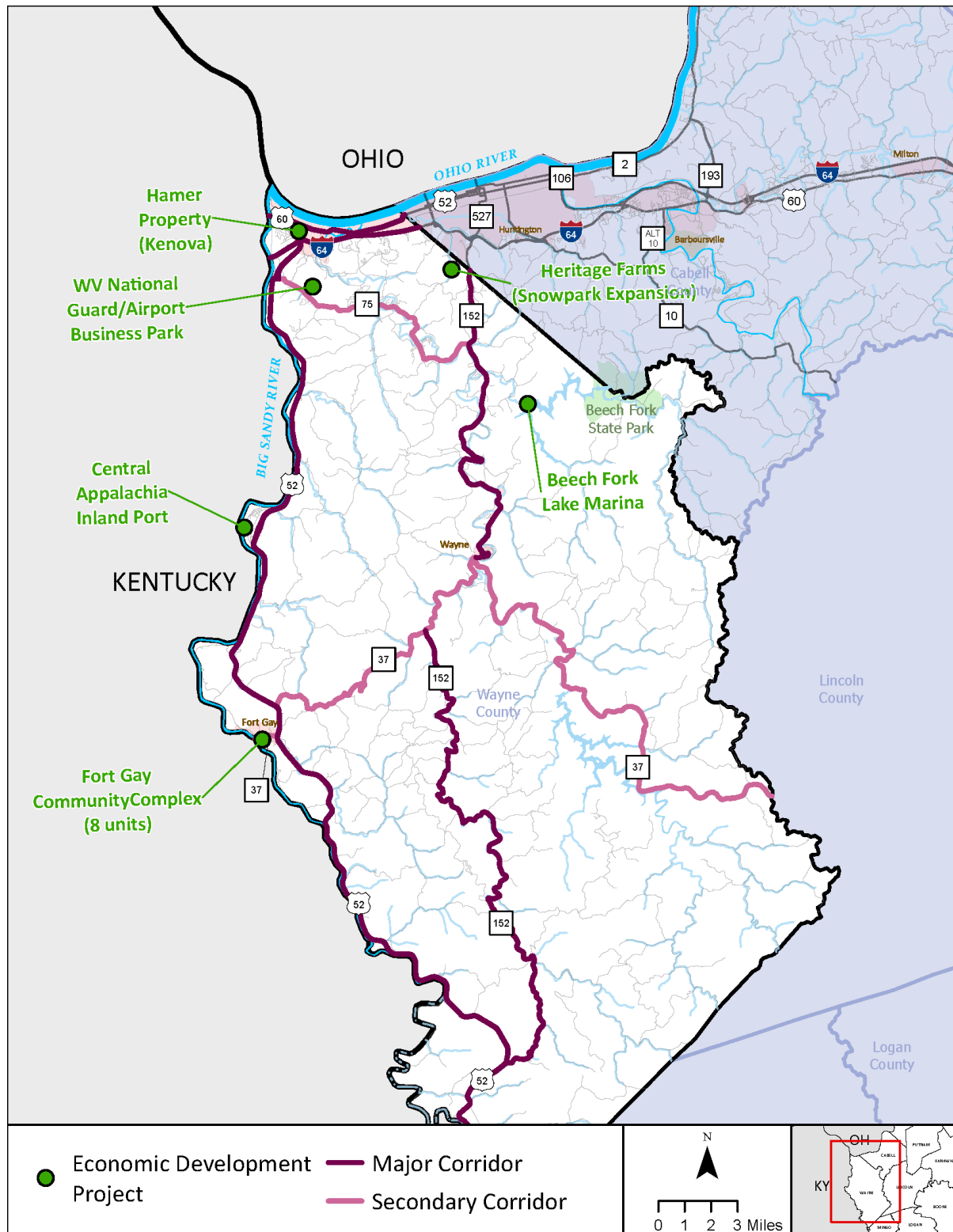


Figure 7: Economic Developments and Areas of Interest, Wayne County

These locations were overlaid against the TAZ's and External Nodes of KYOVA's TDM to determine which would be directly impacted by the development. Based on this information, 17 individual TAZ's and four (4) External Nodes were impacted; the locations of which are shown in Figures 8 and 9.

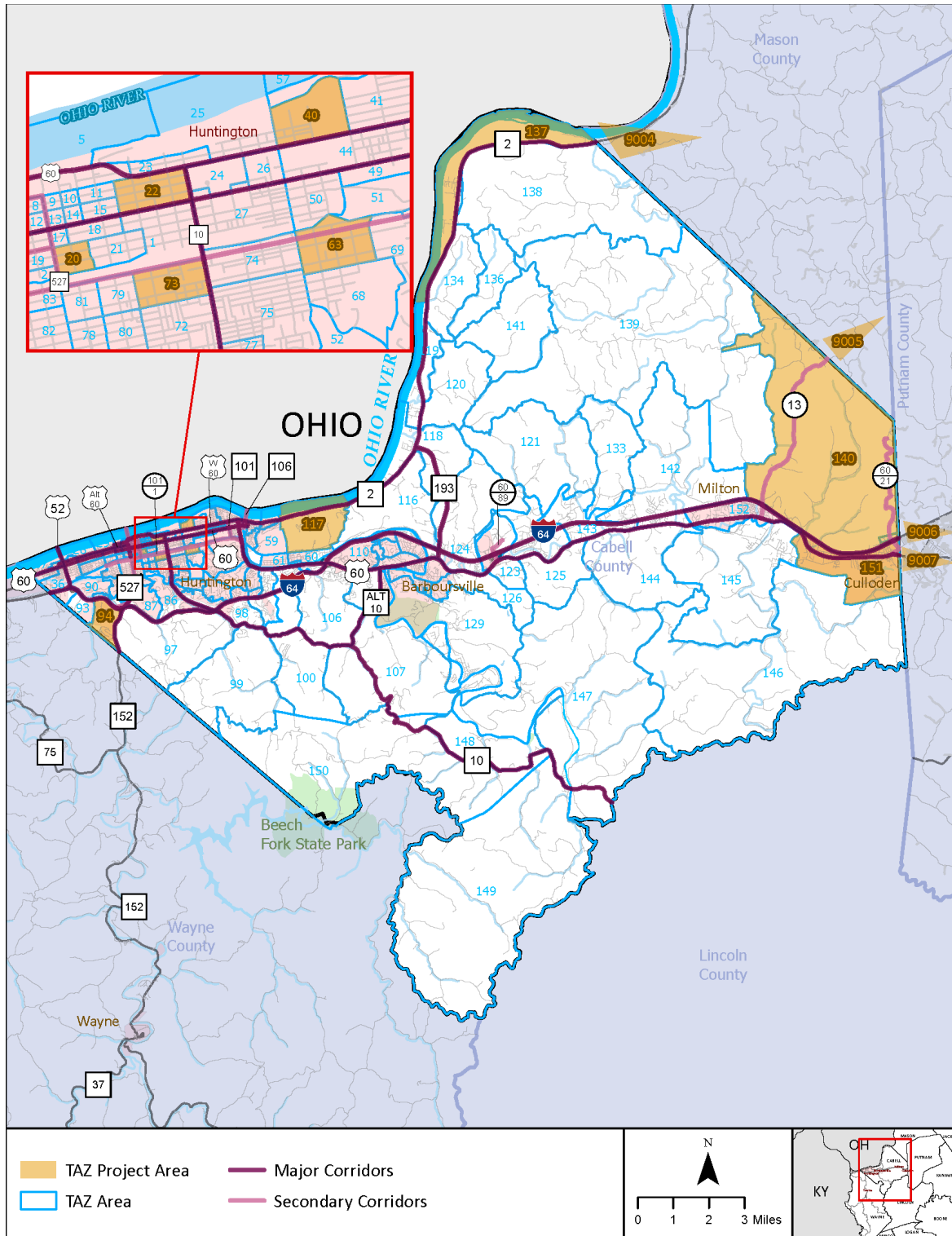


Figure 8: Economic Developments, TAZ and External Node Locations, Cabell County

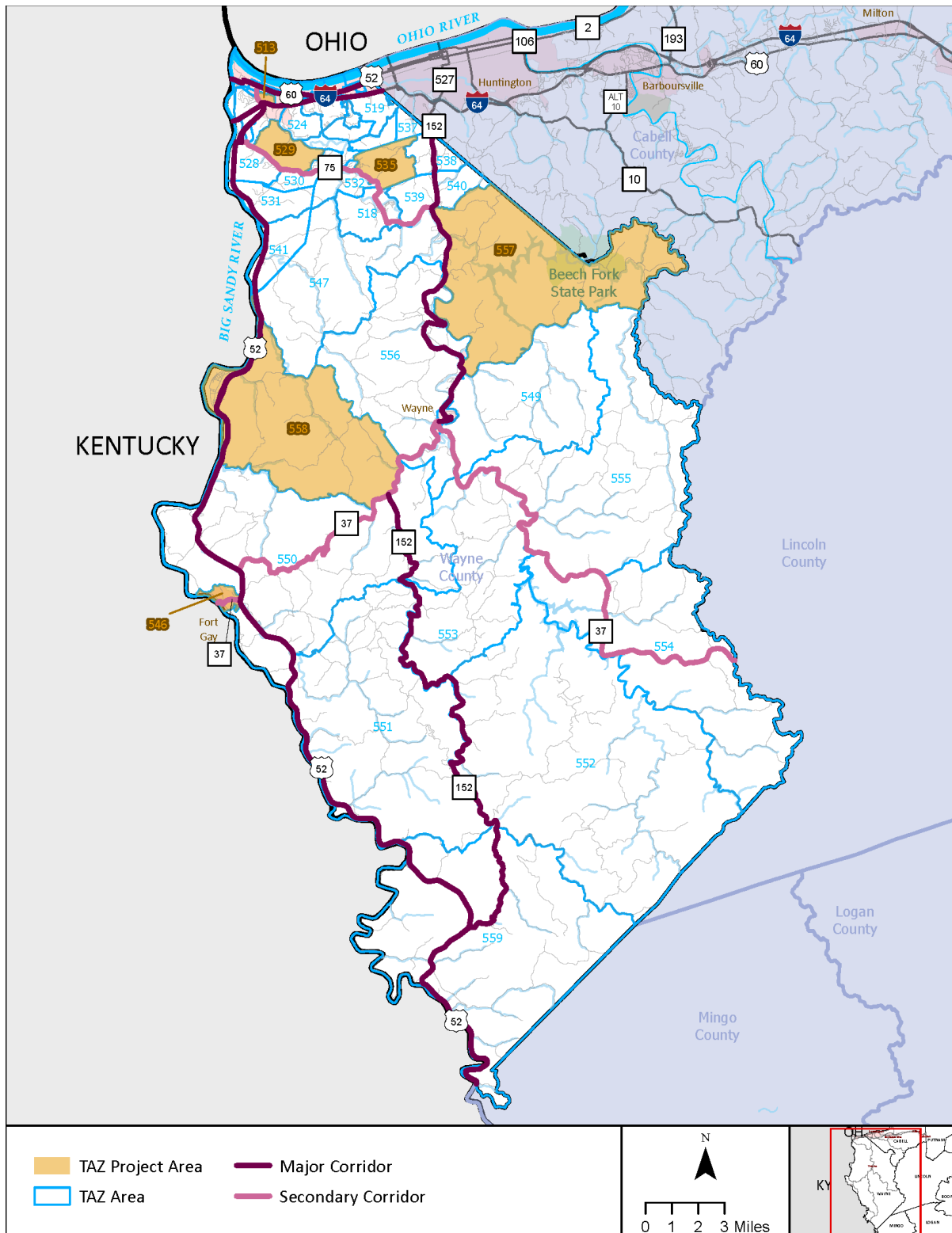


Figure 9: Economic Developments, TAZ and External Node Locations, Wayne County

Inclusion Results

The KYOVA TDM inputs for Total Employment, Population and Households for each of the 17 affected TAZ's were reviewed for changes from 2020 to 2050. The results of the analysis are shown in Figure 10 with each development area being broadly classified as No or Negative Growth/Include, Accounted for Previously, or Adjust/Include. It should be noted that even though the TAZ for the Hamer property (513) reflected no growth, it was excluded from the baseline analysis due to its preliminary nature. Also, the Huntington Tri-State Airport has not only been the focus of a relatively recent research study of economic impact⁵, but also multiple ongoing developments associated with the WV National Guard, proposed airport business park and housing subdivisions in TAZ 529 that will affect economic activity in the area. As such, the growth reflected in the area may not have been fully accounted for in KYOVA's previous 2050 analysis.

⁵ Multimodal Economic Impact Study for Huntington Tri-State Airport, May 2018

Development / Area of Interest	Model TAZ	Change (2020 to 2050)			COMMENT
		Tot_Emp	Pop	HH	
Prichard Building (108 units)	20	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
IDEA District	22	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
HBIZ Part 1 Foundry Center/University Park	40	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
HBIZ (former ACF property) Part 2	44	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
Imperial Lofts (36 units)	63	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
Barnett Commons (32 units)	73	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
Proposed Welcome Center	94	24	1	1	ACCOUNTED FOR PREVIOUSLY
Childers Crossing (not in original)	117	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
Alcon	137	0	9	3	ACCOUNTED FOR PREVIOUSLY
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,057	384	174	ACCOUNTED FOR PREVIOUSLY
Culloden I/C South, Grand Patrician	151	331	513	233	ACCOUNTED FOR PREVIOUSLY
Hamer Property (Kenova)	513	0	0	0	ACCOUNTED FOR PREVIOUSLY*
WV National Guard/Airport Business Park	529	317	41	17	ADJUST//INCLUDE**
Heritage Farms (Snowpark Expansion)	535	0	11	3	NO OR NEGATIVE GROWTH //INCLUDE
Fort Gay Community Complex (8 units)	546	0	0	0	NO OR NEGATIVE GROWTH //INCLUDE
Beech Fork Lake Marina	557	-181	-557	-213	NO OR NEGATIVE GROWTH //INCLUDE
Central Appalachia Inland Port	558	-232	547	223	NO OR NEGATIVE GROWTH //INCLUDE
NOTES: * -DUE TO PRELIMINARY NATURE OF THE DEVELOPMENT EXCLUDE FROM REVISED BASELINE SCENARIO, ADD TO ALTERNATIVES					
** TAZ REFLECTS GROWTH BUT ASSUMED TO NOT HAVE BEEN FULLY ACCOUNTED FOR PREVIOUSLY-ADJUST AND INCLUDE					

Figure 10: TAZ Input Changes, KYOVA Existing Model (2020-2050), Inclusion Review Results

In addition to the 17 TAZ's within the Study area that were examined, seven development locations/areas were identified outside the Study area or on the periphery also were reviewed. These seven development locations were assumed to most likely impact four External Nodes of KYOVA's TDM (i.e., 9004, 9005, 9006 and 9007). For the four External Nodes, only the change in number of trips between 2020 and 2050 and the percentile change in trips during that period were examined. All four External Nodes reflect a significant growth in trips and were assumed to reflect most of the developments identified. Despite the large growth in trips, where recent TIS's have been prepared for identified economic development initiatives (i.e., Nucor and Woodworth Farm), those trips were added to the External Nodes assumed to be directly impacted. Due to their preliminary nature, other economic initiatives such as the WVEDA property (i.e., EDA property) and Frontieras facilities in Mason County, were not incorporated into the Revised 2050 Baseline analysis, but will be included in alternative growth scenarios developed later in Task 4 of this Study. A breakdown of the External Node information is reflected in Figure 11.

Location	External Node	Change (2020 to 2050)	COMMENT
		Trips (% change)	
WV 2 Cabell/Mason CL	9004	2,760 (52%)	ADJUST FOR NUCOR TIS
(CR's 41&13) Mason/Cabell CL -Ashton Upland Rd	9005	666 (40%)	ADEQUATE AS IS
I-64 (Putnam/Cabell CL) Culloden	9006	21,960 (53%)	ADEQUATE OK AS IS
US 60 (Putnam/Cabell CL) Culloden	9007	4,680 (53%)	ADJUST FOR WOODWORTH FARMS TIS
Development / Area of Interest	External Node	COMMENT	
ICL	9004	ASSUME ACCOUNTED FOR PREVIOUSLY	
Nucor & APG	9004	ADD TIS TRIPS	
EDA Property	9004	DUE TO PRELIMINARY NATURE/ ADEQUATE AS IS	
Frontieras	9004	DUE TO PRELIMINARY NATURE/ ADEQUATE AS IS	
Milton/Culloden I/C's property North of I-64	9005/9006	ASSUME ACCOUNTED FOR PREVIOUSLY	
Culloden I/C's property South of I-64 (Putnam County)	9007	ASSUME ACCOUNTED FOR PREVIOUSLY	
Woodworth Farm	9007	ADD TIS TRIPS	

Figure 11: External Node Trip Changes, KYOVA Existing Model (2020-2050), Inclusion Review Results

Development Assumptions and Impacts

The general assumptions for each specific development and area of interest are shown in Appendix B. Using the methodologies outlined above, TDM inputs for the impacted TAZ's and External Nodes were developed and the TDM was rerun to generate a Revised 2050 Existing Condition Baseline. A summary of the revisions by TAZ and External Node can be seen in Figure 12. It is estimated that Total Employment would be 1,900 FTEs higher in Cabell and Wayne counties due to the additional economic developments. Likewise, Population and number of Households were estimated to increase by 752 and 458, respectively in the Revised 2050 Existing Condition Baseline scenario. Under the Revised 2050 Existing Condition Baseline most of the development occurring outside of Cabell and Wayne counties was assumed to have been represented in KYOVA's existing model run; however, 1,743 trips per day were added in response to the Nucor and Woodworth Farm developments.

Revised Values for 2050 Existing Conditions Based on Assumptions										
IDENTIFIED ECONOMIC DEVELOPMENTS / AREAS OF INTEREST	TAZ or EXTERNAL NODE	Total Employment			Population (Pop)			Households (HH)		
		KYOVA 2050	REVISED 2050	2050 DIFFERENCE	KYOVA 2050	REVISED 2050	2050 DIFFERENCE	KYOVA 2050	REVISED 2050	2050 DIFFERENCE
IDEA District	22	428	679	251	644	644	0	401	401	0
HBIZ (former ACF property) Part 2	44	421	749	328	365	365	0	167	167	0
Barnett Commons (32 units)	73	123	123	0	473	553	80	189	221	32
Imperial Lofts (36 units)	63	71	71	0	606	697	91	241	277	36
Prichard Building (108 units)	20	1,127	1,127	0	60	201	141	46	154	108
HBIZ Part 1 Foundry Center/University Park	40	546	978	432	10	260	250	8	208	200
Proposed Welcome Center	94	47	71	24	573	574	1	296	297	1
Alcon	137	207	207	0	339	348	9	133	136	3
Culloden I/C South, Grand Patrician	151	702	702	0	3,284	3,284	0	1,386	1,386	0
Childers Crossing (70 units)	117	1,225	1,225	0	669	832	163	287	357	70
Fort Gay Community Complex (8 units)	546	312	312	0	705	722	17	323	331	8
WV National Guard/Airport Business Park	529	274	755	481	503	503	0	200	200	0
Central Appalachia Inland Port	558	30	222	192	2,329	2,329	0	907	907	0
Beech Fork Lake Marina	557	0	113	113	930	930	0	355	355	0
Hamer Property (Kenova)	513	70	70	0	244	244	0	124	124	0
Heritage Farms (Snowpark Expansion)	535	1	80	79	666	666	0	249	249	0
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,425	1,425	0	1,636	1,636	0	695	695	0
EXTERNAL ECONOMIC DEVELOPMENTS / AREAS OF INTEREST	EXTERNAL NODE	ADDITIONAL TRIPS		NODE LOCATION	EXTERNAL NODE TRIPS					
					KYOVA 2050	REVISED 2050	2050 DIFFERENCE			
ICL	9004	0		WV 2 Cabell/Mason CL	8,020	8,485	465			
Nucor & APG		465								
EDA Property		0								
Frontierias		0								
ICL	9005	0		(CR's 41&13) Mason/Cabell CL Ashton Upland Rd	2,322	2,322	0			
Nucor & APG		0								
EDA Property		0								
Frontierias		0								
Milton/Culloden I/C's property North of I-64	9006	0		I-64 (Putnam/Cabell CL) @ Culloden	63,220	63,220	0			
Milton/Culloden I/C's property North of I-64		0								
Culloden I/C's property South of I-64 (Putnam County)		0								
Woodworth Farm		0								
Culloden I/C's property South of I-64 (Putnam County)	9007	0		US 60 (Putnam/Cabell CL) @ Culloden	13,460	14,738	1,278			
Woodworth Farm		1,278								

Figure 12: Summary of Input Revisions by TAZ and External Node

Deficiencies

Quantitative

LOS & V/C

The LOS and V/C results for all 634 from the TDM links were generated and reviewed. Based on the definition of deficiency, 14 Study links totaling 3.43 miles, all of which are located in Cabell County meet the criteria. The subset of links deemed deficient is shown in Figure 13 and their location is shown in Figure 14. A full listing of all 634 link calculations will be provided to KYOVA staff if desired.

Link ID	Link Distance (miles)	Sign System 1 = INT 2 = US 3 = WV 4 = CR	Route Number	Segment Road Name	County	Daily Volume Revised 2050 Baseline Both Directions	Daily Volume KYOVA Original 2050 Baseline Both Directions	Daily Change in Volume Revised Minus Original	Daily Link Capacity All Scenarios Both Directions	Daily V/C Ratio KYOVA Original 2050 Baseline Both Directions	Daily V/C Ratio Revised 2050 Baseline Both Directions	Daily LOS KYOVA Original 2050 Baseline Both Directions	Daily LOS Revised 2050 Baseline Both Directions
8610	0.29	2	52	US Highway 52 0 3064	Cabell	11,634	11,641	-7	11,543	1.00	1.00	F	F
4722	0.31	2	52	US Highway 52 0 3064I	Cabell	12,120	12,130	-10	11,543	1.05	1.05	F	F
5713	0.14	2	52	Hwy52 SB Ramp B	Cabell	8,533	8,493	40	10,000	0.84	0.85	D	E
8634	0.12	2	52	Hwy52 SB Ramp B	Cabell	8,533	8,493	40	10,000	0.84	0.85	D	E
8638	0.22	2	52	Hwy52 SB Ramp B	Cabell	8,533	8,493	40	10,000	0.84	0.85	D	E
8609	0.31	2	52	US Highway 52 0 3064I	Cabell	12,120	12,130	-10	11,543	1.05	1.05	F	F
5328	0.21	2	60	US Highway 60 0 2883	Cabell	25,695	25,637	58	19,996	1.28	1.28	F	F
5302	0.28	2	60	US Highway 60 0 3027	Cabell	21,903	21,839	64	19,996	1.09	1.09	F	F
5146	0.21	2	60	US Highway 60 0 3502	Cabell	29,327	28,823	504	34,080	0.84	0.86	D	E
5166	0.3	2	60	US Highway 60 3499 3807A	Cabell	29,245	28,914	331	34,080	0.84	0.85	D	E
6308	0.12	3	10	16th Street 10 0 5813	Cabell	23,910	23,751	160	34,080	0.69	0.70	C+	D
3630	0.64	3	106	N/A 0607 Adn/a 32341	Cabell	18,313	18,196	116	16,416	1.10	1.11	F	F
5792	0.18	3	527	State Route 527 0 5568	Cabell	22,049	21,859	190	16,416	1.33	1.34	F	F
5793	0.1	3	527	State Route 527 0 5594	Cabell	22,639	22,456	183	16,416	1.36	1.37	F	F

Figure 13: Summary of LOS Deficiency for Revised 2050 Baseline Condition



A review of Figure 13 indicates that eight of the 14 segments were identified as being at LOS F previously by KYOVA and the remaining six LOS decreases resulted from the new developments and associated impacts identified during this review. The daily change in ADT at these locations is generally small, which indicates that these segment links had V/C ratios very near the LOS threshold previously. Some of the deficient locations correspond to river crossings that often form bottlenecks due to the channelization of traffic and limited capacity, while others are associated with spot locations in the vicinity of major intersections, interchanges or new developments.

Qualitative

Structurally Deficient Bridges

As part of Task 1, the National Bridge Inventory (NBI) database was queried to identify bridges on Study routes that had condition ratings of “Poor” and/or had Weight Restrictions. During the Task 1 review, 21 bridges were identified that met the criteria, of which 13 were located in Cabell County and eight (8) were located in Wayne County. As part of Task 2, the current status of each of the structures in question was obtained by a combination of resource document reviews and meetings with WVDOT personnel. It was determined that the vast majority (19 of 21) of the structures identified in Task 1 were at various stages of the project development process from undergoing preliminary design to having construction fully completed. The two structures currently unprogrammed for improvement are both located in Wayne County: the Perdue Brothers Memorial Bridge (BARS# 50A220) located on WV 152, and the Below Dam Bridge (BARS# 50A078) located on WV 37 (See Figure 15 for their locations). While both structures were rated as in “Poor” condition, neither has weight restrictions at this time, which will help lessen any impact to commercial traffic on these corridors.

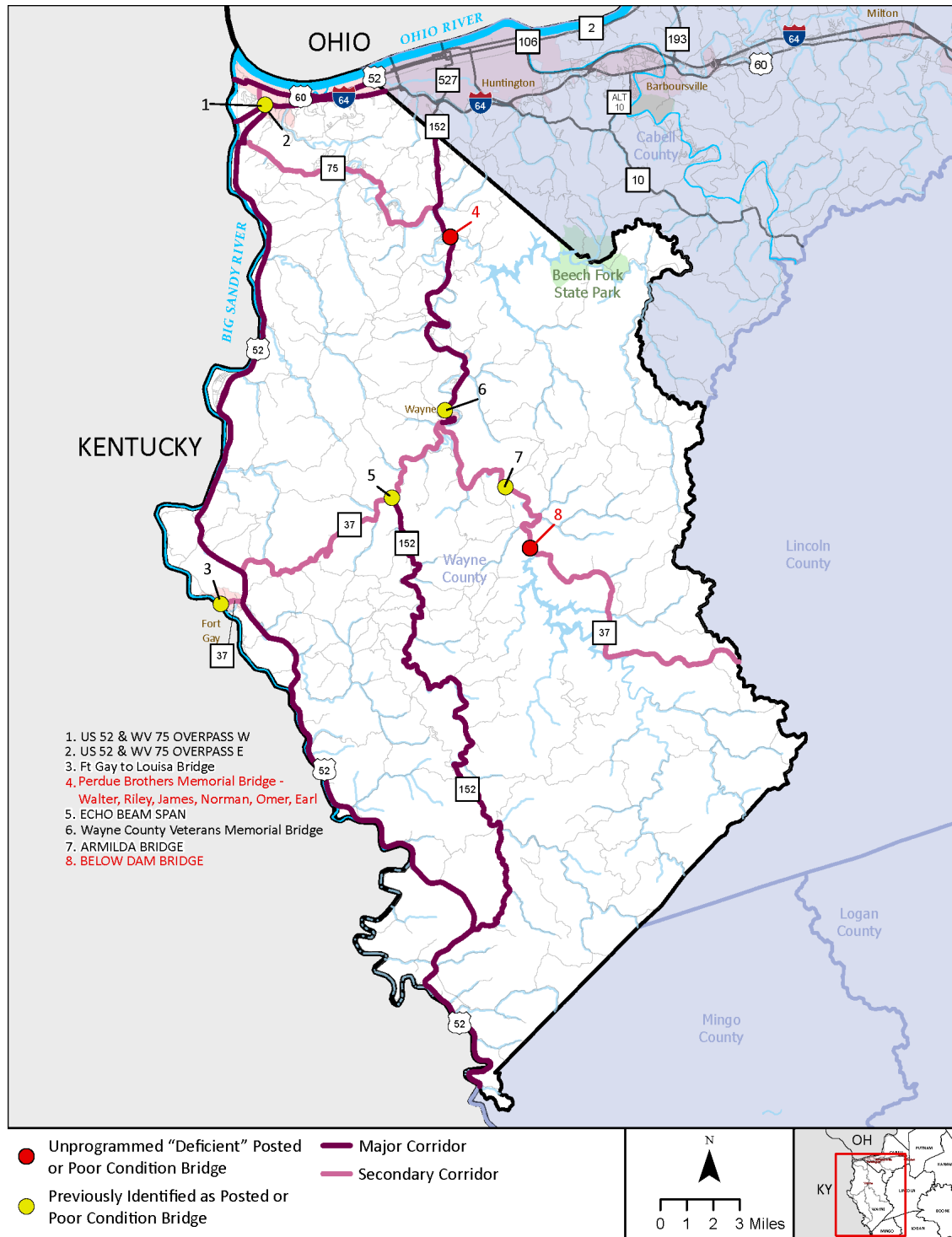


Figure 15: Deficient Bridge Locations, Wayne County

At-Grade Railroad Crossings

Data for Cabell, Wayne and Mason counties were extracted from FRA's Grade Crossing Accident Prediction System (GXAPS) database as a means of identifying the railroad crossings in the area with the greatest potential for highway/rail incidents, which is a good indicator of network deficiency. The top ten crossing

locations identified in Cabell, Wayne and Mason counties are shown in Figure 16. A review of Figure 16 indicates that five of the top 30 locations extracted are located on Study routes. During Task 1, a total of 25 At-Grade crossings were identified on Study routes. The location of the five “deficient” crossings along with the remaining 20 At-Grade crossings on Major and Secondary Corridors are shown in Figure 17 and Figure 18. It is of note that only two railroad crossings in Mason County were included in this Study due to development initiatives ongoing along WV 2 and that both are considered deficient.

County Predicted Accident Rank	Annual Average Predicted Accidents	Crossing ID	RR Code	State	County	City	Street	Located on Study Route (Y/N)
1	0.110201	225622B	CSX	WV	CABELL	ONA	YATES CROSSING RD	
2	0.107134	225698G	CSX	WV	CABELL	HUNTINGTON	MADISON AVENUE	
3	0.104696	147940X	CSX	WV	CABELL	LESAGE	KYLE LANE	
4	0.102324	225628S	CSX	WV	CABELL	BARBOURSVILLE	BLUE SULPHUR ROAD	
5	0.005624	225600B	CSX	WV	CABELL	CULLODEN	CHARLEYS CREEK RD	
6	0.003945	147951K	CSX	WV	CABELL	HUNTINGTON	40TH STREET	
7	0.003945	147952S	CSX	WV	CABELL	HUNTINGTON	THIRTY SIXTH STREET	
8	0.003516	147948C	CSX	WV	CABELL	HUNTINGTON	WEST VIRGINIA STATE ROUTE 2	Y
9	0.003231	225598C	CSX	WV	CABELL	CULLODEN	DUDDING LANE	
10	0.002874	226489C	CSX	WV	CABELL	BARBOURSVILLE	EAST PEA RIDGE ROAD	
1	0.212815	471645H	NS	WV	WAYNE	FORT GAY	BRIDGE STREET	Y
2	0.106093	471601H	NS	WV	WAYNE	CRUM	ROUTE 52	Y
3	0.005033	225678V	CSX	WV	WAYNE	CEREDO	MAIN STREET	
4	0.004851	225675A	CSX	WV	WAYNE	HUNTINGTON	VERNON STREET	
5	0.004549	225680W	CSX	WV	WAYNE	KENOVA	1 STREET W	
6	0.004347	471608F	NS	WV	WAYNE	CRUM	WEBB ROAD	
7	0.003658	471599J	NS	WV	WAYNE	CRUM	SILVER CREEK ROAD	
8	0.003361	225682K	CSX	WV	WAYNE	KENOVA	12 STREET	
9	0.003302	471606S	NS	WV	WAYNE	FORT GAY	RIVER BEND ROAD	
10	0.0033	225685F	CSX	WV	WAYNE	KENOVA	EIGHTEENTH ST	
1	0.005943	147850Y	CSX	WV	MASON	POINT PLEASANT	VIAND STREET	
2	0.004049	147873F	CSX	WV	MASON	GALLIPOLIS FERRY	HUNTINGTON RD	Y
3	0.002547	147906R	CSX	WV	MASON	ASHTON	PT PLST-HNTGN RD	Y
4	0.002419	147845C	CSX	WV	MASON	POINT PLEASANT	22ND STREET	
5	0.00235	147847R	CSX	WV	MASON	POINT PLEASANT	CAMDEN AVENUE	
6	0.002189	147859K	CSX	WV	MASON	POINT PLEASANT	REDMOND RIDGE RD	
7	0.002186	147851F	CSX	WV	MASON	POINT PLEASANT	CSX ENTRANCE OFF HIGHLAND AVENUE	
8	0.002148	147849E	CSX	WV	MASON	POINT PLEASANT	12TH STREET	
9	0.001852	147846J	CSX	WV	MASON	POINT PLEASANT	POPLAR STREET	
10	0.001589	147871S	CSX	WV	MASON	GALLIPOLIS FERRY	OLD RIVER ELWELL	

Figure 16: At-Grade Railroad Crossings Rankings in Cabell, Wayne and Mason County

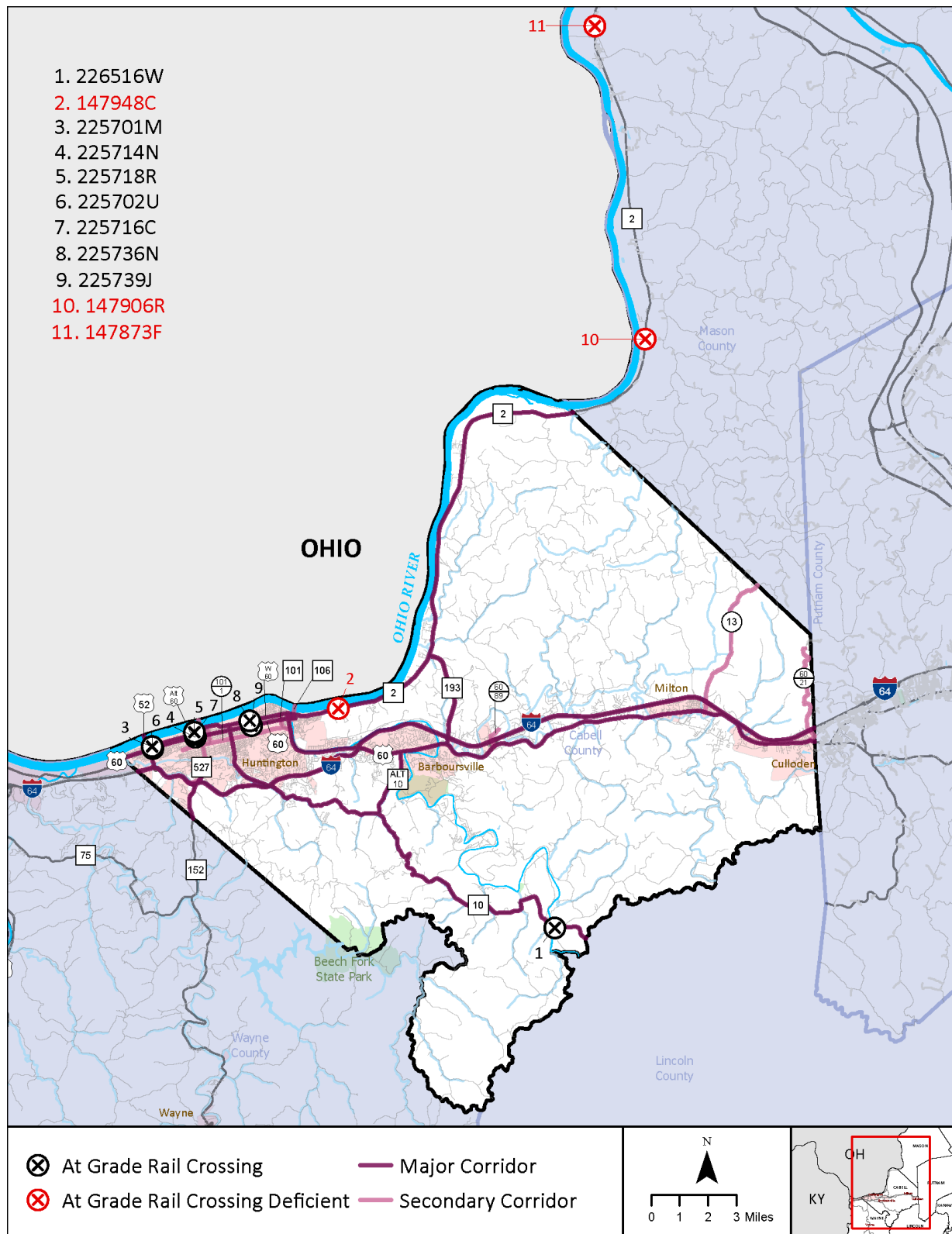


Figure 17: Location of Deficient At-Grade Railroad Crossings, Cabell and Mason County

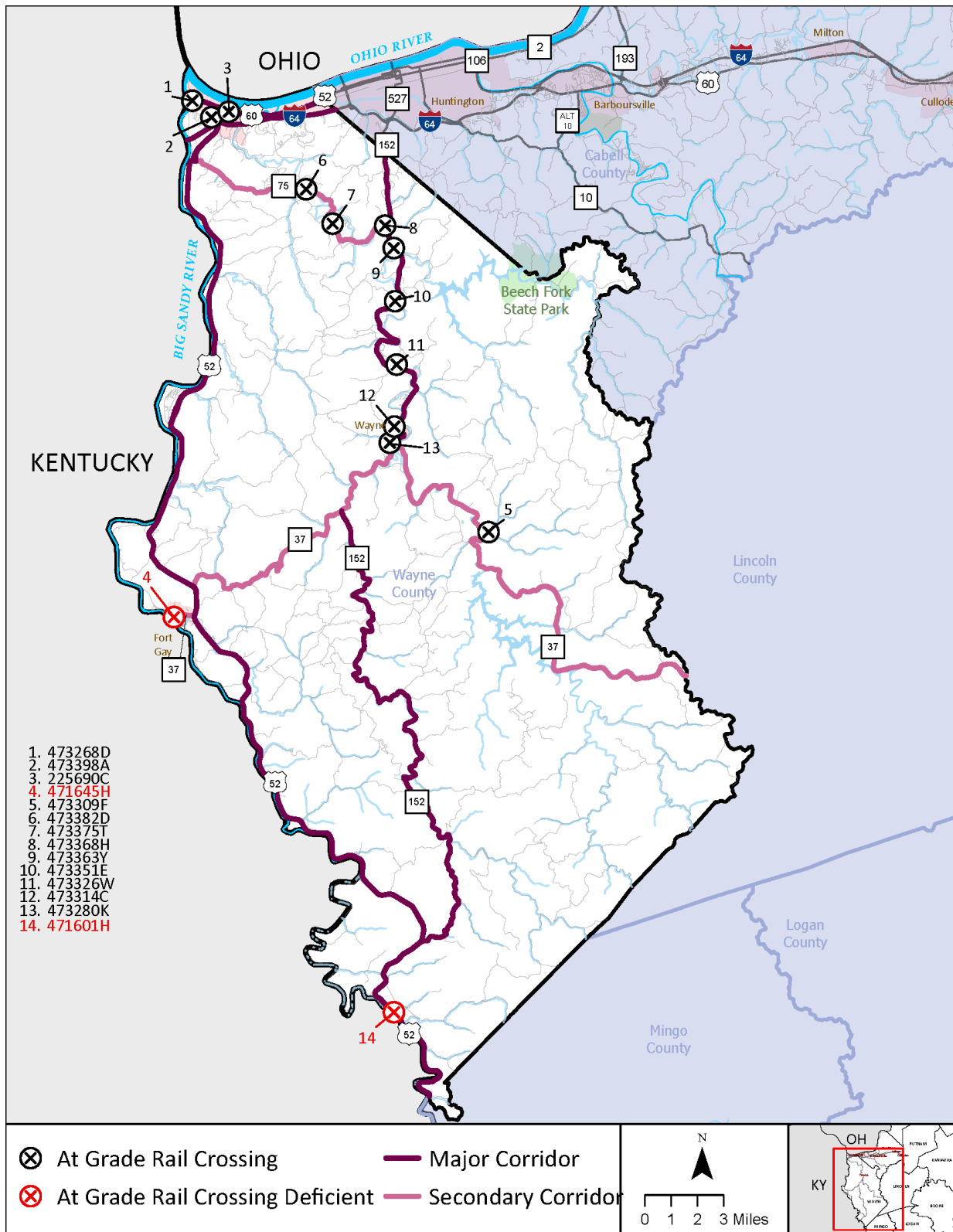


Figure 18: Location of Deficient At-Grade Railroad Crossings, Wayne County

Roadway Flooding

Areas of recurrent roadway flooding on Major and Secondary Corridors within the Study area were obtained predominantly from discussions with personnel at the State, City and Local level responsible for roadway maintenance. While much of the regional information is anecdotal and not well-documented, recurrent flooding at other locations such as the 1st Street, 8th Street, 10th Street and 16th Street underpasses in Huntington and portions of US 60 has been well-documented by KYOVA in local studies (e.g., Huntington's Street Flooding Mitigation Plan⁶).

Local maintenance personnel identified eight (8) locations along Study corridors in Cabell and Wayne counties that experience recurring roadway flooding, as shown in tabular and graphical format in Figures 19 through 21. No attempt was made in this task of the Study to prioritize or group the locations of these deficiencies, but such prioritization or grouping may occur later as mitigating strategies are developed.

⁶ Huntington Street Flooding Mitigation Plan, August 2017

FLOODING LOCATION DESCRIPTION	COUNTY	LOCALITY	ROUTE ID	ROUTE	MILEPOINT	LATITUDE/LONGITUDE	NEARBY TRIBUTARY
US 60 AT JUNCTION WITH ARLINGTON BLVD (MNS 352)	CABELL	HUNTINGTON	0620060000EB	US 60	7.49	38.4107127, -82.382679	GUYANDOTTE RIVER & UNNAMED STREAM
US 60 AT CSX RR UNDERPASS (INV# 225636J)	CABELL	BARBOURSVILLE	0620060000EB	US 60	12.40	38.4159745, -82.2940798	MUD RIVER
WV 10/16TH STREET AT CSX RR UNDERPASS (INV# 225668P)	CABELL	HUNTINGTON	0630010000000	WV 10	18.13	38.4178529, -82.4304637	OHIO RIVER
WV 527/8TH STREET AT CSX RR UNDERPASS (INV# 225670R)	CABELL	HUNTINGTON	0630527000000	WV 527	1.14	38.4155477, -82.4441931	OHIO RIVER
US 52 FROM CRUM TO STEPPTOWN	WAYNE	CRUM TO STEPPTOWN	50200520000EB	US 52	49.0 53.2	37.9038200, -82.4432999 37.8651009, -82.4092209	TUG FORK
WV 152 AT MOSES FORK	WAYNE	N/A	5030152000000	WV 152	5.00	37.9942527, -82.4028827	MOSES FORK
WV 152 AT DUNLOW AT JUNCTION WITH CR 52/24	WAYNE	DUNLOW	5030152000000	WV 152	9.40	38.032743, -82.4274847	TWELEVEPOLE CREEK & BIG BRANCH
WV 152 AT GENOA	WAYNE	GENOA	5030152000000	WV 152	19.60	38.1206054, -82.4588785	TWELEVEPOLE CREEK

Figure 19: Roadway Flooding Deficiencies, Cabell and Wayne County

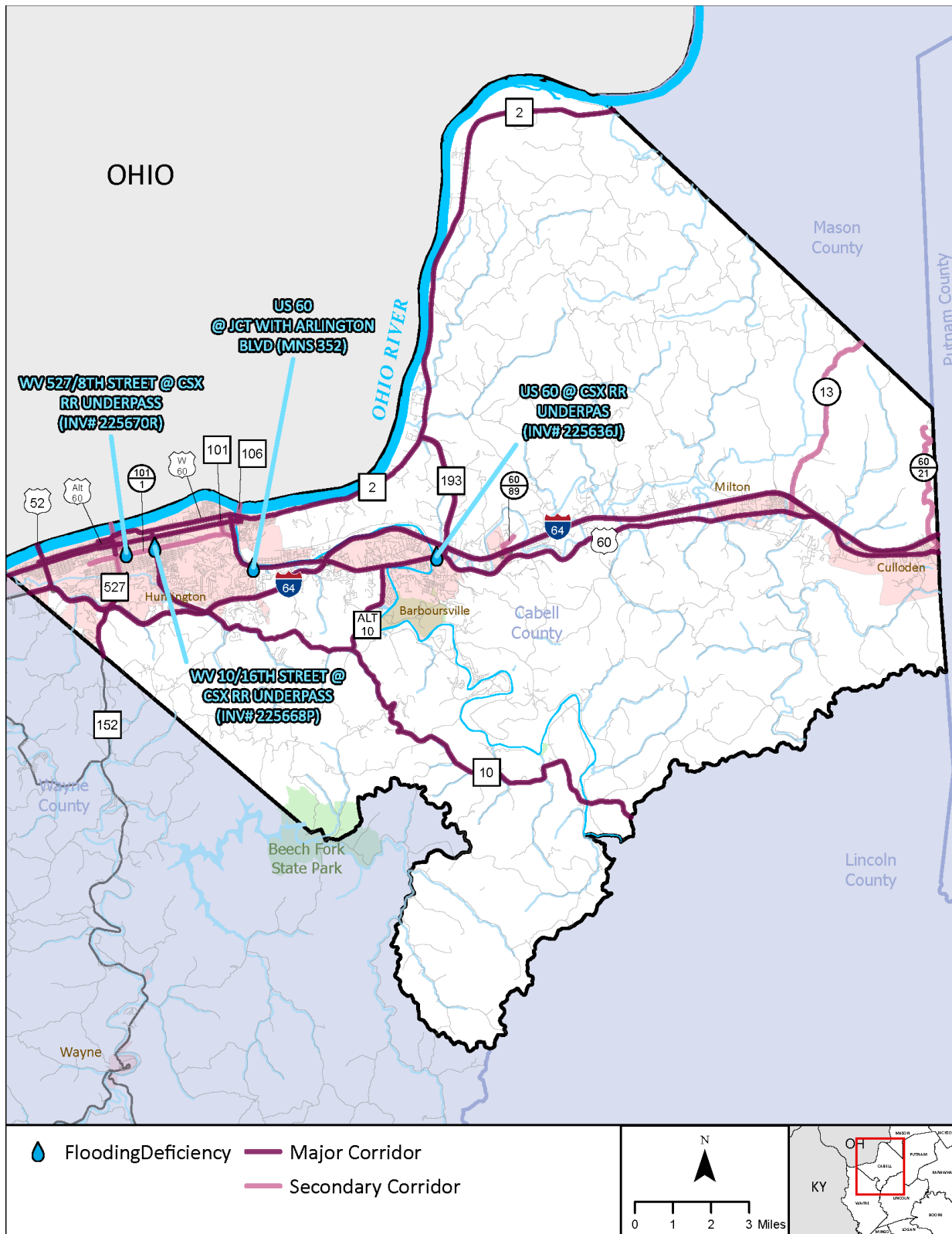


Figure 20: Roadway Flooding Deficiencies, Cabell County

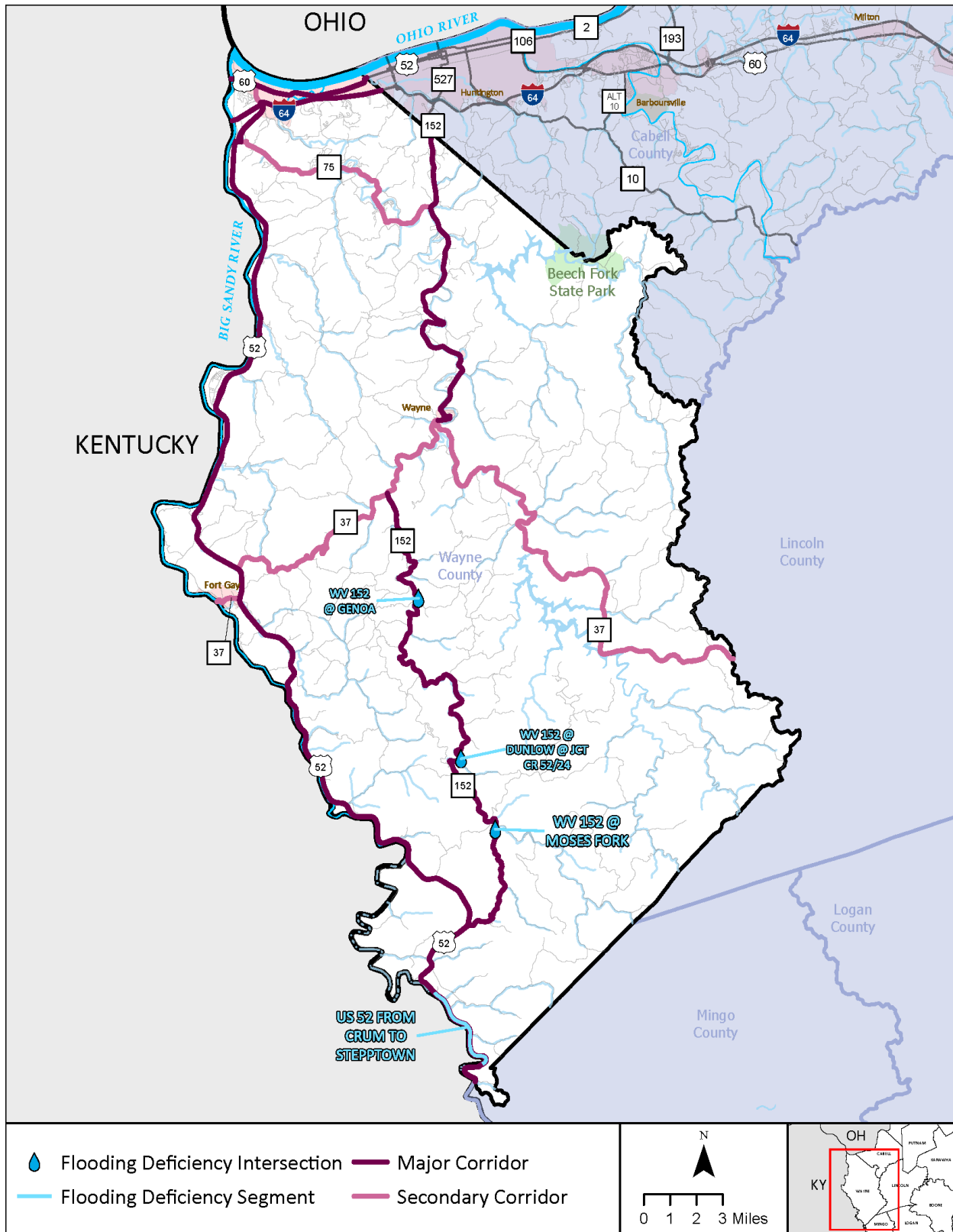


Figure 21: Roadway Flooding Deficiencies, Wayne County

Two sections of US 60 in Cabell County were identified as recurrent flooding locations. The WVDOH District 2 Office indicated that design work is underway to address the Arlington Boulevard location and the Huntington Water Quality Board (HWOB) indicated that recent work conducted on the 8th Street underpass has partially mitigated the problem and reduced the flooding frequency at that location.

Safety Issues

Traffic incidents and fatalities have a significant economic and emotional cost to not only the individuals, families, and businesses directly impacted, but also to the region and the nation. In response to these far-reaching impacts, the USDOT has embraced the Vision Zero policy which aims to eliminate all traffic fatalities and severe injuries by 2050 through a Safe Systems Approach and adopted performance metrics to track progress. Detailed safety studies have been performed at the local, regional and state levels to identify high priority intersections, segments and high injury networks that need to be addressed. For this Study, the high priority locations on Study corridors identified in KYOVA's MTP and West Virginia's VRU Assessment were assembled and compared against programming documents. Where specific projects were not programmed in the TIP, STIP or contained in KYOVA's MTP listing of fiscally constrained projects, a deficiency was assumed to exist. The information is summarized in Figure 22 and shown graphically on Figures 23 and 24. KYOVA's MTP does not cover Mason County and therefore no intersection or priority segments for that county were identified in the plan. Furthermore, the broader statewide VRU Assessment did not identify any HIN's in the top 25 ranking for either Wayne County or Mason County.

SAFETY ISSUE DESCRIPTION	INTERSECTION OR SEGMENT	LOCALITY	COUNTY	LOCATED ON STUDY ROUTE (Y/N)	PROGRAMMED (Y/N), SOURCE DOCUMENT
Adams Ave at 19th Street W	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Washington Blvd at Midland Trail (US 60)	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Davis Creek Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
8th Ave at 31st Street (US 60)	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Bonnie Blvd	INTERSECTION	N/A	CABELL	Y	Y, KYOVA MTP
Washington Ave at W 17th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
8th Ave at 20th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Farmdale Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at W Mall Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at E Mall Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Adams Ave/5th Ave at First Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Kroger	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at E Pea Ridge Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
5th Ave at 29th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at W Pea Ridge Rd/Bridge	INTERSECTION	N/A	CABELL	Y	Y, KYOVA MTP
5th Ave at 20th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
5th Ave at 31st Street/Bridge Ramp	INTERSECTION	HUNTINGTON	CABELL	Y	Y, STIP
Midland Trail (US 60) at Irwin Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Pinecrest Dr	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
German Ridge Road at WV 152	INTERSECTION	N/A	WAYNE	Y	Y, KYOVA MTP
5th Street Rd (WV 152) at (Food Fair Plaza)	INTERSECTION	LAVALETTE	WAYNE	Y	Y, KYOVA MTP
WV 75 at Spring Valley Drive	INTERSECTION	N/A	WAYNE	Y	Y, KYOVA MTP
Waverly Rd (US 60) at Carson Street	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Waverly Rd (US 60) at Camden RD/ Auburn Rd	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Waverly Rd (US 60) at Burlington Rd	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Court Street at US 52	INTERSECTION	FORT GAY	WAYNE	Y	N
WV 75 at 5th Street Rd (WV 152)	INTERSECTION	LAVALETTE	WAYNE	Y	Y, KYOVA MTP
WV 152 from Bloss Branch Rd to Big Creek Rd	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
WV 152 - German Ridge Hill	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
WV 152 from CR 11 Access (By Pharmacy) to 8th Street Rd	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
US 60 from Braley Rd to Longwood Rd	SEGMENT	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
US 60 from Hazel Jane Estates to Childers Rd	SEGMENT	BARBOURSVILLE	CABELL	Y	Y, STIP*
HIN DESCRIPTION	HIN SEGMENT RANK	LOCALITY	COUNTY	LOCATED ON STUDY ROUTE (Y/N)	PROGRAMMED (Y/N), SOURCE DOCUMENT
VRU- CABELL RANK 6 06200600000/ 5.9-6.2 US 60 (5th Ave to Moses Family Medicine)	6	HUNTINGTON	CABELL	Y	Y, STIP
VRU- CABELL RANK 7 06200600000/ 11.6-11.9 US 60 (River Road to Martin Drive)	7	HUNTINGTON	CABELL	Y	Y, STIP
VRU- CABELL RANK 8 06200600007/ 1.7-2 US 60 (18th Street to 20th Street)	8	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
NOTES: * PARTIAL OVERLAP OF STIP & MTP PROJECT					

Figure 22: Identified Safety Issues and Deficiencies, Cabell and Wayne County

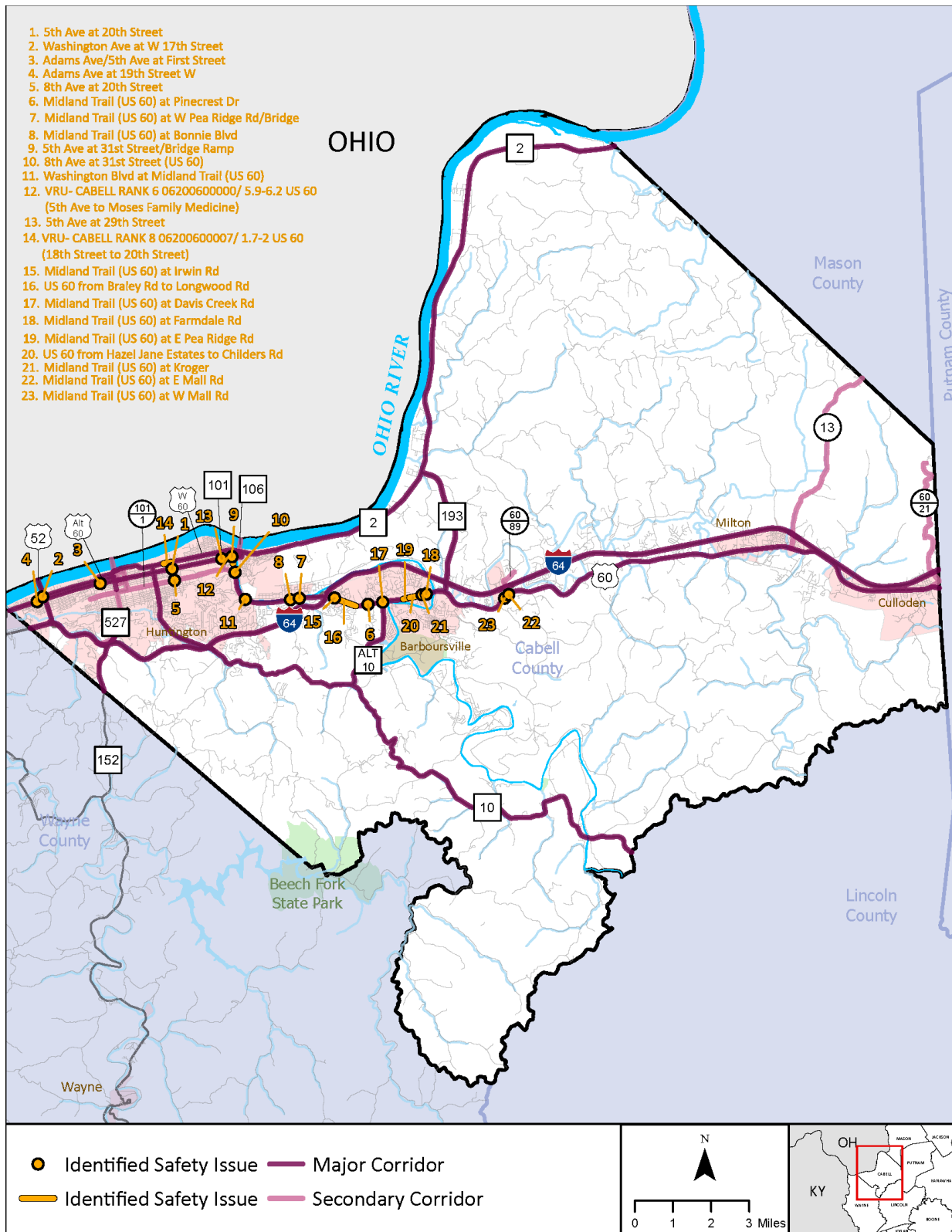


Figure 23: Safety Issues and Deficiencies, Cabell County

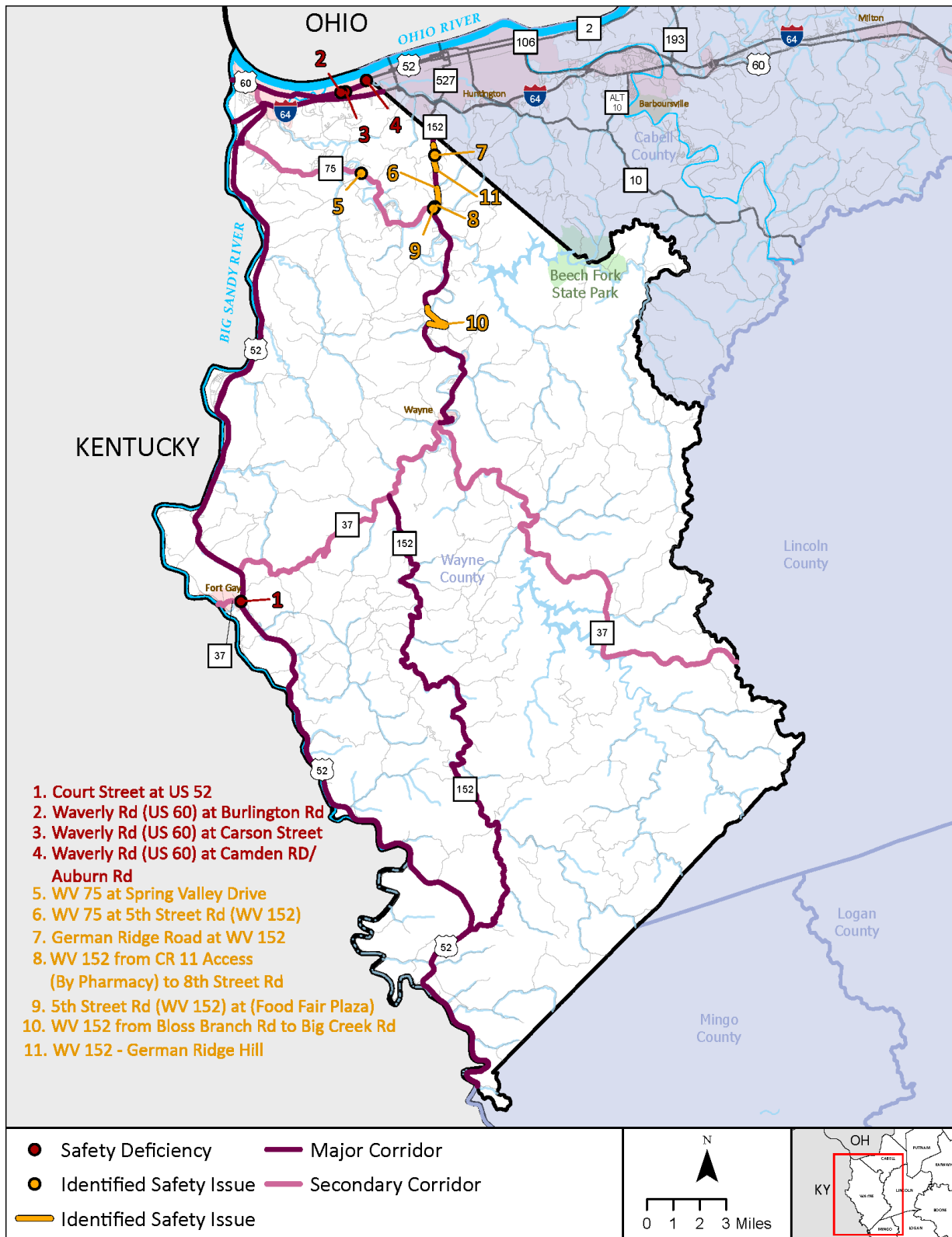


Figure 24: Safety Issues and Deficiencies, Wayne County

A review of Figure 22 indicates 32 high priority safety issues were identified in KYOVA's MTP. Additionally, three of the top 25 HIN locations from the WVDOH's statewide VRU Assessment were in Cabell County. Given the National emphasis being placed on traffic safety and vulnerable road users, it is not surprising that all but four locations identified are currently programmed for some manner of mitigation. All of the unprogrammed Safety Deficiencies identified during this review are located in Wayne County.

Transit Issues:

The location of regional transit service offered by local providers like TTA and Tri-River transit in relation to the finalized list of economic developments and areas of interest are shown on Figures 25 through 29. A review of those figures indicates that transit service at some level of recurring frequency is available (i.e. within a one-mile radius) of every location in Cabell and Mason County; however, only two of the six areas identified in Wayne County have access to scheduled transit service. The four unserved locations are either situated slightly away from Major or Secondary Corridors or are in areas of relatively low population density. Surprisingly, the area around the WV National Guard facility and proposed Business Park at the Huntington Tri-State Airport is not currently served by TTA or Tri-River, but both have routes nearby that could potentially be extended or altered as development occurs.

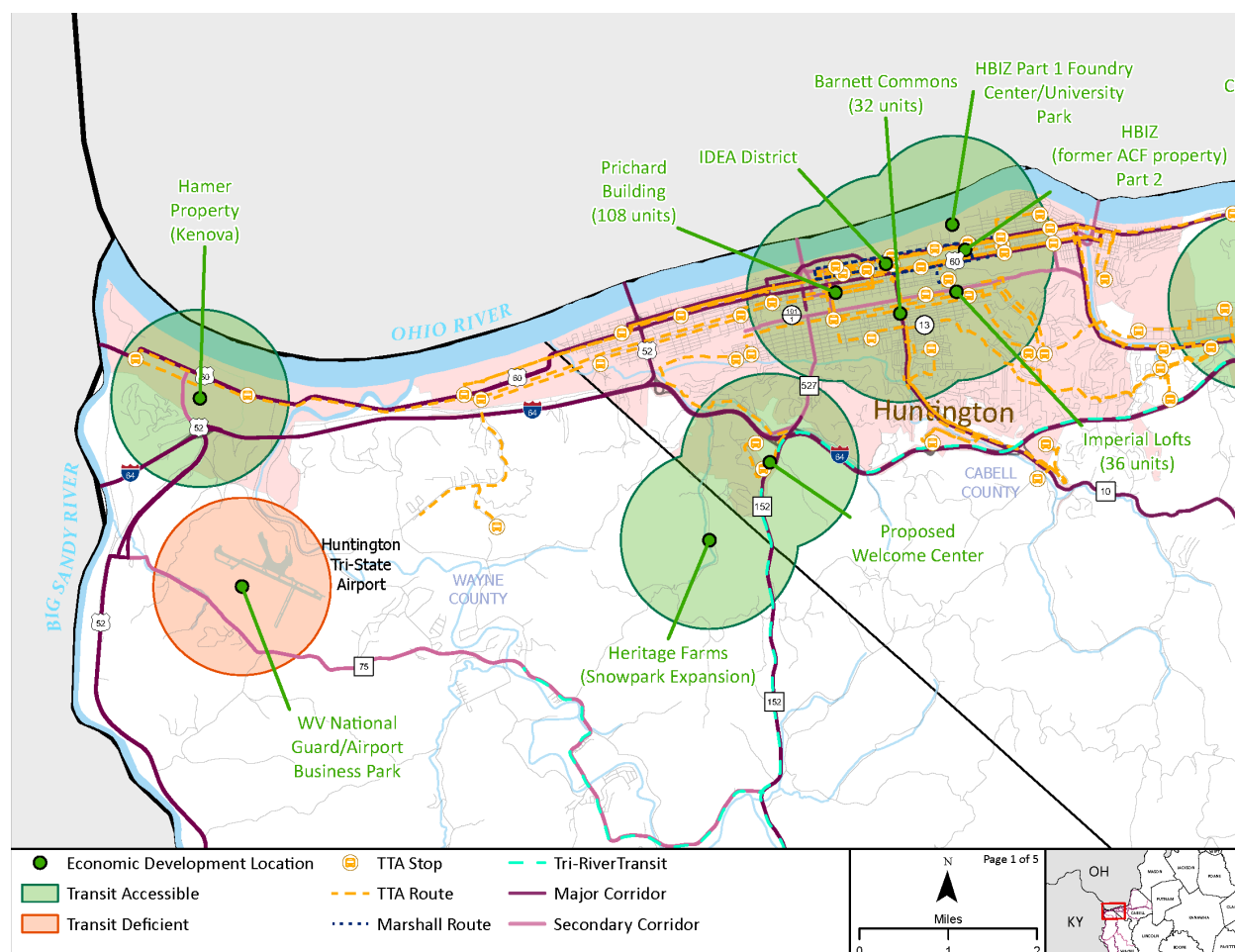


Figure 25: Transit Service and Deficiency Near Economic Developments, Cabell and Wayne County



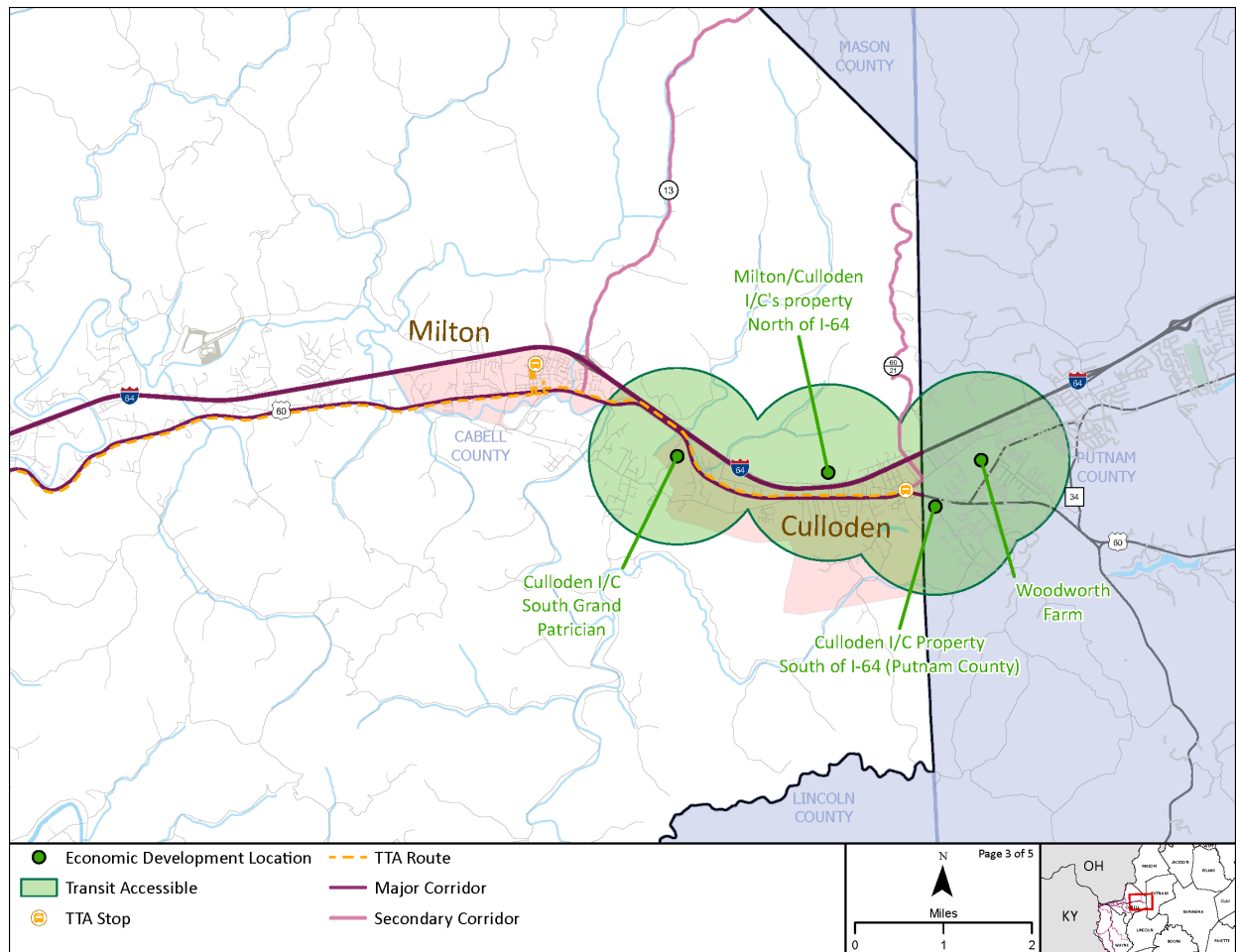


Figure 27: Transit Service and Deficiency Near Economic Developments, Cabell County and Putnam County

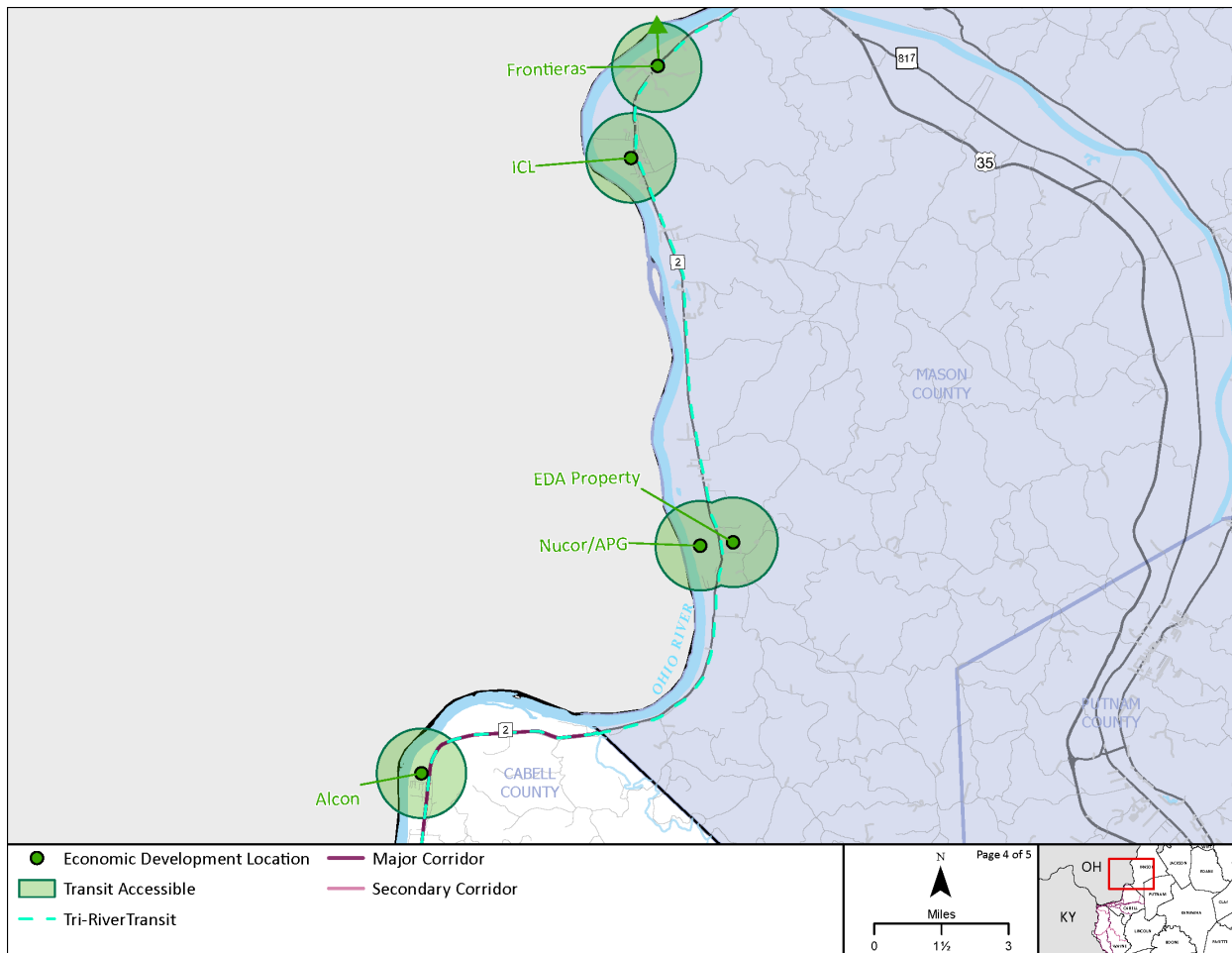


Figure 28: Transit Service and Deficiency Near Economic Developments, Cabell and Mason County

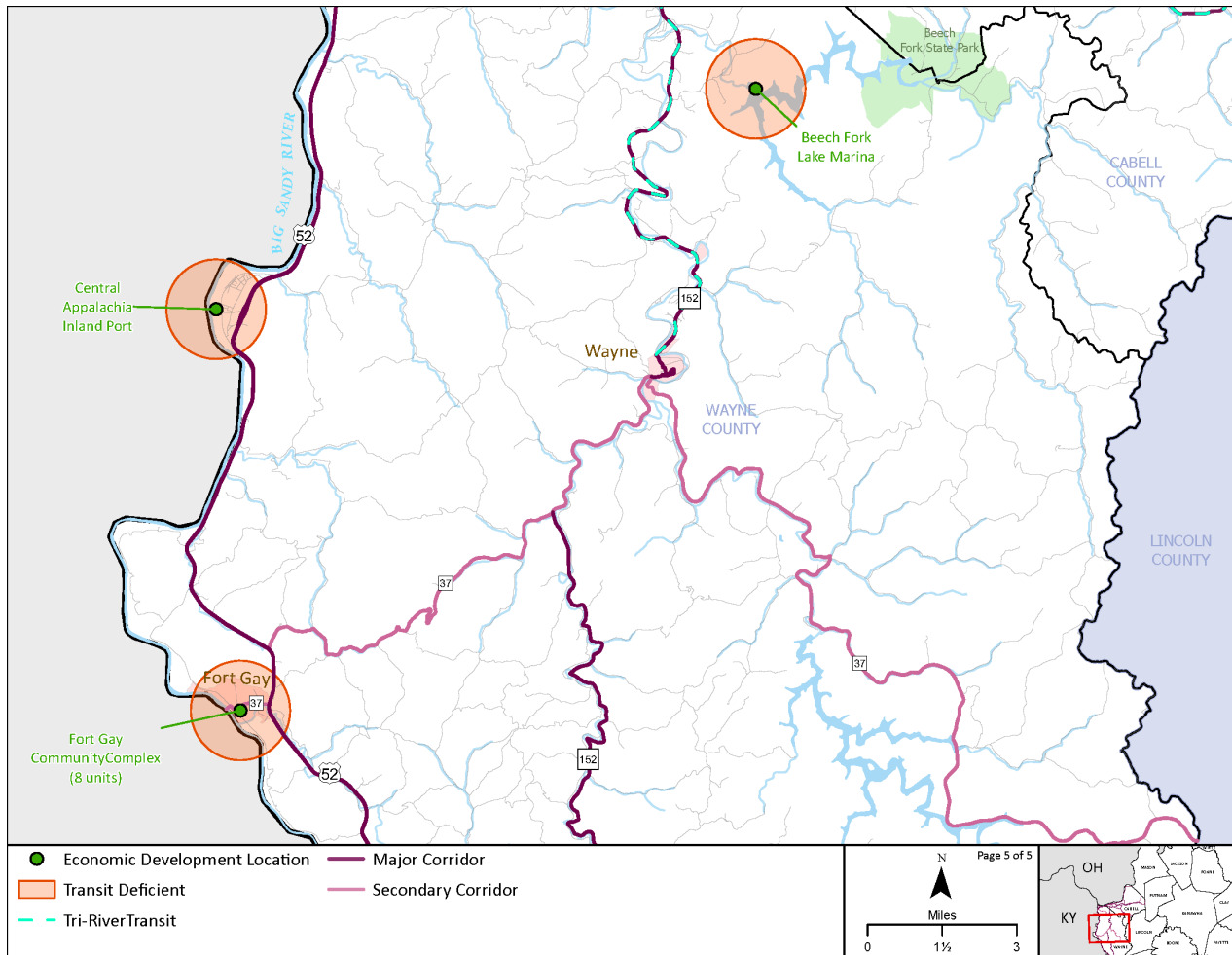


Figure 29: Transit Service and Deficiency Near Economic Developments, Wayne County

CONCLUSIONS

Overall, it appears that the additional population and employment generated by the developments analyzed under the Revised Existing 2050 Conditions Baseline would not significantly impact the regional transportation network, but bottleneck locations that need addressed still exist outside of KYOVA's fiscally constrained MTP.



APPENDICES





Appendix A

Economic Development Projects & Areas of Interest — Site Descriptions



APPENDIX A

The **Marshall IDEA⁷ District** is a \$200+ million initiative in Downtown Huntington (along a section of 4th Avenue extending west from Hal Greer Boulevard) intended to foster technology and research collaborations between academia and industry leaders to cultivate a highly skilled workforce. The District includes the *Brad D. Smith Center for Business & Innovation*, a 78,000 SF academic facility opened in January 2024 that serves as Marshall's College of Business and includes a multi-story forum, a 360-seat auditorium and a 100-seat multipurpose classroom, as well as media and finance labs; the *Institute for Cybersecurity*, a 73,000 SF facility dedicated to accelerating cyber research and development while shaping the US Department of Defense's current and future cyber workforce through advanced training programs and strategic partnerships; an *Innovation Resource Hub*, a space for connecting students, educators, entrepreneurs, researchers and makers with essential resources and services; and is proposed also to include office space, commercial and retail components, and a hotel.

The **Huntington Brownfields Innovation Zone (H-BIZ)** promotes the riverfront redevelopment as a major mixed-use development of the former ACF Industries, McGinnis, and Ingram Barge Industrial Sites in the prime area between the Ohio River, Marshall University and Downtown Huntington. The H-BIZ Master Plan calls for 75 acres and 1,000,000+ SF of revitalization that is to include as much as 379,000 SF of mixed-use development involving a new hotel and conference center; 27.7 acres (181,000 SF) of advanced manufacturing expansion; 97,300 SF of retail; and 400,000+ SF of parks, open space, athletic and recreational facilities. Primary redevelopment zones were established based on physical site factors (e.g., locations of major transportation elements) and contextual factors (e.g., Marshall University campus, the floodwall): *Foundry Center* is a mixed-use zone that includes office space, residences, and commercial components; *University Park* is a mixed-use zone consisting of lodging, academic, and sports/entertainment facilities in a campus-like setting around a series of public open spaces and courtyards; *Polymer Tech Center* is the primary riverfront industrial zone.

Barnett Commons is a 32-unit multifamily residential development located along the 900 block of Hal Greer Boulevard. This housing complex includes 26 age-restricted (55+) two-bedroom apartments and 6 general occupancy three-bedroom apartments. Residents enjoy a community room, lounge, multipurpose room and playground.

Imperial Lofts is a 36-unit multifamily residential development located along the 2100 block of 8th Avenue. This housing complex includes 7 general occupancy three-bedroom apartments, as well as 23 one-bedroom apartments and 6 age-restricted (55+) two-bedroom apartments. The community offers amenities such as off-street parking, playground, fitness room, community room and lounge.

The Prichard is a 13-story residential development along 9th Street in Downtown Huntington. The structure contains 108 affordable senior (62+) housing units with integrated healthcare services.

A new **I-64 Welcome Center** is proposed along the western side of WV 152, within property currently owned by the Heritage Farm Foundation adjacent to the former Direct TV call center, just south of the I-64 5th Street

⁷ Marshall University has rebranded the developments as the Innovation District

East interchange (#8). The new facility would replace the existing Welcome Center located just west of the I-64 Hal Greer Boulevard interchange (#11), with the existing site being converted to a truck parking area.

Alcon is a fabricator of intraocular lenses and delivery systems used for the treatment of cataracts. The company's Advanced Optical Device Center North is located adjacent to WV 2 at Lesage, Cabell County, with a footprint of roughly 300,000 SF and a 65,000 SF expansion anticipated to open in 2026.

Alcon also has a research facility along Kyle Lane in Cabell County. A total of 800 employees (500 direct labor and 300 support staff) is associated with the Alcon facilities in Cabell County.

Childers Crossing II & III is a 70-unit residential development on approximately 4.34 acres located along Price Industrial Lane in Huntington. This housing complex will be comprised of 9 buildings that will include 28 one-bedroom, 32 two-bedroom and 10 three-bedroom apartments serving low-income families and the elderly. Additional phases of this development are anticipated to result in a total of about 150 residential units.

The **Fort Gay Community Complex** is a nearly 16,500 SF facility on two acres, being implemented by Revitalize Appalachia, a social enterprise of Coalfield Development, along Court Street in Fort Gay, Wayne County. The project involves transforming the former Fort Gay High School into a mixed-use community hub. The second floor will include 8 affordable housing units (6 one-bedroom and 2 two-bedroom), a common lounge, a management office, and onsite laundry. The first floor will feature 7 commercial spaces, a renovated gym, and a stage area.

The **Grand Patrician** is a resort located on a 189-acre property adjacent to US 60 in Milton, Cabell County. The resort is to include 109 rooms, a steakhouse, bridal and honeymoon suites, three indoor pools, and a spa. The outside premises are to include a small colosseum to host events, three chapels for weddings, a country club and trails, a nine-hole golf course with synthetic greens, ball fields, and a residential component.

Woodworth Farm is a residential development of more than 400 units along WV 34 ALT (Main Street) in Hurricane, Putnam County. The project includes a mix of single-family homes, townhomes, and villas with lots becoming available in 2026.

The **Central Appalachia Inland Port** is a 65-acre facility at Prichard, Wayne County, that is designed to facilitate the transfer of shipping containers between railcars and trucks. The facility now is owned by the Wayne County Commission, is operated by the R.J. Corman Switching Company, LLC, and is served by Norfolk Southern Railway. A portion of the site currently is utilized as a car repair hub with a workforce of 14 employees.

Heritage Farm Museum & Village is a recreated 19th century Appalachian village within about 500 acres of property south of Huntington, accessible via Harvey Road. The complex includes museums, animal exhibits, artisans, and an adventure park. An indoor/outdoor Snow Park is under construction within the complex.

Nucor Steel West Virginia is constructing a new sheet mill within 1,700 acres adjacent to WV 2 at Apple Grove, Mason County. The facility will have a 3-million-ton sheet capacity and will create 800 high-paying full-time jobs.

APG Polytech produces polyethylene terephthalate (PET). With properties such as strength, flexibility, stability and recyclability, the plastic resin is a popular product for bottles and food packaging. The 425-acre site is located along WV 2 at Apple Grove, Mason County.

ICL-IP is a global leader in the production of specialty fertilizers, bromine and flame retardants. The plant in Gallipolis Ferry, West Virginia, produces flame retardant designed for flexible polyurethane foam applications. The 380-acre site is located along WV 2 near Gallipolis Ferry, Mason County.

A *West Virginia National Guard* facility is located within **Tri-State Airport** property on the southwest side of the airfield, adjacent to Booth Road, south of Kenova, Wayne County. The eastern portion of the airport property contains a currently unused apron and other undeveloped land that is proposed to become a *business park* that would house aviation-related industries and companies.

The **Hamer Dry Kiln Company** owns about 20 acres of property adjacent to Norfolk Southern rail line and WV 75 at Kenova, Wayne County. Although no development plan has been established for the property, the assumed use of the entirety is warehousing that may support operations at Tri-State Airport and other facilities within the region.

Privately operated **Beech Fork Lake Marina**, located at the damsite at Lavalette, Wayne County, provides visitors with docking facilities and rental of motorboats, canoes, and life jackets. Beech Fork Lake has a summer pool surface area of 720 acres.

Several large privately owned parcels of land totaling hundreds of acres are located to the *north of the new I-64 interchange* under construction at **Culloden**, Cabell County. These parcels are adjacent to Benedict Road (CR 60/21). Although no development plans have been publicly announced for any of these properties, an assumption has been made that the parcels might be used for residential development purposes, to address the existing housing deficit in the region. However, the development potential of the properties is predicated on the availability of utilities and the willingness of the landowners to either develop or sell the land. Properties in both Cabell and Putnam counties *south of I-64* in the vicinity of the new interchange might be used for commercial and/or industrial purposes, subject to the same caveats concerning utilities and owner intent.

Several large privately owned parcels of land totaling hundreds of acres are located to the *north of the existing I-64 interchange* at **Milton**, Cabell County. These parcels are adjacent to Johns Creek Road (CR 13). Although no development plans have been publicly announced for any of these properties, an assumption has been made that some of the parcels near I-64 might be used for commercial purposes, and the other parcels might be used for residential development purposes, to address the existing housing deficit in the region. However, the development potential of the properties is predicated on the availability of utilities and the willingness of the landowners to either develop or sell the land.

The **West Virginia Economic Development Authority (WVEDA)** owns several parcels totaling several hundred acres in the vicinity of the new Nucor facility in Mason County. The WVEDA properties along WV 2 could be the site of warehousing, manufacturing, or other industrial activities to support Nucor. Other large privately owned parcels adjacent to WV 2 in this same area, and outside the 100-year floodplain, possibly could be developed commercially or for residential purposes. However, the development potential of the

private properties is predicated on the availability of utilities and the willingness of the landowners to either develop or sell the land.

Frontieras North America (Frontieras) is an energy technology company that recently announced plans to locate an \$850 million-dollar Solid Carbonation Fracture facility in Mason County, near Point Pleasant. The facility will deconstruct coal to produce hydrogen, methane, naphtha, diesel and aviation fuel. The site was selected in part due to the abundance of coal in the region as well as its access to low-cost transportation via the Ohio River and the entire Inland Waterway network.



Appendix B

Revised 2050 Existing Conditions
Baseline Assumptions



APPENDIX B

IDENTIFIED DEVELOPMENT / AREA OF INTEREST	REVISED 2050 EXISTING CONDITION BASELINE ASSUMPTIONS
Prichard Building (108 units)	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario
IDEA District	Brad Smith and Cyber Security and Intuit/Foundever facilities operating. Brad Smith - 11 new employees-0 growth over time, Cyber Security - most faculty/staff relocated (assume 0), Outside Vendors-estimated at 20% of total staff (3floorsx18,250SF)/150 SF per EMP x 20% = 73 round to 70, Food Service- 18,250 SF/250SF per employee =73 employees (round down to 70) ,Note 250 value avg between fast food and sit down, Foundever/Intuit Prosperity Hub (20,000 SF) constructed but currently unoccupied (projected 200 part time student employees in 2027) Assume 20hrs a week (0.5 FTE)= 100 FTE's, Assume Employment, Pop, HH values stable 2025-2050
HBIZ Part 1 Foundry Center/University Park	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario
HBIZ (former ACF property) Part 2	For Revised Existing use TIS info, Pop and HH unchanged
Imperial Lofts (36 units)	Revised Pop and Housing, No employment change
Barnett Commons (32 units)	Revised Pop and Housing, No employment change
Proposed Welcome Center	Assume Accounted for previously, no change for Revised Existing
Childers Crossing (70 units)	potential 5 phases, assume existing conditions is first two phases @ 70units (35/phase), add 1 phase (35) units for moderate (105 total), add 2 more phases for aggressive (175 total), Use population info from prior model splits, increase employment & population in Mod and Agg Scenario
Alcon	Assume Accounted for previously, no change from prior run
Milton & Culloden I/C North (Cabell/Putnam County)	For Existing Conditions assume development north of Milton and Culloden I/C's adequate use as is Assign jobs and pop increases from Putnam County properties north of I-64 to TAZ 140
Culloden I/C South, Grand Patrician	Assume Grand Patrician and growth south of I/C accounted for, leave as baseline for existing conditions
Hamer Property (Kenova)	For Existing Conditions Assume Model Information Correct regarding Hamer Property
WV National Guard/Airport Business Park	MU 2018 study indicates 438 on-airport jobs, which includes National Guard personnel (100-200 personnel), For existing revise to 438 initial and grow employment at previous rate (+ 317 by 2050), Assume Aeroplex not included in existing , No change in Pop or HH for existing
Heritage Farms (Snowpark Expansion)	Assume prior Land Use underestimated TAZ employment from Heritage Farm expansion, For Existing conditions use current employment values plus snowpark and remain static through 2050, Facility splits TAZ's (535/537) assign all employment to 535
Fort Gay Community Complex (8 units)	Revise populationand apply info from prior model splits for all scenarios, no change in employment
Beech Fork Lake Marina	Assume prior Land Use overestimated TAZ employment decline around Lavalette and Beech Fork. Existing conditions (assume employment drop mimics population drop), Adjust population & employment for Mod & Agg Scenario
Central Appalachia Inland Port	Assume prior Land Use overestimated TAZ employment decline around Prichard @ Industrial Park due to Intermodal facility closure, Assume 2020 to 2025 employment reduction due to Intermodal Closure (-52 FTE), For Existing conditions assume 2025 employment increased by 12 FTE's from RJ Corman and employment to remaind flat through 2050
ICL	Assume Accounted for previously, no change from prior run
Nucor & APG	Add NuCor TIS trips to Existing
EDA Property	For Existing Conditions Assume Model Information Correct regarding EDA Property
Frontieras	For Existing Conditions Assume Model Information Correct regarding Frontieras Development
Culloden I/C's property South of I-64 (Putnam County)	For Existing Conditions assume Putnam County Development south of I-64 (excluding woodworth farms) included in previous external node data (9007)
Woodworth Farm	All TIS trips added to 9007 for all scenarios



Appendix C

*Memo #3: Alternative Growth
Scenarios and Deficiencies*

April 2026

Transportation Land Use Study

Alternative Growth Scenarios
and Deficiencies



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Appendix A: Moderate Growth Assumptions

Appendix B: Aggressive Growth Assumptions

Appendix C: Description of Economic Development Initiatives

INTRODUCTION

The KYOVA Transportation Land Use Study (Study) is intended to identify areas of potential economic development in Cabell and Wayne counties that were not fully incorporated in KYOVA's 2050 Metropolitan Transportation Plan (MTP), determine corridor-level impacts the developments may be expected to have on the transportation network, and develop recommendations and guidance for implementation of strategies for proposed improvements to mitigate identified impacts. The results of analysis of growth associated with major developments and transportation projects in adjacent counties, such as the Nucor steel manufacturing facility in Mason County and the area in Putnam County surrounding the I-64 interchange at Culloden, will be used to assess housing and transportation in the area.

PURPOSE

The purpose of this Technical Memo is threefold. First, to outline the assumptions used in the development of alternative growth scenarios for the finalized list of economic developments and areas of interest developed in Task 2. Second, to determine the effects of each growth scenario on population, employment, land use, and ultimately trip generation on the Traffic Analysis Zones (TAZ's) and External Nodes directly impacted; and Third, to use KYOVA's Travel Demand Model (TDM) to generate alternative 2050 conditions for each development scenario and demonstrate how Major and Secondary Corridors are impacted in contrast to both the Revised 2050 Existing Conditions Baseline developed previously in Task 2 and KYOVA's 2050 Existing Conditions.

SCOPE

The scope of this Task will be limited to the development and analysis of two alternative growth scenarios. Only the model inputs for the 17 TAZ's and 4 External Nodes assumed to be directly impacted by the finalized list of economic developments and areas of interest from Task 2, as shown in Figures 1 through 3, will be considered. Furthermore, analysis of network impacts will be limited to the subset of 634 study links of KYOVA's TDM on Major and Secondary corridors (approximately 277 miles) in Cabell and Wayne County used for the development of the Revised 2050 Existing Conditions Baseline. For consistency, deficiency determination will be based on the definitions developed previously in Task 2.

Identified Economic Developments/Areas of Interest	
Prichard Building (108 units)	WV National Guard/Airport Business Park
IDEA District	Heritage Farms (Snowpark Expansion)
HBIZ Part 1 Foundry Center/University Park	Fort Gay Community Complex (8 units)
HBIZ (former ACF property) Part 2	Beech Fork Lake Marina
Imperial Lofts (36 units)	Central Appalachia Inland Port
Barnett Commons (32 units)	ICL
Proposed Welcome Center	Nucor & APG
Childers Crossing (70 units)	EDA Property
Alcon	Frontieras
Milton & Culloden I/C N. (Cabell/Putnam County)	Culloden I/C property S. of I-64 (Putnam County)
Culloden I/C South, Grand Patrician	Woodworth Farm
Hamer Property (Kenova)	

Figure 1: Finalized List of Economic Developments and Areas of Interest

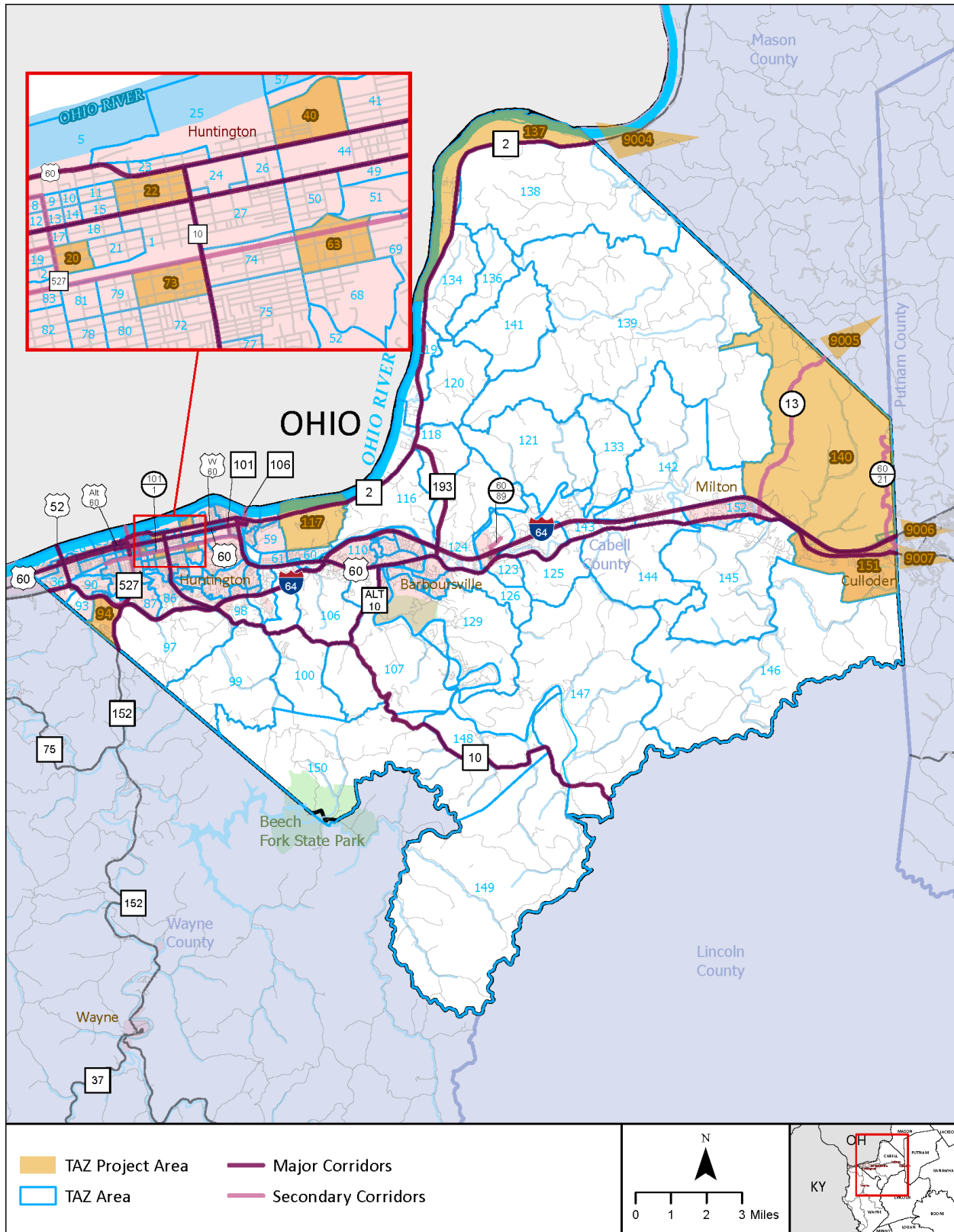


Figure 2: Economic Developments, TAZ and External Node Locations, Cabell County

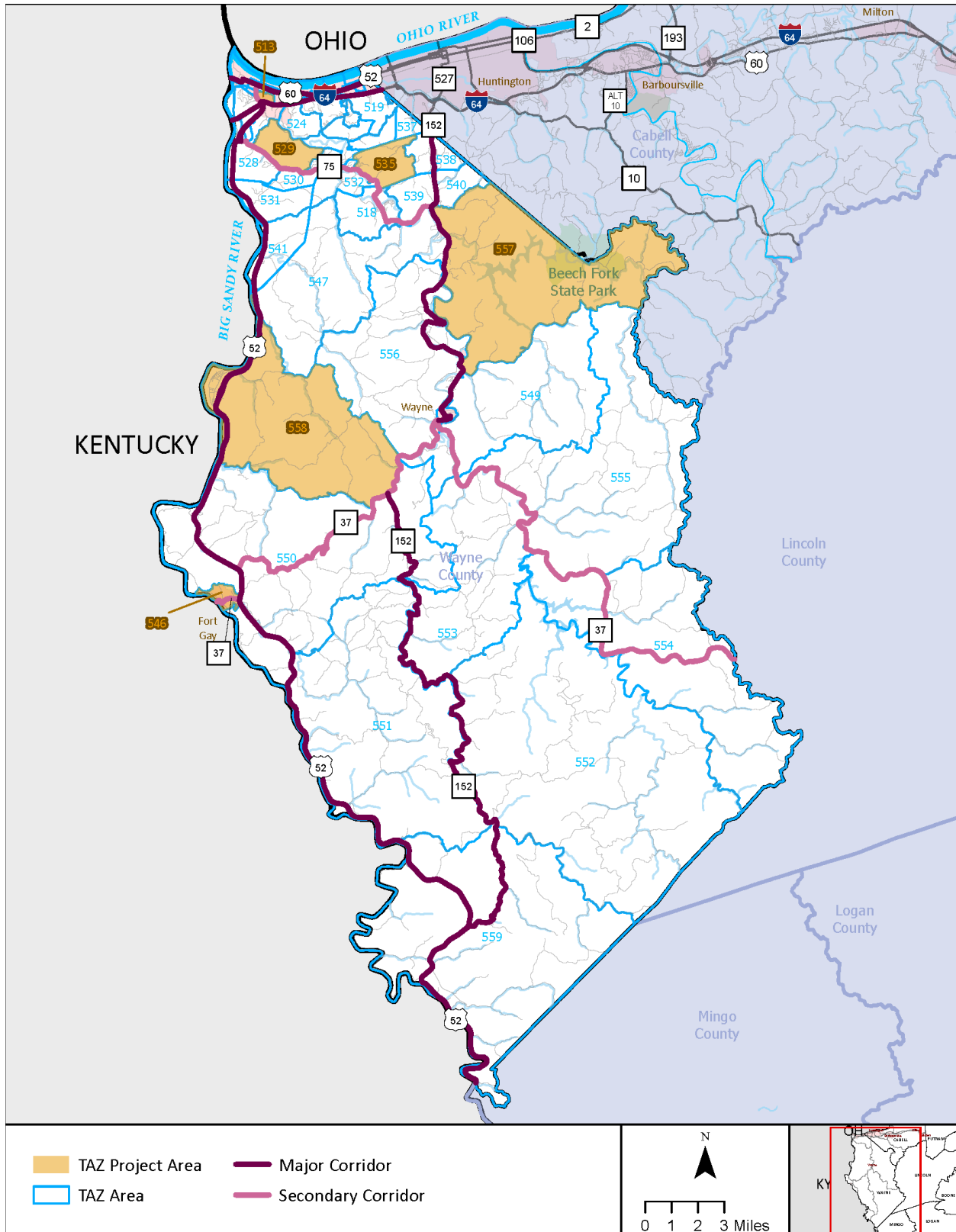


Figure 3: Economic Developments, TAZ and External Node Locations, Wayne County

DEPTH

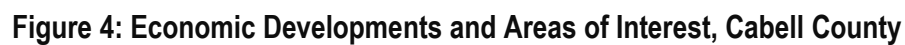
Due to the preliminary and evolving nature of the identified developments and the regional nature of this Study, the depth of analysis for each scenario will be limited. To allow comparisons to be made, the analysis will closely mirror the level and techniques used for the development of the Revised 2050 Existing Condition Baseline from Task 2. Trip generation and system impacts for alternative growth scenarios reflected post-construction conditions and ignored potential spikes associated with construction or special events. Maximum use was made of existing studies and readily available information. KYOVA's existing TDM is well calibrated, as such no attempt was made to make broad revisions to the general growth rates, trip distribution and land use assumptions it contains. No updated traffic counts or crash information was collected. While some development sites were field reviewed during discussions with local developers and planners, most sites were reviewed using a combination of Google Earth, WV Tax Map and Flood Zone imagery to gauge development potential as it relates to the local transportation network.

Where available, Traffic Impact Studies (TIS's) were used as the basis for adjusting changes in traffic volume. Estimates of development size and composition relied heavily on information obtained from discussions with local developers, planners and press releases. Where limited site-specific information was available, engineering judgement was used regarding construction phasing and the development's potential impacts on surrounding population, employment, households and trips. As was the case in Task 2, all fiscally constrained projects identified in KYOVA's 2050 MTP were considered to be implemented.

METHOD

Inclusion Assumptions

Unlike Task 2, where research was conducted to determine what economic developments and areas of interest would be included in this Study and if they had been accounted for previously in KYOVA's 2050 Existing Conditions, no such research or analysis was necessary for Task 4's scenario development. Each of the 23 economic developments and/or areas of interest from Task 2, shown in Figure 1 above, were included in all remaining Tasks of this Study. Their respective locations within the region in relation to the Major and Secondary Corridors are shown in Figures 4 and 5.



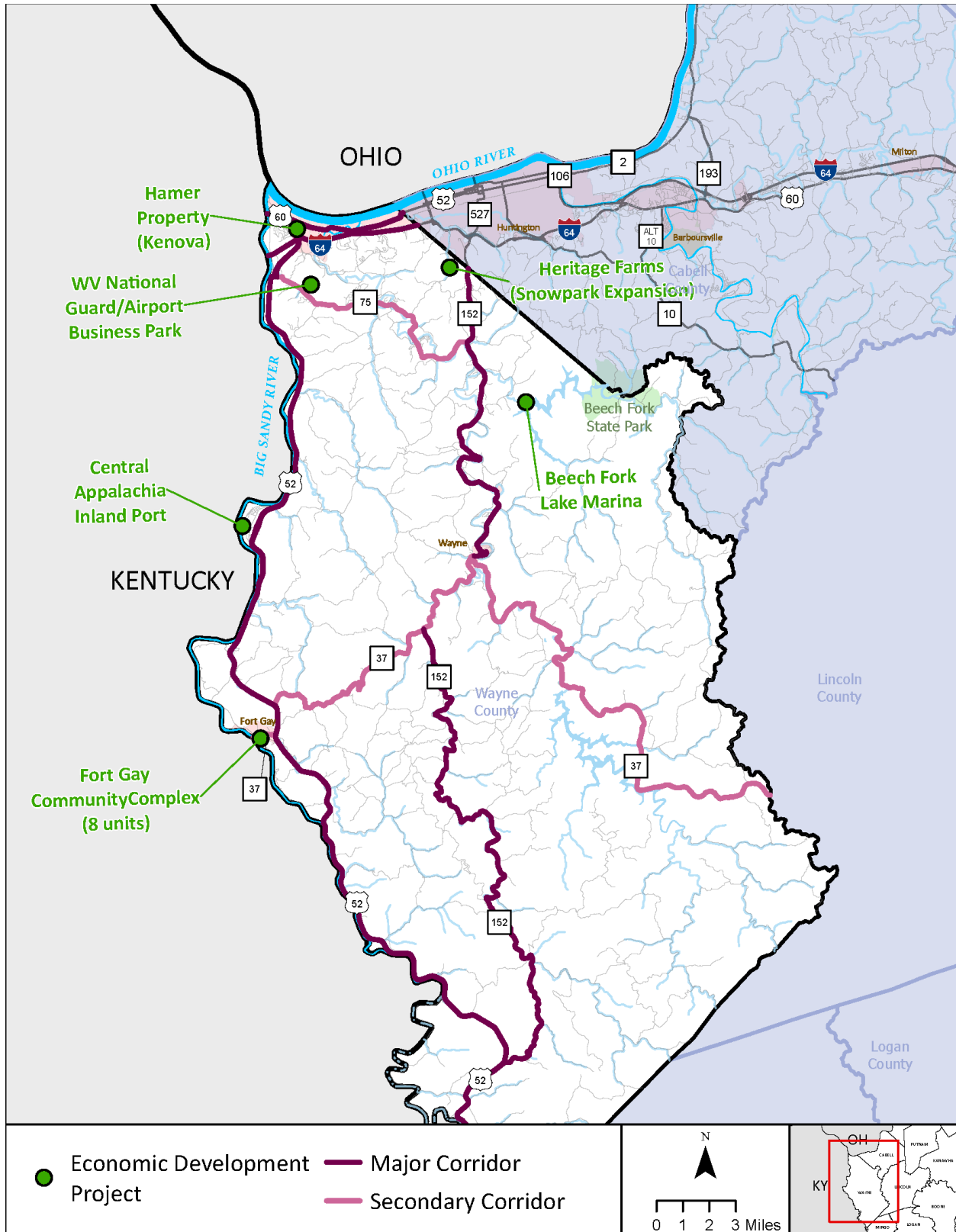


Figure 5: Economic Developments and Areas of Interest, Wayne County

Development Scenarios

For Task 4, two alternative growth scenarios encompassing the development locations shown in Figures 4 and 5 above were developed.

The two alternatives, which will be described broadly as “Moderate Growth” and Aggressive Growth”, will be based on input received from the Steering Committee and KYOVA staff and guided by the Study’s Vision Statement, which was developed in Task 3:

“To identify probable growth areas in the vicinity of Cabell and Wayne County, West Virginia and develop improvement strategies and projects needed on major transportation corridors to support sustainable growth, enhanced mobility, and economic development opportunities for the region”.

Given the fluidity of emerging development initiatives and the twenty-plus year time horizon associated with KYOVA’s MTP, the development of alternative growth scenarios is appropriate. The alternative growth scenarios will provide valuable context to the range of potential impacts and ancillary deficiencies generated by each of the developments and will allow the aggregate impacts to the transportation network to be observed. For each economic development location identified, the previous assumptions associated with the Revised 2050 Existing Conditions Baseline developed in Task 2 regarding their phasing, size, types of development, etc. were reevaluated and adjusted to reflect more robust levels of socioeconomic activity.

Impact Assumptions

General assumptions regarding each economic development initiative and area of interest were outlined for each alternative growth scenario and mirror the methodologies used in Task 2. MBI staff used multiple technical resources and techniques to estimate the changes in Employment, Population, Households, Land Use and Trips associated with each development location. Where available MBI made use of TIS’s for trip estimates and relied heavily on information provided by local developers and planners regarding future use, size, time horizon and phasing. Individual parcels located near Milton and Culloden were examined using WV Tax Maps and Google Earth to obtain acreage, existing use, and overall topography to gauge the potential for future residential expansion, in part due to the improved access resulting from the construction of the new Culloden Interchange and in part due to the documented need for additional housing in the region.

Estimates of the number of Full Time Employees (FTEs) created by the individual developments were calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual and broader “rules of thumb” for FTEs/SF of representative development (i.e., warehousing, office space, food service, etc.). Where local developers were able to provide estimates of FTEs those values were used in the analysis. During Task 2, assumptions regarding adjustments to Employment in TAZ 557 near Beech Fork Lake Marina were made based on engineering judgement to account for businesses known to exist in the area. The alternative growth scenarios build upon that information and extend to changes in Population and Households that may occur in conjunction with the Appalachian Heartland Initiative on WV 152 and the construction of the Beech Fork Lake access road and lodge.

Each TAZ directly impacted by identified economic initiatives was reviewed remotely using Google Earth imagery to evaluate its overall potential for increases in the amount or density of residential, commercial and

industrial development. The Population, Households and Employment inputs of each impacted TAZ from KYOVA's existing TDM were also reviewed to determine their previously assumed growth rates. The results of both reviews were in turn used to inform the development of alternative growth rates, which were generally applied to either KYOVA's 2050 Existing Conditions inputs or the Revised 2050 Existing Conditions Baseline inputs developed in Task 2.

Deficiency Assumptions

The Deficiency assumptions and definitions for the alternative growth scenarios developed for this Study are identical to those developed in Task 2 for the Revised 2050 Existing Conditions Baseline. Deficiencies were broadly categorized previously, as being either quantitative or qualitative in nature.

The quantitative deficiencies were derived from negative impacts to select outputs on a subset of segments contained within KYOVA's TDM. The subset used for analysis totaled 634 segments, of which 433 and 201 are located in Cabell and Wayne County, respectively. This subset of segments encompasses 277 miles of the Major and Secondary corridors in the area. While the TDM generates multiple network level impacts, Volume to Capacity (V/C) ratios and Levels of Service (LOSs) were used as the basis for quantitative deficiency identification. Specifically, a deficiency will be considered to exist on any identified segment that drops a LOS, to D or below compared to KYOVA's 2050 Existing Condition output, as a result of the growth scenario's input changes. In addition, any subset segment that was previously identified in KYOVA's 2050 Existing Condition output as being at LOS F will also be considered a deficiency. V/C ratio will be used to gauge the degree of deficiency (i.e. where is the segment in the LOS range). KYOVA's TDM assigns a LOS D to V/C ratios between 0.7 and 0.84, LOS E to V/C ratios of 0.85 and 0.99 and a LOS F to any V/C ratio at or above 1.0.

In addition to the quantitative analysis, a qualitative deficiency analysis of areas of concern that could negatively impact commercial, passenger, transit and pedestrian/non-motorized traffic was also developed during Task 2. The general items selected for evaluation were deficient bridges, at-grade railroad crossings, roadway flooding issues, safety issues and transit issues. Ultimately for these items, a "deficiency" was deemed to exist on Study routes under the following conditions:

- Any structurally deficient/and or Posted bridges currently unprogrammed;
- Any at-grade railroad crossings located which are ranked in the top 10 for each county by the Federal Rail Administrations (FRA's) Grade Crossing Accident Prediction System (GXAPS);
- Any areas of pervasive roadway flooding identified by local maintenance personnel;
- Any unprogrammed traffic safety issue identified in KYOVA's MTP or the WVDOH's Statewide Vulnerable Road User (VRU) Assessment; and,
- Any identified economic development initiative or area of interest located more than one mile from an existing public transit route.

In contrast to the quantitative deficiencies identified for this Study, the qualitative deficiencies will remain static under the Moderate and Aggressive Growth Scenarios and be identical to the results of Task 2.

RESULTS

Scenario Assumptions and Impacts

The general assumptions for each specific development and area of interest for the Moderate Growth Scenario and for the Aggressive Growth Scenario are shown in Appendix A and B, respectively. Since the assumptions tend to be built upon one another, variations at each location are displayed in different colors. Using a combination of the general assumptions and the estimation methodologies described above, the impacts to the TDM inputs for the 17 TAZ's and 4 External Nodes were calculated for each alternative growth scenario. A summary of how the revisions differ from KYOVA's 2050 Existing information by TAZ and External Node for the "Moderate Growth" and Aggressive Growth" scenarios can be seen in Figures 6 and 7. For context, the values and differences from the Revised 2050 Existing Conditions Baseline are also shown in Figure 8.

Revised Values for 2050 Moderate Growth Scenario Conditions Based on Assumptions

IDENTIFIED DEVELOPMENTS	TAZ or EXTERNAL NODE	Total Employment			Population (Pop)			Households (HH)		
		KYOVA 2050	MODERATE 2050	2050 DIFFERENCE	KYOVA 2050	MODERATE 2050	2050 DIFFERENCE	KYOVA 2050	MODERATE 2050	2050 DIFFERENCE
Prichard Building (108 units)	20	1,127	1,317	190	60	201	141	46	154	108
IDEA District	22	428	829	401	644	644	0	401	401	0
HBIZ Part 1 Foundry Center/University Park	40	546	1,076	530	10	286	276	8	229	221
HBIZ (former ACF property) Part 2	44	421	824	403	365	402	37	167	184	17
Imperial Lofts (36 units)	63	71	78	7	606	767	161	241	305	64
Barnett Commons (32 units)	73	123	135	12	473	608	135	189	243	54
Proposed Welcome Center	94	47	78	31	573	631	58	296	327	31
Childers Crossing (70 units)	117	1,225	1,348	123	669	914	245	287	392	105
Alcon	137	207	228	21	339	383	44	133	150	17
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,425	1,496	71	1,636	2,460	824	695	1,045	350
Culloden I/C South, Grand Patrician	151	702	737	35	3,284	3,448	164	1,386	1,455	69
Hamer Property (Kenova)	513	70	1,270	1,200	244	244	0	124	124	0
WV National Guard/Airport Business Park	529	274	1,055	781	503	553	50	200	220	20
Heritage Farms (Snowpark Expansion)	535	1	100	99	666	733	67	249	274	25
Fort Gay Community Complex (8 units)	546	312	343	31	705	794	89	323	364	41
Beech Fork Lake Marina	557	0	181	181	930	1,487	557	355	625	270
Central Appalachia Inland Port	558	30	280	250	2,329	2,562	233	907	998	91
EXTERNAL DEVELOPMENTS	EXTERNAL NODE	ADDITIONAL TRIPS		NODE LOCATION	EXTERNAL NODE TRIPS					
					KYOVA 2050	MODERATE 2050	2050 DIFFERENCE			
ICL	9004	0		WV 2 Cabell/Mason CL	8,020	8,889	869			
Nucor & APG		488								
EDA Property		281								
Frontierias		100								
ICL	9005*	0		(CR's 41&13) Mason/Cabell CL Ashton Upland Rd	2,322	2,554	232			
Nucor & APG		0								
EDA Property		0								
Frontierias		0								
Milton/Culloden I/C's property North of I-64	9006*	0		I-64 (Putnam/Cabell CL) @ Culloden	63,220	66,381	3,161			
Milton/Culloden I/C's property North of I-64		0								
Culloden I/C's property South of I-64 (Putnam County)		0								
Woodworth Farms		0								
Culloden I/C's property South of I-64 (Putnam County)	9007	1,278		US 60 (Putnam/Cabell CL) @ Culloden	13,460	16,016	2,556			
Woodworth Farm		1,278								
*NOTE: A FLAT GROWTH RATE (%) WAS APPLIED TO THE EXTERNAL NODES PROJECTED 2050 TRIPS IN KYOVAS CURRENT MODEL TO ACCOUNT FOR ADDITIONAL TRIPS STEMMING FROM ALL DEVELOPMENTS IN THE AREA										

Figure 6: Summary of Input Revisions by TAZ and External Node, Moderate Growth Scenario

Revised Values for 2050 Aggressive Growth Scenario Conditions Based on Assumptions

IDENTIFIED DEVELOPMENTS	TAZ or EXTERNAL NODE	Total Employment			Population (Pop)			Households (HH)		
		KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE	KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE	KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE
Prichard Building (108 units)	20	1,127	1,436	309	60	201	141	46	154	108
IDEA District	22	428	925	497	644	708	64	401	441	40
HBIZ Part 1 Foundry Center/University Park	40	546	1,174	628	10	312	302	8	250	242
HBIZ (former ACF property) Part 2	44	421	899	478	365	438	73	167	200	33
Imperial Lofts (36 units)	63	71	85	14	606	836	230	241	332	91
Barnett Commons (32 units)	73	123	148	25	473	664	191	189	265	76
Proposed Welcome Center	94	47	85	38	573	689	116	296	356	60
Childers Crossing (70 units)	117	1,225	1,470	245	669	1,077	408	287	462	175
Alcon	137	207	248	41	339	418	79	133	163	30
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,425	1,568	143	1,636	3,284	1,648	695	1,395	700
Culloden I/C South, Grand Patrician	151	702	772	70	3,284	3,612	328	1,386	1,525	139
Hamer Property (Kenova)	513	70	2,870	2,800	244	293	49	124	149	25
WV National Guard/Airport Business Park	529	274	1,355	1,081	503	604	101	200	240	40
Heritage Farms (Snowpark Expansion)	535	1	125	124	666	799	133	249	299	50
Fort Gay Community Complex (8 units)	546	312	374	62	705	866	161	323	397	74
Beech Fork Lake Marina	557	0	217	217	930	1,784	854	355	682	327
Central Appalachia Inland Port	558	30	337	307	2,329	2,795	466	907	1,088	181
EXTERNAL DEVELOPMENTS	EXTERNAL NODE	ADDITIONAL TRIPS	NODE LOCATION	EXTERNAL NODE TRIPS						
				KYOVA 2050	AGGRESSIVE 2050	2050 DIFFERENCE				
ICL	9004	0	WV 2 Cabell/Mason CL	8,020	9,294	1,274				
Nucor & APG		512								
EDA Property		562								
Frontierias		200								
ICL	9005*	0	(CR's 41&13) Mason/Cabell CL Ashton Upland Rd	2,322	2,786	464				
Nucor & APG		0								
EDA Property		0								
Frontierias		0								
Milton/Culloden I/C's property North of I-64	9006*	0	I-64 (Putnam/Cabell CL) @ Culloden	63,220	69,542	6,322				
Milton/Culloden I/C's property North of I-64		0								
Culloden I/C's property South of I-64 (Putnam County)		0								
Woodworth Farm	9007	2,556	US 60 (Putnam/Cabell CL) @ Culloden	13,460	17,294	3,834				
Culloden I/C's property South of I-64 (Putnam County)		1,278								
Woodworth Farm										
*NOTE: A FLAT GROWTH RATE (%) WAS APPLIED TO THE EXTERNAL NODES PROJECTED 2050 TRIPS IN KYOVAS CURRENT MODEL TO ACCOUNT FOR ADDITIONAL TRIPS STEMMING FROM ALL DEVELOPMENTS IN THE AREA										

Figure 7: Summary of Input Revisions by TAZ and External Node, Aggressive Growth Scenario

Revised Values for 2050 Existing Conditions Based on Assumptions

IDENTIFIED DEVELOPMENTS	TAZ or EXTERNAL NODE	Total Employment			Population (Pop)			Households (HH)		
		KYOVA 2050	REVISED 2050	2050 DIFFERENCE	KYOVA 2050	REVISED 2050	2050 DIFFERENCE	KYOVA 2050	REVISED 2050	2050 DIFFERENCE
IDEA District	22	428	679	251	644	644	0	401	401	0
HBIZ (former ACF property) Part 2	44	421	749	328	365	365	0	167	167	0
Barnett Commons (32 units)	73	123	123	0	473	553	80	189	221	32
Imperial Lofts (36 units)	63	71	71	0	606	697	91	241	277	36
Prichard Building (108 units)	20	1,127	1,127	0	60	201	141	46	154	108
HBIZ Part 1 Foundry Center/University Park	40	546	978	432	10	260	250	8	208	200
Proposed Welcome Center	94	47	71	24	573	574	1	296	297	1
Alcon	137	207	207	0	339	348	9	133	136	3
Culloden I/C South, Grand Patrician	151	702	702	0	3,284	3,284	0	1,386	1,386	0
Childers Crossing (70 units)	117	1,225	1,225	0	669	832	163	287	357	70
Fort Gay Community Complex (8 units)	546	312	312	0	705	722	17	323	331	8
WV National Guard/Airport Business Park	529	274	755	481	503	503	0	200	200	0
Central Appalachia Inland Port	558	30	222	192	2,329	2,329	0	907	907	0
Beech Fork Lake Marina	557	0	113	113	930	930	0	355	355	0
Hamer Property (Kenova)	513	70	70	0	244	244	0	124	124	0
Heritage Farms (Snowpark Expansion)	535	1	80	79	666	666	0	249	249	0
Milton & Culloden I/C North (Cabell/Putnam County)	140	1,425	1,425	0	1,636	1,636	0	695	695	0
EXTERNAL DEVELOPMENTS	EXTERNAL NODE	ADDITIONAL TRIPS			NODE LOCATION	EXTERNAL NODE TRIPS				
						KYOVA 2050	REVISED 2050	2050 DIFFERENCE		
ICL	9004	0			WV 2 Cabell/Mason CL	8,020	8,485	465		
Nucor & APG		465								
EDA Property		0								
Frontierias		0								
ICL	9005	0			(CR's 41&13) Mason/Cabell CL Ashton Upland Rd	2,322	2,322	0		
Nucor & APG		0								
EDA Property		0								
Frontierias		0								
Milton/Culloden I/C's property North of I-64		0								
Milton/Culloden I/C's property North of I-64	9006	0			I-64 (Putnam/Cabell CL) @ Culloden	63,220	63,220	0		
Culloden I/C's property South of I-64 (Putnam County)		0								
Woodworth Farms		0								
Culloden I/C's property South of I-64 (Putnam County)	9007	0			US 60 (Putnam/Cabell CL) @ Culloden	13,460	14,738	1,278		
Woodworth Farm		1,278								

Figure 8: Summary of Input Revisions by TAZ and External Node, Revised 2050 Existing Condition Baseline

A review of Figure 6 indicates that under the Moderate Growth Scenario It is estimated that Total Employment would be 4,369 FTEs higher in Cabell and Wayne counties due to the additional economic developments. Likewise, Population and number of Households were estimated to increase by 3,081 and 1,481, respectively in this scenario over the current KYOVA 2050 Existing Conditions. Likewise, a review of Figure 7 demonstrates that under the Aggressive Growth Scenario, those same inputs would increase by 7,079 FTE's, 5,344 individuals and 2,392 Households over the current KYOVA 2050 Existing Condition Baseline.

A review of the Revised 2050 Existing Condition Baseline information in Figure 8 developed in Task 2 indicates that for the 4 External Nodes most of the development occurring outside of Cabell and Wayne counties was assumed to have been accounted for in KYOVA's existing model run; however, 1,743 trips per day were still added in response to the Nucor development in Mason County and Woodworth Farm development in Putnam County. Under the Moderate and Aggressive Growth Scenarios, the External Nodes will reflect another influx of trips stemming from the phased buildout of the various economic initiatives located outside the study area.

It is anticipated that the construction of warehousing and light industrial facilities on the West Virginia Economic Development Authority's property (i.e. the EDA Property) in the vicinity of Nucor, growth of Nucor itself as well as the recently announced Frontieras development farther north in Point pleasant will each contribute to trip growth coming from the North. Similarly, it is anticipated that the improved access provided by the new Culloden Interchange will spur additional economic developments, especially residential in Putnam County impacting trips entering the region from the East on I-64 and US 60. A brief description of all the developments and areas of interest is included in Appendix C.

A Review of Figures 6 and 7 indicates that a total of 6,818 and 11,894 external trips were added to the TDM analysis under the Moderate and Aggressive Growth scenarios, respectively. It is noted that multiple economic development announcements have occurred, since the list of developments to be analyzed was finalized. Investments by Google and yet another expansion by Alcon are welcome news for the economic vitality of the region and will most certainly have an impact on KYOVA's traffic network, but their consideration remains outside the scope of this Study. Likewise, MBI staff were informed of potential expansions and developments in conjunction with Cabwaylingo State Forest and Rustic Ravines in southern Wayne County, due to timing issues, these new developments also lie outside the scope of this Study but should be addressed as part of KYOVA's next MTP update.

Deficiencies

Quantitative

The LOS and V/C results for all 634 segments of the TDM output were generated and reviewed for the Moderate and Aggressive Growth Scenarios. The deficient segments of each alternative scenario are shown in Figures 9 and 10, for Moderate and Aggressive Growth, respectively. For context, the deficient segments under the Revised 2050 Existing Conditions Baseline are shown in Figure 11 as well. The corresponding network LOS deficiencies for each scenario are shown graphically on Figures 12 through 14.

Based on the definition of a deficiency, under the Moderate Growth Scenario 29 Study links totaling 6.40 miles meet the criteria. Under the Moderate Growth Scenario, development of the Hamer Property in Kenova

triggers LOS deficiencies on WV 75 in that area and new and expanded developments in Mason County and along WV 2 in general trigger LOS deficiencies on the southern end of that corridor. Under the Aggressive Scenario the number of deficient links increases to 39, which impact 9.05 miles of roadway. The Aggressive Growth Scenario causes a broader erosion of LOS on US 60 and Benedict Road in connection with the buildout of properties in Cabell and Putnam counties around the Culloden interchange. In addition, the full buildout potential of the Hamer Property further degrades WV 75 between Maple Street and I-64.

Link ID	Link Distance (miles)	Sign System 1 = INT 2 = US 3 = WV 4 = CR	Route Number	Segment Road Name	County	Daily Volume 2050 Moderate Growth Both Directions	Daily Volume KYOVA Original 2050 Baseline Both Directions	Daily Change in Volume Moderate Minus Original	Daily Link Capacity All Scenarios Both Directions	Daily V/C Ratio KYOVA Original 2050 Baseline Both Directions	Daily V/C Ratio Revised 2050 Moderate Growth Both Directions	Daily LOS KYOVA Original 2050 Baseline Both Directions	Daily LOS Revised 2050 Moderate Growth Both Directions
5362	0.4	1	64	I-64 WB 023	Cabell	38,398	36,921	1,477	54,648	0.67	0.70	C+	D
5351	0.22	1	64	I-64 WB 026	Cabell	38,398	36,921	1,477	54,648	0.67	0.70	C+	D
5348	0.49	1	64	I-64 WB 027	Cabell	38,398	36,921	1,477	54,648	0.67	0.70	C+	D
8610	0.29	2	52	US Highway 52 0 3064	Cabell	11,735	11,641	93	11,543	1.00	1.01	F	F
4722	0.31	2	52	US Highway 52 0 3064I	Cabell	12,228	12,130	98	11,543	1.05	1.05	F	F
5713	0.14	2	52	Hwy52 SB Ramp B	Cabell	8,807	8,493	313	10,000	0.84	0.88	D	E
8634	0.12	2	52	Hwy52 SB Ramp B	Cabell	8,807	8,493	313	10,000	0.84	0.88	D	E
8638	0.22	2	52	Hwy52 SB Ramp B	Cabell	8,807	8,493	313	10,000	0.84	0.88	D	E
8609	0.31	2	52	US Highway 52 0 3064I	Cabell	12,228	12,130	98	11,543	1.05	1.05	F	F
4544	0.23	2	60	First Ave 60 0 2317	Cabell	15,629	13,367	2,262	21,546	0.62	0.72	C+	D
4529	0.19	2	60	First Ave 60 0 2342	Cabell	15,629	13,367	2,262	21,546	0.62	0.72	C+	D
4543	0.04	2	60	US Highway 60 0 2263A	Cabell	16,016	13,460	2,556	21,546	0.62	0.74	C+	D
5412	0.12	2	60	US Highway 60 0 2450	Cabell	19,396	17,636	1,759	21,546	0.81	0.90	D	E
5328	0.21	2	60	US Highway 60 0 2883	Cabell	25,958	25,637	321	19,996	1.28	1.29	F	F
5302	0.28	2	60	US Highway 60 0 3027	Cabell	22,190	21,839	351	19,996	1.09	1.10	F	F
5146	0.21	2	60	US Highway 60 0 3502	Cabell	29,721	28,823	898	34,080	0.84	0.87	D	E
5166	0.3	2	60	US Highway 60 3499 3807A	Cabell	29,578	28,914	664	34,080	0.84	0.86	D	E
4382	0.14	3	2	3rd Ave 2 3300 1256	Cabell	11,364	10,509	855	15,759	0.66	0.72	C+	D
4381	0.07	3	2	3rd Ave 2 3600 1219	Cabell	11,364	10,509	855	15,759	0.66	0.72	C+	D
4310	0.32	3	2	Bridge St 2 400 1284	Cabell	11,254	10,406	849	15,759	0.66	0.71	C+	D
6308	0.12	3	10	16th Street 10 0 5813	Cabell	24,250	23,751	500	34,080	0.69	0.71	C+	D
4313	0.1	3	106	State Route 106 0 1313	Cabell	18,348	18,196	151	21,546	0.84	0.85	D	E
3630	0.64	3	106	N/A 0607 Adn/a 32341	Cabell	18,348	18,196	151	16,416	1.10	1.11	F	F
5792	0.18	3	527	State Route 527 0 5568	Cabell	22,301	21,859	442	16,416	1.33	1.35	F	F
5793	0.1	3	527	State Route 527 0 5594	Cabell	22,889	22,456	433	16,416	1.36	1.39	F	F
4539	0.26	4	60/21	Benedict Rd 60 0 2263B	Cabell	10,427	9,322	1,104	14,771	0.63	0.70	C+	D
6173	0.08	3	75	State Route 75 0 7516	Wayne	14,609	12,700	1,909	16,416	0.77	0.89	D	E
6145	0.22	3	75	SR75 RTn/a 0 7425	Wayne	8,507	5,373	3,135	10,912	0.49	0.78	C+	D
6151	0.09	3	75	State Route 75 0 7463	Wayne	9,456	6,391	3,066	10,912	0.59	0.87	C+	E

Figure 9: Summary of LOS Deficiency for Revised 2050 Moderate Growth Scenario Conditions

ID	Link Distance (miles)	Sign System 1 = INT 2 = US 3 = WV 4 = CR	Route Number	Segment Road Name	County	Daily Volume 2050 Aggressive Growth Both Directions	Daily Volume KYOVA Original 2050 Baseline Both Directions	Daily Change in Volume Aggressive Growth Minus Original	Daily Link Capacity All Scenarios Both Directions	Daily V/C Ratio KYOVA Original 2050 Baseline Both Directions	Daily V/C Ratio Revised 2050 Aggressive Growth Both Directions	Daily LOS KYOVA Original 2050 Baseline Both Directions	Daily LOS Revised 2050 Aggressive Growth Both Directions
5362	0.4	1	64	I-64 WB 023	Cabell	39,386	36,921	2,465	54,648	0.67	0.72	C+	D
5351	0.22	1	64	I-64 WB 026	Cabell	39,386	36,921	2,465	54,648	0.67	0.72	C+	D
5348	0.49	1	64	I-64 WB 027	Cabell	39,386	36,921	2,465	54,648	0.67	0.72	C+	D
8610	0.29	2	52	US Highway 52 0 3064	Cabell	11,850	11,641	209	11,543	1.00	1.02	F	F
4722	0.31	2	52	US Highway 52 0 3064I	Cabell	12,359	12,130	229	11,543	1.05	1.07	F	F
5713	0.14	2	52	Hwy52 SB Ramp B	Cabell	9,111	8,493	617	10,000	0.84	0.91	D	E
8634	0.12	2	52	Hwy52 SB Ramp B	Cabell	9,111	8,493	617	10,000	0.84	0.91	D	E
8638	0.22	2	52	Hwy52 SB Ramp B	Cabell	9,111	8,493	617	10,000	0.84	0.91	D	E
8609	0.31	2	52	US Highway 52 0 3064I	Cabell	12,359	12,130	229	11,543	1.05	1.07	F	F
4544	0.23	2	60	First Ave 60 0 2317	Cabell	17,195	13,367	3,828	21,546	0.62	0.79	C+	D
4529	0.19	2	60	First Ave 60 0 2342	Cabell	17,195	13,367	3,828	21,546	0.62	0.79	C+	D
3703	1.28	2	60	US Highway 60 0 1125	Cabell	14,372	12,764	1,609	16,416	0.77	0.87	D	E
4543	0.04	2	60	US Highway 60 0 2263A	Cabell	17,294	13,460	3,834	21,546	0.62	0.8	C+	D
5412	0.12	2	60	US Highway 60 0 2450	Cabell	20,661	17,636	3,025	21,546	0.81	0.95	D	E
5328	0.21	2	60	US Highway 60 0 2883	Cabell	26,254	25,637	617	19,996	1.28	1.31	F	F
5302	0.28	2	60	US Highway 60 0 3027	Cabell	22,523	21,839	684	19,996	1.09	1.12	F	F
5146	0.21	2	60	US Highway 60 0 3502	Cabell	30,110	28,823	1,287	34,080	0.84	0.88	D	E
5356	0.22	2	60	US Highway 60 0 3898	Cabell	16,358	15,837	521	23,147	0.68	0.7	C+	D
5357	0.46	2	60	US Highway 60 0 4048	Cabell	16,358	15,837	521	23,147	0.68	0.7	C+	D
3717	0.04	2	60	US Highway 60 0 971	Cabell	14,171	13,244	927	16,416	0.80	0.86	D	E
5141	0.11	2	60	US Highway 60 1413 3178	Cabell	29,052	27,875	1,178	34,080	0.81	0.85	D	E
5166	0.3	2	60	US Highway 60 3499 3807A	Cabell	29,965	28,914	1,051	34,080	0.84	0.87	D	E
4382	0.14	3	2	3rd Ave 2 3300 1256	Cabell	11,832	10,509	1,323	15,759	0.66	0.75	C+	D
4381	0.07	3	2	3rd Ave 2 3600 1219	Cabell	11,832	10,509	1,323	15,759	0.66	0.75	C+	D
4310	0.32	3	2	Bridge St 2 400 1284	Cabell	11,693	10,406	1,287	15,759	0.66	0.74	C+	D
6308	0.12	3	10	16th Street 10 0 5813	Cabell	24,564	23,751	814	34,080	0.69	0.72	C+	D
4965	0.12	3	10	Hal Greer B 10 0 2522	Cabell	23,842	22,541	1,301	33,981	0.66	0.7	C+	D
5040	0.07	3	10	Hal Greer B 10 1100 3557A	Cabell	26,538	25,183	1,355	37,428	0.67	0.7	C+	D
4313	0.1	3	106	State Route 106 0 1313	Cabell	18,406	18,196	209	21,546	0.84	0.85	D	E
3630	0.64	3	106	N/A 0607 Adn/a 32341	Cabell	18,406	18,196	209	16,416	1.10	1.12	F	F
5792	0.18	3	527	State Route 527 0 5568	Cabell	22,413	21,859	553	16,416	1.33	1.36	F	F
5793	0.1	3	527	State Route 527 0 5594	Cabell	23,000	22,456	544	16,416	1.36	1.4	F	F
4539	0.26	4	60/21	Benedict Rd 60 0 2263B	Cabell	11,468	9,322	2,146	14,771	0.63	0.77	C+	D
6174	0.04	2	52	US Highway 52 0 7549	Wayne	16,656	12,700	3,956	21,546	0.59	0.77	C+	D
5579	0.23	2	60	C St 60 0 7294	Wayne	12,833	10,479	2,354	16,416	0.64	0.78	C+	D
6173	0.08	3	75	State Route 75 0 7516	Wayne	16,656	12,700	3,956	16,416	0.77	1.01	D	F
6145	0.22	3	75	SR75 RTn/a 0 7425	Wayne	11,845	5,373	6,473	10,912	0.49	1.08	C+	F
6151	0.09	3	75	State Route 75 0 7463	Wayne	12,740	6,391	6,350	10,912	0.59	1.16	C+	F
6165	0.08	3	75	State Route 75 0 7475	Wayne	12,740	6,391	6,350	16,047	0.40	0.79	C+	D

Figure 10: Summary of LOS Deficiency for Revised 2050 Aggressive Growth Scenario Conditions

Link ID	Link Distance (miles)	Sign System 1 = INT 2 = US 3 = WV 4 = CR	Route Number	Segment Road Name	County	Daily Volume Revised 2050 Baseline Both Directions	Daily Volume KYOVA Original 2050 Baseline Both Directions	Daily Change in Volume Revised Minus Original	Daily Link Capacity All Scenarios Both Directions	Daily V/C Ratio KYOVA Original 2050 Baseline Both Directions	Daily V/C Ratio Revised 2050 Baseline Both Directions	Daily LOS KYOVA Original 2050 Baseline Both Directions	Daily LOS Revised 2050 Baseline Both Directions
8610	0.29	2	52	US Highway 52 0 3064	Cabell	11,634	11,641	-7	11,543	1.00	1.00	F	F
4722	0.31	2	52	US Highway 52 0 3064I	Cabell	12,120	12,130	-10	11,543	1.05	1.05	F	F
5713	0.14	2	52	Hwy52 SB Ramp B	Cabell	8,533	8,493	40	10,000	0.84	0.85	D	E
8634	0.12	2	52	Hwy52 SB Ramp B	Cabell	8,533	8,493	40	10,000	0.84	0.85	D	E
8638	0.22	2	52	Hwy52 SB Ramp B	Cabell	8,533	8,493	40	10,000	0.84	0.85	D	E
8609	0.31	2	52	US Highway 52 0 3064I	Cabell	12,120	12,130	-10	11,543	1.05	1.05	F	F
5328	0.21	2	60	US Highway 60 0 2883	Cabell	25,695	25,637	58	19,996	1.28	1.28	F	F
5302	0.28	2	60	US Highway 60 0 3027	Cabell	21,903	21,839	64	19,996	1.09	1.09	F	F
5146	0.21	2	60	US Highway 60 0 3502	Cabell	29,327	28,823	504	34,080	0.84	0.86	D	E
5166	0.3	2	60	US Highway 60 3499 3807A	Cabell	29,245	28,914	331	34,080	0.84	0.85	D	E
6308	0.12	3	10	16th Street 10 0 5813	Cabell	23,910	23,751	160	34,080	0.69	0.70	C+	D
3630	0.64	3	106	N/A 0607 Adn/a 32341	Cabell	18,313	18,196	116	16,416	1.10	1.11	F	F
5792	0.18	3	527	State Route 527 0 5568	Cabell	22,049	21,859	190	16,416	1.33	1.34	F	F
5793	0.1	3	527	State Route 527 0 5594	Cabell	22,639	22,456	183	16,416	1.36	1.37	F	F

Figure 11: Summary of LOS Deficiency for Revised 2050 Baseline Conditions

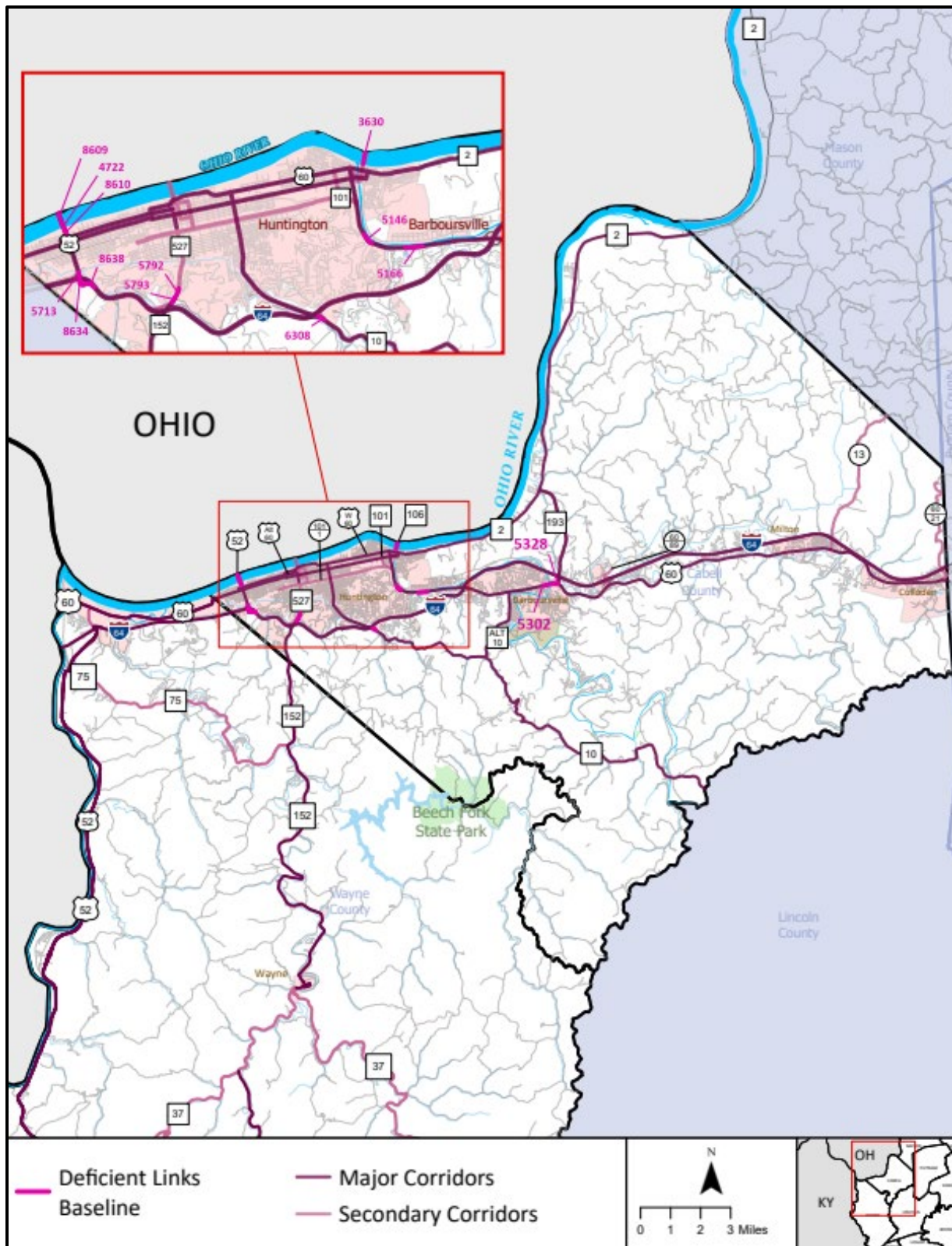


Figure 12: LOS Deficiency Locations and TDM Link ID# for Revised 2050 Baseline Conditions

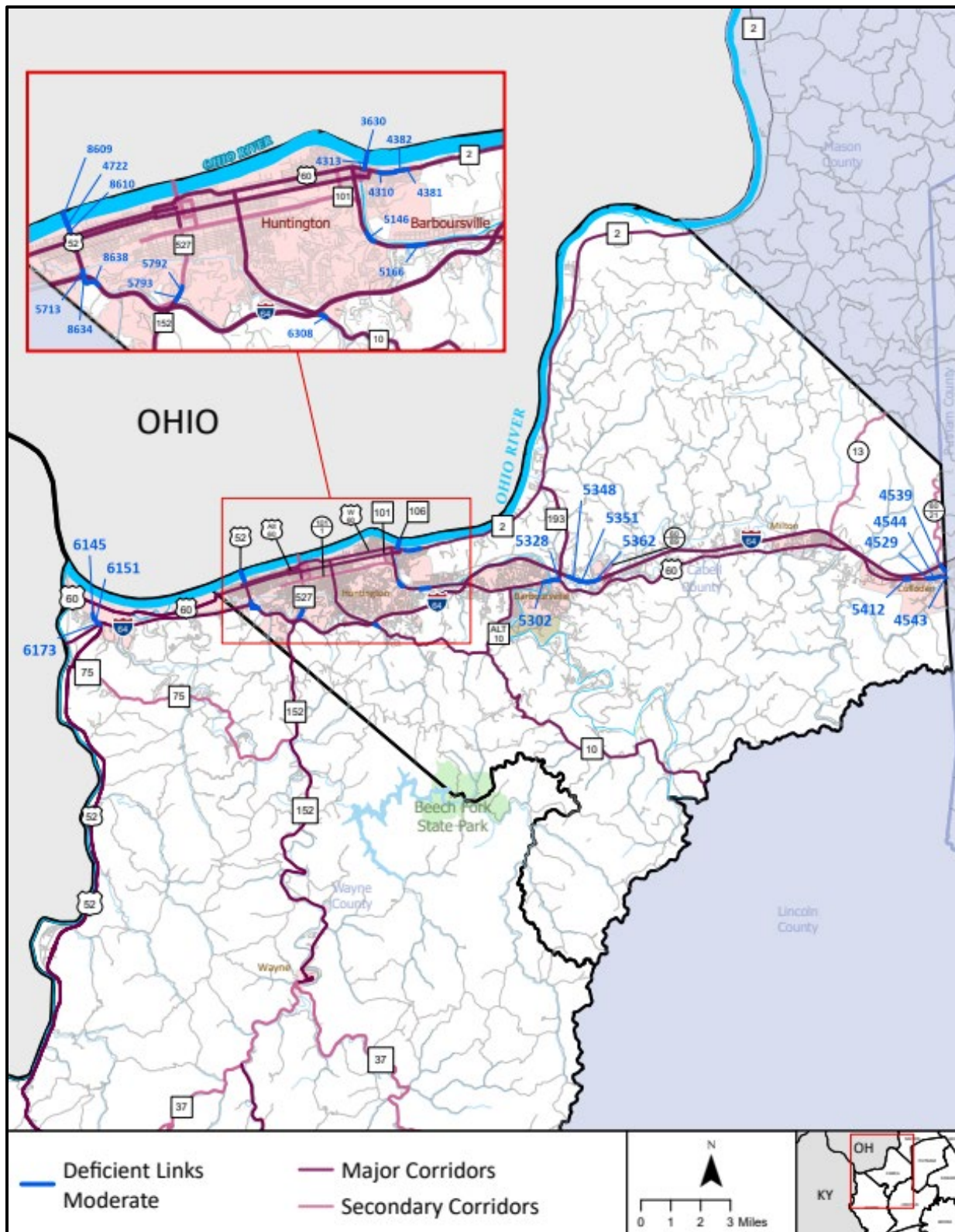


Figure 13: LOS Deficiency Locations and TDM Link ID# for Revised 2050 Moderate Growth Scenario Conditions

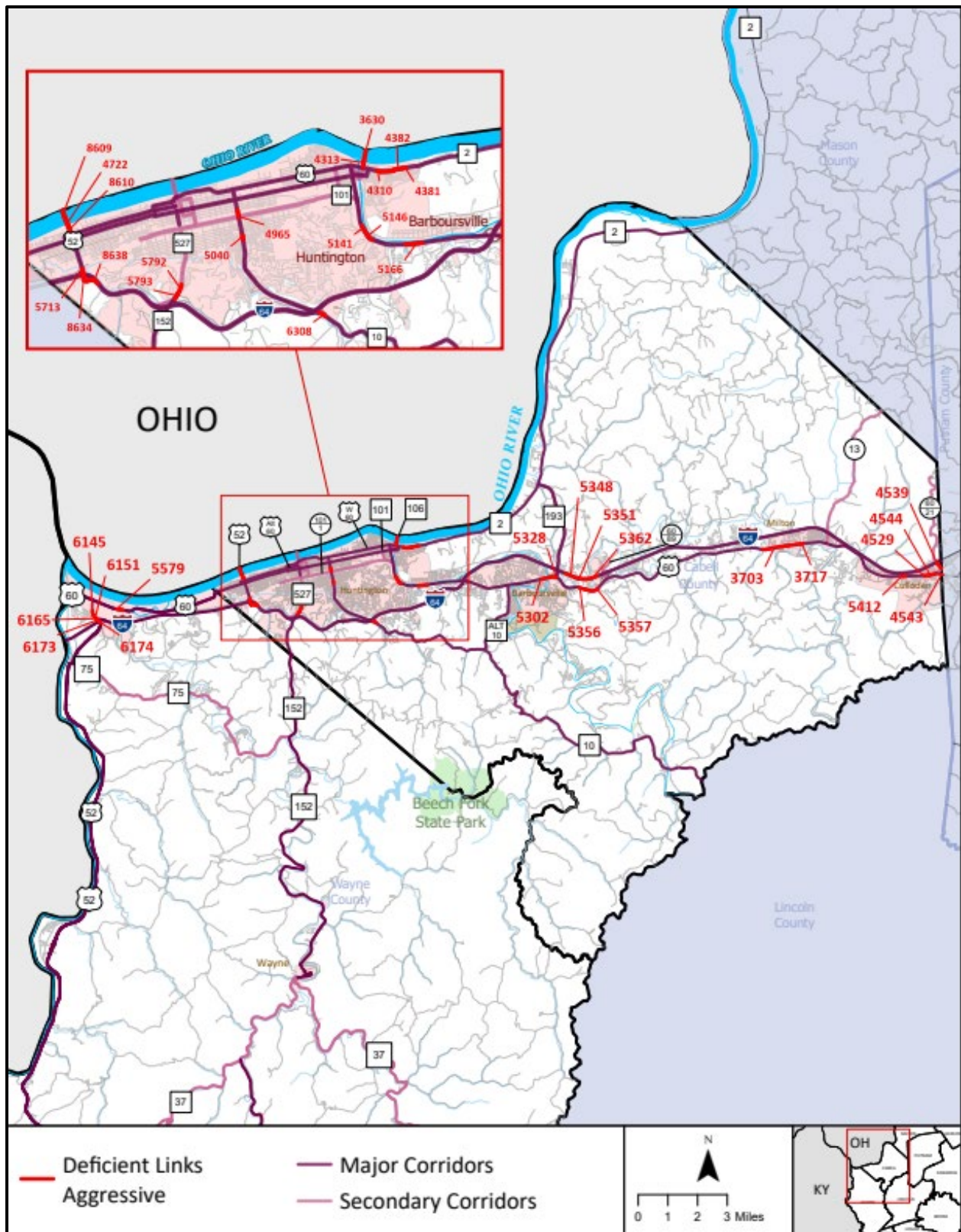


Figure 14: LOS Deficiency Locations and TDM Link ID# for Revised 2050 Aggressive Growth Scenario Conditions

A review of Figures 9 through 14 shows that while the LOS deficiencies continue to expand with higher levels of economic development, only the portion of WV 75 adjacent to the Hamer Property in Kenova under the Aggressive Growth Scenario degraded to LOS F beyond those that were originally identified in KYOVA's existing model. This result points to the overall resiliency of KYOVA's existing roadway network. In addition, many of the LOS deficiency issues in Cabell County are located on US 60, which overlap documented safety issues identified in Task 2 and which will be described again under the qualitative deficiency results below. KYOVA's fiscally constrained MTP contains several projects on the US 60 corridor. It is highly likely that as these projects are implemented spot capacity issues would also be addressed in some fashion, which may help mitigate some of the LOS deficiencies identified.

Qualitative

Unlike the quantitative deficiencies which exhibited significant differences amongst the three development scenarios, the qualitative deficiencies identified on the Major and Secondary Corridors are not impacted by the alternative growth scenarios. As such, the qualitative deficiencies identified during Task 2 are carried forward for this Task. In general, many of the qualitative deficiency issues were in the process of being addressed under KYOVA's fiscally constrained MTP, the West Virginia Statewide Transportation Improvement Program. The qualitative results from Task 2 are described below.

Structurally Deficient Bridges

As part of Task 1, the National Bridge Inventory (NBI) database was queried to identify bridges on Study routes that had condition ratings of "Poor" and/or had Weight Restrictions. During the Task 1 review, 21 bridges were identified that met the criteria, of which 13 were located in Cabell County and eight (8) were located in Wayne County. As part of Task 2, the current status of each of the structures in question was obtained by a combination of resource document reviews and meetings with WVDOH personnel. It was determined that the vast majority (19 of 21) of the structures identified in Task 1 were at various stages of the project development process from undergoing preliminary design to having construction fully completed. The two structures currently unprogrammed for improvement are both located in Wayne County: the Perdue Brothers Memorial Bridge (BARS# 50A220) located on WV 152, and the Below Dam Bridge (BARS# 50A078) located on WV 37 (See Figure 15 for their locations). While both structures were rated as in "Poor" condition, neither has weight restrictions at this time, which will help lessen any impact to commercial traffic on these corridors.

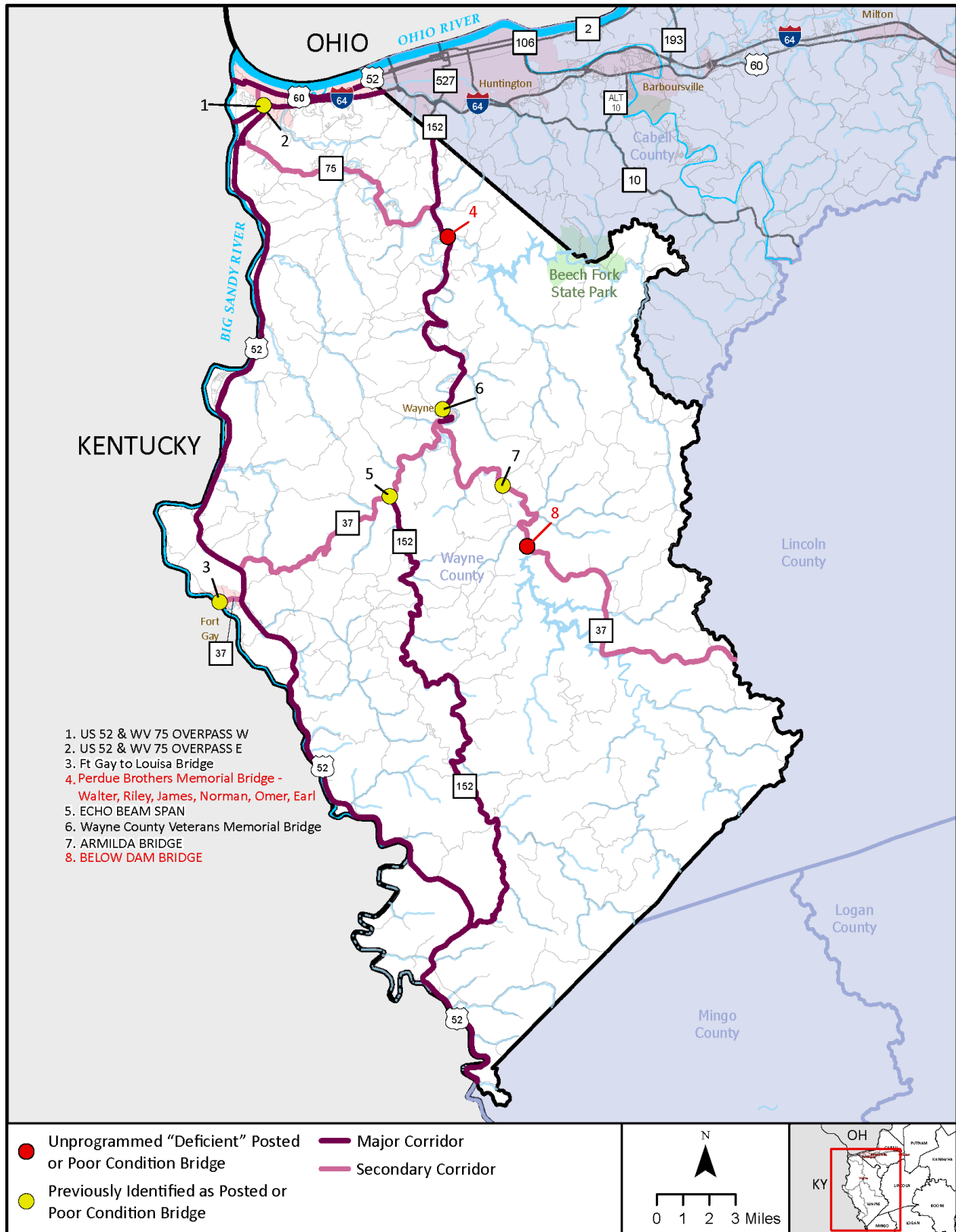


Figure 15: Deficient Bridge Locations, Wayne County

At-Grade Railroad Crossings

Data for Cabell, Wayne and Mason counties were extracted from FRA's Grade Crossing Accident Prediction System (GXAPS) database as a means of identifying the railroad crossings in the area with the greatest potential for highway/rail incidents, which is a good indicator of network deficiency. The top ten crossing locations identified in each county were compared to the list of At-Grade crossings located on Major and Secondary Corridors developed previously in Task 1 of this Study (See Figure 16) below. Five of the 30 railroad crossings extracted are located on Study routes. The locations of the five deficient crossings are shown in Figure 17. It is of note that only two railroad crossings in Mason County were included in this Study due to development initiatives ongoing along WV 2 and that both are considered deficient.

Predicted Accident Rank	Annual Average Predicted Accidents	Crossing ID	RR Code	State	County	City	Street	Located on Study Route (Y/N)
1	0.110201	225622B	CSX	WV	CABELL	ONA	YATES CROSSING RD	
2	0.107134	225698G	CSX	WV	CABELL	HUNTINGTON	MADISON AVENUE	
3	0.104696	147940X	CSX	WV	CABELL	LESAGE	KYLE LANE	
4	0.102324	225628S	CSX	WV	CABELL	BARBOURSVILLE	BLUE SULPHUR ROAD	
5	0.005624	225600B	CSX	WV	CABELL	CULLODEN	CHARLEYS CREEK RD	
6	0.003945	147951K	CSX	WV	CABELL	HUNTINGTON	40TH STREET	
7	0.003945	147952S	CSX	WV	CABELL	HUNTINGTON	THIRTY SIXTH STREET	
8	0.003516	147948C	CSX	WV	CABELL	HUNTINGTON	WEST VIRGINIA STATE ROUTE 2	Y
9	0.003231	225598C	CSX	WV	CABELL	CULLODEN	DUDDING LANE	
10	0.002874	226489C	CSX	WV	CABELL	BARBOURSVILLE	EAST PEA RIDGE ROAD	
1	0.212815	471645H	NS	WV	WAYNE	FORT GAY	BRIDGE STREET	Y
2	0.106093	471601H	NS	WV	WAYNE	CRUM	ROUTE 52	Y
3	0.005033	225678V	CSX	WV	WAYNE	CEREDO	MAIN STREET	
4	0.004851	225675A	CSX	WV	WAYNE	HUNTINGTON	VERNON STREET	
5	0.004549	225680W	CSX	WV	WAYNE	KENOVA	1 STREET W	
6	0.004347	471608F	NS	WV	WAYNE	CRUM	WEBB ROAD	
7	0.003658	471599J	NS	WV	WAYNE	CRUM	SILVER CREEK ROAD	
8	0.003361	225682K	CSX	WV	WAYNE	KENOVA	12 STREET	
9	0.003302	471606S	NS	WV	WAYNE	FORT GAY	RIVER BEND ROAD	
10	0.0033	225685F	CSX	WV	WAYNE	KENOVA	EIGHTEENTH ST	
1	0.005943	147850Y	CSX	WV	MASON	POINT PLEASANT	VIAND STREET	
2	0.004049	147873F	CSX	WV	MASON	GALLIPOLIS FERRY	HUNTINGTON RD	Y
3	0.002547	147906R	CSX	WV	MASON	ASHTON	PT PLST-HNTGN RD	Y
4	0.002419	147845C	CSX	WV	MASON	POINT PLEASANT	22ND STREET	
5	0.00235	147847R	CSX	WV	MASON	POINT PLEASANT	CAMDEN AVENUE	
6	0.002189	147859K	CSX	WV	MASON	POINT PLEASANT	REDMOND RIDGE RD	
7	0.002186	147851F	CSX	WV	MASON	POINT PLEASANT	CSX ENTRANCE OFF HIGHLAND AVENUE	
8	0.002148	147849E	CSX	WV	MASON	POINT PLEASANT	12TH STREET	
9	0.001852	147846J	CSX	WV	MASON	POINT PLEASANT	POPLAR STREET	
10	0.001589	147871S	CSX	WV	MASON	GALLIPOLIS FERRY	OLD RIVER ELWELL	

Figure 16: At-Grade Railroad Crossing Rankings in Cabell, Wayne and Mason County

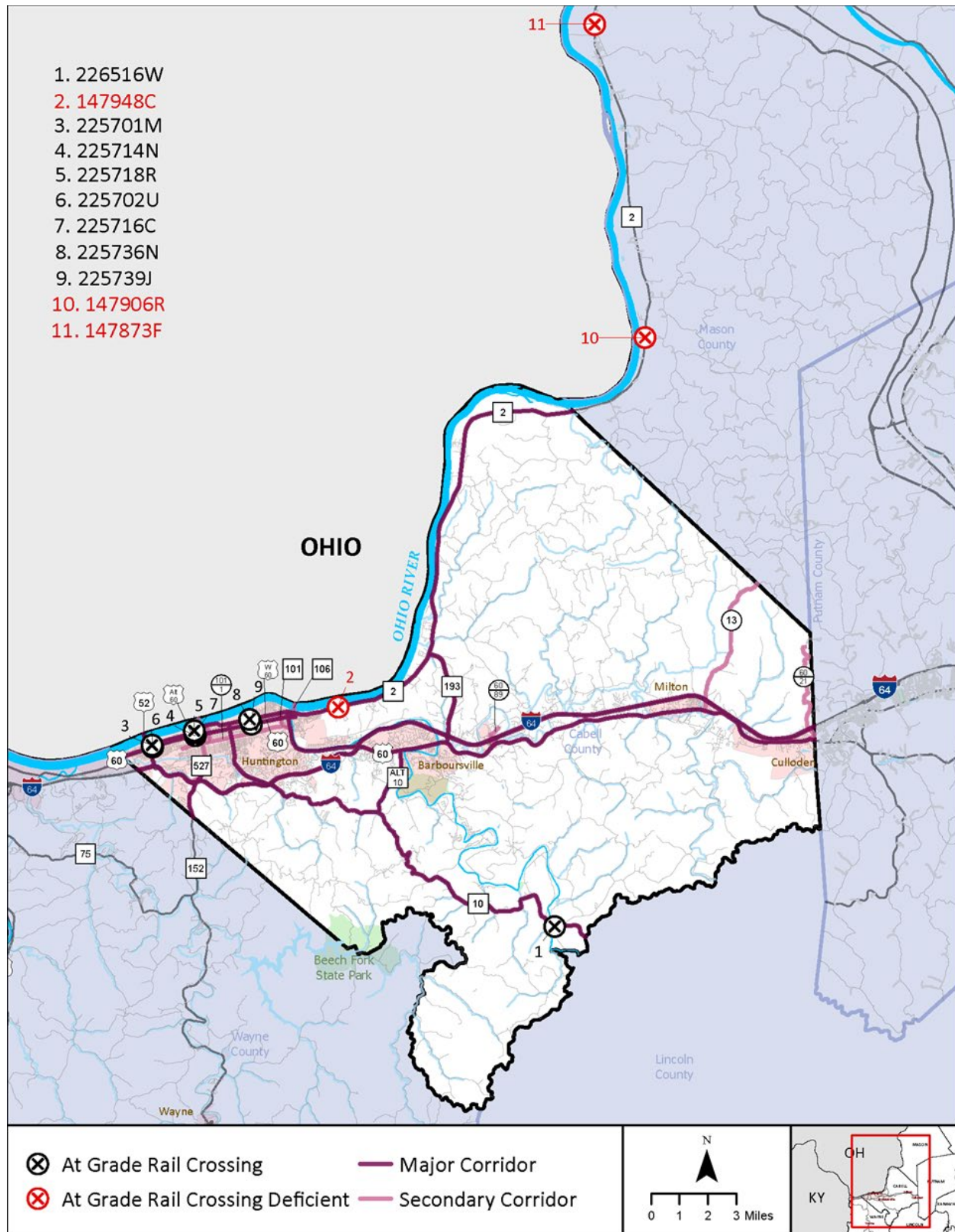


Figure 17: Location of Deficient At-Grade Crossings, Cabell and Mason County

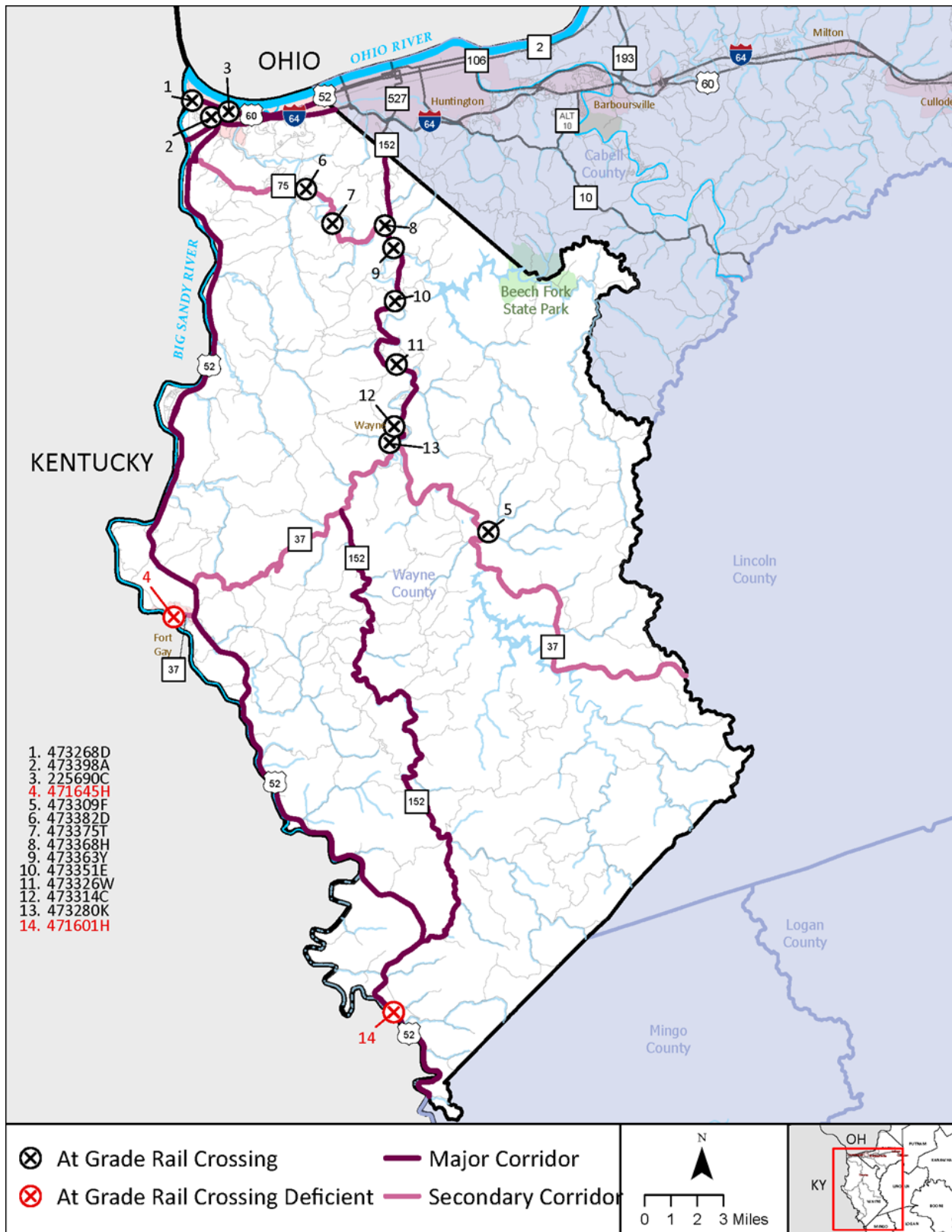


Figure 18: Location of Deficient At-Grade Crossings, Wayne County

Roadway Flooding

Areas of recurrent roadway flooding on Major and Secondary Corridors within the Study area were obtained predominantly from discussions with personnel at the State, City and Local level responsible for roadway maintenance. While much of the regional information is anecdotal and not well-documented, recurrent flooding at other locations such as 1st Street, 8th Street, 10th Street and 16th Street underpasses in Huntington and portions of US 60 have been well-documented by KYOVA in local studies (e.g., Huntington's Street Flooding Mitigation Plan¹).

Local maintenance personnel identified eight (8) locations along Study corridors in Cabell and Wayne counties that experience recurring roadway flooding, as shown in tabular and graphical format in Figures 19 through 21. No attempt was made in this task of the Study to prioritize or group the locations of these deficiencies, but such prioritization or grouping may occur later as mitigating strategies are developed.

¹ Huntington Street Flooding Mitigation Plan, August 2017

FLOODING LOCATION DESCRIPTION	COUNTY	LOCALITY	ROUTE ID	ROUTE	MILEPOINT	LATITUDE/LONGITUDE	NEARBY TRIBUTARY
US 60 AT JUNCTION WITH ARLINGTON BLVD (MNS 352)	CABELL	HUNTINGTON	0620060000EB	US 60	7.49	38.4107127, -82.382679	GUYANDOTTE RIVER & UNNAMED STREAM
US 60 AT CSX RR UNDERPASS (INV# 225636J)	CABELL	BARBOURSVILLE	0620060000EB	US 60	12.40	38.4159745, -82.2940798	MUD RIVER
WV 10/16TH STREET AT CSX RR UNDERPASS (INV# 225668P)	CABELL	HUNTINGTON	0630010000000	WV 10	18.13	38.4178529, -82.4304637	OHIO RIVER
WV 527/8TH STREET AT CSX RR UNDERPASS (INV# 225670R)	CABELL	HUNTINGTON	0630527000000	WV 527	1.14	38.4155477, -82.4441931	OHIO RIVER
US 52 FROM CRUM TO STEPPTOWN	WAYNE	CRUM TO STEPPTOWN	50200520000EB	US 52	49.0 53.2	37.9038200, -82.4432999 37.8651009, -82.4092209	TUG FORK
WV 152 AT MOSES FORK	WAYNE	N/A	5030152000000	WV 152	5.00	37.9942527, -82.4028827	MOSES FORK
WV 152 AT DUNLOW AT JUNCTION WITH CR 52/24	WAYNE	DUNLOW	5030152000000	WV 152	9.40	38.032743, -82.4274847	TWELEVEPOLE CREEK & BIG BRANCH
WV 152 AT GENOA	WAYNE	GENOA	5030152000000	WV 152	19.60	38.1206054, -82.4588785	TWELEVEPOLE CREEK

Figure 19: Roadway Flooding Deficiencies, Cabell and Wayne County

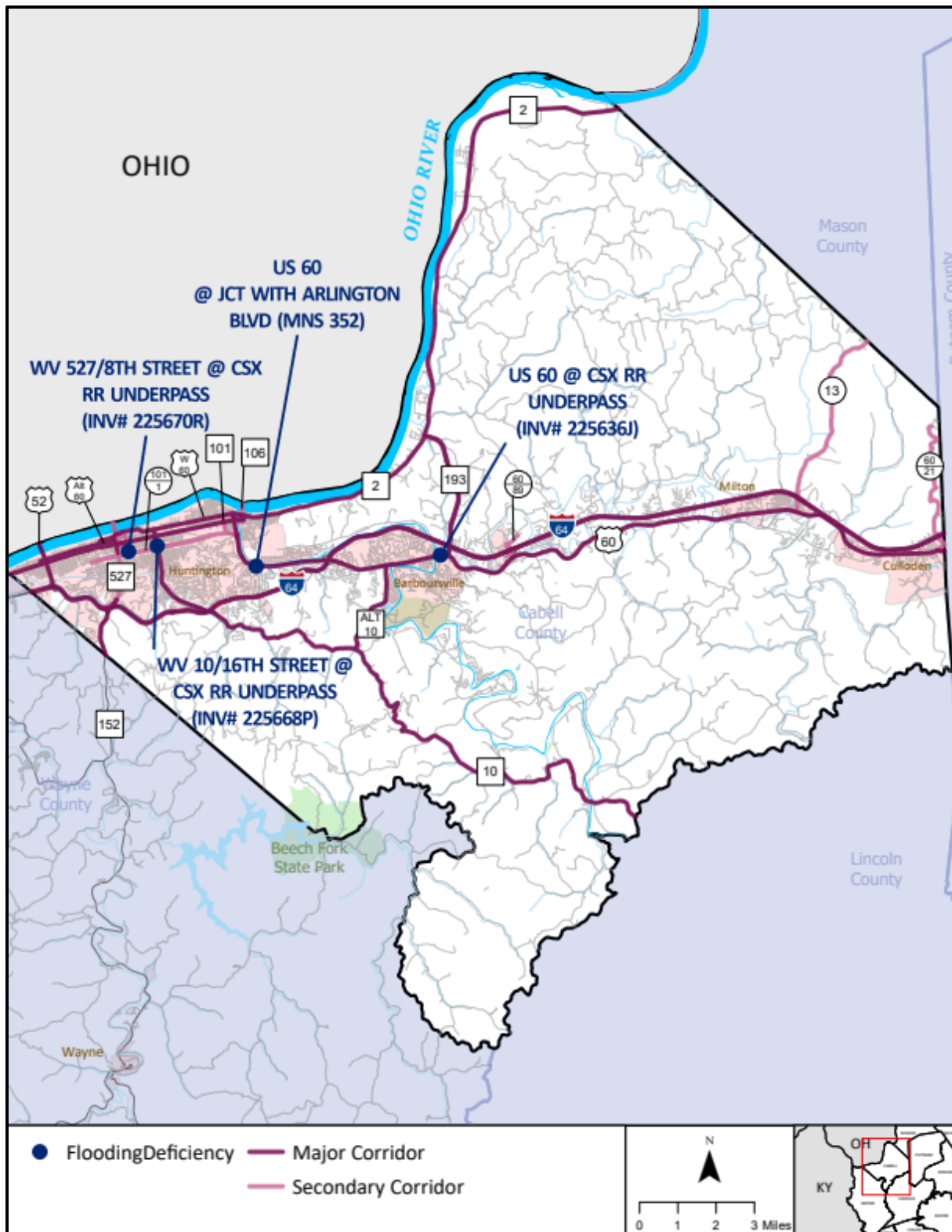


Figure 20: Roadway Flooding Deficiencies, Cabell County

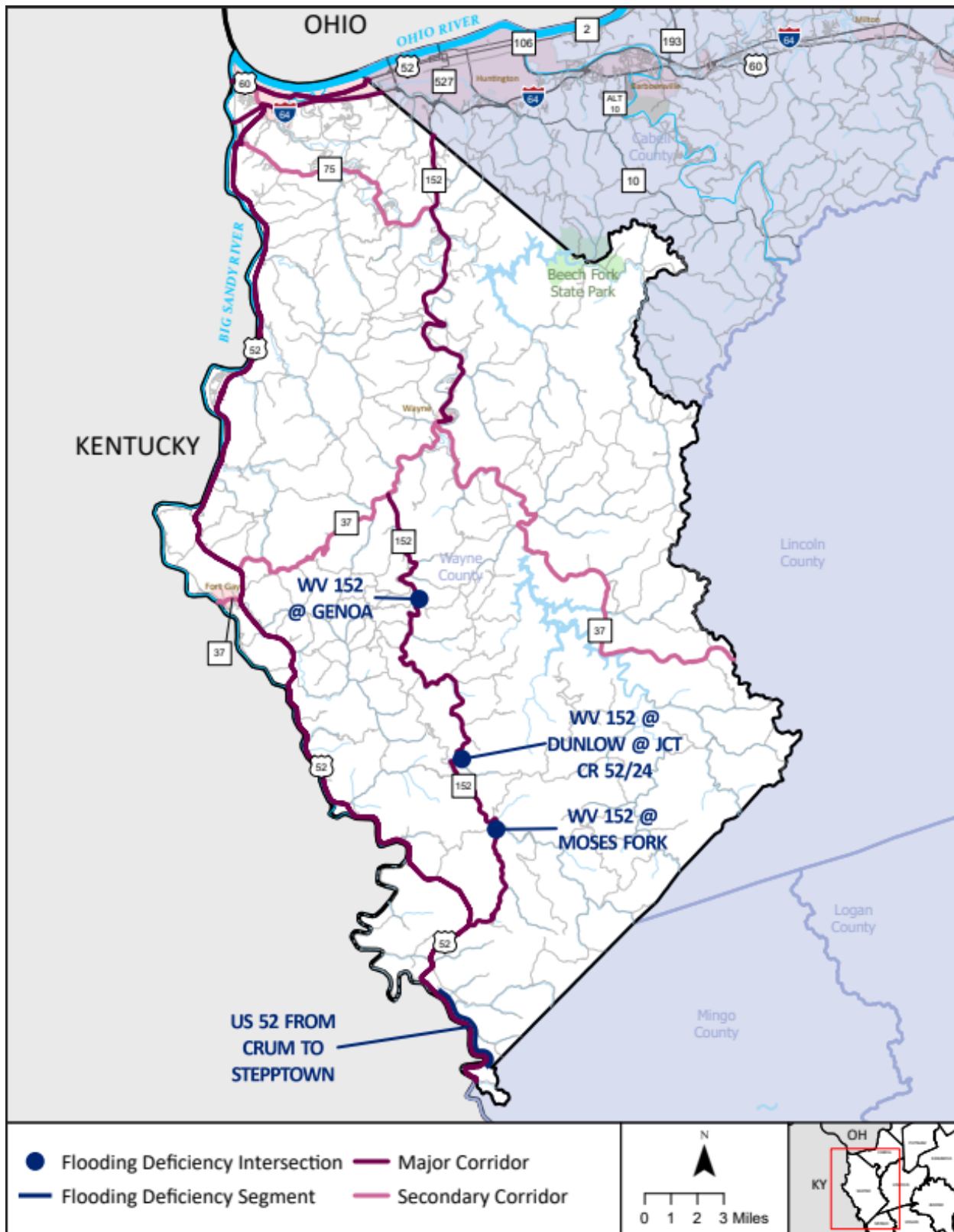


Figure 21: Roadway Flooding Deficiencies, Wayne County

Two sections of US 60 in Cabell County were identified as recurrent flooding locations. The WVDOH District 2 Office indicated that design work is underway to address the Arlington Boulevard location and the Huntington Water Quality Board (HWOB) indicated that recent work conducted on the 8th Street underpass has partially mitigated the problem and reduced the flooding frequency at that location.

Safety Issues

Traffic incidents and fatalities have a significant economic and emotional cost to not only the individuals, families, and businesses directly impacted, but also to the region and the nation. In response to these far-reaching impacts, the USDOT has embraced the Vision Zero policy which aims to eliminate all traffic fatalities and severe injuries by 2050 through a Safe Systems Approach and adopted performance metrics to track progress. Detailed safety studies have been performed at the local, regional and state levels to identify high priority intersections, segments and high injury networks that need to be addressed. For this Study, the high priority locations on Study corridors identified in KYOVA's MTP and West Virginia's VRU Assessment were assembled and compared against programming documents. Where specific projects were not programmed in the TIP, STIP or contained in KYOVA's MTP listing of fiscally constrained projects, a deficiency was assumed to exist. The information is summarized in Figure 22 and shown graphically on Figures 23 and 24. KYOVA's MTP does not cover Mason County and therefore no intersection or priority segments for that county were identified in the plan. Furthermore, the broader statewide VRU Assessment did not identify any HINs in the top 25 ranking for either Wayne County or Mason County.

SAFETY ISSUE DESCRIPTION	INTERSECTION OR SEGMENT	LOCALITY	COUNTY	LOCATED ON STUDY ROUTE (Y/N)	PROGRAMMED (Y/N), SOURCE DOCUMENT
Adams Ave at 19th Street W	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Washington Blvd at Midland Trail (US 60)	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Davis Creek Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
8th Ave at 31st Street (US 60)	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Bonnie Blvd	INTERSECTION	N/A	CABELL	Y	Y, KYOVA MTP
Washington Ave at W 17th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
8th Ave at 20th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Farmdale Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at W Mall Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at E Mall Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Adams Ave/5th Ave at First Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Kroger	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at E Pea Ridge Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
5th Ave at 29th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at W Pea Ridge Rd/Bridge	INTERSECTION	N/A	CABELL	Y	Y, KYOVA MTP
5th Ave at 20th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
5th Ave at 31st Street/Bridge Ramp	INTERSECTION	HUNTINGTON	CABELL	Y	Y, STIP
Midland Trail (US 60) at Irwin Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Pinecrest Dr	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
German Ridge Road at WV 152	INTERSECTION	N/A	WAYNE	Y	Y, KYOVA MTP
5th Street Rd (WV 152) at (Food Fair Plaza)	INTERSECTION	LAVALLETTE	WAYNE	Y	Y, KYOVA MTP
WV 75 at Spring Valley Drive	INTERSECTION	N/A	WAYNE	Y	Y, KYOVA MTP
Waverly Rd (US 60) at Carson Street	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Waverly Rd (US 60) at Camden RD/ Auburn Rd	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Waverly Rd (US 60) at Burlington Rd	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Court Street at US 52	INTERSECTION	FORT GAY	WAYNE	Y	N
WV 75 at 5th Street Rd (WV 152)	INTERSECTION	LAVALLETTE	WAYNE	Y	Y, KYOVA MTP
WV 152 from Bloss Branch Rd to Big Creek Rd	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
WV 152 - German Ridge Hill	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
WV 152 from CR 11 Access (By Pharmacy) to 8th Street Rd	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
US 60 from Braley Rd to Longwood Rd	SEGMENT	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
US 60 from Hazel Jane Estates to Childers Rd	SEGMENT	BARBOURSVILLE	CABELL	Y	Y, STIP*
HIN DESCRIPTION	HIN SEGMENT RANK	LOCALITY	COUNTY	LOCATED ON STUDY ROUTE (Y/N)	PROGRAMMED (Y/N), SOURCE DOCUMENT
VRU- CABELL RANK 6 06200600000/ 5.9-6.2 US 60 (5th Ave to Moses Family Medicine)	6	HUNTINGTON	CABELL	Y	Y, STIP
VRU- CABELL RANK 7 06200600000/ 11.6-11.9 US 60 (River Road to Martin Drive)	7	HUNTINGTON	CABELL	Y	Y, STIP
VRU- CABELL RANK 8 06200600007/ 1.7-2 US 60 (18th Street to 20th Street)	8	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
NOTES: * PARTIAL OVERLAP OF STIP & MTP PROJECT					

Figure 22: Identified Safety Issues and Deficiencies, Cabell and Wayne County

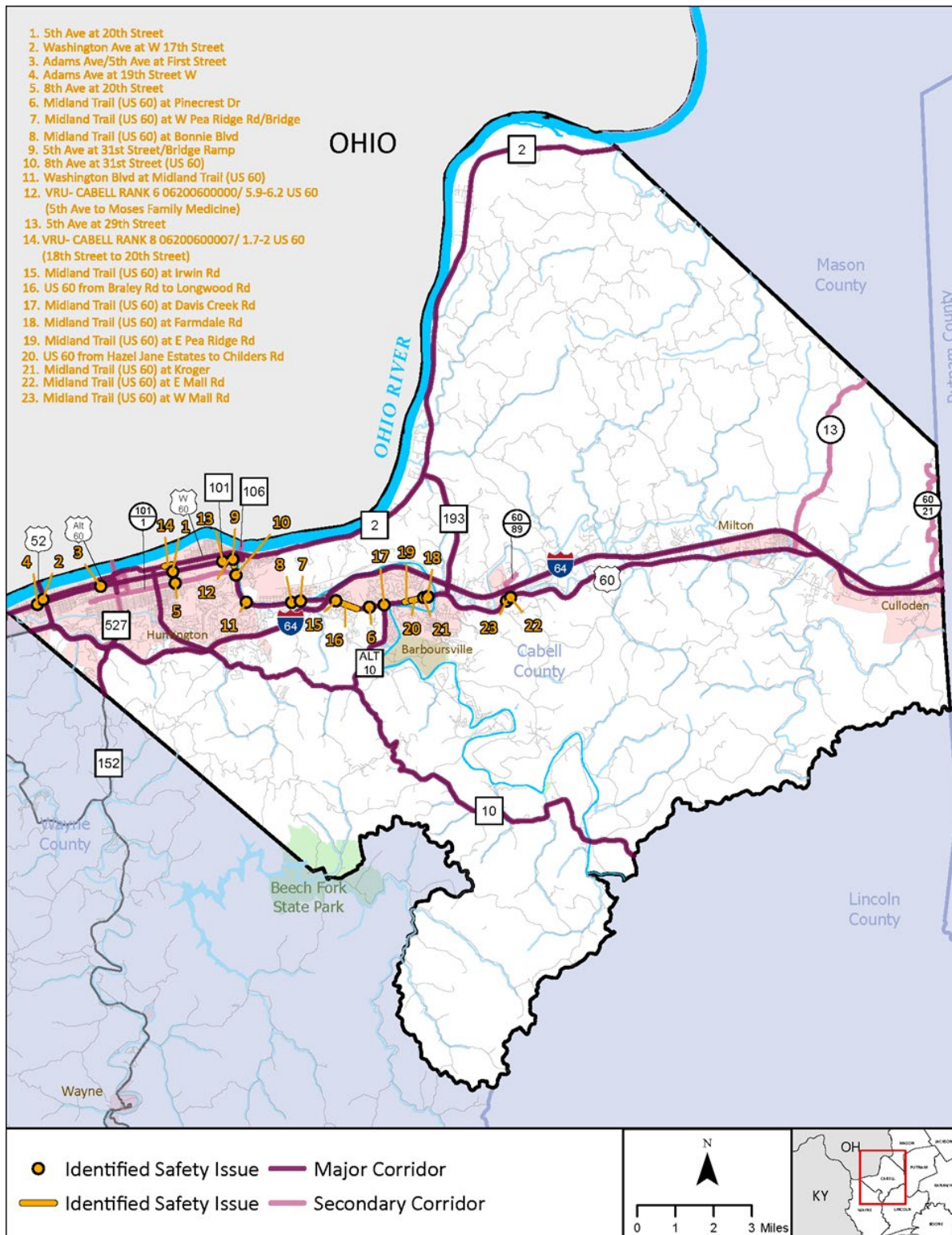


Figure 23: Safety Issues and Deficiencies, Cabell County

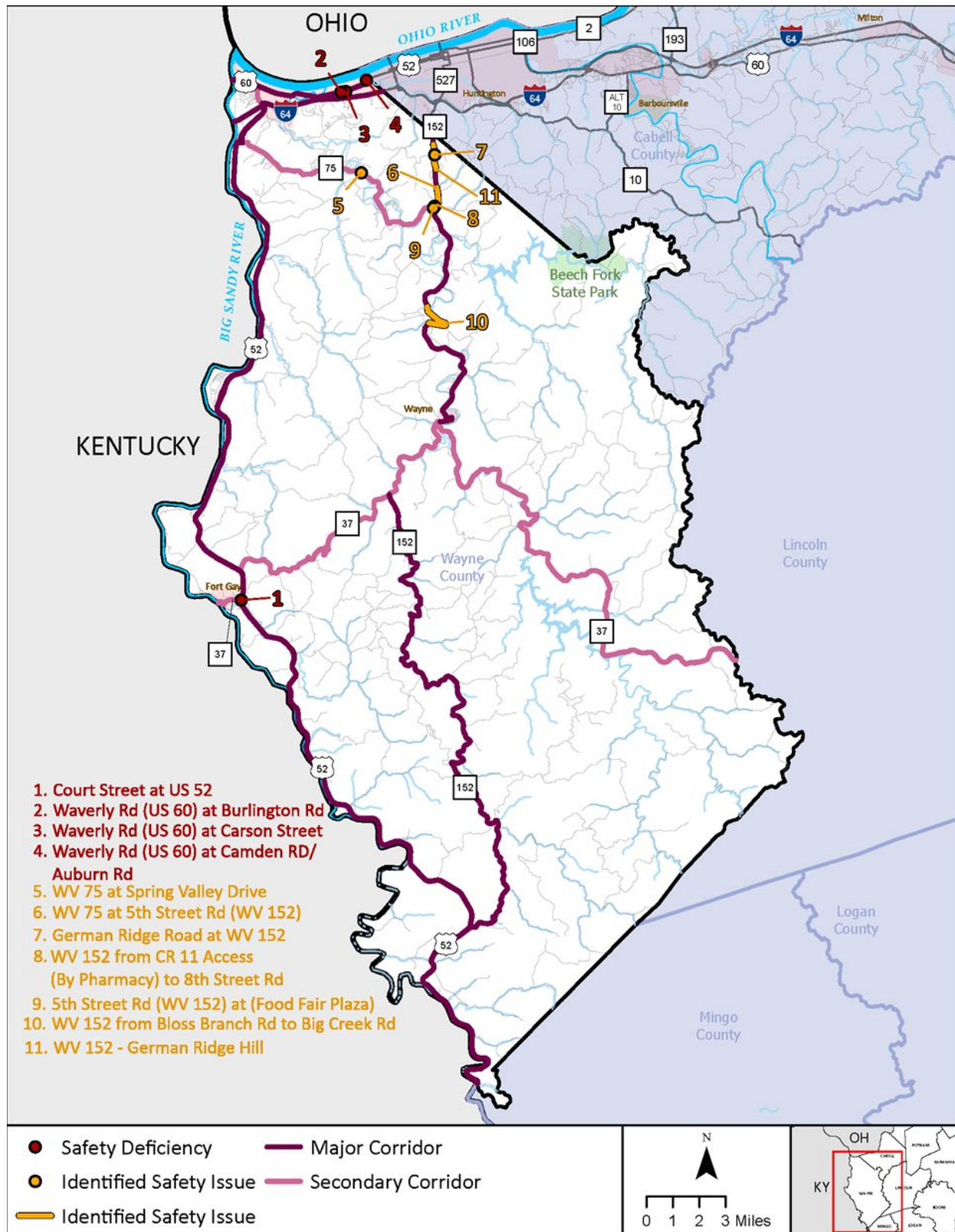


Figure 24: Safety Issues and Deficiencies, Wayne County

A review of Figure 22 indicates 32 high priority safety issues were identified in KYOVA's MTP. Additionally, three of the top 25 HIN locations from the WVDOH's statewide VRU Assessment were in Cabell County. Given the National emphasis being placed on traffic safety and vulnerable road users, it is not surprising that all but four locations identified are currently programmed for some manner of mitigation.

Transit Issues:

The location of regional transit service offered by local providers like TTA and Tri-River transit in relation to the finalized list of economic developments and areas of interest are shown on Figures 25 through 29. A review of those figures indicates that transit service at some level of recurring frequency is available (i.e. within a one-mile radius) of every location in Cabell and Mason County; however, only two of the six areas identified in Wayne County have access to scheduled transit service. The four unserved locations are either situated slightly away from Major or Secondary Corridors or are in areas of relatively low population density. Surprisingly, the area around the WV National Guard facility and proposed Business Park at the Huntington Tri-State Airport is not currently served by TTA or Tri-River, but both have routes nearby that could potentially be extended or altered as development occurs.

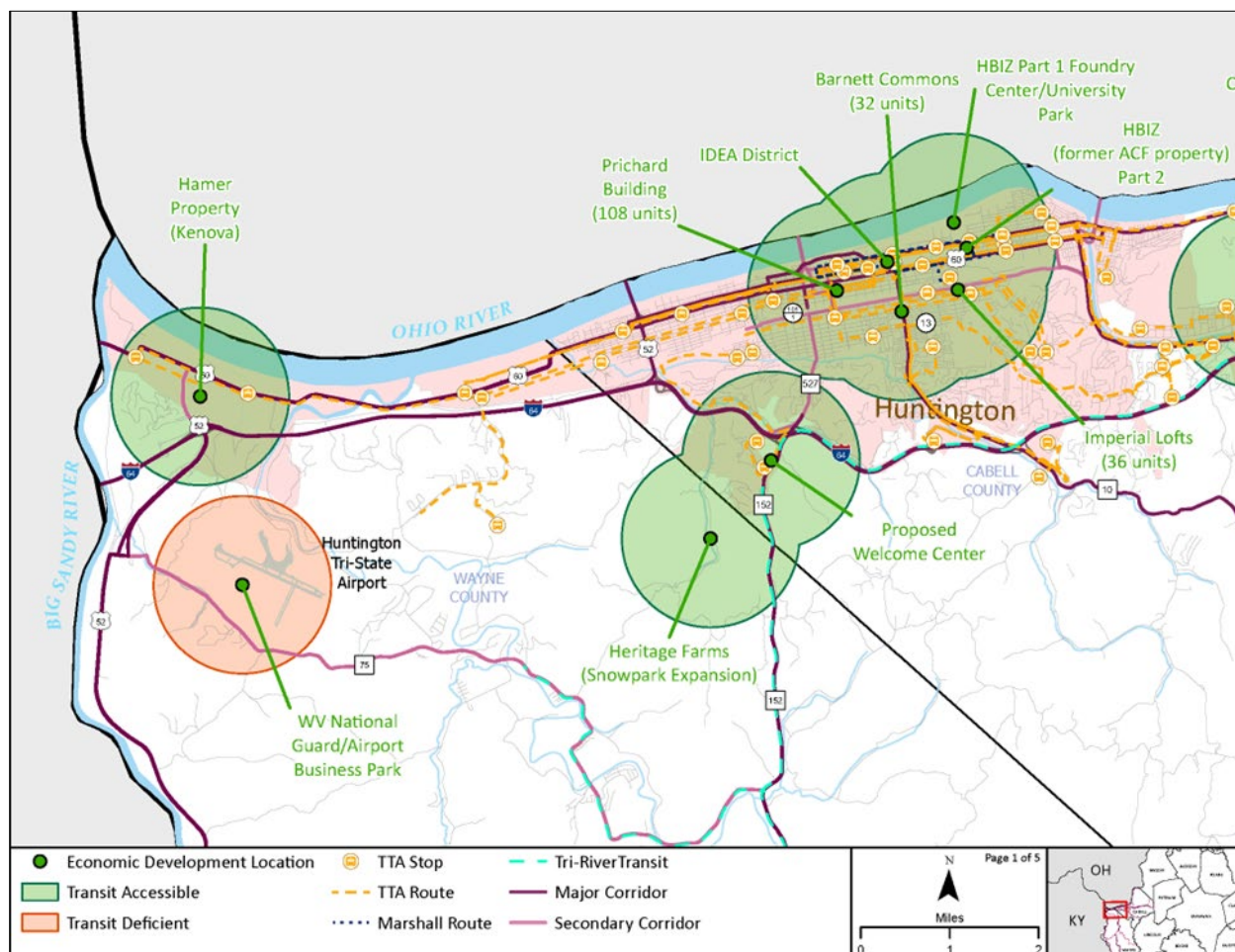


Figure 25: Transit Service and Deficiency Near Economic Developments, Cabell and Wayne County

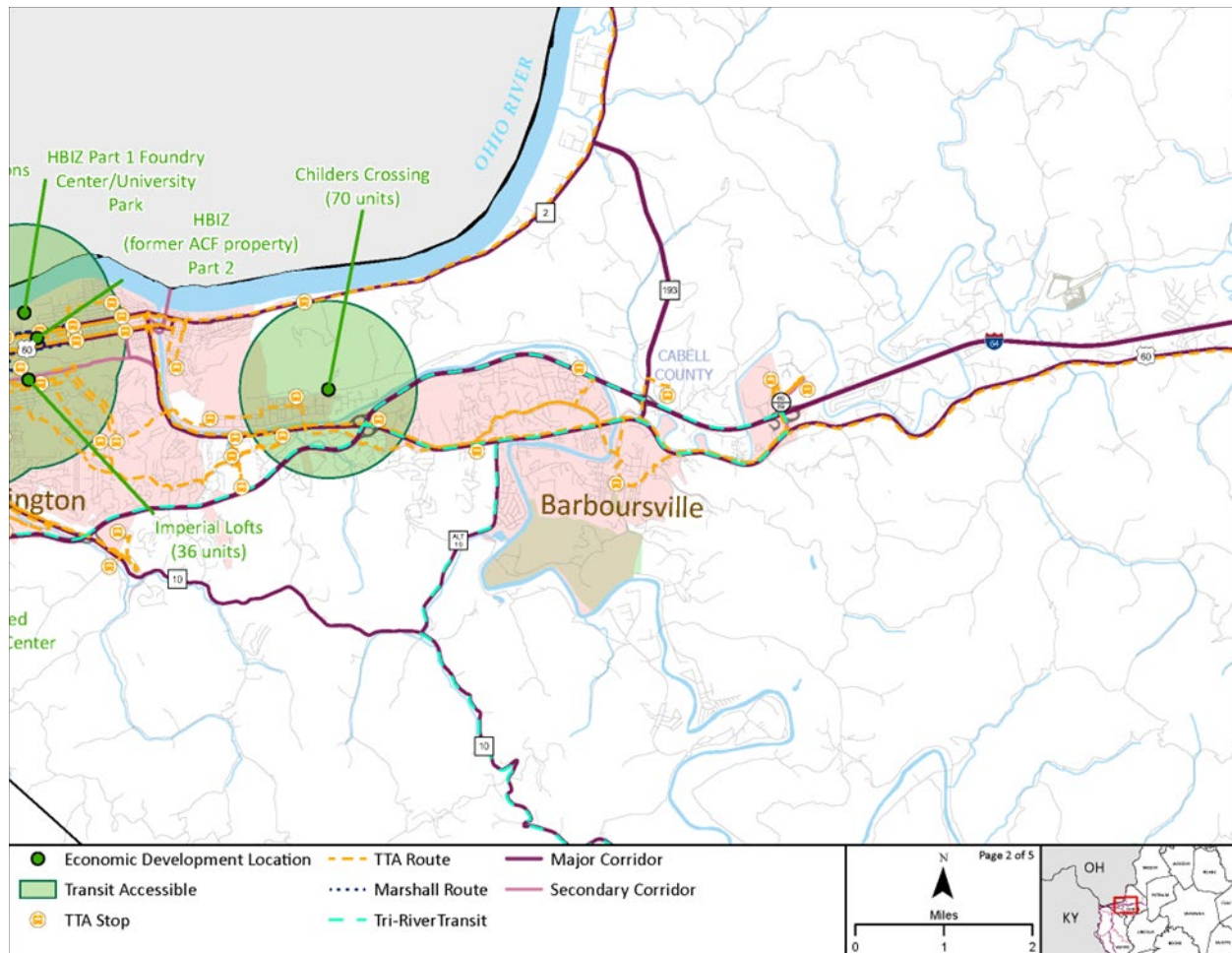


Figure 26: Transit Service and Deficiency Near Economic Developments, Cabell County

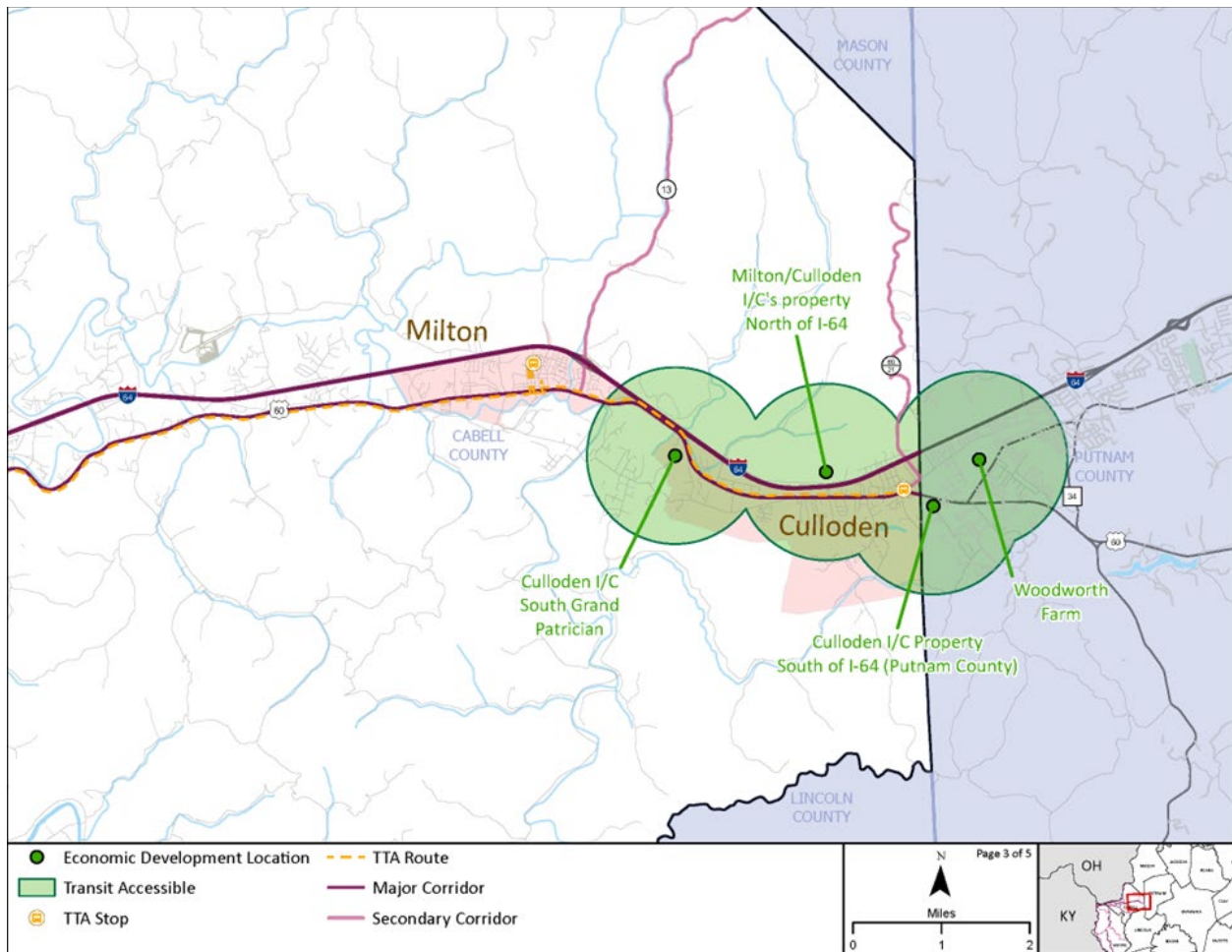


Figure 27: Transit Service and Deficiency Near Economic Developments, Cabell County and Putnam County

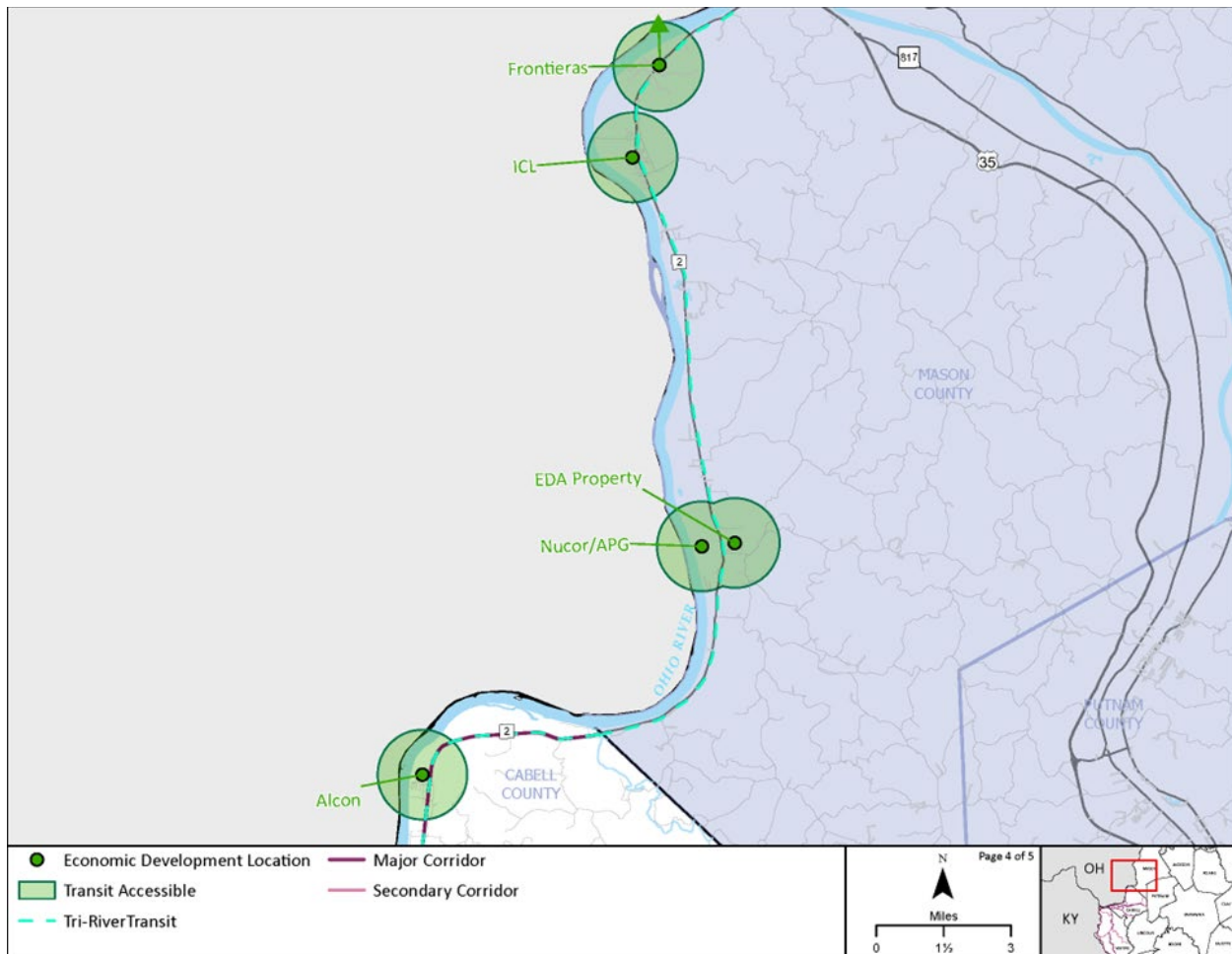


Figure 28: Transit Service and Deficiency Near Economic Developments, Cabell and Mason County

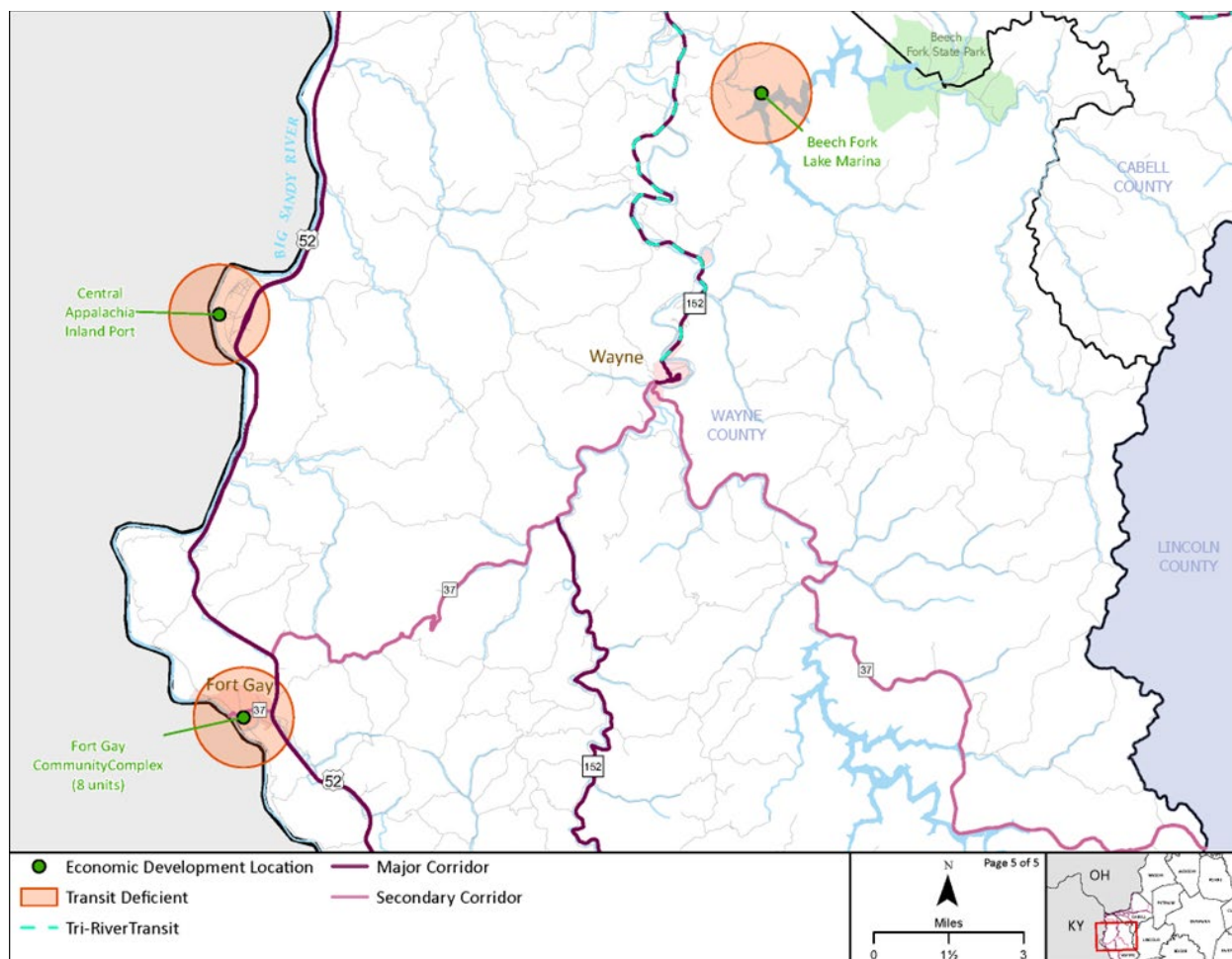


Figure 29: Transit Service and Deficiency Near Economic Developments, Wayne County

CONCLUSIONS

The alternative growth scenarios developed under this Task point to the overall resiliency of KYOVA's primary roadway network to accommodate additional vehicular traffic; however, capacity bottlenecks at river crossings, intersections and interchanges in the area remain a concern. Overlapping safety issues on US 60 will present additional challenges that are pointed out in KYOVA's MTP. The anticipated growth around Culloden will only exacerbate the current problem and point to the need for a corridor-based approach to remedies for that facility. As mentioned previously, the Hamer Property in Kenova has the potential to significantly impact WV 75 due to limited ingress and egress options. This proposed development is in the very early stages and should be monitored closely by local planning staff to ensure it is reflected appropriately in future TDM iterations. KYOVA's fiscally constrained MTP includes projects for adding capacity to WV 75 near the developments surrounding the Huntington Tri-State Airport, as well as for improvements to the WV 2 corridor and a host of safety projects on US 60. While MBI was instructed to assume all fiscally constrained projects were implemented by 2050, failure to progress with any or all of these initiatives will impact the future performance of KYOVA's transportation network.



APPENDICES





Appendix A

Moderate Growth Assumptions



Appendix A – Moderate Growth Assumptions

IDENTIFIED DEVELOPMENT / AREA OF INTEREST	MODERATE GROWTH SCENARIO ASSUMPTIONS*
Prichard Building (108 units)	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario Add FTE's for lower level development office/food service 15,000 SF/225 SF per FTE = 66 round to 70, add to base and increase by 10%, population and HH stable
IDEA District	Brad Smith and Cyber Security and Intuit/Foundever facilities operating. Brad Smith - 11 new employees -0 growth over time, Cyber Security - most faculty/staff relocated (assume 0), Outside Vendors-estimated at 20% of total staff (3floorsx18,250sf)/150 SF per EMP x 20% = 73 round to 70, Food Service- 18,250 SF/250SF per employee =73 employees (round down to 70) ,Note 250 value avg between fast food and sit down, Foundever/Intuit Prosperity Hub (20,000 SF) constructed but currently unoccupied (projected 200 part time student employees in 2027) Assume 20hrs a week (0.5 FTE)= 100 FTE's, Assume Employment, Pop, HH values stable 2025-2050 Add Mixed Use Building (60,000 SF), Use low value Fairmont Properties estimate of 150 Employees Assume Employment, Pop, HH values stable 2025-2050 after adjustment
HBIZ Part 1 Foundry Center/University Park	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario Assume Employment, Pop, HH values are 10% higher than previously anticipated in 2050 in TAZ
HBIZ (former ACF property) Part 2	For Revised Existing use TIS info, Pop and HH unchanged Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ
Imperial Lofts (36 units)	Revised Pop and Housing, No employment change Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ
Barnett Commons (32 units)	Revised Pop and Housing, No employment change Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ
Proposed Welcome Center	Assume Accounted for previously, no change for Revised Existing Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ (growth from Appalachian Heartland Initiative)
Childers Crossing (70 units)	potential 5 phases, assume existing conditions is first two phases @ 70units (35/phase), add 1 phase (35) units for moderate (105 total), add 2 more phases for aggressive (175 total), Use population info from prior model splits, increase employment & population in Mod and Agg Scenario Adjust Pop and HH for added 35 units, Employment 10% higher than anticipated in 2050 in TAZ (growth along WV 2)
Alcon	Assume Accounted for previously, no change from prior run Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ
Milton & Culloden I/C North (Cabell/Putnam County)	For Existing Conditions assume development north of Milton and Culloden I/C's adequate use as is Assign jobs and pop increases from Putnam County properties north of I-64 to TAZ 140 Prior Model reflects significant growth in TAZ, Assume Employment values are 5% higher than anticipated in 2050 in TAZ Adjust Pop and HH to account for 1,400 Acres of developable property by adding 350 residential units to TAZ and distribute based on prior model splits
Culloden I/C South, Grand Patrician	Assume Grand Patrician and growth south of I/C accounted for, leave as baseline for existing conditions Prior Model reflects significant growth in TAZ, Assume Employment, Pop, HH values are 5% higher than anticipated in 2050 in TAZ as Resort area grows
Hamer Property (Kenova)	For Existing Conditions Assume Model Information Correct regarding Hamer Property Assume Hamer property partially develops (300,000 sf warehousing/light industrial +400FTE's and 120,000 SF Office +800 FTE), Pop and HH unchanged

Appendix A Continued – Moderate Growth Assumptions

IDENTIFIED DEVELOPMENT / AREA OF INTEREST	MODERATE GROWTH SCENARIO ASSUMPTIONS*
WV National Guard/Airport Business Park	MU 2018 study indicates 438 on-airport jobs, which includes National Guard personnel (100-200 personnel), For existing revise to 438 initial and grow employment at previous rate (+ 317 by 2050), Assume Aeroplex not included in existing , No change in Pop or HH for existing Assume Aeroplex partially developed adding 300 FTE's, Assume Pop, HH values are 10% higher than anticipated in 2050 TAZ
Heritage Farms (Snowpark Expansion)	Assume prior Land Use underestimated TAZ employment from Heritage Farm expansion, For Existing conditions use current employment values plus snowpark and remain static through 2050, Facility splits TAZ's (535/537) assign all employment to 535 For moderate growth increase employment to 100 for max buildout of Heritage, Increase Pop and HH by 10% for Connector Road Development
Fort Gay Community Complex (8 units)	Revise population and apply info from prior model splits, no change in employment Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ
Beech Fork Lake Marina	Assume prior Land Use overestimated TAZ employment decline around Lavalette and Beech Fork. Existing conditions (assume employment drop mimics population drop), Adjust population & employment for Mod & Agg Scenario Assume prior Land Use overestimated TAZ employment and population decline around Lavalette and Beech Fork. Assume both reflect no change thru 2050 Assume Employment holds steady thru 2050
Central Appalachia Inland Port	Assume prior Land Use overestimated TAZ employment decline around Prichard @ Industrial Park due to Intermodal facility closure, Assume 2020 to 2025 employment reduction due to Intermodal Closure (-52 FTE), For Existing conditions assume 2025 employment increased by 12 FTE's from RJ Corman and employment to remain flat through 2050 Assume Pop and HH are 10% higher than anticipated in 2050 TAZ
ICL	Assume accounted for previously Assume accounted for previously
Nucor & APG	Add NuCor TIS trips to Existing Increase TIS trips by 5%
EDA Property	For Existing Conditions Assume Model Information Correct regarding EDA Property Add trips for 1,400,000 SF to be developed 50/50 warehousing and light industrial distributed per NuCor TIS
Frontieras	For Existing Conditions Assume Model Information Correct regarding Frontieras Development Add 100 trips to external node for impact
Culloden I/C's property South of I-64 (Putnam County)	For Existing Conditions assume Putnam County Development south of I-64 (excluding Woodworth Farms) included in previous external node data (9007) Assume one additional development comparable to Woodworth Farms
Woodworth Farm	All TIS trips added to 9007 for all scenarios Assume additional trips apply to all scenarios
NOTE: ASSUMPTIONS FOR MODERATE GROWTH ARE SHOWN IN BLUE, REVISED EXISTING CONDITION ASSUMPTIONS ARE SHOWN IN BLACK	



Appendix B

Aggressive Growth Assumptions



Appendix B – Aggressive Growth Assumptions

IDENTIFIED DEVELOPMENT / AREA OF INTEREST	AGGRESSIVE GROWTH SCENARIO ASSUMPTIONS*
Prichard Building (108 units)	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario Add FTE's for lower level development office/food service 15,000 SF/225 SF per FTE = 66 round to 70, add to base and increase by 10%, population and HH stable Add FTE's for lower level development office/food service 15,000 SF/225 SF per FTE = 66 round to 70, add to base and increase TAZ Emp by 20%, population and HH stable
IDEA District	Brad Smith and Cyber Security and Intuit/Foundever facilities operating. Brad Smith - 11 new employees -0 growth over time, Cyber Security - most faculty/staff relocated (assume 0), Outside Vendors-estimated at 20% of total staff (3floorsx18,250sf)/150 SF per EMP x 20% = 73 round to 70, Food Service- 18,250 SF/250SF per employee =73 employees (round down to 70) ,Note 250 value avg between fast food and sit down, Foundever/Intuit Prosperity Hub (20,000 SF) constructed but currently unoccupied (projected 200 part time student employees in 2027) Assume 20hrs a week (0.5 FTE)= 100 FTE's, Assume Employment, Pop, HH values stable 2025-2050 Add Mixed Use Building (60,000 SF), Use low value Fairmont Properties estimate of 150 Employees Assume Employment, Pop, HH values stable 2025-2050 after adjustment Add Hotel per Fairmont Properties + 12 FTE's to Moderate and increase prior estimates by 10% Adjust Pop and HH for added 40 Townhome units (avg 2,000 SF)
HBIZ Part 1 Foundry Center/University Park	Revise Pop & HH info from TIS and use prior model splits for Revised Existing scenario Assume Employment, Pop, HH values are 10% higher than previously anticipated in 2050 in TAZ Assume Employment, Pop, HH values are 20% higher than anticipated in 2050 in TAZ
HBIZ (former ACF property) Part 2	For Revised Existing use TIS info, Pop and HH unchanged Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ Assume Employment, Pop, HH values are 20% higher than anticipated in 2050 in TAZ
Imperial Lofts (36 units)	Revised Pop and Housing, No employment change Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ Assume Employment, Pop, HH values are 20% higher than anticipated in 2050 in TAZ
Barnett Commons (32 units)	Revised Pop and Housing, No employment change Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ Assume Employment, Pop, HH values are 20% higher than anticipated in 2050 in TAZ
Proposed Welcome Center	Assume Accounted for previously, no change for Revised Existing Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ (growth from Appalachian Heartland Initiative) Assume Employment, Pop, HH values are 20% higher than anticipated in 2050 in TAZ (growth from Appalachian Heartland Initiative)
Childers Crossing (70 units)	potential 5 phases, assume existing conditions is first two phases @ 70units (35/phase), add 1 phase (35) units for moderate (105 total), add 2 more phases for aggressive (175 total), Use population info from prior model splits, increase employment & population in Mod and Agg Scenario Adjust Pop and HH for added 35 units, Employment 10% higher than anticipated in 2050 in TAZ (growth along WV 2) Adjust Pop and HH for added 70 units (175 total), Employment 20% higher than anticipated in 2050 in TAZ (growth along WV 2) for Aggressive Growth
Alcon	Assume Accounted for previously, no change from prior run Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ Assume Employment, Pop, HH values are 20% higher than anticipated in 2050 in TAZ
Milton & Culloden I/C North (Cabell/Putnam County)	For Existing Conditions assume development north of Milton and Culloden I/C's adequate use as is Assign jobs and pop increases from Putnam County properties north of I-64 to TAZ 140 Prior Model reflects significant growth in TAZ, Assume Employment values are 5% higher than anticipated in 2050 in TAZ Adjust Pop and HH to account for 1,400 Acres of developable property by adding 350 residential units to TAZ and distribute based on prior model splits Prior Model reflects significant growth in TAZ, Assume Employment values are 10% higher than anticipated in 2050 in TAZ for Aggressive Adjust Pop and HH to account for 1,400 Acres of developable property that adds 700 residential units to TAZ and distribute based on prior model splits (double the moderate value)
Culloden I/C South, Grand Patrician	Assume Grand Patrician and growth south of I/C accounted for, leave as baseline for existing conditions Prior Model reflects significant growth in TAZ, Assume Employment, Pop, HH values are 5% higher than anticipated in 2050 in TAZ as Resort area grows Prior Model reflects significant growth in TAZ, Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ as Resort area grows
Hamer Property (Kenova)	For Existing Conditions Assume Model Information Correct regarding Hamer Property Assume Hamer property partially develops (300,000 sf warehousing/light industrial +400FTE's and 120,000 SF Office +800 FTE), Pop and HH unchanged Assume Hamer property partially develops (600,000 sf warehousing/light industrial +800FTE's and 120,000 SF Office +800 FTE), Pop and HH increase by 10%

Appendix B Continued – Aggressive Growth Assumptions

WV National Guard/Airport Business Park	MU 2018 study indicates 438 on-airport jobs, which includes National Guard personnel (100-200 personnel), For existing revise to 438 initial and grow employment at previous rate (+ 317 by 2050), Assume Aeroplex not included in existing , No change in Pop or HH for existing Assume Aeroplex partially developed adding 300 FTE's, Assume Pop, HH values are 10% higher than anticipated in 2050 TAZ Assume Aeroplex fully developed adding 600 FTE's, Assume Pop, HH values are 20% higher than anticipated in 2050 TAZ
Heritage Farms (Snowpark Expansion)	Assume prior Land Use underestimated TAZ employment from Heritage Farm expansion, For Existing conditions use current employment values plus snowpark and remain static through 2050, Facility splits TAZ's (535/537) assign all employment to 535 For moderate growth increase employment to 100 for max buildout of Heritage, Increase Pop and HH by 10% for Connector Road Development For aggressive growth increase employment to 125 for max buildout to Heritage and ancillary development, Increase Pop and HH by 20% for Connector Road Development
Fort Gay Community Complex (8 units)	Revise population and apply info from prior model splits, no change in employment Assume Employment, Pop, HH values are 10% higher than anticipated in 2050 in TAZ Assume Employment, Pop, HH values are 20% higher than anticipated in 2050 in TAZ
Beech Fork Lake Marina	Assume prior Land Use overestimated TAZ employment decline around Lavalette and Beech Fork. Existing conditions (assume employment drop mimics population drop), Adjust population & employment for Mod & Agg Scenario Assume prior Land Use overestimated TAZ employment and population decline around Lavalette and Beech Fork. Assume both reflect no change thru 2050 Assume Employment holds steady thru 2050 Assume prior Land Use overestimated TAZ employment and population decline around Lavalette and Beech Fork. Assume Emp, Pop, HH grows by 10% over original 2020 values for lodge and access rd
Central Appalachia Inland Port	Assume prior Land Use overestimated TAZ employment decline around Prichard @ Industrial Park due to Intermodal facility closure, Assume 2020 to 2025 employment reduction due to Intermodal Closure (-52 FTE), For Existing conditions assume 2025 employment increased by 12 FTE's from RJ Corman and employment to remain flat through 2050 Assume Pop and HH are 10% higher than anticipated in 2050 TAZ Assume RJ Corman expands to Phase 3 employment (+8) and employment mimics original upper bound population growth of 10% over time. Assume Pop and HH values 20% higher than anticipated
ICL	Assume accounted for previously Assume accounted for previously Assume accounted for previously
Nucor & APG	Add NuCor TIS trips to Existing Increase TIS trips by 5% Increase TIS trips by 10% Existing
EDA Property	For Existing Conditions Assume Model Information Correct regarding EDA Property Add trips for 1,400,000 SF to be developed 50/50 warehousing and light industrial distributed per NuCor TIS Add trips for 2,800,000 SF to be developed 50/50 warehousing and light industrial distributed per NuCor TIS (Double Moderate Growth)
Frontieras	For Existing Conditions Assume Model Information Correct regarding Frontieras Development Add 100 trips to external node for impact Add 200 trips to node for impact
Culloden I/C's property South of I-64 (Putnam County)	For Existing Conditions assume Putnam County Development south of I-64 (excluding Woodworth Farms) included in previous external node data (9007) Assume one additional development comparable to Woodworth Farms Assume two additional development comparable to Woodworth Farms
Woodworth Farm	All TIS trips added to 9007 for all scenarios Assume additional trips apply to all scenarios Assume additional trips apply to all scenarios

NOTE: ASSUMPTIONS FOR AGGRESSIVE GROWTH SHOWN IN RED, MODERATE GROWTH ARE SHOWN IN BLUE, REVISED EXISTING CONDITION ASSUMPTIONS ARE SHOWN IN BLACK



Appendix C

Description of Economic Development Initiatives



Appendix C – Description of Economic Development Initiatives

The **Marshall IDEA² District** is a \$200+ million initiative in Downtown Huntington (along a section of 4th Avenue extending west from Hal Greer Boulevard) intended to foster technology and research collaborations between academia and industry leaders to cultivate a highly skilled workforce. The District includes the *Brad D. Smith Center for Business & Innovation*, a 78,000 SF academic facility opened in January 2024 that serves as Marshall's College of Business and includes a multi-story forum, a 360-seat auditorium and a 100-seat multipurpose classroom, as well as media and finance labs; the *Institute for Cybersecurity*, a 73,000 SF facility dedicated to accelerating cyber research and development while shaping the US Department of Defense's current and future cyber workforce through advanced training programs and strategic partnerships; an *Innovation Resource Hub*, a space for connecting students, educators, entrepreneurs, researchers and makers with essential resources and services; and is proposed also to include office space, commercial and retail components, and a hotel.

The **Huntington Brownfields Innovation Zone (H-BIZ)** promotes the riverfront redevelopment as a major mixed-use development of the former ACF Industries, McGinnis, and Ingram Barge Industrial Sites in the prime area between the Ohio River, Marshall University and Downtown Huntington. The H-BIZ Master Plan calls for 75 acres and 1,000,000+ SF of revitalization that is to include as much as 379,000 SF of mixed-use development involving a new hotel and conference center; 27.7 acres (181,000 SF) of advanced manufacturing expansion; 97,300 SF of retail; and 400,000+ SF of parks, open space, athletic and recreational facilities. Primary redevelopment zones were established based on physical site factors (e.g., locations of major transportation elements) and contextual factors (e.g., Marshall University campus, the floodwall): *Foundry Center* is a mixed-use zone that includes office space, residences, and commercial components; *University Park* is a mixed-use zone consisting of lodging, academic, and sports/entertainment facilities in a campus-like setting around a series of public open spaces and courtyards; *Polymer Tech Center* is the primary riverfront industrial zone.

Barnett Commons is a 32-unit multifamily residential development located along the 900 block of Hal Greer Boulevard. This housing complex includes 26 age-restricted (55+) two-bedroom apartments and 6 general occupancy three-bedroom apartments. Residents enjoy a community room, lounge, multipurpose room and playground.

Imperial Lofts is a 36-unit multifamily residential development located along the 2100 block of 8th Avenue. This housing complex includes 7 general occupancy three-bedroom apartments, as well as 23 one-bedroom apartments and 6 age-restricted (55+) two-bedroom apartments. The community offers amenities such as off-street parking, playground, fitness room, community room and lounge.

The Prichard is a 13-story residential development along 9th Street in Downtown Huntington. The structure contains 108 affordable senior (62+) housing units with integrated healthcare services.

² Marshall University has rebranded the developments as the Innovation District

A new **I-64 Welcome Center** is proposed along the western side of WV 152, within property currently owned by the Heritage Farm Foundation adjacent to the former Direct TV call center, just south of the I-64 5th Street East interchange (#8). The new facility would replace the existing Welcome Center located just west of the I-64 Hal Greer Boulevard interchange (#11), with the existing site being converted to a truck parking area.

Alcon is a fabricator of intraocular lenses and delivery systems used for the treatment of cataracts. The company's Advanced Optical Device Center North is located adjacent to WV 2 at Lesage, Cabell County, with a footprint of roughly 300,000 SF and a 65,000 SF expansion anticipated to open in 2026.

Alcon also has a research facility along Kyle Lane in Cabell County. A total of 800 employees (500 direct labor and 300 support staff) are associated with the Alcon facilities in Cabell County.

Childers Crossing II & III is a 70-unit residential development on approximately 4.34 acres located along Price Industrial Lane in Huntington. This housing complex will be comprised of 9 buildings that will include 28 one-bedroom, 32 two-bedroom and 10 three-bedroom apartments serving low-income families and the elderly. Additional phases of this development are anticipated to result in a total of about 150 residential units.

The **Fort Gay Community Complex** is a nearly 16,500 SF facility on two acres, being implemented by Revitalize Appalachia, a social enterprise of Coalfield Development, along Court Street in Fort Gay, Wayne County. The project involves transforming the former Fort Gay High School into a mixed-use community hub. The second floor will include 8 affordable housing units (6 one-bedroom and 2 two-bedroom), a common lounge, a management office, and onsite laundry. The first floor will feature 7 commercial spaces, a renovated gym, and a stage area.

The **Grand Patrician** is a resort located on a 189-acre property adjacent to US 60 in Milton, Cabell County. The resort is to include 109 rooms, a steakhouse, bridal and honeymoon suites, three indoor pools, and a spa. The outside premises are to include a small colosseum to host events, three chapels for weddings, a country club and trails, a nine-hole golf course with synthetic greens, ball fields, and a residential component.

Woodworth Farm is a residential development of more than 400 units along WV 34 ALT (Main Street) in Hurricane, Putnam County. The project includes a mix of single-family homes, townhomes, and villas with lots becoming available in 2026.

The **Central Appalachia Inland Port** is a 65-acre facility at Prichard, Wayne County, that is designed to facilitate the transfer of shipping containers between railcars and trucks. The facility now is owned by the Wayne County Commission, is operated by the R.J. Corman Switching Company, LLC, and is served by Norfolk Southern Railway. A portion of the site currently is utilized as a car repair hub with a workforce of 14 employees.

Heritage Farm Museum & Village is a recreated 19th century Appalachian village within about 500 acres of property south of Huntington, accessible via Harvey Road. The complex includes museums, animal exhibits, artisans, and an adventure park. An indoor/outdoor Snow Park is under construction within the complex.

Nucor Steel West Virginia is constructing a new sheet mill within 1,700 acres adjacent to WV 2 at Apple Grove, Mason County. The facility will have a 3-million-ton sheet capacity and will create 800 high-paying full-time jobs.

APG Polytech produces polyethylene terephthalate (PET). With properties such as strength, flexibility, stability and recyclability, the plastic resin is a popular product for bottles and food packaging. The 425-acre site is located along WV 2 at Apple Grove, Mason County.

ICL-IP is a global leader in the production of specialty fertilizers, bromine and flame retardants. The plant in Gallipolis Ferry, West Virginia, produces flame retardant designed for flexible polyurethane foam applications. The 380-acre site is located along WV 2 near Gallipolis Ferry, Mason County.

A *West Virginia National Guard* facility is located within **Tri-State Airport** property on the southwest side of the airfield, adjacent to Booth Road, south of Kenova, Wayne County. The eastern portion of the airport property contains a currently unused apron and other undeveloped land that is proposed to become a *business park* that would house aviation-related industries and companies.

The **Hamer Dry Kiln Company** owns about 20 acres of property adjacent to Norfolk Southern rail line and WV 75 at Kenova, Wayne County. Although no development plan has been established for the property, the assumed use of the entirety is warehousing that may support operations at Tri-State Airport and other facilities within the region.

Privately operated **Beech Fork Lake Marina**, located at the damsite at Lavalette, Wayne County, provides visitors with docking facilities and rental of motorboats, canoes, and lifejackets. Beech Fork Lake has a summer pool surface area of 720 acres.

Several large privately owned parcels of land totaling hundreds of acres are located to the *north of the new I-64 interchange* under construction at **Culloden**, Cabell County. These parcels are adjacent to Benedict Road (CR 60/21). Although no development plans have been publicly announced for any of these properties, an assumption has been made that the parcels might be used for residential development purposes, to address the existing housing deficit in the region. However, the development potential of the properties is predicated on the availability of utilities and the willingness of the landowners to either develop or sell the land. Properties in both Cabell and Putnam counties *south of I-64* in the vicinity of the new interchange might be used for commercial and/or industrial purposes, subject to the same caveats concerning utilities and owner intent.

Several large privately owned parcels of land totaling hundreds of acres are located to the *north of the existing I-64 interchange* at **Milton**, Cabell County. These parcels are adjacent to Johns Creek Road (CR 13). Although no development plans have been publicly announced for any of these properties, an assumption has been made that some of the parcels near I-64 might be used for commercial purposes, and the other parcels might be used for residential development purposes, to address the existing housing deficit in the region. However, the development potential of the properties is predicated on the availability of utilities and the willingness of the landowners to either develop or sell the land.

The **West Virginia Economic Development Authority (WVEDA)** owns several parcels totaling several hundred acres in the vicinity of the new Nucor facility in Mason County. The WVEDA properties along WV 2 could be the site of warehousing, manufacturing, or other industrial activities to support Nucor. Other large privately owned parcels adjacent to WV 2 in this same area, and outside the 100-year floodplain, possibly could be developed commercially or for residential purposes. However, the development potential of the private properties is predicated on the availability of utilities and the willingness of the landowners to either develop or sell the land.

Frontieras North America (Frontieras) is an energy technology company that recently announced plans to locate an \$850 million-dollar Solid Carbonation Fracture facility in Mason County, near Point Pleasant. The facility will deconstruct coal to produce hydrogen, methane, naphtha, diesel and aviation fuel. The site was selected in part due to the abundance of coal in the region as well as its access to low-cost transportation via the Ohio River and the entire Inland Waterway network.



Appendix D

*Memo #4: Assessment Methodology
and Project Identification*

May 2026

Transportation Land Use Study

Assessment Methodology and Project
Identification Technical Memo



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Appendix A: Qualitative Deficiency Narrative from Task 2

INTRODUCTION

The KYOVA Transportation Land Use Study (Study) is intended to identify areas of potential economic development in Cabell and Wayne counties that were not fully incorporated in KYOVA's 2050 Metropolitan Transportation Plan (MTP), determine corridor-level impacts the developments may be expected to have on the transportation network, and develop recommendations and guidance for implementation of strategies for proposed improvements to mitigate identified impacts. The results of analysis of growth associated with major developments and transportation projects in adjacent counties, such as the Nucor steel manufacturing facility in Mason County and the area in Putnam County surrounding the I-64 interchange at Culloden, will be used to assess housing and transportation in the area.

PURPOSE

The purpose of this Technical Memo is threefold: to broadly describe the process used for addressing deficiencies identified previously in this Study; to outline the methodology used to identify and evaluate projects or strategies; and to group projects and strategies for future consideration by Cabell, Wayne and KYOVA policymakers in local and regional future planning initiatives.

SCOPE

The scope of this Task will be limited to addressing the qualitative and quantitative deficiencies associated with the finalized list of 23 economic developments and areas of interest located in Cabell, Wayne, Mason and Putnam counties shown in Figures #1 through #3. Since the qualitative deficiencies are duplicative under the various development growth scenarios, to best gauge the "worst-case" network conditions, only the deficiencies associated with the Aggressive Growth Scenario will be reviewed as part of this analysis. The scope is generally limited to the subset of Major and Secondary corridors, Traffic Analysis Zones (TAZs) and study links identified previously in this Study.

Identified Economic Developments/Areas of Interest	
Prichard Building (108 units)	WV National Guard/Airport Business Park
IDEA District	Heritage Farms (Snowpark Expansion)
HBIZ Part 1 Foundry Center/University Park	Fort Gay Community Complex (8 units)
HBIZ (former ACF property) Part 2	Beech Fork Lake Marina
Imperial Lofts (36 units)	Central Appalachia Inland Port
Barnett Commons (32 units)	ICL
Proposed Welcome Center	Nucor & APG
Childers Crossing (70 units)	EDA Property
Alcon	Frontieras
Milton & Culloden I/C N. (Cabell/Putnam County)	Culloden I/C property S. of I-64 (Putnam County)
Culloden I/C South, Grand Patrician	Woodworth Farm
Hamer Property (Kenova)	

Figure 1: Finalized List of Economic Developments and Areas of Interest

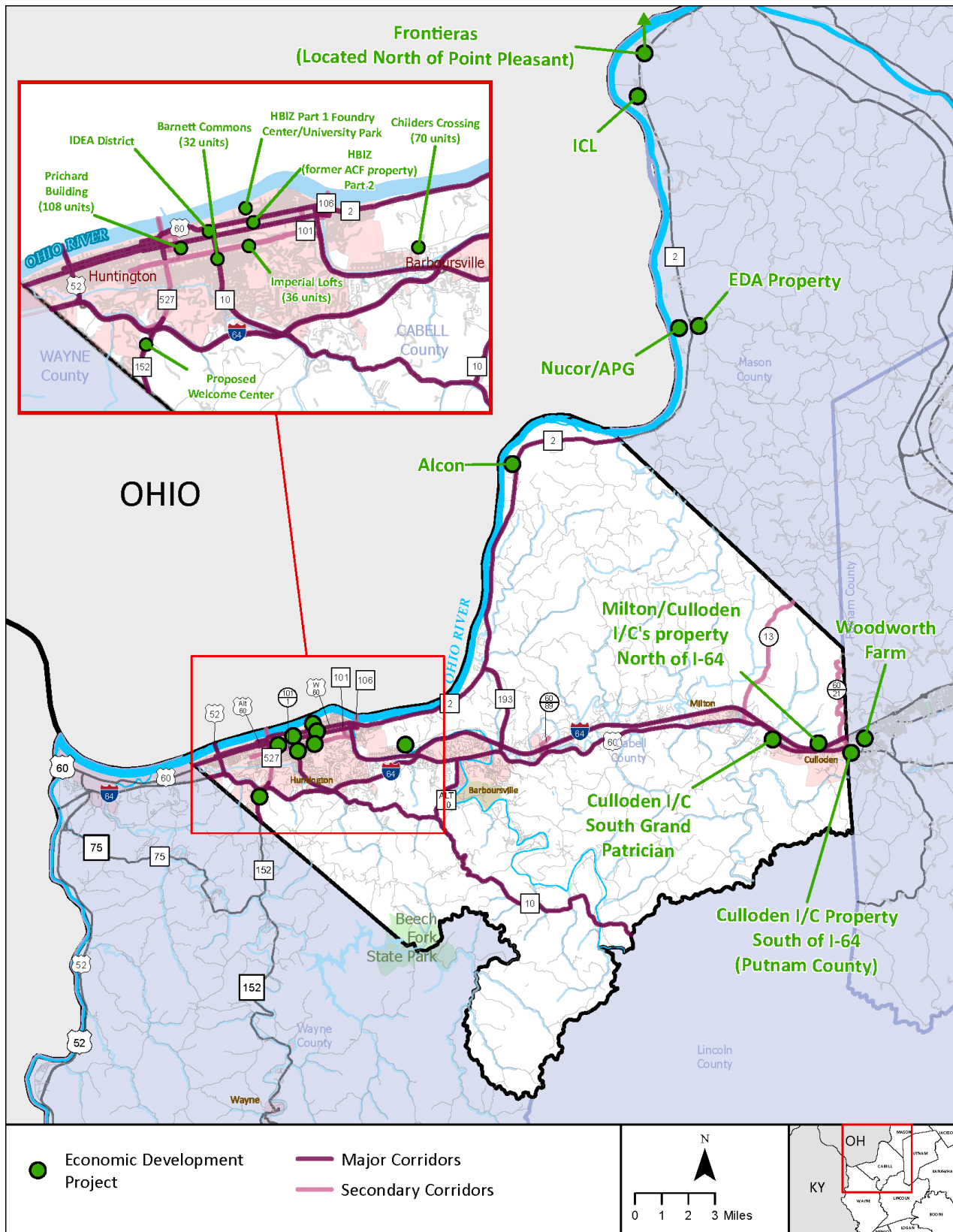


Figure 2: Economic Developments and Areas of Interest, Cabell, Mason and Putnam Counties

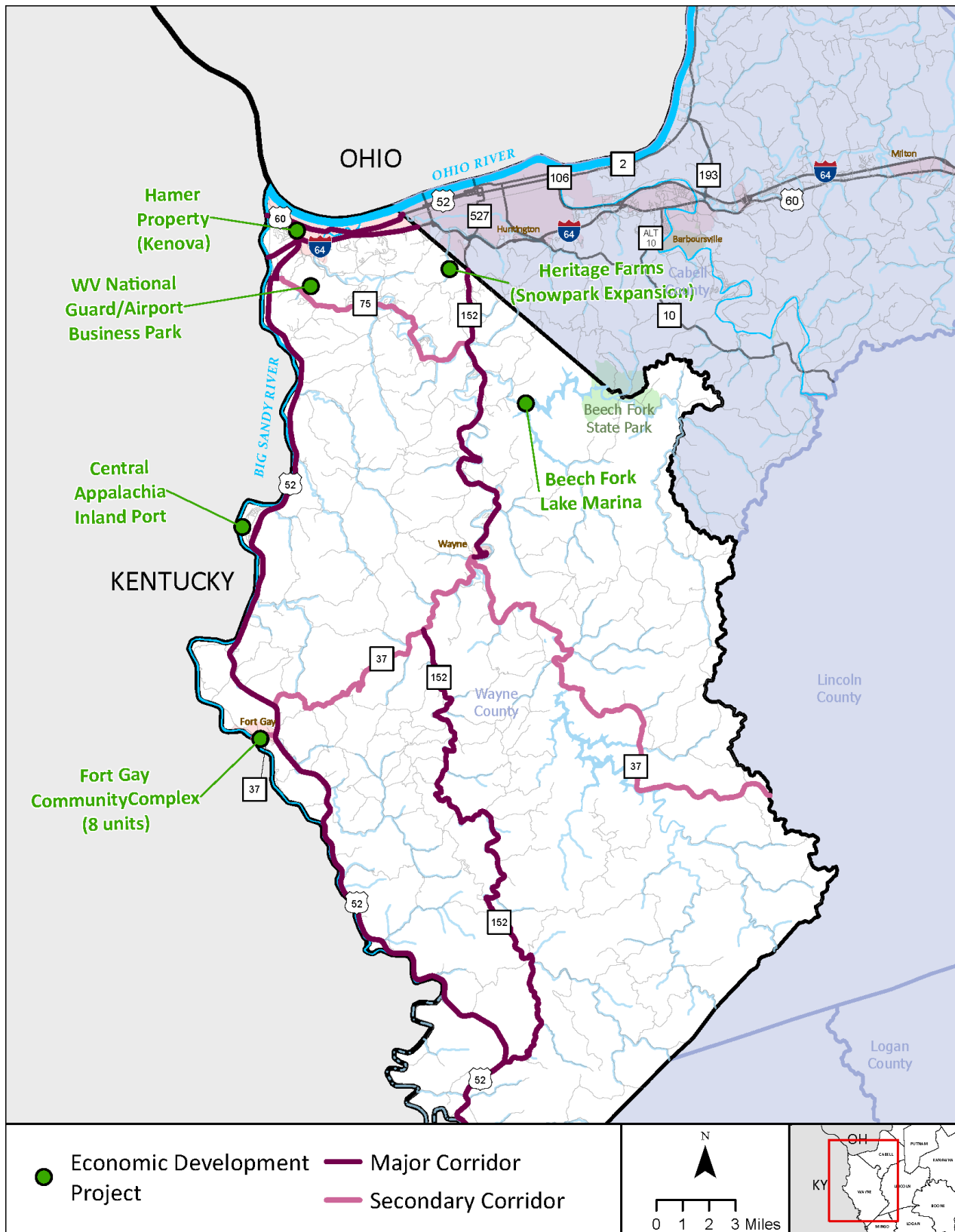


Figure 3: Economic Developments and Areas of Interest, Wayne County

DEPTH

Given that this Study was intended only to evaluate the potential impacts from a small subset of the economic developments and areas of interest in and around Cabell and Wayne counties and the fluid nature of the developments themselves, the depth of analysis for addressing identified deficiencies will be limited. Maximum use was made of existing studies and readily available information. As KYOVA's existing Travel Demand Model (TDM) is well-calibrated, no attempt was made to make broad revisions to the general growth rates, trip distribution and land use assumptions it contains.

METHOD

Screening Process

During Task 2 and 4 of this Study several indicators were selected and defined that could inhibit economic development and/or negatively impact the Major and Secondary corridors of KYOVA's highway network in Cabell and Wayne counties. These "deficiencies" were broadly categorized as being either qualitative or quantitative. During Task 2, five indicators of qualitative deficiency were selected. The individual indicators and summary of the 23 deficiencies identified were as follows:

- Unprogrammed Poor or Posted Bridges
 - Two Bridges identified--both in Wayne County
- Higher Risk At-Grade Railroad Crossings
 - Five crossings identified--one in Cabell County, two in Mason County and two in Wayne County
- Recurring Roadway Flooding Issues
 - Eight roadway locations Identified--four in Cabell County and four in Wayne County
- Unprogrammed High Priority Safety Issues
 - Four locations identified--all in Wayne County
- Lack of Transit Service
 - Four locations identified--all in Wayne County

Detailed information and figures displaying locations throughout the Study area developed for Task 2 are shown in Appendix A. Due to the relatively limited number (23 total locations) and site-specific nature of the qualitative deficiencies identified previously, solutions that would eliminate or mitigate those deficiencies at each location were developed.

The quantitative indicators of deficiency used for this Study were Level of Service (LOS) and Volume to Capacity (V/C) ratio. Several Inputs to the Traffic Analysis Zones (TAZs) and External nodes of KYOVA's TDM that were assumed to be directly impacted by the economic developments and areas of interest shown in Figure #1 were modified to reflect full build-out potential of those sites under the Aggressive Growth Scenario. KYOVA's TDM was rerun and the outputs compared to KYOVA's existing model outputs. A deficiency was determined to exist on any identified segment with an LOS that dropped to D or below compared to KYOVA's 2050 Existing Condition output, as a result of the Aggressive Growth scenario's input changes. In addition, any subset segment that was previously identified in KYOVA's 2050 Existing Condition output as being at LOS F was also considered a deficiency. The network LOS deficiencies under the Aggressive Growth Scenario are shown in Figures 4 and 5.

ID	Link Distance (miles)	Sign System 1 = INT 2 = US 3 = WV 4 = CR	Route Number	Segment Road Name	County	Daily Volume 2050 Aggressive Growth Both Directions	Daily Volume KYOVA Original 2050 Baseline Both Directions	Daily Change in Volume Agressive Growth Minus Original	Daily Link Capacity All Scenarios Both Directions	Daily V/C Ratio KYOVA Original 2050 Baseline Both Directions	Daily V/C Ratio Revised 2050 Aggressive Growth Both Directions	Daily LOS KYOVA Original 2050 Baseline Both Directions	Daily LOS Revised 2050 Aggressive Growth Both Directions
5362	0.4	1	64	I-64 WB 023	Cabell	39,386	36,921	2,465	54,648	0.67	0.72	C+	D
5351	0.22	1	64	I-64 WB 026	Cabell	39,386	36,921	2,465	54,648	0.67	0.72	C+	D
5348	0.49	1	64	I-64 WB 027	Cabell	39,386	36,921	2,465	54,648	0.67	0.72	C+	D
8610	0.29	2	52	US Highway 52 0 3064	Cabell	11,850	11,641	209	11,543	1.00	1.02	F	F
4722	0.31	2	52	US Highway 52 0 3064I	Cabell	12,359	12,130	229	11,543	1.05	1.07	F	F
5713	0.14	2	52	Hwy52 SB Ramp B	Cabell	9,111	8,493	617	10,000	0.84	0.91	D	E
8634	0.12	2	52	Hwy52 SB Ramp B	Cabell	9,111	8,493	617	10,000	0.84	0.91	D	E
8638	0.22	2	52	Hwy52 SB Ramp B	Cabell	9,111	8,493	617	10,000	0.84	0.91	D	E
8609	0.31	2	52	US Highway 52 0 3064I	Cabell	12,359	12,130	229	11,543	1.05	1.07	F	F
4544	0.23	2	60	First Ave 60 0 2317	Cabell	17,195	13,367	3,828	21,546	0.62	0.79	C+	D
4529	0.19	2	60	First Ave 60 0 2342	Cabell	17,195	13,367	3,828	21,546	0.62	0.79	C+	D
3703	1.28	2	60	US Highway 60 0 1125	Cabell	14,372	12,764	1,609	16,416	0.77	0.87	D	E
4543	0.04	2	60	US Highway 60 0 2263A	Cabell	17,294	13,460	3,834	21,546	0.62	0.8	C+	D
5412	0.12	2	60	US Highway 60 0 2450	Cabell	20,661	17,636	3,025	21,546	0.81	0.95	D	E
5328	0.21	2	60	US Highway 60 0 2883	Cabell	26,254	25,637	617	19,996	1.28	1.31	F	F
5302	0.28	2	60	US Highway 60 0 3027	Cabell	22,523	21,839	684	19,996	1.09	1.12	F	F
5146	0.21	2	60	US Highway 60 0 3502	Cabell	30,110	28,823	1,287	34,080	0.84	0.88	D	E
5356	0.22	2	60	US Highway 60 0 3898	Cabell	16,358	15,837	521	23,147	0.68	0.7	C+	D
5357	0.46	2	60	US Highway 60 0 4048	Cabell	16,358	15,837	521	23,147	0.68	0.7	C+	D
3717	0.04	2	60	US Highway 60 0 971	Cabell	14,171	13,244	927	16,416	0.80	0.86	D	E
5141	0.11	2	60	US Highway 60 1413 3178	Cabell	29,052	27,875	1,178	34,080	0.81	0.85	D	E
5166	0.3	2	60	US Highway 60 3499 3807A	Cabell	29,965	28,914	1,051	34,080	0.84	0.87	D	E
4382	0.14	3	2	3rd Ave 2 3300 1256	Cabell	11,832	10,509	1,323	15,759	0.66	0.75	C+	D
4381	0.07	3	2	3rd Ave 2 3600 1219	Cabell	11,832	10,509	1,323	15,759	0.66	0.75	C+	D
4310	0.32	3	2	Bridge St 2 400 1284	Cabell	11,693	10,406	1,287	15,759	0.66	0.74	C+	D
6308	0.12	3	10	16th Street 10 0 5813	Cabell	24,564	23,751	814	34,080	0.69	0.72	C+	D
4965	0.12	3	10	Hal Greer B 10 0 2522	Cabell	23,842	22,541	1,301	33,981	0.66	0.7	C+	D
5040	0.07	3	10	Hal Greer B 10 1100 3557A	Cabell	26,538	25,183	1,355	37,428	0.67	0.7	C+	D
4313	0.1	3	106	State Route 106 0 1313	Cabell	18,406	18,196	209	21,546	0.84	0.85	D	E
3630	0.64	3	106	N/A 0607 Adn/a 32341	Cabell	18,406	18,196	209	16,416	1.10	1.12	F	F
5792	0.18	3	527	State Route 527 0 5568	Cabell	22,413	21,859	553	16,416	1.33	1.36	F	F
5793	0.1	3	527	State Route 527 0 5594	Cabell	23,000	22,456	544	16,416	1.36	1.4	F	F
4539	0.26	4	60/21	Benedict Rd 60 0 2263B	Cabell	11,468	9,322	2,146	14,771	0.63	0.77	C+	D
6174	0.04	2	52	US Highway 52 0 7549	Wayne	16,656	12,700	3,956	21,546	0.59	0.77	C+	D
5579	0.23	2	60	C St 60 0 7294	Wayne	12,833	10,479	2,354	16,416	0.64	0.78	C+	D
6173	0.08	3	75	State Route 75 0 7516	Wayne	16,656	12,700	3,956	16416	0.77	1.01	D	F
6145	0.22	3	75	SR75 RTn/a 0 7425	Wayne	11,845	5,373	6,473	10,912	0.49	1.08	C+	F
6151	0.09	3	75	State Route 75 0 7463	Wayne	12,740	6,391	6,350	10,912	0.59	1.16	C+	F
6165	0.08	3	75	State Route 75 0 7475	Wayne	12,740	6,391	6,350	16,047	0.40	0.79	C+	D

Figure 4: Summary of LOS Deficiency for Revised 2050 Aggressive Growth Scenario Conditions

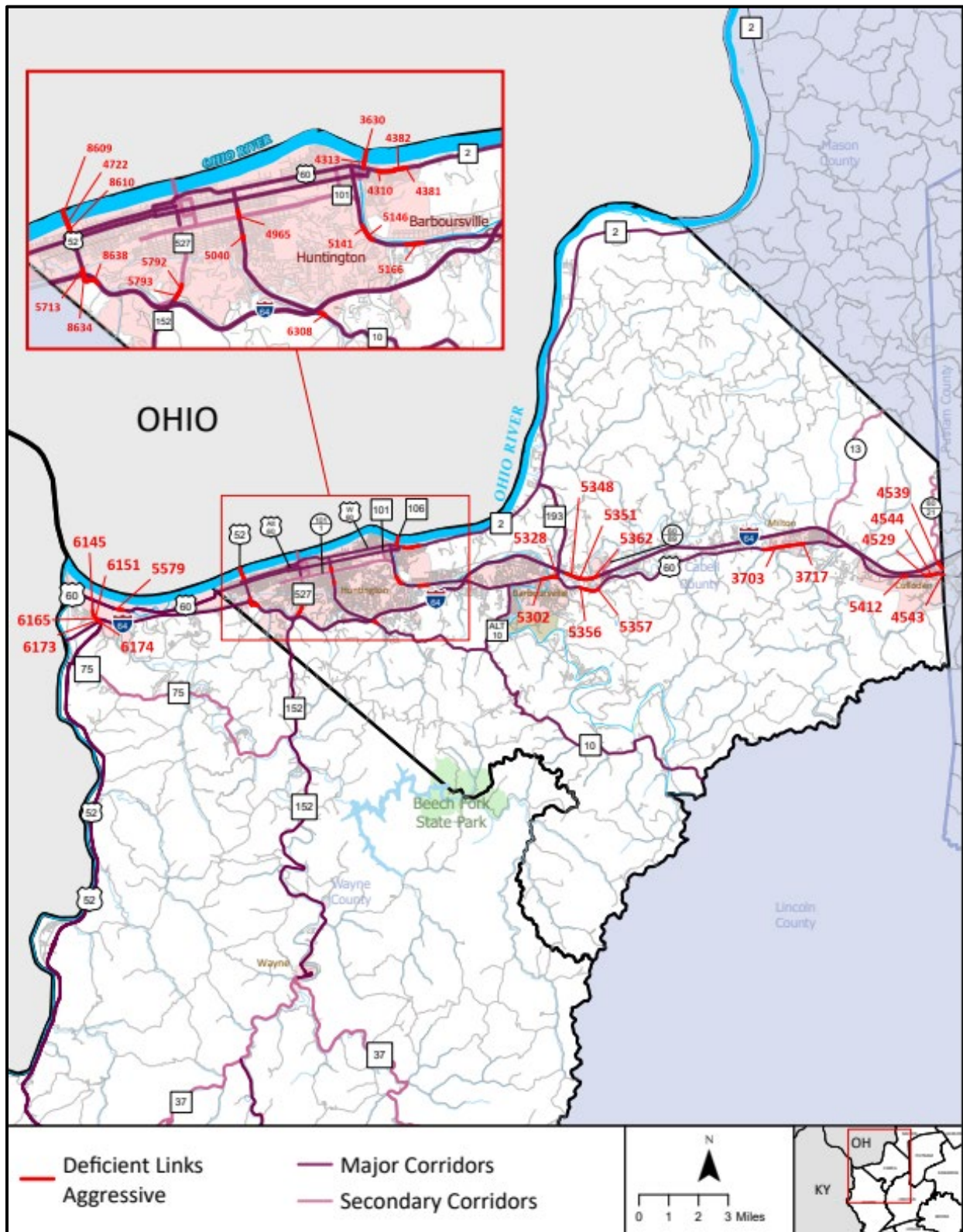


Figure 5: LOS Deficiency Locations and TDM Link ID# for Revised 2050 Aggressive Growth Scenario Conditions

Based on the definition of a deficiency, the results of review of Figures 4 and 5 indicate that under the Aggressive Growth Scenario, 39 Study links totaling 9.05 miles meet the criteria. Eight of the deficient segments totaling 2.32 miles (roughly 26 percent of the deficient Aggressive Growth Scenario mileage) were at LOS F in KYOVA's existing 2050 model output. These segments are generally associated with capacity bottlenecks for bridges and ramps across the Ohio River, as well as near interchanges along I-64. The Aggressive Growth Scenario caused an erosion of LOS on US 60 and Benedict Road in connection with the anticipated build-out of properties in Cabell and Putnam counties near the Culloden interchange and exacerbated the already poor LOS at or near the river crossings within the Study area. In addition, the full build-out potential of the Hamer Property in Kenova degraded WV 75 between Maple Street and I-64. Due to their broader impact, solutions to the quantitative deficiencies identified were focused on their congruency with existing planning documents and their network-level impact. Any network-level solution will be drawn from KYOVA's current MTP. The two-pronged approach for developing representative solutions to the qualitative and quantitative deficiencies and their evaluation was discussed with KYOVA staff on May 11, 2026, to ensure the approach was satisfactory.

Project Identification

For both qualitative and quantitative deficiency solutions, Michael Baker International (MBI) staff examined existing planning and design documents for projects or studies that would address the deficiencies identified. For qualitative deficiencies, where no prior projects were found, MBI staff used engineering judgment to develop conceptual solutions for the location that would eliminate or mitigate the deficiency. In most instances, even where prior studies exist, the design solution has not yet been identified, making any evaluation or determination of impacts difficult. Where no specific construction solution was identified, MBI divided projects into generic development phases, such as "complete preliminary engineering" and "design and construct identified solutions". MBI assumed that any alternative implemented other than a No Build alternative would address the identified deficiency at the specific location.

As outlined above, the quantitative LOS deficiencies were broader in nature and more difficult to resolve, due to ripple effects, than their qualitative counterpart. As such, rather than attempting to solve the 39 individual LOS deficiencies, a broader analysis approach was employed. MBI identified existing planning initiatives contained in KYOVA's current MTP that would have major network impacts and address multiple LOS deficiencies associated with the Aggressive Growth Scenario.

Project Evaluation

Due to the preliminary nature of this Study, extensive analysis of the benefits and costs associated with individual solutions is outside its scope. To allow a general evaluation and comparison of each project's relative priority, MBI staff evaluated the Delivery Difficulty, Implementation Time Frame, and Overall Impact on Economic Development of each solution. Delivery Difficulty of solutions was categorized as being Low, Medium or High based on its status in the development pipeline, scope and independent utility. Implementation Time Frame was categorized as Short-, Medium- or Long-Term based primarily on the anticipated level of Right of Way and Utility impact as well as multi-state coordination effort required. Overall Impact on Economic Development was categorized as being either Low, Medium or High depending on the perceived impact on corridor safety, travel times and predictability.

It is understood that many of the solutions that would have a High Impact on Economic Development also would have significant capital costs and long development time frames. Given that KYOVA's fiscally constrained 2050 MTP has already been established, tradeoffs would need to be made to replace current projects. This reality lends itself to identifying low impact initiatives or projects that may be pursued through federal discretionary grants. Furthermore, the development of a new Statewide Transportation Improvement Program (STIP) in West Virginia, which is ongoing, presents the opportunity for some of the identified deficiencies to be addressed as the program is formulated, especially with respect to bridges; railroad crossings, and recurrent roadway flooding.

Project Grouping

After Qualitative and Quantitative solutions were developed and evaluated for Delivery Difficulty, Implementation Time Frame and Overall Impact on Economic Development, a scoring system was employed:

- Delivery Difficulty: Low = 3 points, Medium = 2 points, and High = 1 point;
- Implementation Time Frame: Short = 3 points, Medium = 2 points, and Long = 1 point; and
- Overall Impact on Economic Development: High = 3 points, Medium = 2 points, and Low = 1 point.

Only the ultimate implementation phase of a construction-based project was scored for Overall Impact on Economic Development. The scoring for preliminary engineering or design phases is for information only. The limited number of evaluation categories and range of results lent itself to a tight range of results, with possible outcomes ranging from 3 to 9 points. It should be noted that while not specifically addressed as part of the evaluation process, capital cost will obviously be a major factor in determining the viability of the proposed solution. Ultimately, the results of this Study will be incorporated into future updates of KYOVA's MTP. The information presented will provide local planners with added insight regarding the potential impacts of the economic developments and areas of interest when aggregated within the full range of economic developments in the Region, rather than just the subset used herein. As such, after all qualitative and quantitative solutions were scored and ranked, they were grouped in three priority categories:

- High Priority: 7-9 points,
- Medium Priority: 5-6 points; and
- Low Priority: 3-4 points.

RESULTS

Project Screening

As indicated previously, due to the relatively small number, site specific projects were identified that would address each of the 23 qualitative deficiencies. Quantitative deficiencies for the worst case (i.e., Aggressive Growth) Scenario totaled 39 locations. Due to their broader impact, network-level solutions from existing planning documents focused on Cabell and Wayne counties were used for analysis.

Project Identification

Qualitative Deficiencies

A summary of the 23 qualitative deficiencies and their conceptual solutions are shown in Figure 6. Where no source is specifically referenced MBI staff developed the representative solution.

DEFICIENCY TYPE	DEFFICIENCY LOCATION/DESCRIPTION	COUNTY	PROJECT #	IMPROVEMENT / INITIATIVE DESCRIPTION
AT-GRADE RXR CROSSING	RR CROSSING #147906R ON WV 2-ASHTON	MASON	2-A	COMPLETE EXISTING RCE PLANNING GRANT (SPN T206RRCRP2500) FOR PRELIMINARY ENGINEERING OF WV 2 AT-GRADE CROSSINGS
			3-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	RR CROSSING #147873F ON WV 2-GALLIPOLIS FERRY	MASON	4-A	COMPLETE EXISTING RCE PLANNING GRANT FOR PRELIMINARY ENGINEERING
			4-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	RR CROSSING #147948C ON WV 2-HUNTINGTON	CABELL	5-A	COMPLETE EXISTING RCE PLANNING GRANT (SPN T206RRCRP2500) FOR PRELIMINARY ENGINEERING OF WV 2 AT-GRADE CROSSINGS
			5-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	RR CROSSING #471645H ON WV 37-FORT GAY	WAYNE	6-A	EVALUATE IMPROVEMENT OPTIONS IN CONJUNCTION WITH FUTURE DESIGN FOR THE REPLACEMENT OF THE LOUISA-FORT GAY BRIDGE
			6-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION AS PART OF BRIDGE REPLACEMENT
	RR CROSSING #471601H ON US 52-CRUM	WAYNE	7-A	PLANNED RELOCATION OF US 52 IN THIS AREA WOULD SIGNIFICANTLY DECREASE THE HIGHWAY TRAFFIC AT THIS CROSSING AND WOULD LIKELY LOWER ITS FRA RANKING SUBSTANTIALLY-WAYNE-08A DESIGN & ENVIRONMENTAL OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA'S MTP
			7-B	US 52 RELOCATION IN THIS AREA WOULD SIGNIFICANTLY DECREASE THE HIGHWAY TRAFFIC AT THIS CROSSING AND WOULD LIKELY LOWER ITS RANKING SUBSTANTIALLY-WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN
BRIDGE	BELOW DAM BRIDGE BARS# 50A078	WAYNE	8.A	PROGRAM PRELIMINARY DESIGN-ADD TO TIP/STIP
			8-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	PERDUE BROTHERS MEMORIAL BRIDGE BARS #50A220	WAYNE	9-A	PROGRAM PRELIMINARY DESIGN-ADD TO TIP/STIP
			9-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
SAFETY	WAVERLY ROAD (US 60) AT CARSON STREET	WAYNE	10-A	CONDUCT SAFETY STUDY #3 FROM CABELL/WAYNE SAFETY STUDY-EXPAND TO INCLUDE CARSON STREET
			10-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	WAVERLY ROAD (US 60) AT CAMDEN / AUBURN ROAD	WAYNE	11-A	CONDUCT SAFETY STUDY #3 FROM CABELL/WAYNE SAFETY STUDY-EXPAND TO INCLUDE CARSON STREET
			11-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	WAVERLY ROAD (US 60) AT BURLINGTON ROAD	WAYNE	12-A	CONDUCT SAFETY STUDY #3 FROM CABELL/WAYNE SAFETY STUDY-EXPAND TO INCLUDE CARSON STREET
			12-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	COURT STREET (WV 37) AT US 52 IN FORT GAY	WAYNE	13-A	PROJECT COULD BE ADDRESSED AS PART OF COUNTYWIDE SAFETY INITIATIVES IN KYOVA'S MTP -WAY-25 ACTIVE SIGNAL AND OPERATIONAL IMP, WAY-26 WAYNE COUNTY SAFETY IMPROVEMENTS, EVALUATE COUNTERMEASURES
			13-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
			14-A	RELOCATION OF US 52 IN AREA WOULD EFFECTIVELY ELIMINATE THE DEFICIENCY- WAY 8A-DESIGN AND ENV OF US 52 RELOCATION FROM KERMIT TO HUBBARDSTOWN-KYOVA MTP, WAY-68B CONSTRUCTION-KYOVA VISION PLAN
			14-B	DESIGN AND CONSTRUCT RELOCATION OF US 52
ROADWAY FLOODING	US 60 AT JUNCTION WITH ARLINGTON BLVD (MNS 352)	CABELL	15-A	IMPLEMNTENT CONSTRUCTION PHASE OF WVDOH CULVERT REPLACEMENT PROJECT (U306CULV25 00)
	US 60 AT CSX RR UNDERPASS (INV# 225636J)	CABELL	16-A	ANY MAJOR IMPROVEMENT WOULD LIKELY BE DONE IN CONJUNCTION WITH CSX OVERPASS REPLACEMENT COORDINATE DESIGN AND CONSTRUCTION WITH CSX
	WV 10/16TH STREET AT CSX RR UNDERPASS (INV# 225668P)	CABELL	17-A	KYOVA FISCALLY CONSTRAINED MTP INCLUDES ADDITIONAL RECOMMENDED GREEN INFRASTRUCTURE (CAB-04) THAT MAY FURTHER MITIGATE FLOODING AT THIS LOCATION. IMPLEMENT PHASE 4 (HAL GREER STORM SEPARATION) FROM HUNTINGTON STREET FLOODING MITIGATION PLAN TO FULLY ADDRESS PROBLEM LONG TERM.,
	WV 527/8TH STREET AT CSX RR UNDERPASS (INV# 225670R)	CABELL	18-A	IMPLEMENT PROJECT 7B FROM HUNTINGTON STREET FLOODING MITIGATION PLAN, CONVERT TO 3 LN WITH ELEVATED BIKE PED PATH, PROJECT NOT INCLUDED IN KYOVA MTP
	US 52 FROM CRUM TO STEPPTOWN	WAYNE	19-A	THE PLANNED RELOCATION OF US 52 IN THIS AREA WOUL EFFECTIVELY ELIMINATE THE DEFICIENCY, SINCE THE CORRIDOR DESIGNATION WOULD BE MOVED UPON COMPLETION WAYNE-08A DESIGN & ENVIRONMENTAL OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA'S MTP
			19-B	US 52 RELOCATION FROM KERMIT TO HUBBARDSTOWN-WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN
	WV 152 AT MOSES FORK	WAYNE	20-A	CONDUCT DRAINAGE STUDY TO DETERMINE IF ROADWAY GRADE CAN BE RAISED TO ELIMINATE OR PARTIALLY MITIGATE FLOODING ISSUE
			20-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	WV 152 AT DUNLOW AT JUNCTION WITH CR 52/24	WAYNE	21-A	CONDUCT DRAINAGE STUDY TO DETERMINE IF ROADWAY GRADE CAN BE RAISED TO ELIMINATE OR PARTIALLY MITIGATE FLOODING ISSUE
			21-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
	WV 152 AT GENOA	WAYNE	22-A	CONDUCT DRAINAGE STUDY TO DETERMINE IF ROADWAY GRADE CAN BE RAISED TO ELIMINATE OR PARTIALLY MITIGATE FLOODING ISSUE
			22-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION
TRANSIT	WV NATIONAL GUARD/AIRPORT BUSINESS PARK	WAYNE	23-A	AS AIRPORT BUSINESS PARK AND HAMER FACILITY DEVELOP THE POTENTIAL EXISTS FOR EXTENDING TTA's ROUTE #6 TO INCLUDE WV 75 AND US 52 OR EXTENDING TRI RIVER'S WAYNE TO HUNTINGTON MALL ROUTE ON WV 75 TO PROVIDE MOBILITY OPTIONS FOR WORKERS AT THOSE LOCATIONS
	CENTRAL APPALACHIAN INLAND PORT	WAYNE	24-A	EXPLORE FEASIBILITY/DEMAND FOR PROVIDING A WILLIAMSON TO VA FACILITY/BARBOURSVILLE MALL ROUTE FOLLOWING US 52
	FORT GAY COMMUNITY COMPLEX	WAYNE	25-A	EXPLORE FEASIBILITY PROVIDING/EXTENDING ON-DEMAND SERVICE FROM SANDY VALLEY TRANSPORTATION SERVICES (SVTS)
	BEECH FORK LAKE MARINA AREA	WAYNE	26-A	AS BEECH FORK LAKE ACCESS ROAD DEVELOPS, SERVICE CAN BE PROVIDED VIA TRI RIVER'S WAYNE ROUTE

Figure 6: Qualitative Deficiency Solutions

Quantitative Deficiencies

The results of review of KYOVA's 2050 MTP Vision Plan Projects shown in Figure 7 indicate there are multiple long-range priorities that would have network level impacts on LOS deficiencies identified from the Aggressive Growth Scenario. Most notable of these Vision Plan Projects are CAB-18B, which widens WV 2 to a 4-lane from Huntington to the Cabell/Putnam County Line in West Virginia as Phase II of WV 2 Improvements; CAB-28, which widens WV 10 to a 4-lane from Melissa Road to Salt Rock; and CAB-29, which provides a new Ohio River Bridge at Merritt's Creek.

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

Figure 7: KYOVA 2050 MTP Vision Plan Projects

Obviously, the implementation of any of the Vision Plan Projects identified in Figure 7 would have network-level impacts in Cabell and Wayne counties. However, with the focus of this Study being on the LOS deficiencies generated by high growth at the subset of 23 economic developments and areas of interest two primary candidates emerge for addressing those issues: CAB 18B and CAB 29.

The desire to improve the operation of the WV 2 corridor from Huntington to Point Pleasant and beyond has been a longstanding priority of the WVDOH. Past improvements to this artery include grade separation of railroad crossings and improved geometrics on multiple sections. The results of the most recent analysis, the *WV 2 Study Cabell and Mason Counties*, are embedded in KYOVA's fiscally constrained plan (i.e., CAB-18A Improve WV 2 from Huntington to the Cabell/Mason County Line), which will further improve its operation. Similarly, the demand and desire for additional capacity across the Ohio River and improved system linkage between Ohio State Route 7 (SR-7) and WV 2, which is addressed by CAB-29, has been borne out for decades in multiple KYOVA planning documents with the greatest emphasis being placed on the completion of an outer loop via a connection between the Chesapeake Bypass (Ohio SR-7) and the Merritt's Creek Connector (WV 193), which provides access to I-64, US 60 and WV 2. While both Vision Plan Projects would likely address multiple LOS deficiencies identified under the Aggressive Growth Scenario due to the concentration of developments along the WV 2 corridor, the construction of the Culloden Interchange, and the migration of population towards eastern Cabell County, the documented capacity issues at existing Ohio River crossings, and the system linkage benefits of CAB-29 point to the specific need for the completed link's impact on LOS deficiency to be examined as opposed to CAB-18B. Therefore, to determine the Ohio River crossing connector's impact on network operations and LOS, the five links in KYOVA's TDM corresponding to the new crossing in West Virginia (i.e., 3072, 3074, 3077, 3078 and 3081) were made active and the model rerun with the Aggressive Growth Scenario inputs.

Project Evaluation

Qualitative Deficiencies

The results of the evaluation of each qualitative deficiency solution with regards to Delivery Difficulty, Implementation Time Frame, and Overall Impact on Economic Development are shown in Figure 8. As noted previously, if a solution was divided into development phases only the construction element was evaluated for its anticipated effect on Overall Impact on Economic Development.

DEFICIENCY TYPE	DEFICIENCY LOCATION/DESCRIPTION	COUNTY	PROJ #	IMPROVEMENT / INITIATIVE DESCRIPTION	DELIVERY DIFFICULTY LOW, MEDIUM, HIGH	IMPLEMENTATION TIME FRAME SHORT, MEDIUM, LONG TERM	OVERALL IMPACT ON ECONOMIC DEVELOPMENT LOW, MEDIUM, HIGH
AT-GRADE RXR CROSSING	RR CROSSING #147906R ON WV 2-ASHTON	MASON	2-A	COMPLETE EXISTING RCE PLANNING GRANT (SPN T206RRCRP2500) FOR PRELIMINARY ENGINEERING OF WV 2 AT-GRADE CROSSINGS	LOW	SHORT	
			3-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	MEDIUM	MEDIUM	HIGH
	RR CROSSING #147873F ON WV 2-GALLIPOLIS FERRY	MASON	4-A	COMPLETE EXISTING RCE PLANNING GRANT FOR PRELIMINARY ENGINEERING	LOW	SHORT	
			4-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	MEDIUM	MEDIUM	HIGH
	RR CROSSING #147948C ON WV 2-HUNTINGTON	CABELL	5-A	COMPLETE EXISTING RCE PLANNING GRANT (SPN T206RRCRP2500) FOR PRELIMINARY ENGINEERING OF WV 2 AT-GRADE CROSSINGS	LOW	SHORT	
			5-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	HIGH	LONG	HIGH
	RR CROSSING #471645H ON WV 37-FORT GAY	WAYNE	6-A	EVALUATE IMPROVEMENT OPTIONS IN CONJUNCTION WITH FUTURE DESIGN FOR THE REPLACEMENT OF THE LOUISA-FORT GAY BRIDGE	HIGH	LONG	
			6-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION AS PART OF BRIDGE REPLACEMENT	HIGH	LONG	LOW
	RR CROSSING #471601H ON US 52-CRUM	WAYNE	7-A	PLANNED RELOCATION OF US 52 IN THIS AREA WOULD SIGNIFICANTLY DECREASE THE HIGHWAY TRAFFIC AT THIS CROSSING AND WOULD LIKELY LOWER ITS FRA RANKING SUBSTANTIALLY-WAYNE-08A DESIGN & ENVIRONMENTAL OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA'S MTP	HIGH	LONG	
			7-B	US 52 RELOCATION IN THIS AREA WOULD SIGNIFICANTLY DECREASE THE HIGHWAY TRAFFIC AT THIS CROSSING AND WOULD LIKELY LOWER ITS RANKING SUBSTANTIALLY-WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN	HIGH	LONG	HIGH
BRIDGE	BELOW DAM BRIDGE BARS# 50A078	WAYNE	8-A	PROGRAM PRELIMINARY DESIGN-ADD TO TIP/STIP	LOW	SHORT	
			8-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	LOW	MEDIUM	LOW
	PERDUE BROTHERS MEMORIAL BRIDGE BARS #50A220	WAYNE	9-A	PROGRAM PRELIMINARY DESIGN-ADD TO TIP/STIP	LOW	SHORT	
			9-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	MEDIUM	MEDIUM	LOW
SAFETY	WAVERLY ROAD (US 60) AT CARSON STREET	WAYNE	10-A	CONDUCT SAFETY STUDY #3 FROM CABELL/WAYNE SAFETY STUDY-EXPAND TO INCLUDE CARSON STREET	LOW	SHORT	
			10-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	MEDIUM	MEDIUM	MEDIUM
	WAVERLY ROAD (US 60) AT CAMDEN / AUBURN ROAD	WAYNE	11-A	CONDUCT SAFETY STUDY #3 FROM CABELL/WAYNE SAFETY STUDY-EXPAND TO INCLUDE CARSON STREET	LOW	SHORT	
			11-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	HIGH	LONG	MEDIUM
	WAVERLY ROAD (US 60) AT BURLINGTON ROAD	WAYNE	12-A	CONDUCT SAFETY STUDY #3 FROM CABELL/WAYNE SAFETY STUDY-EXPAND TO INCLUDE CARSON STREET	LOW	SHORT	
			12-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	HIGH	LONG	MEDIUM
	COURT STREET (WV 37) AT US 52 IN FORT GAY	WAYNE	13-A	PROJECT COULD BE ADDRESSED AS PART OF COUNTYWIDE SAFETY INITIATIVES IN KYOVA'S MTP -WAY-25 ACTIVE SIGNAL AND OPERATIONAL IMP, WAY-26 WAYNE COUNTY SAFETY IMPROVEMENTS, EVALUATE COUNTERMEASURES	LOW	SHORT	
			13-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	LOW	MEDIUM	LOW
ROADWAY FLOODING	US 60 AT JUNCTION WITH ARLINGTON BLVD (MNS 352)	CABELL	15-A	IMPLEMNET CONSTRUCTION PHASE OF WVDOH CULVERT REPLACEMENT PROJECT (U306CULV25 00)	LOW	SHORT	MEDIUM
	US 60 AT CSX RR UNDERPASS (INV# 225636J)	CABELL	16-A	ANY MAJOR IMPROVEMENT WOULD LIKELY BE DONE IN CONJUNCTION WITH CSX OVERPASS REPLACEMENT COORDINATE DESIGN AND CONSTRUCTION WITH CSX	HIGH	LONG	MEDIUM
	WV 10/16TH STREET AT CSX RR UNDERPASS (INV# 225668P)	CABELL	17-A	KYOVA FISCALLY CONSTRAINED MTP INCLUDES ADDITIONAL RECOMMENDED GREEN INFRASTRUCTURE (CAB-04) THAT MAY FURTHER MITIGATE FLOODING AT THIS LOCATION. IMPLEMENT PHASE 4 (HAL GREER STORM SEPARATION) FROM HUNTINGTON STREET FLOODING MITIGATION PLAN TO FULLY ADDRESS PROBLEM LONG TERM.,	HIGH	LONG	HIGH
	WV 527/8TH STREET AT CSX RR UNDERPASS (INV# 225670R)	CABELL	18-A	IMPLEMENT PROJECT 7B FROM HUNTINGTON STREET FLOODING MITIGATION PLAN, CONVERT TO 3 LN WITH ELEVATED BIKE PED PATH, PROJECT NOT INCLUDED IN KYOVA MTP	MEDIUM	LONG	MEDIUM
	US 52 FROM CRUM TO STEPPTOWN	WAYNE	19-A	THE PLANNED RELOCATION OF US 52 IN THIS AREA WOUL EFFECTIVELY ELIMINATE THE DEFICIENCY, SINCE THE CORRIDOR DESIGNATION WOULD BE MOVED UPON COMPLETION WAYNE-08A DESIGN & ENVIRONMENTAL OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA'S MTP	HIGH	LONG	
			19-B	US 52 RELOCATION FROM KERMIT TO HUBBARDSTOWN-WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN	HIGH	LONG	HIGH
	WV 152 AT MOSES FORK	WAYNE	20-A	CONDUCT DRAINAGE STUDY TO DETERMINE IF ROADWAY GRADE CAN BE RAISED TO ELIMINATE OR PARTIALLY MITIGATE FLOODING ISSUE	LOW	SHORT	
			20-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	MEDIUM	MEDIUM	MEDIUM
	WV 152 AT DUNLOW AT JUNCTION WITH CR 52/24	WAYNE	21-A	CONDUCT DRAINAGE STUDY TO DETERMINE IF ROADWAY GRADE CAN BE RAISED TO ELIMINATE OR PARTIALLY MITIGATE FLOODING ISSUE	LOW	SHORT	
			21-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	MEDIUM	MEDIUM	MEDIUM
TRANSIT	WV NATIONAL GUARD/AIRPORT BUSINESS PARK	WAYNE	23-A	AS AIRPORT BUSINESS PARK AND HAMER FACILITY DEVELOP THE POTENTIAL EXISTS FOR EXTENDING TTA's ROUTE #6 TO INCLUDE WV 75 AND US 52 OR EXTENDING TRI RIVER'S WAYNE TO HUNTINGTON MALL ROUTE ON WV 75 TO PROVIDE MOBILITY OPTIONS FOR WORKERS AT THOSE LOCATIONS	MEDIUM	MEDIUM	MEDIUM
	CENTRAL APPALACHIAN INLAND PORT	WAYNE	24-A	EXPLORE FEASIBILITY/DEMAND FOR PROVIDING A WILLIAMSON TO VA FACILITY/BARBOURSVILLE MALL ROUTE FOLLOWING US 52	LOW	SHORT	LOW
	FORT GAY COMMUNITY COMPLEX	WAYNE	25-A	EXPLORE FEASIBILITY PROVIDING/EXTENDING ON-DEMAND SERVICE FROM SANDY VALLEY TRANSPORTATION SERVICES (SVTS)	LOW	SHORT	LOW
	BEECH FORK LAKE MARINA AREA	WAYNE	26-A	AS BEECH FORK LAKE ACCESS ROAD DEVELOPS, SERVICE CAN BE PROVIDED VIA TRI RIVER'S WAYNE ROUTE	LOW	MEDIUM	LOW

Figure 8: Qualitative Solution Evaluation

Quantitative Deficiencies

The Ohio River Bridge (CAB-29) solution to quantitative deficiencies was also rated in similar fashion to qualitative deficiencies (i.e., Delivery Difficulty, Implementation Time Frame, and Overall Impact on Economic Development). The results of that rating are shown in Figure 9. The evaluation acknowledges that implementation of this initiative will require a significant amount of time and resources, but the regional benefits of completing the outer loop are compelling.

DEFICIENCY TYPE	DEFFICIENCY LOCATION/DESCRIPTION	COUNTY	PROJECT #	IMPROVEMENT / INITIATIVE DESCRIPTION	DELIVERY DIFFICULTY LOW, MEDIUM, HIGH	IMPLEMENTATION TIME FRAME SHORT,MEDIUM, LONG TERM	OVERALL IMPACT ON ECONOMIC DEVELOPMENT LOW,MEDIUM,HIGH
LOS	39 INDIVIDUAL LOCATIONS SEE FIGURES 4 AND 5	CABELL & WAYNE	1A	INITIATE DESIGN AND ENVIRONMENTAL CLEARANCE FOR KYOVA VISION PLAN PROJECT CAB-29 (OHIO RIVER BRIDGE AT MERRITT'S CREEK)	MEDIUM	MEDIUM	
			1B	CONSTRUCT PREFERRED ALTERNATIVE FOR KYOVA VISION PLAN PROJECT CAB-29 (OHIO RIVER BRIDGE AT MERRITT'S CREEK)	HIGH	LONG	HIGH

Figure 9: Quantitative Solution Evaluation

In addition to the assessment shown in Figure 9, a supplemental analysis of network impacts was also conducted for comparison to the No Build Alternative for the quantitative deficiency solution. For this analysis KYOVA's TDM was used to evaluate how many of the 39 LOS deficiencies identified under the Aggressive Growth Scenario were eliminated with the CAB-29 project in place. Due to the project's regional impact, the remaining subset of TDM links evaluated as part of this Study were also reviewed to determine if LOS degraded and created another deficiency at another location due to traffic diversion or improved a link's LOS by a letter grade compared to KYOVA's 2050 Existing Condition as a result of the project's implementation. The results of the analysis are shown in Figures 10 and 11.

ID	Link Distance (miles)	Sign System 1 = INT 2 = US 3 = WV 4 = CR	Route Number	County	Daily Volume 2050 Aggressive Growth W/Bridge Both Directions	Daily Volume 2050 Aggressive Growth Both Directions	Daily Volume KYOVA Original 2050 Baseline Both Directions	Daily Link Capacity All Scenarios Both Directions	Daily V/C Ratio KYOVA Original 2050 Baseline Both Directions	Daily V/C Ratio Revised 2050 Aggressive Growth Both Directions	Daily V/C Ratio Revised 2050 Aggressive Growth W/Bridge Both Directions	Daily LOS KYOVA Original 2050 Baseline Both Directions	Daily LOS Revised 2050 Aggressive Growth Both Directions	Daily LOS Revised 2050 Aggressive Growth W/Bridge Both Directions
5312	0.18	1	64	Cabell	38,522	38,046	35,771	54,648	0.65	0.69	0.70	C+	C+	D
5362	0.4	1	64	Cabell	39,700	39,386	36,921	54,648	0.67	0.72	0.72	C+	D	D
5351	0.22	1	64	Cabell	39,700	39,386	36,921	54,648	0.67	0.72	0.72	C+	D	D
5348	0.49	1	64	Cabell	39,700	39,386	36,921	54,648	0.67	0.72	0.72	C+	D	D
5314	0.23	1	64	Cabell	9,424	7,413	7,537	10,000	0.75	0.74	0.94	D	D	E
4437	0.32	1	64	Cabell	8,983	7,009	7,109	10,000	0.71	0.70	0.89	D	D	E
8610	0.29	2	52	Cabell	10,910	11,850	11,641	11,543	1.00	1.02	0.94	F	F	E
5691	0.19	2	52	Cabell	15,716	16,681	16,558	23,085	0.71	0.72	0.68	D	D	C+
5702	0.18	2	52	Cabell	15,701	16,787	16,881	23,085	0.73	0.72	0.68	D	D	C+
4722	0.31	2	52	Cabell	11,334	12,359	12,130	11,543	1.05	1.07	0.98	F	F	E
5713	0.14	2	52	Cabell	8,145	9,111	8,493	10,000	0.84	0.91	0.81	D	E	D
8634	0.12	2	52	Cabell	8,145	9,111	8,493	10,000	0.84	0.91	0.81	D	E	D
8638	0.22	2	52	Cabell	8,145	9,111	8,493	10,000	0.84	0.91	0.81	D	E	D
8609	0.31	2	52	Cabell	11,334	12,359	12,130	11,543	1.05	1.07	0.98	F	F	E
4544	0.23	2	60	Cabell	17,122	17,195	13,367	21,546	0.62	0.79	0.79	C+	D	D
4529	0.19	2	60	Cabell	17,122	17,195	13,367	21,546	0.62	0.79	0.79	C+	D	D
3703	1.28	2	60	Cabell	14,325	14,372	12,764	16,416	0.77	0.87	0.87	D	E	E
4543	0.04	2	60	Cabell	17,294	17,294	13,460	21,546	0.62	0.80	0.80	C+	D	D
5412	0.12	2	60	Cabell	20,621	20,661	17,636	21,546	0.81	0.95	0.95	D	E	E
5328	0.21	2	60	Cabell	26,520	26,254	25,637	19,996	1.28	1.31	1.32	F	F	F
5302	0.28	2	60	Cabell	21,864	22,523	21,839	19,996	1.09	1.12	1.09	F	F	F
5239	0.14	2	60	Cabell	33,981	36,110	34,798	39,992	0.87	0.90	0.84	E	E	D
5198	0.32	2	60	Cabell	33,206	35,355	34,025	39,992	0.85	0.88	0.83	E	E	D
5146	0.21	2	60	Cabell	27,321	30,110	28,823	34,080	0.84	0.88	0.80	D	E	D
5356	0.22	2	60	Cabell	16,362	16,358	15,837	23,147	0.68	0.70	0.70	C+	D	D
5357	0.46	2	60	Cabell	16,362	16,358	15,837	23,147	0.68	0.70	0.70	C+	D	D
3717	0.04	2	60	Cabell	14,166	14,171	13,244	16,416	0.80	0.86	0.86	D	E	E
5141	0.11	2	60	Cabell	26,427	29,052	27,875	34,080	0.81	0.85	0.77	D	E	D
5169	0.15	2	60	Cabell	28,881	31,480	30,226	34,080	0.88	0.92	0.84	E	E	D
5168	0.19	2	60	Cabell	28,876	31,475	30,221	34,080	0.88	0.92	0.84	E	E	D
5166	0.3	2	60	Cabell	27,679	29,965	28,914	34,080	0.84	0.87	0.81	D	E	D
4382	0.14	3	2	Cabell	9,968	11,832	10,509	15,759	0.66	0.75	0.63	C+	D	C+
4381	0.07	3	2	Cabell	9,968	11,832	10,509	15,759	0.66	0.75	0.63	C+	D	C+
4310	0.32	3	2	Cabell	9,873	11,693	10,406	15,759	0.66	0.74	0.62	C+	D	C+
3073	0.52	3	2	Cabell	17,495	14,951	13,308	21,546	0.61	0.69	0.81	C+	C+	D
3079	0.14	3	2	Cabell	15,621	14,391	13,125	21,546	0.60	0.66	0.72	C+	C+	D
6308	0.12	3	10	Cabell	24,147	24,564	23,751	34,080	0.69	0.72	0.70	C+	D	D
4965	0.12	3	10	Cabell	23,508	23,842	22,541	33,981	0.66	0.70	0.69	C+	D	C+
5040	0.07	3	10	Cabell	25,962	26,538	25,183	37,428	0.67	0.70	0.69	C+	D	C+
4313	0.1	3	106	Cabell	12,897	18,406	18,196	21,546	0.84	0.85	0.59	D	E	C+
4329	0.02	3	106	Cabell	12,166	15,307	14,717	16,229	0.90	0.94	0.74	E	E	D
4320	0.12	3	106	Cabell	6,758	9,498	9,395	10,000	0.93	0.94	0.67	E	E	C+
4321	0.04	3	106	Cabell	6,758	9,498	9,395	10,000	0.93	0.94	0.67	E	E	C+
4312	0.13	3	106	Cabell	6,758	9,498	9,395	10,000	0.93	0.94	0.67	E	E	C+
4326	0.1	3	106	Cabell	6,138	8,907	8,801	10,000	0.88	0.89	0.61	E	E	C+
4339	0.06	3	106	Cabell	6,138	8,907	8,801	10,000	0.88	0.89	0.61	E	E	C+
4338	0.03	3	106	Cabell	6,138	8,907	8,801	10,000	0.88	0.89	0.61	E	E	C+
4328	0.14	3	106	Cabell	6,138	8,907	8,801	10,000	0.88	0.89	0.61	E	E	C+
3630	0.64	3	106	Cabell	12,897	18,406	18,196	16,416	1.10	1.12	0.78	F	F	D
5792	0.18	3	527	Cabell	22,317	22,413	21,859	16,416	1.33	1.36	1.35	F	F	F
5793	0.1	3	527	Cabell	22,919	23,000	22,456	16,416	1.36	1.40	1.39	F	F	F
4539	0.26	4	60/21	Cabell	11,558	11,468	9,322	14,771	0.63	0.77	0.78	C+	D	D
6174	0.04	2	52	Wayne	16,679	16,656	12,700	21,546	0.59	0.77	0.77	C+	D	D
5579	0.23	2	60	Wayne	12,743	12,833	10,479	16,416	0.64	0.78	0.77	C+	D	D
6173	0.08	3	75	Wayne	16,679	16,656	12,700	16,416	0.77	1.01	1.01	D	F	F
6145	0.22	3	75	Wayne	11,862	11,845	5,373	10,912	0.49	1.08	1.08	C+	F	F
6151	0.09	3	75	Wayne	12,756	12,740	6,391	10,912	0.59	1.16	1.16	C+	F	F
6165	0.08	3	75	Wayne	12,756	12,740	6,391	16,047	0.40	0.79	0.79	C+	D	D
3072	0.41	N/A	NEW	Cabell	10,623	0	0	16,806	N/A	N/A	0.63	N/A	N/A	C+
3074	0.23	N/A	NEW	Cabell	21,226	0	0	33,612	N/A	N/A	0.63	N/A	N/A	C+
3077	0.41	N/A	NEW	Cabell	10,603	0	0	16,806	N/A	N/A	0.63	N/A	N/A	C+
3078	0.17	N/A	NEW	Cabell	10,603	0	0	16,806	N/A	N/A	0.63	N/A	N/A	C+
3081	0.16	N/A	NEW	Cabell	10,623	0	0	16,806	N/A	N/A	0.63	N/A	N/A	C+
NO IMPACT ON AGGRESSIVE GROWTH LOS DEFICIENCY ELIMINATED AGGRESSIVE GROWTH LOS DEFICIENCY CAUSED A LOS DEFICIENCY ON ANCILLARY LINKS IMPROVED LOS ON ANCILLARY LINKS														

Figure 10: New Ohio River Bridge Impact on LOS Deficiencies

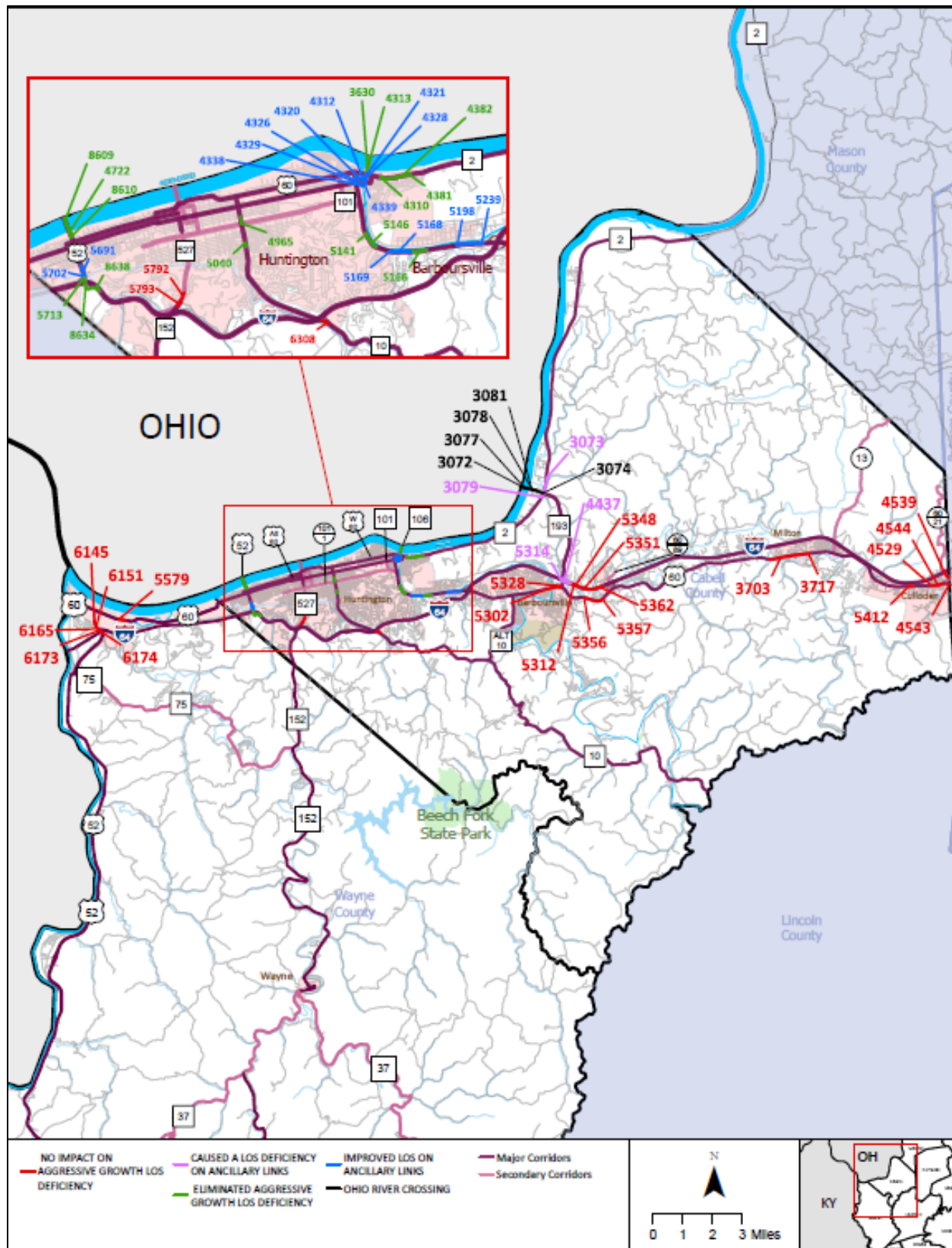


Figure 11: New Ohio River Bridge Impact on LOS Deficiencies

A review of Figures 10 and 11 indicates that implementation of the CAB-29 Vision Plan project would have a significant impact on the Aggressive Growth LOS deficiencies (39 links totaling 9.05 miles). Adding the connection eliminated deficiencies on 16 links (shown in green) totaling 3.47 miles, which is roughly 38 percent of the deficient mileage. In addition, the project also resulted in an improved LOS on 14 links (shown in blue) totaling 1.81 miles, further enhancing network operation. Conversely, the project's implementation did result in 4 new links (shown in purple) totaling 1.2 miles being deemed deficient, which are associated with the WV 193 ramps to I-64 and approaches on WV 2.

Project Grouping

In total, 25 potential solutions to the identified deficiencies were fully scored, ranked and grouped as being either High, Medium or Low priority (see Figure 12 below). Five of the solutions were rated as High Priority and driven by their status in the development pipeline or being a standalone study. Sixteen of the solutions were grouped as Medium Priority and were reflective of projects with a high Overall Impact on Economic Development being offset by long Implementation Time Frames and a high degree of Delivery Difficulty. The proposed Ohio River Crossing (project 1B) falls into this category for similar reasons. If the project had been further into the development pipeline it would have scored and ranked in the High Priority grouping. Four projects were grouped as Low Priority, based on anticipated levels of Right of Way impact and need for project integration with other projects not directly related to the deficiency.

DEFICIENCY TYPE	DEFICIENCY LOCATION/DESCRIPTION	COUNTY	PROJECT#	IMPROVEMENT / INITIATIVE DESCRIPTION	SCORE	GROUPING 3-4 = LOW 5-6 = MED 7-9 = HIGH
ROADWAY FLOODING	US 60 AT JUNCTION WITH ARLINGTON BLVD (MNS 352)	CABELL	15-A	IMPLEMENT CONSTRUCTION PHASE OF WVDOH CULVERT REPLACEMENT PROJECT (U306CULV25 00)	8	HIGH
AT-GRADE RXR CROSSING	RR CROSSING #147906R ON WV 2-ASHTON	MASON	3-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	7	HIGH
AT-GRADE RXR CROSSING	RR CROSSING #147873F ON WV 2-GALLIPOLIS FERRY	MASON	4-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	7	HIGH
TRANSIT	CENTRAL APPALACHIAN INLANDPORT	WAYNE	24-A	EXPLORE FEASIBILITY/DEMAND FOR PROVIDING A WILLIAMSON TO VA FACILITY/BARBOURSVILLE MALL ROUTE FOLLOWING US 52	7	HIGH
TRANSIT	FORT GAY COMMUNITY COMPLEX	WAYNE	25-A	EXPLORE FEASIBILITY PROVIDING/EXTENDING ON-DEMAND SERVICE FROM SANDY VALLEY TRANSPORTATION SERVICES (SVTS)	7	HIGH
BRIDGE	BELOW DAM BRIDGE BAR S#50A078	WAYNE	8-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
SAFETY	WAVERLY ROAD (US 60)AT CARSON STREET	WAYNE	10-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
ROADWAY FLOODING	WV 152 AT MOSES FORK	WAYNE	20-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
ROADWAY FLOODING	WV 152 AT DUNLOW AT JUNCTION WITH CR 52/24	WAYNE	21-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
ROADWAY FLOODING	WV 152 AT GENOA	WAYNE	22-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	6	MEDIUM
TRANSIT	WV NATIONAL GUARD/AIRPORTBUSINESS PARK	WAYNE	23-A	AS AIRPORT BUSINESS PARK AND HAMER FACILITY DEVELOP THE POTENTIAL EXISTS FOR EXTENDING TTA's ROUTE #6 TO INCLUDE WV 75 AND US 52 OR EXTENDING TRI RIVER'S WAYNE TO HUNTINGTON MALL ROUTE ON WV 75 TO PROVIDE MOBILITY OPTIONS FOR WORKERS AT THOSE LOCATIONS	6	MEDIUM
TRANSIT	BEECH FORK LAKE MARINA AREA	WAYNE	26-A	AS BEECH FORK LAKE ACCESS ROAD DEVELOPS, SERVICE CAN BE PROVIDED VIA TRI RIVER'S WAYNE ROUTE	6	MEDIUM
LOS	39 INDIVIDUAL LOS DEFICIENCY LOCATIONS	CABELL & WAYNE	1B	CONSTRUCT PREFERRED ALTERNATIVE FOR KYOVA VISION PLAN PROJECT CAB-29 (OHIO RIVER BRIDGE AT MERRITT'S CREEK)	5	MEDIUM
AT-GRADE RXR CROSSING	RR CROSSING #147948C ON WV 2-HUNTINGTON	CABELL	5-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	5	MEDIUM
AT-GRADE RXR CROSSING	RR CROSSING #471601H ON US 52-CRUM	WAYNE	7-B	US 52 RELOCATION IN THIS AREA WOULD SIGNIFICANTLY DECREASE THE HIGHWAY TRAFFIC AT THIS CROSSING AND WOULD LIKELY LOWER ITS RANKING SUBSTANTIALLY-WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN	5	MEDIUM
BRIDGE	PERDUE BROTHERS MEMORIAL BRIDGE BARS #50A220	WAYNE	9-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	5	MEDIUM
SAFETY	COURT STREET (WV 37) AT US 52 IN FORT GAY	WAYNE	13-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	5	MEDIUM
SAFETY	COURT STREET (WV 37) AT US 52 IN FORT GAY	WAYNE	14-B	DESIGN AND CONSTRUCT RELOCATION OF US 52	5	MEDIUM
ROADWAY FLOODING	WV 10/16TH STREET AT CSX RR UNDERPASS (INV# 225668P)	CABELL	17-A	KYOVA FISCALLY CONSTRAINED MTP INCLUDES ADDITIONAL RECOMMENDED GREEN INFRASTRUCTURE (CAB-04) THAT MAY FURTHER MITIGATE FLOODING AT THIS LOCATION. IMPLEMENT PHASE 4 (HAL GREER STORM SEPARATION) FROM HUNTINGTON STREET FLOODING MITIGATION PLAN TO FULLY ADDRESS PROBLEM LONG TERM.	5	MEDIUM
ROADWAY FLOODING	WV 527/8TH STREET AT CSX RR UNDERPASS (INV# 225670R)	CABELL	18-A	IMPLEMENT PROJECT 7B FROM HUNTINGTON STREET FLOODING MITIGATION PLAN, CONVERT TO 3 LN WITH ELEVATED BIKE PED PATH, PROJECT NOT INCLUDED IN KYOVA MTP	5	MEDIUM
ROADWAY FLOODING	US 52 FROM CRUM TO STEPTOWN	WAYNE	19-B	US 52 RELOCATION FROM KERMIT TO HUBBARDSTOWN WAYNE-08B CONSTRUCTION OF US52 RELOCATION FROM KERMIT TO HUBBARDSTOWN IN KYOVA MTP VISION PLAN	5	MEDIUM
SAFETY	WAVERLY ROAD (US 60)AT CAMDEN / AUBURN ROAD	WAYNE	11-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	4	LOW
SAFETY	WAVERLY ROAD (US 60)AT BURLINGTON ROAD	WAYNE	12-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION	4	LOW
ROADWAY FLOODING	US 60 AT CSX RR UNDERPASS (INV# 225636J)	CABELL	16-A	ANY MAJOR IMPROVEMENT WOULD LIKELY BE DONE IN CONJUNCTION WITH CSX OVERPASS REPLACEMENT COORDINATE DESIGN AND CONSTRUCTION WITH CSX	4	LOW
AT-GRADE RXR CROSSING	RR CROSSING #471645H ON WV 37-FORT GAY	WAYNE	6-B	DESIGN AND CONSTRUCT IDENTIFIED SOLUTION AS PART OF BRIDGE REPLACEMENT	3	LOW

Figure 12: Project Scores and Grouping

CONCLUSIONS

It is understood that the evaluation of the 25 conceptual solutions to deficiencies shown in Figure 12 are by their very nature subjective, since most of the design solutions are not formalized. As they progress through the development pipeline, the hurdles to be overcome associated with each will become clearer, impacting their overall scoring and priority. New developments that have been announced since the listing developed for this Study was finalized will need to be taken into account, highlighting the fluidity and complexity in predicting and projecting where and what types of economic development (primarily by private companies) will occur over a 25-year time horizon. All of the analyses of this Study were predicated on the assumption that all of the fiscally constrained projects within their current MTP will be implemented. Ensuring that the items identified move into and through the development process is vital to the economic health of Cabell and Wayne counties and the KYOVA region as a whole.

A review of Figure 12 reveals that two of the high priority solutions, projects 3B and 4B that correspond to the at-grade railroad crossings at Ashton and Gallipolis Ferry, are located in Mason County, outside KYOVA's planning boundary. Despite being outside the KYOVA boundary, the implementation of these two projects, in conjunction with the third at-grade crossing project (5B) on the WV 2 corridor in Huntington, will benefit the operation of the WV 2 corridor within the Study area and are anticipated to improve the safety, reliability and travel times for freight and passenger trips while improving the economic viability of the area. Since project 3B and 4B are located outside KYOVA's planning boundary they are not constrained or included in KYOVA's MTP or Transportation Improvement Program (TIP). The inclusion of all phases of their development should be pursued in West Virginia's STIP, which is in the process of being updated. Likewise, initial development phases of the two unprogrammed "deficient" bridges in Wayne County (8B and 9B) should also be addressed as part of the ongoing STIP update. The network impact on the Aggressive Growth Scenario deficiencies of a new Ohio River crossing (project 1B) at Merritt's Creek is considerable as shown in Figures 10 and 11. While the crossing's overall benefit to the network appears to be indisputable, the current analysis is based upon only a small subset of Cabell, Wayne and the entire KYOVA region's economic initiatives and roadways, and was analyzed using the TDM information available at the time. Going forward, the crossing's impact on KYOVA's entire network should be re-examined using the latest TDM data available supplemented with growth information developed for this Study to get a clearer picture of the crossing's potential impact.

Appendix A – Qualitative Deficiency Figures & Narrative from Task 2

Qualitative Deficiencies

Unlike the quantitative deficiencies which exhibited significant differences amongst the three development scenarios, the qualitative deficiencies identified on the Major and Secondary Corridors are not impacted by the alternative growth scenarios. As such, the qualitative deficiencies identified during Task 2 are carried forward for this Task. In general, many of the qualitative deficiency issues were in the process of being addressed under KYOVA's fiscally constrained MTP, the West Virginia Statewide Transportation Improvement Program. The qualitative results from Task 2 are described below.

Structurally Deficient Bridges

As part of Task 1, the National Bridge Inventory (NBI) database was queried to identify bridges on Study routes that had condition ratings of "Poor" and/or had Weight Restrictions. During the Task 1 review, 21 bridges were identified that met the criteria, of which 13 were located in Cabell County and eight (8) were located in Wayne County. As part of Task 2, the current status of each of the structures in question was obtained by a combination of resource document reviews and meetings with WVDOH personnel. It was determined that the vast majority (19 of 21) of the structures identified in Task 1 were at various stages of the project development process from undergoing preliminary design to having construction fully completed. The two structures currently unprogrammed for improvement are both located in Wayne County: the Perdue Brothers Memorial Bridge (BARS# 50A220) located on WV 152, and the Below Dam Bridge (BARS# 50A078) located on WV 37 (See Figure 15 for their locations). While both structures were rated as in "Poor" condition, neither has weight restrictions at this time, which will help lessen any impact to commercial traffic on these corridors.

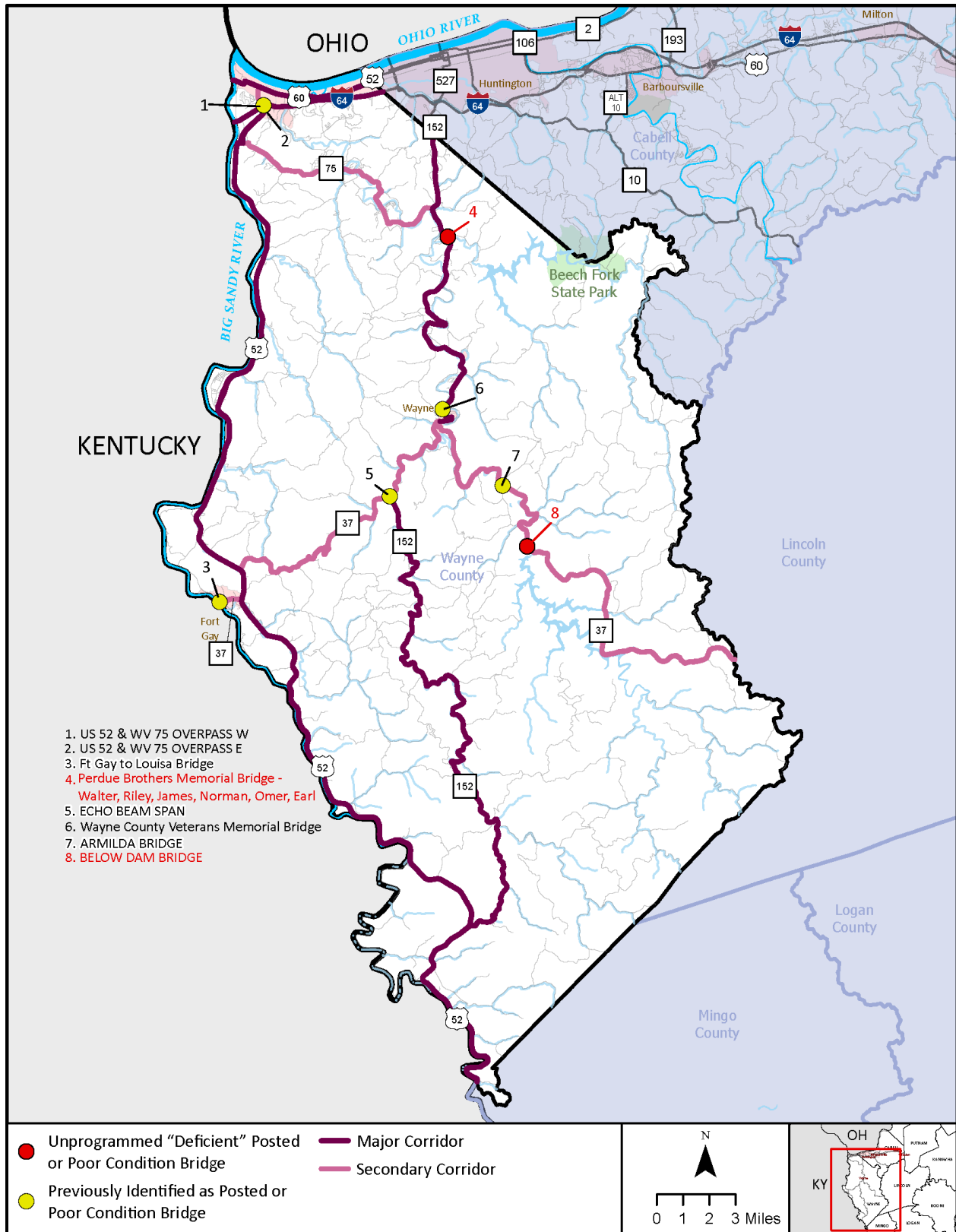


Figure 2: Deficient Bridge Locations, Wayne County

At-Grade Railroad Crossings

Data for Cabell, Wayne and Mason counties were extracted from FRA's Grade Crossing Accident Prediction System (GXAPS) database as a means of identifying the railroad crossings in the area with the greatest potential for highway/rail incidents, which is a good indicator of network deficiency. The top ten crossing locations identified in each county were compared to the list of At-Grade crossings located on Major and Secondary Corridors developed previously in Task 1 of this Study (See Figure 16) below. Five of the 30 railroad crossings extracted are located on Study routes. The locations of the five deficient crossings are shown in Figure 17. It is of note that only two railroad crossings in Mason County were included in this Study due to development initiatives ongoing along WV 2 and that both are considered deficient.

Predicted Accident Rank	Annual Average Predicted Accidents	Crossing ID	RR Code	State	County	City	Street	Located on Study Route (Y/N)
1	0.110201	225622B	CSX	WV	CABELL	ONA	YATES CROSSING RD	
2	0.107134	225698G	CSX	WV	CABELL	HUNTINGTON	MADISON AVENUE	
3	0.104696	147940X	CSX	WV	CABELL	LESAGE	KYLE LANE	
4	0.102324	225628S	CSX	WV	CABELL	BARBOURSVILLE	BLUE SULPHUR ROAD	
5	0.005624	225600B	CSX	WV	CABELL	CULLODEN	CHARLEYS CREEK RD	
6	0.003945	147951K	CSX	WV	CABELL	HUNTINGTON	40TH STREET	
7	0.003945	147952S	CSX	WV	CABELL	HUNTINGTON	THIRTY SIXTH STREET	
8	0.003516	147948C	CSX	WV	CABELL	HUNTINGTON	WEST VIRGINIA STATE ROUTE 2	Y
9	0.003231	225598C	CSX	WV	CABELL	CULLODEN	DUDDING LANE	
10	0.002874	226489C	CSX	WV	CABELL	BARBOURSVILLE	EAST PEA RIDGE ROAD	
1	0.212815	471645H	NS	WV	WAYNE	FORT GAY	BRIDGE STREET	Y
2	0.106093	471601H	NS	WV	WAYNE	CRUM	ROUTE 52	Y
3	0.005033	225678V	CSX	WV	WAYNE	CEREDO	MAIN STREET	
4	0.004851	225675A	CSX	WV	WAYNE	HUNTINGTON	VERNON STREET	
5	0.004549	225680W	CSX	WV	WAYNE	KENOVA	1 STREET W	
6	0.004347	471608F	NS	WV	WAYNE	CRUM	WEBB ROAD	
7	0.003658	471599J	NS	WV	WAYNE	CRUM	SILVER CREEK ROAD	
8	0.003361	225682K	CSX	WV	WAYNE	KENOVA	12 STREET	
9	0.003302	471606S	NS	WV	WAYNE	FORT GAY	RIVER BEND ROAD	
10	0.0033	225685F	CSX	WV	WAYNE	KENOVA	EIGHTEENTH ST	
1	0.005943	147850Y	CSX	WV	MASON	POINT PLEASANT	VIAND STREET	
2	0.004049	147873F	CSX	WV	MASON	GALLIPOLIS FERRY	HUNTINGTON RD	Y
3	0.002547	147906R	CSX	WV	MASON	ASHTON	PT PLST-HNTGN RD	Y
4	0.002419	147845C	CSX	WV	MASON	POINT PLEASANT	22ND STREET	
5	0.00235	147847R	CSX	WV	MASON	POINT PLEASANT	CAMDEN AVENUE	
6	0.002189	147859K	CSX	WV	MASON	POINT PLEASANT	REDMOND RIDGE RD	
7	0.002186	147851F	CSX	WV	MASON	POINT PLEASANT	CSX ENTRANCE OFF HIGHLAND AVENUE	
8	0.002148	147849E	CSX	WV	MASON	POINT PLEASANT	12TH STREET	
9	0.001852	147846J	CSX	WV	MASON	POINT PLEASANT	POPLAR STREET	
10	0.001589	147871S	CSX	WV	MASON	GALLIPOLIS FERRY	OLD RIVER ELWELL	

Figure 3: At-Grade Railroad Crossing Rankings in Cabell, Wayne and Mason County

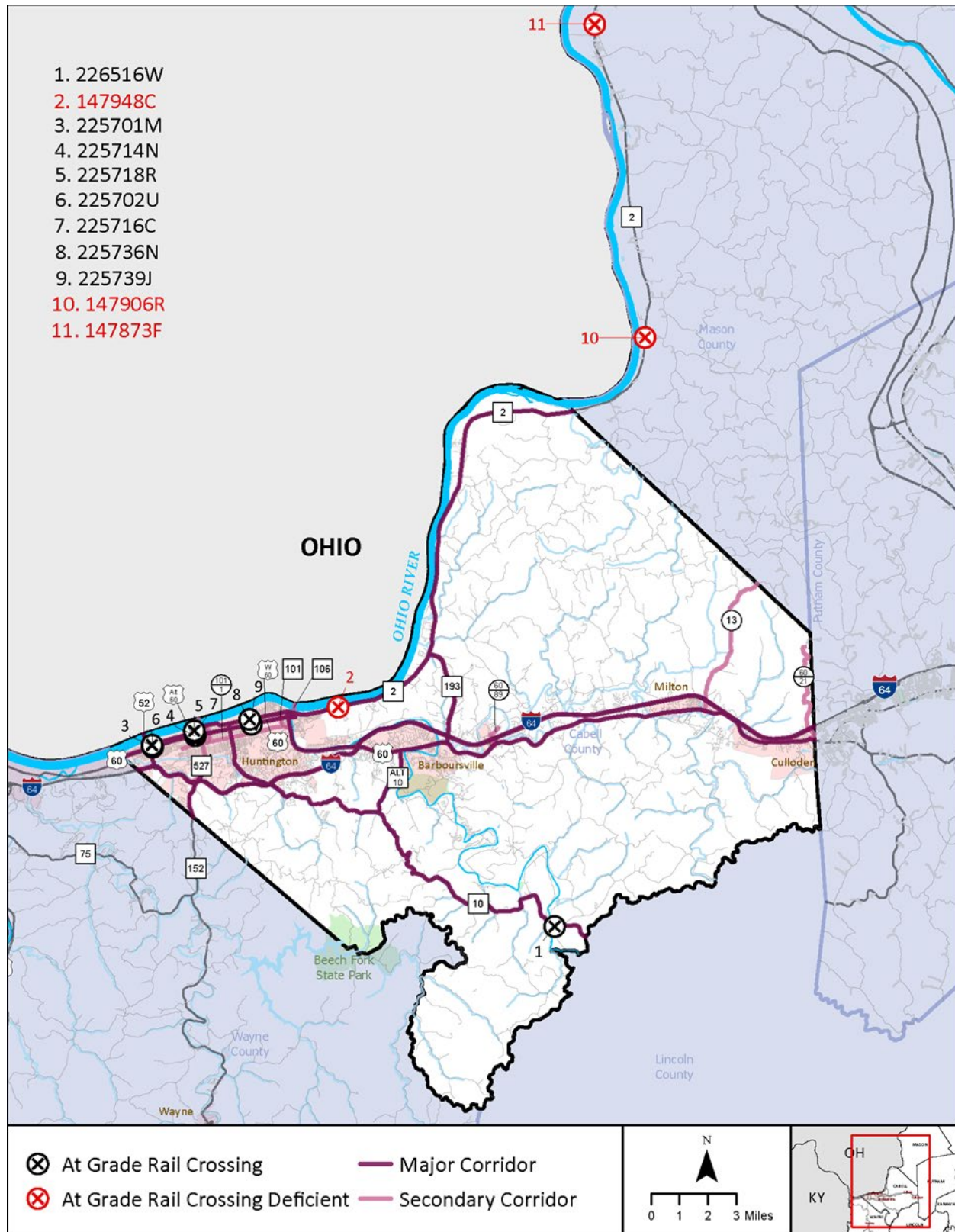


Figure 4: Location of Deficient At-Grade Crossings, Cabell and Mason County

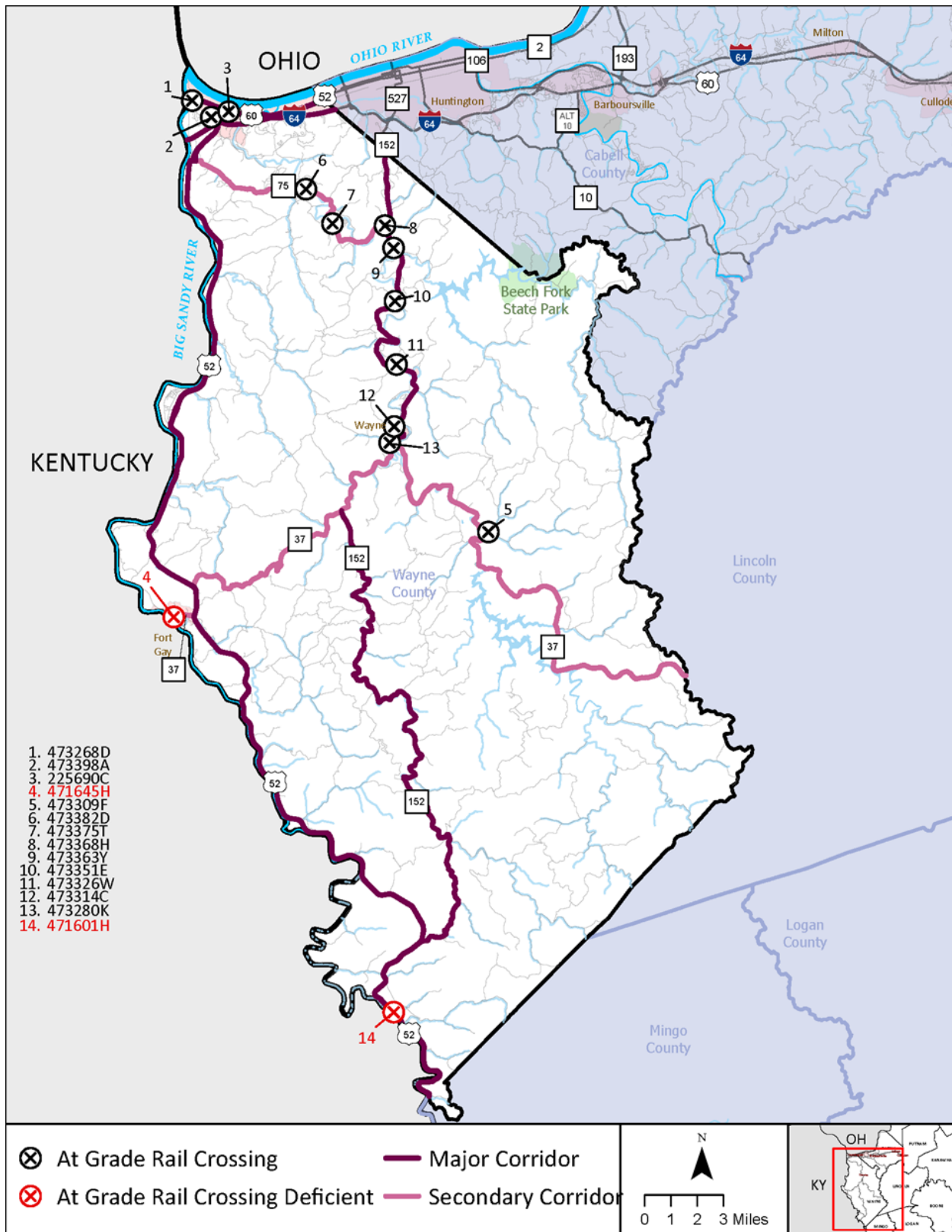


Figure 5: Location of Deficient At-Grade Crossings, Wayne County

Roadway Flooding

Areas of recurrent roadway flooding on Major and Secondary Corridors within the Study area were obtained predominantly from discussions with personnel at the State, City and Local level responsible for roadway maintenance. While much of the regional information is anecdotal and not well-documented, recurrent flooding at other locations such as 1st Street, 8th Street, 10th Street and 16th Street underpasses in Huntington and portions of US 60 have been well-documented by KYOVA in local studies (e.g., Huntington's Street Flooding Mitigation Plan¹).

Local maintenance personnel identified eight (8) locations along Study corridors in Cabell and Wayne counties that experience recurring roadway flooding, as shown in tabular and graphical format in Figures 19 through 21. No attempt was made in this task of the Study to prioritize or group the locations of these deficiencies, but such prioritization or grouping may occur later as mitigating strategies are developed.

¹ Huntington Street Flooding Mitigation Plan, August 2017

FLOODING LOCATION DESCRIPTION	COUNTY	LOCALITY	ROUTE ID	ROUTE	MILEPOINT	LATITUDE/LONGITUDE	NEARBY TRIBUTARY
US 60 AT JUNCTION WITH ARLINGTON BLVD (MNS 352)	CABELL	HUNTINGTON	0620060000EB	US 60	7.49	38.4107127, -82.382679	GUYANDOTTE RIVER & UNNAMED STREAM
US 60 AT CSX RR UNDERPASS (INV# 225636J)	CABELL	BARBOURSVILLE	0620060000EB	US 60	12.40	38.4159745, -82.2940798	MUD RIVER
WV 10/16TH STREET AT CSX RR UNDERPASS (INV# 225668P)	CABELL	HUNTINGTON	0630010000000	WV 10	18.13	38.4178529, -82.4304637	OHIO RIVER
WV 527/8TH STREET AT CSX RR UNDERPASS (INV# 225670R)	CABELL	HUNTINGTON	0630527000000	WV 527	1.14	38.4155477, -82.4441931	OHIO RIVER
US 52 FROM CRUM TO STEPPTOWN	WAYNE	CRUM TO STEPPTOWN	50200520000EB	US 52	49.0 53.2	37.9038200, -82.4432999 37.8651009, -82.4092209	TUG FORK
WV 152 AT MOSES FORK	WAYNE	N/A	5030152000000	WV 152	5.00	37.9942527, -82.4028827	MOSES FORK
WV 152 AT DUNLOW AT JUNCTION WITH CR 52/24	WAYNE	DUNLOW	5030152000000	WV 152	9.40	38.032743, -82.4274847	TWELEVEPOLE CREEK & BIG BRANCH
WV 152 AT GENOA	WAYNE	GENOA	5030152000000	WV 152	19.60	38.1206054, -82.4588785	TWELEVEPOLE CREEK

Figure 6: Roadway Flooding Deficiencies, Cabell and Wayne County

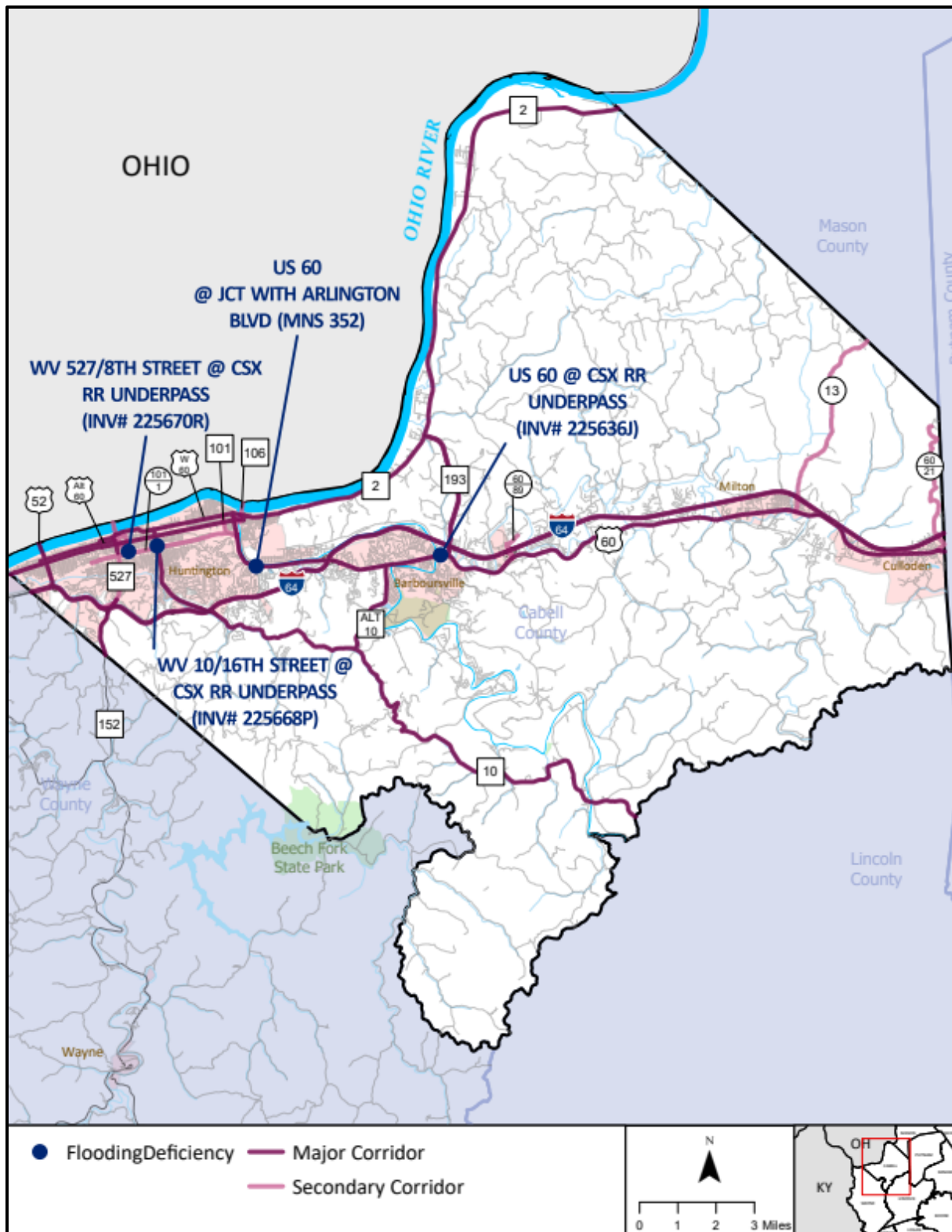


Figure 7: Roadway Flooding Deficiencies, Cabell County

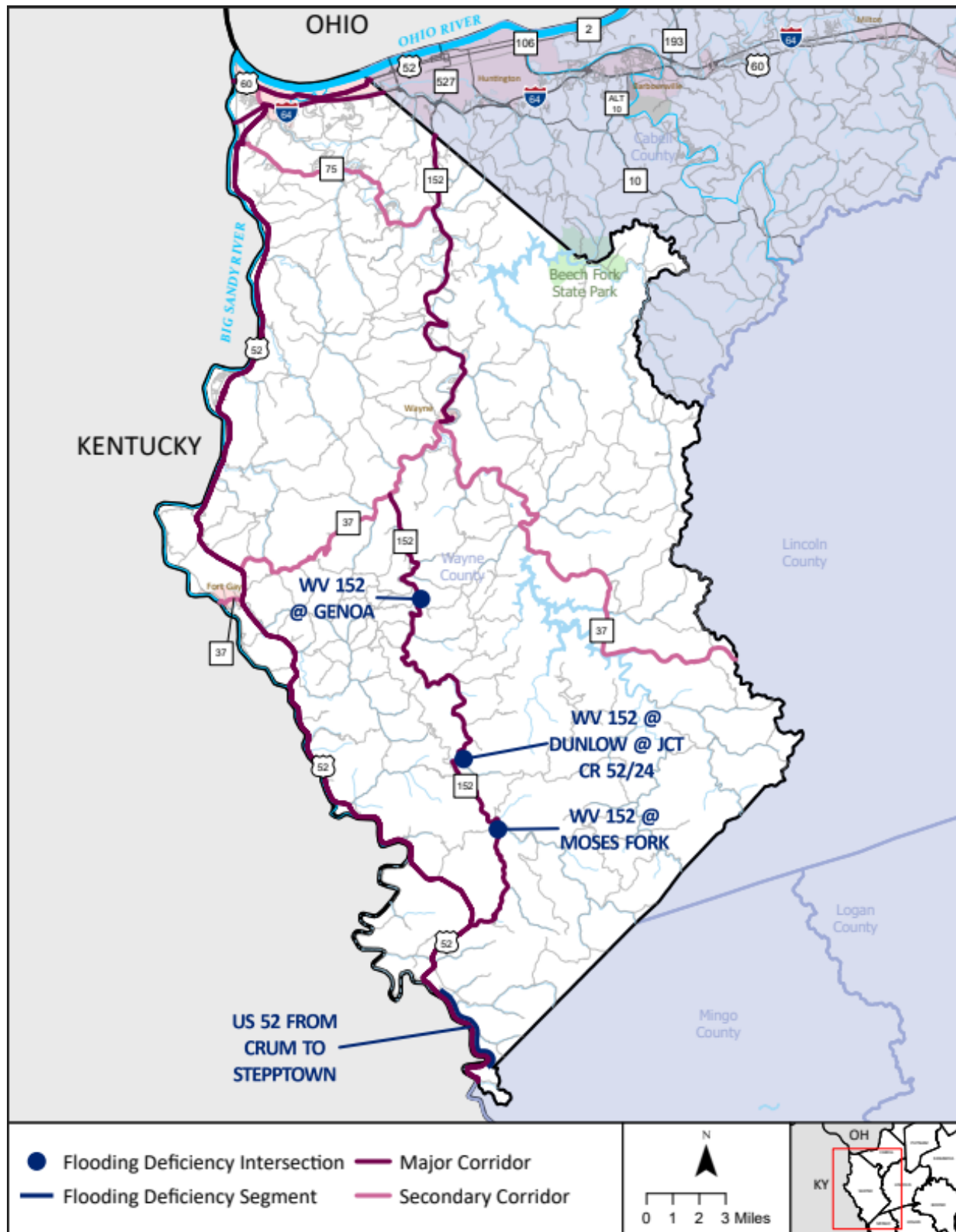


Figure 8: Roadway Flooding Deficiencies, Wayne County

Two sections of US 60 in Cabell County were identified as recurrent flooding locations. The WVDOH District 2 Office indicated that design work is underway to address the Arlington Boulevard location and the Huntington Water Quality Board (HWOB) indicated that recent work conducted on the 8th Street underpass has partially mitigated the problem and reduced the flooding frequency at that location.

Safety Issues

Traffic incidents and fatalities have a significant economic and emotional cost to not only the individuals, families, and businesses directly impacted, but also to the region and the nation. In response to these far-reaching impacts, the USDOT has embraced the Vision Zero policy which aims to eliminate all traffic fatalities and severe injuries by 2050 through a Safe Systems Approach and adopted performance metrics to track progress. Detailed safety studies have been performed at the local, regional and state levels to identify high priority intersections, segments and high injury networks that need to be addressed. For this Study, the high priority locations on Study corridors identified in KYOVA's MTP and West Virginia's VRU Assessment were assembled and compared against programming documents. Where specific projects were not programmed in the TIP, STIP or contained in KYOVA's MTP listing of fiscally constrained projects, a deficiency was assumed to exist. The information is summarized in Figure 22 and shown graphically on Figures 23 and 24. KYOVA's MTP does not cover Mason County and therefore no intersection or priority segments for that county were identified in the plan. Furthermore, the broader statewide VRU Assessment did not identify any HINs in the top 25 ranking for either Wayne County or Mason County.

SAFETY ISSUE DESCRIPTION	INTERSECTION OR SEGMENT	LOCALITY	COUNTY	LOCATED ON STUDY ROUTE (Y/N)	PROGRAMMED (Y/N), SOURCE DOCUMENT
Adams Ave at 19th Street W	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Washington Blvd at Midland Trail (US 60)	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Davis Creek Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
8th Ave at 31st Street (US 60)	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Bonnie Blvd	INTERSECTION	N/A	CABELL	Y	Y, KYOVA MTP
Washington Ave at W 17th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
8th Ave at 20th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Farmdale Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at W Mall Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at E Mall Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Adams Ave/5th Ave at First Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Kroger	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at E Pea Ridge Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
5th Ave at 29th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at W Pea Ridge Rd/Bridge	INTERSECTION	N/A	CABELL	Y	Y, KYOVA MTP
5th Ave at 20th Street	INTERSECTION	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
5th Ave at 31st Street/Bridge Ramp	INTERSECTION	HUNTINGTON	CABELL	Y	Y, STIP
Midland Trail (US 60) at Irwin Rd	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
Midland Trail (US 60) at Pinecrest Dr	INTERSECTION	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
German Ridge Road at WV 152	INTERSECTION	N/A	WAYNE	Y	Y, KYOVA MTP
5th Street Rd (WV 152) at (Food Fair Plaza)	INTERSECTION	LAVALETTE	WAYNE	Y	Y, KYOVA MTP
WV 75 at Spring Valley Drive	INTERSECTION	N/A	WAYNE	Y	Y, KYOVA MTP
Waverly Rd (US 60) at Carson Street	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Waverly Rd (US 60) at Camden RD/ Auburn Rd	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Waverly Rd (US 60) at Burlington Rd	INTERSECTION	HUNTINGTON	WAYNE	Y	N
Court Street at US 52	INTERSECTION	FORT GAY	WAYNE	Y	N
WV 75 at 5th Street Rd (WV 152)	INTERSECTION	LAVALETTE	WAYNE	Y	Y, KYOVA MTP
WV 152 from Bloss Branch Rd to Big Creek Rd	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
WV 152 - German Ridge Hill	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
WV 152 from CR 11 Access (By Pharmacy) to 8th Street Rd	SEGMENT	N/A	WAYNE	Y	Y, KYOVA MTP
US 60 from Braley Rd to Longwood Rd	SEGMENT	BARBOURSVILLE	CABELL	Y	Y, KYOVA MTP
US 60 from Hazel Jane Estates to Childers Rd	SEGMENT	BARBOURSVILLE	CABELL	Y	Y, STIP*
HIN DESCRIPTION	HIN SEGMENT RANK	LOCALITY	COUNTY	LOCATED ON STUDY ROUTE (Y/N)	PROGRAMMED (Y/N), SOURCE DOCUMENT
VRU- CABELL RANK 6 06200600000/ 5.9-6.2 US 60 (5th Ave to Moses Family Medicine)	6	HUNTINGTON	CABELL	Y	Y, STIP
VRU- CABELL RANK 7 06200600000/ 11.6-11.9 US 60 (River Road to Martin Drive)	7	HUNTINGTON	CABELL	Y	Y, STIP
VRU- CABELL RANK 8 06200600007/ 1.7-2 US 60 (18th Street to 20th Street)	8	HUNTINGTON	CABELL	Y	Y, KYOVA MTP
NOTES: * PARTIAL OVERLAP OF STIP & MTP PROJECT					

Figure 9: Identified Safety Issues and Deficiencies, Cabell and Wayne County

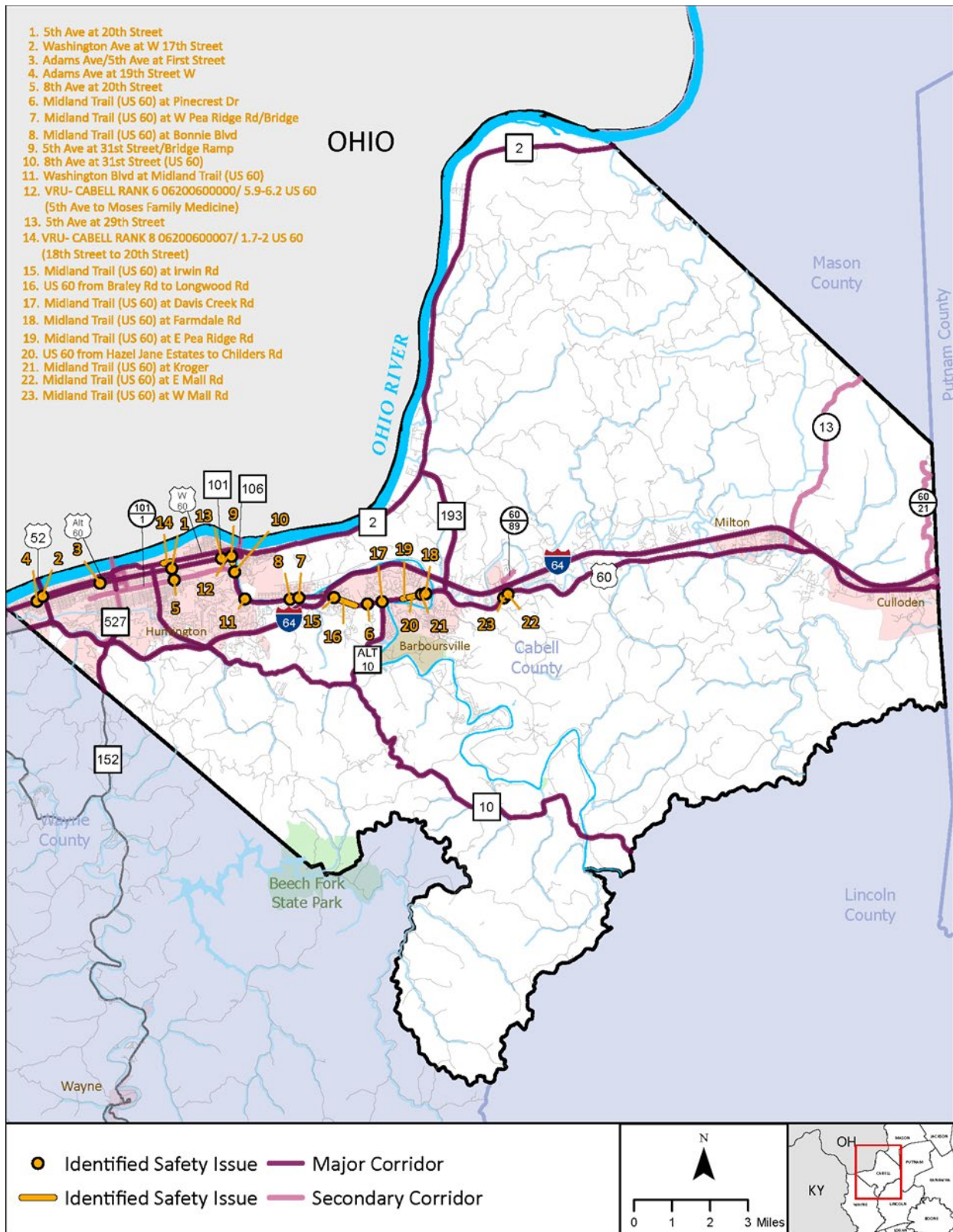


Figure 10: Safety Issues and Deficiencies, Cabell County

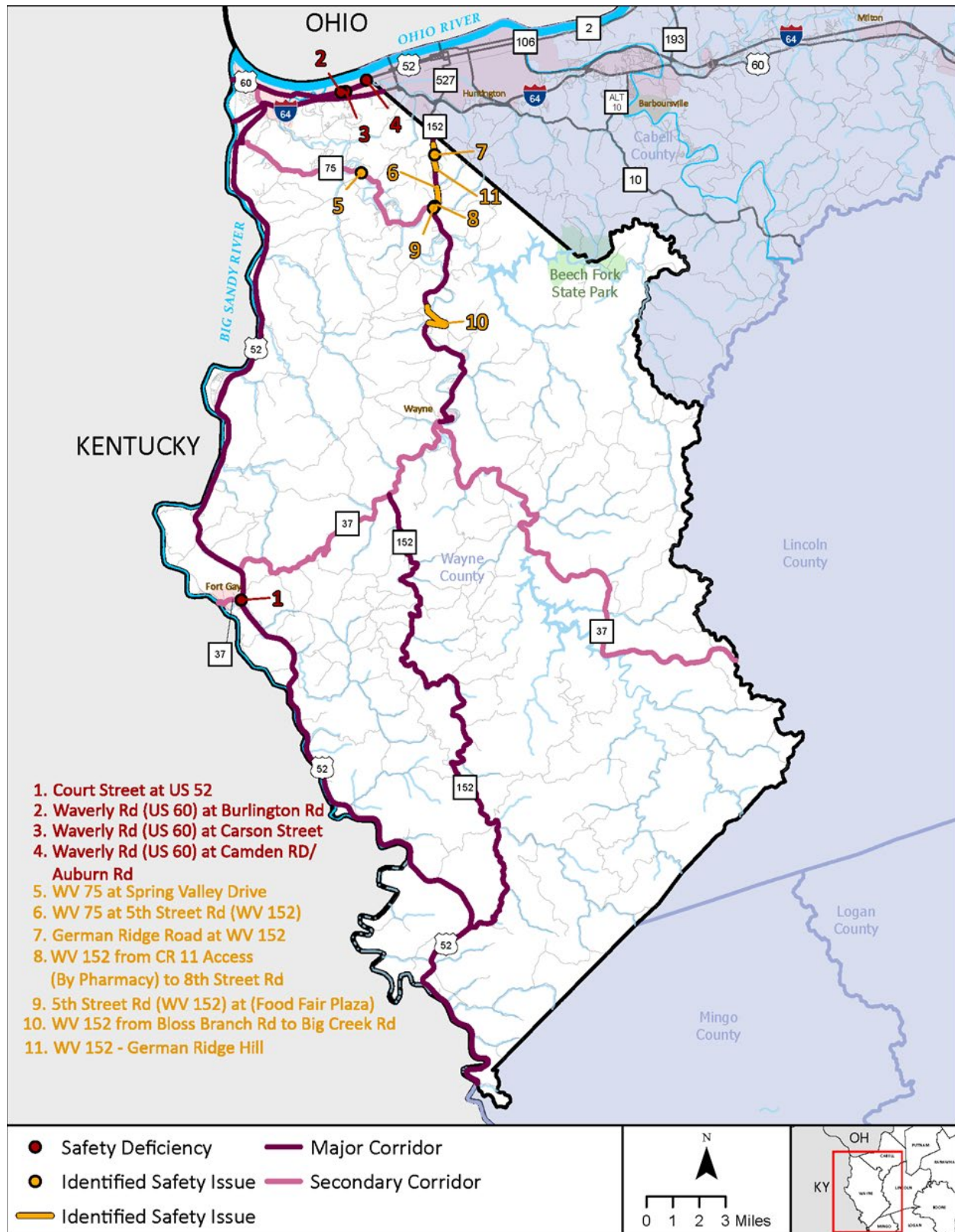


Figure 11: Safety Issues and Deficiencies, Wayne County

A review of Figure 22 indicates 32 high priority safety issues were identified in KYOVA's MTP. Additionally, three of the top 25 HIN locations from the WVDOH's statewide VRU Assessment were in Cabell County. Given the National emphasis being placed on traffic safety and vulnerable road users, it is not surprising that all but four locations identified are currently programmed for some manner of mitigation.

Transit Issues:

The location of regional transit service offered by local providers like TTA and Tri-River transit in relation to the finalized list of economic developments and areas of interest are shown on Figures 25 through 29. A review of those figures indicates that transit service at some level of recurring frequency is available (i.e. within a one-mile radius) of every location in Cabell and Mason County; however, only two of the six areas identified in Wayne County have access to scheduled transit service. The four unserved locations are either situated slightly away from Major or Secondary Corridors or are in areas of relatively low population density. Surprisingly, the area around the WV National Guard facility and proposed Business Park at the Huntington Tri-State Airport is not currently served by TTA or Tri-River, but both have routes nearby that could potentially be extended or altered as development occurs.

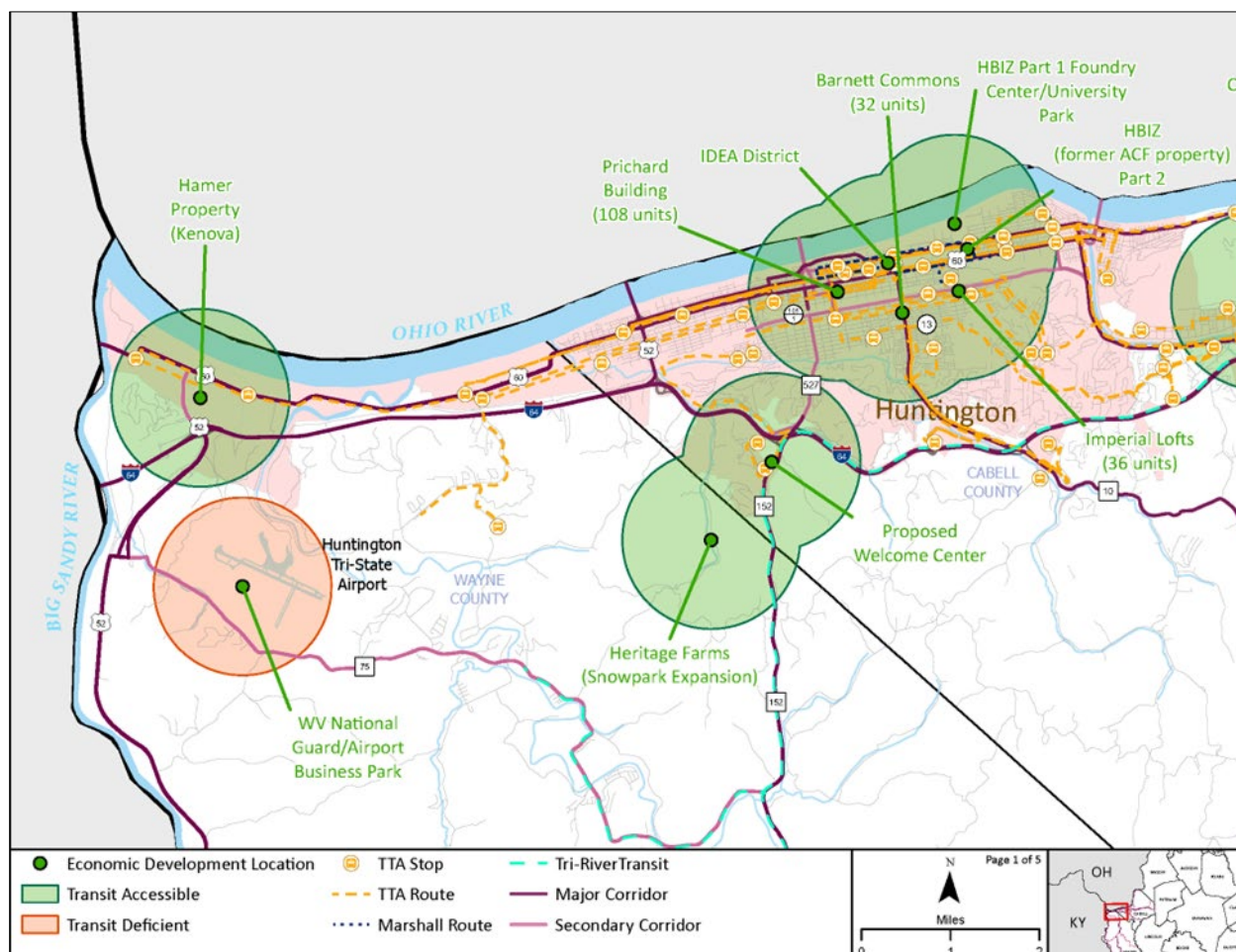


Figure 12: Transit Service and Deficiency Near Economic Developments, Cabell and Wayne County

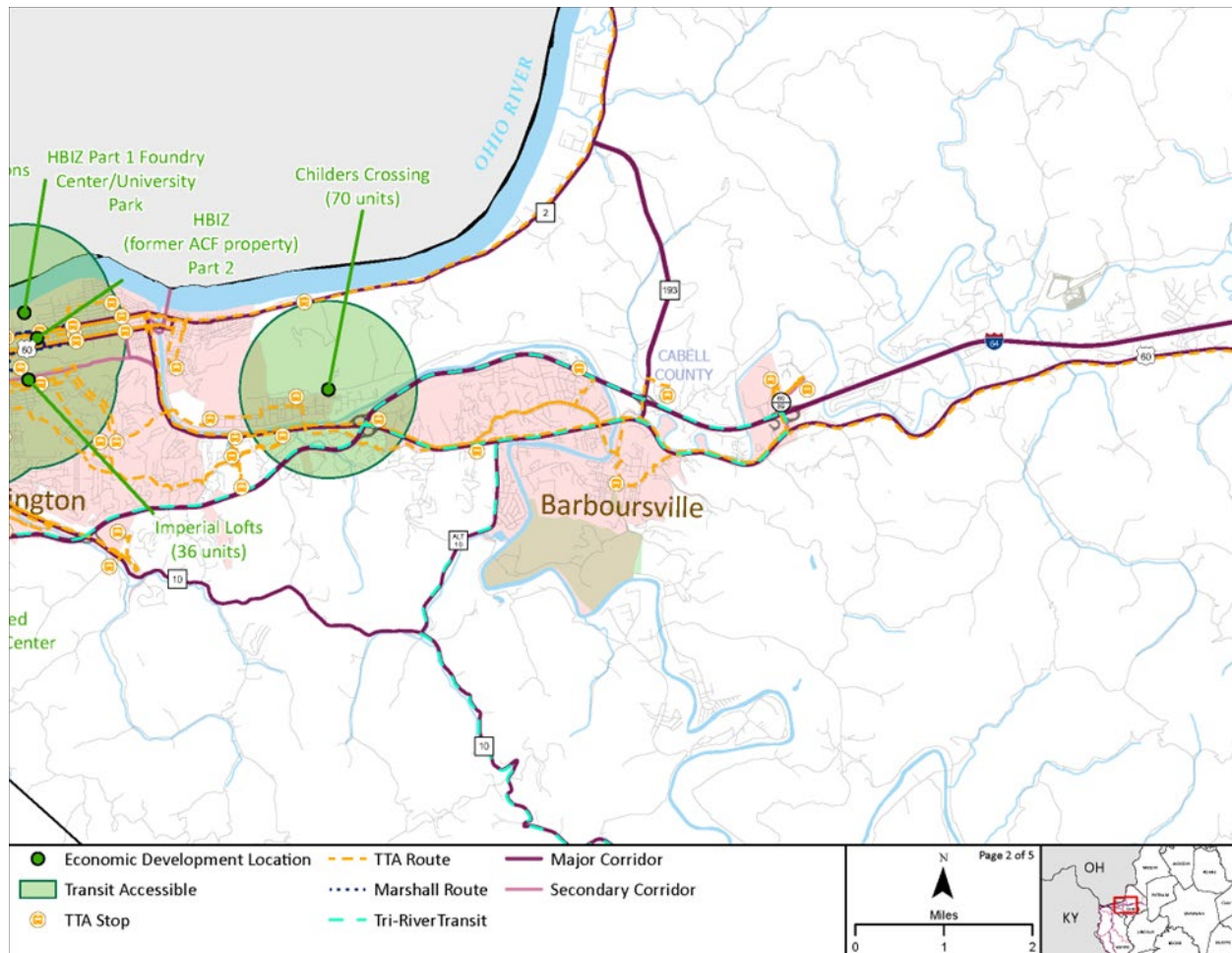


Figure 13: Transit Service and Deficiency Near Economic Developments, Cabell County

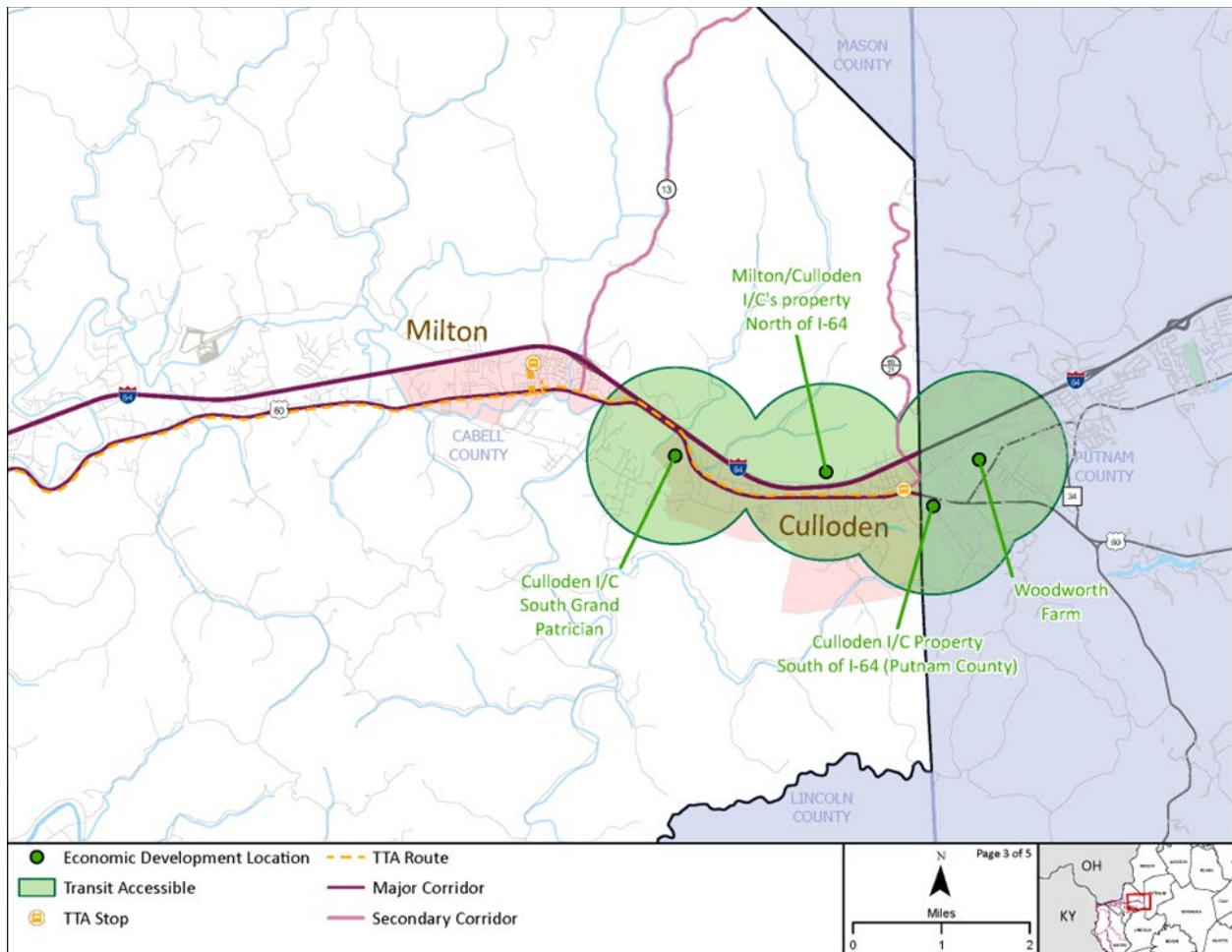


Figure 14: Transit Service and Deficiency Near Economic Developments, Cabell County and Putnam County

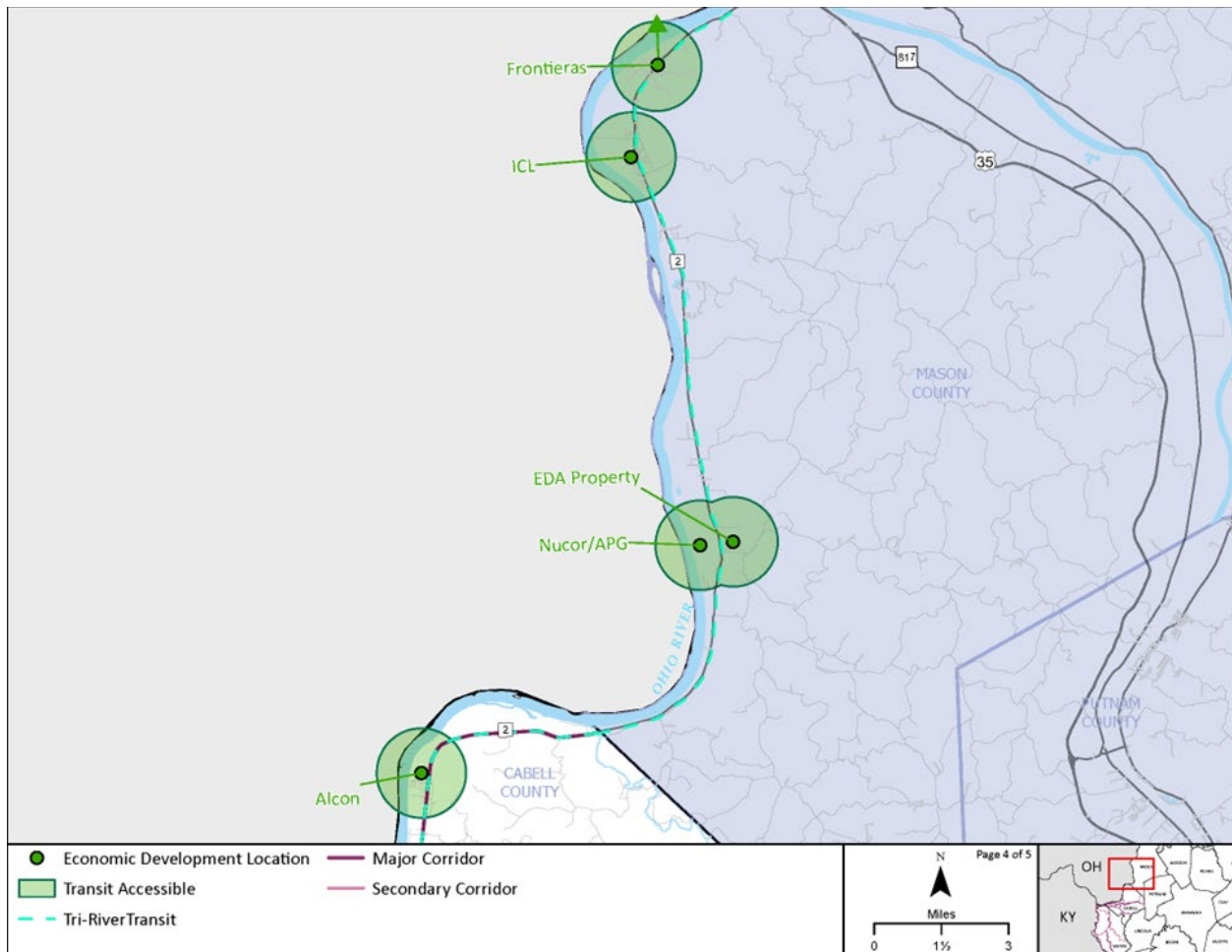


Figure 15: Transit Service and Deficiency Near Economic Developments, Cabell and Mason County

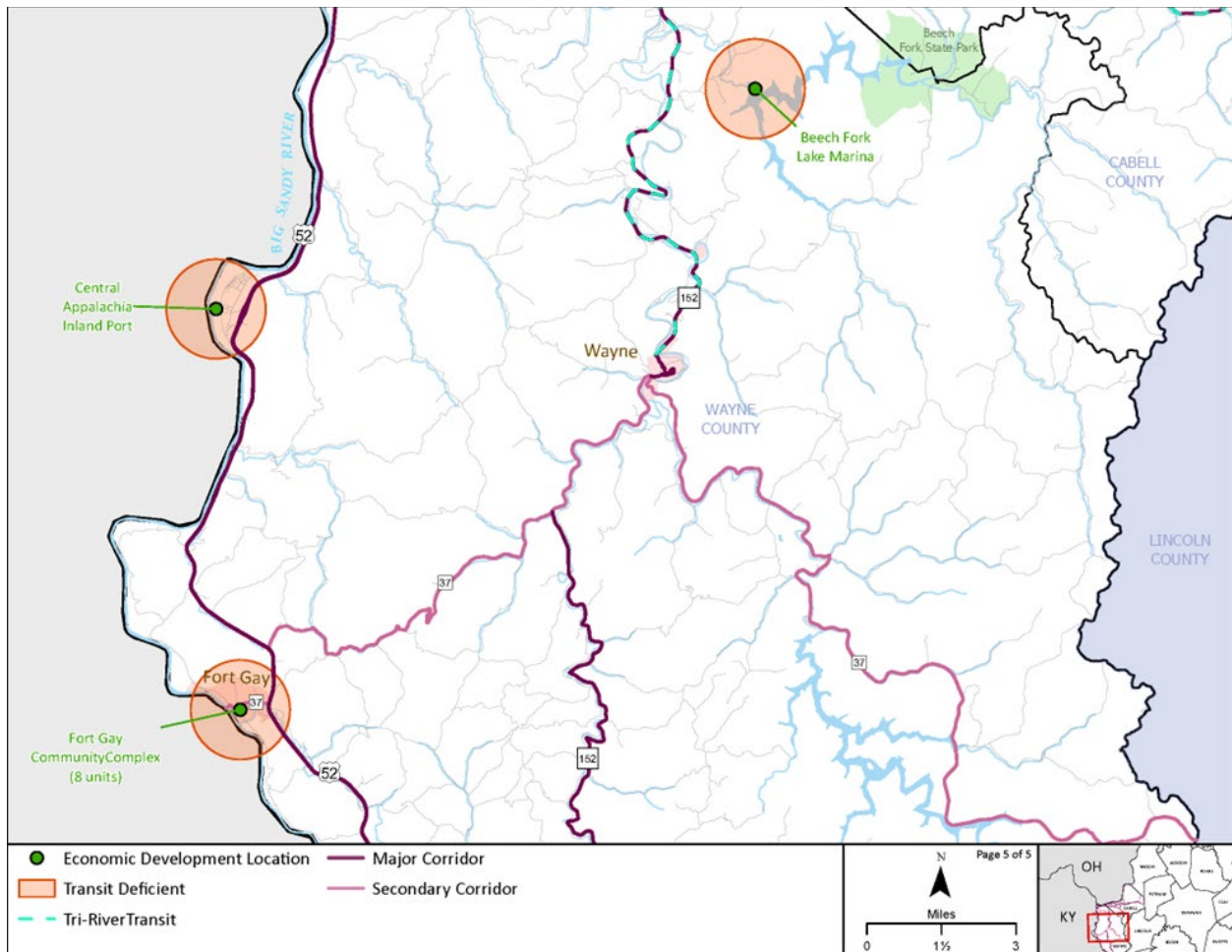


Figure 16: Transit Service and Deficiency Near Economic Developments, Wayne County



Appendix E

*County Commission Presentations
and Executive Summary*

AGENDA

WAYNE COUNTY COMMISSION

Regular Meeting

July 20, 2026

Room 103, Wayne County Courthouse

11:00 A.M.

Appointments

11:15 A.M. – Robert Pennington, Michael Baker Associates,
RE: Cabell-Wayne Transportation Land Use Study.

AGENDA ITEMS

- 1) Pledge of Allegiance
- 2) Approval of Exonerations
- 3) Approval of Appointments Made in Vacation
- 4) Approval of Invoices
- 5) Approval of Minutes
 - A. Regular Commission Meeting Minutes of July 6, 2026.
 - B. Special Meeting Minutes of July 10, 2026.
- 6) Appointments to fill vacancies on Boards or Authorities
- 7) Personnel
 - A. Approve hiring of Paul E. Biser as Assistant County Prosecuting Attorney.
- 8) Unfinished Business
- 9) New Business
 - A. Estate of Linda Ruth Morrow (D.O.D. 6/15/23).

B. Consider Revision of Policy on County Surplus Property.

10) Budget

11) Funding Request

A. Request for Revision to Approved Fiscal Year 2027 General County Budget No. 2.

12) Discussion Items

13) Project Updates

- A. New VOIP phone system
- B. EMS Location Updates
- C. Courthouse Security
- D. Consider hiring outside counsel to provide general legal services.

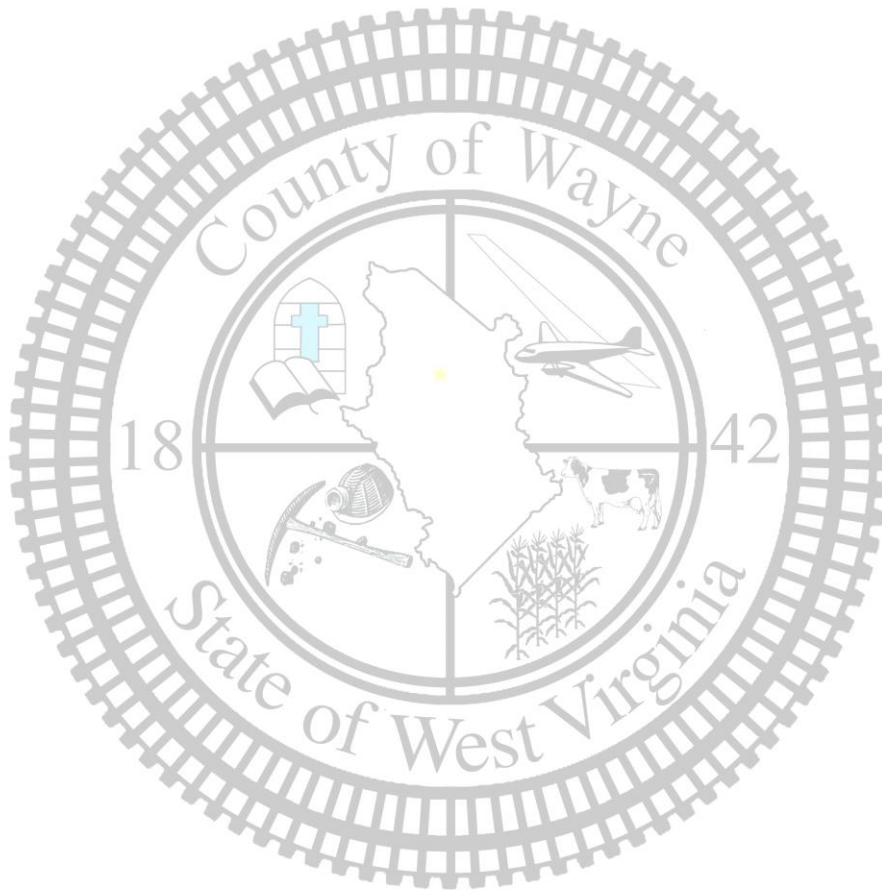
14) Informational Items

- A. Wayne County Fair – Thursday, July 30th thru Saturday, August 1st, 2026 @ Camden Park (5000 Waverly Road, Huntington, WV 25704).
- B. 2026 Auditor Annual In-Service Training – Sunday August 2nd thru Tuesday, August 4th, 2026, Oglebay Park and Resort, Wheeling, WV.
- C. Next regularly scheduled County Commission Meeting – Thursday, August 6, 2026 @ 3:00 p.m.

15) Commission Work Session Items

- Develop a County Employee Policy Manual
- Spring Valley – Potential FEMA Hazard Mitigation Project
- Big Lynn Water Project
- Norfolk-Southern Excursion Train
- County-owned properties
- AML Grants
- Written Courthouse Closing Policy
- Citizen Appreciation Award
- Wayne County Cleanup Day
- Wayne County Health Department HVAC System
- Corona Virus State/Local Fiscal Recovery Fund (American Rescue Plan Act of 2021).
- Land Bank

- Unsafe Structure/Nuisance Ordinance
- Recovery Residence/Sober Living Ordinance
- Infrastructure Projects (Water/Sewer/Broadband)
- Opioid Litigation - Settlement Participation.
- ADA Compliant Website
- Wayne County Solid Waste Authority *contributions (monetary & in-kind contributions),*



**CABELL COUNTY COMMISSION AGENDA
CABELL COUNTY COURTHOUSE, 3RD FLOOR, COMMISSION CHAMBERS
REGULAR COMMISSION SESSION
THURSDAY, JULY 23, 2026 @ 10:00 A.M.**

- Approve: July 23, 2026 - Regular Commission Agenda**
- Approve: Minutes: Regular Commission Meeting – July 9, 2026**
- Approve: Erroneous Assessments/Land Consolidations/Split Tickets
Probate Documentation (County Clerk’s Probate Office)**
- Approve: Purchase Orders #27-134493 through #27-134679 and Pay Jackets
Monthly Payments to US Bank for P-Card Purchases
Handwritten Checks to Unum \$13,603.52 & Guardian \$23,826.48**

CITIZENS REGISTERED TO SPEAK

- 26-07-23-017 Presentation, Veronica Swope, CCEMS Director
RE: Requesting Opioid Funding to purchase Pulse Point System**
- 26-07-23-018 Presentation, Rob Pennington of Michael Baker & Associates
RE: KYOVA – Land Use Study**
- 26-07-23-019 Estate of Robin E. Ullom, Deceased
RE: Order appointing Sheriff as Administrator of the estate of Robin E. Ullom**
- 26-07-23-020 Estate of Michael Adam Campbell, Deceased
RE: Request for hearing to require filing of inventory and other estate forms**
- 26-07-23-021 Letter, Doug Adams, Cabell County Sheriff
RE: Sheriff’s Settlement – July 1, 2025 - June 30, 2026**
- 26-07-23-022 Resolution, Cabell County Commission
RE: In the Matter of a Resolution Reconstituting an Exploratory Committee
Regarding Building Courthouse Annex for Cabell County**
- 26-07-23-023 Resolution, Cabell County Commission
RE: Employment:
Nathaniel Sowards – Full-time EMT
Reclassification:
Jimmy Forrest – Temporary Full-time EMT
Montana Legg – Per diem EMT
Garrin Yates – Per diem EMT**

- 26-07-23-024 Letter, Scott Caserta, Cabell County Clerk
RE: General County Fund FY 2025-2026 Carryover**
- 26-07-23-025 Letter, Scott Caserta, Cabell County Clerk
RE: Coal Severance Fund FY 2025-2026 Carryover**
- 26-07-23-026 Letter, Mike Woelfel, Cabell County Circuit Clerk
RE: Interest Bearing Account – WV Code 59-1-37 in the amount of \$43,430.51**
- 26-07-23-027 Resolution, Cabell County Commission – State Budget Revision #1**
- 26-07-23-028 Resolution, Cabell County Commission - State Budget Revision #1 – Coal Severance**

PLACE ON RECORD

Minutes to be Recorded:

- *Salt Rock PSD Regular Meetings – May 18, 2026 & June 9, 2026**
- *Salt Rock Sewer PSD Regular Meetings – May 26, 2026, June 09, 2026 & June 23, 2026**
- *Cabell County Regional Plant Operating Committee, Inc. (RPOC) – May 21, 2026**
- *Pea Ridge PSD Regular Meetings – April 13, 2026 & May 11, 2026**

Other Documents to be Recorded:

- *Pea Ridge PSD General Ledger Income Statement & Balance Sheet- Period 11, Year Ending 2026**
- *Pea Ridge PSD Manager's & Field Reports April & May 2026**
- *Culloden PSD Sewer Budget Spreadsheet F/Y Ending June 30, 2027**

COMMISSIONER'S REPRESENTATION REPORTS GOOD AND WELFARE CABELL COUNTY

Discussion Items: (Time Permitting) – Anticipated Future Projects

Transportation Land Use Study

Executive Summary

July 2026



Executive Summary

KYOVA Transportation Land Use (TLU) Study

Cabell and Wayne counties, West Virginia

The KYOVA Interstate Planning Commission initiated the Transportation Land Use (TLU) Study to evaluate how emerging economic development, population shifts, and changing land use patterns may affect the transportation network within Cabell and Wayne counties in West Virginia through 2050. The WV 2 Corridor in Mason County and the I-64 Culloden Interchange in Putnam County were included based on their proximity and potential regional influence. The study was undertaken to supplement KYOVA's Metropolitan Transportation Plan (MTP) and Travel Demand Model (TDM) by assessing the impacts of 23 identified economic development initiatives and areas of interest across the region and developing conceptual solutions to address future transportation deficiencies.

Key Findings

Despite experiencing decades of population decline, the KYOVA region is positioned for renewed growth through significant residential, commercial, industrial, educational, and tourism-related investments. Major developments such as Nucor, the IDEA District, Huntington Tri-State Airport Business Park, Hamer Property, Woodworth Farm, and numerous housing projects have the potential to increase employment opportunities, expand the housing supply, and strengthen the regional economy.

The study found that the existing transportation network is generally resilient and capable of accommodating substantial growth. The region benefits from a robust multimodal system that includes interstate highways, waterways, freight rail, aviation facilities, and public transit services. Under the Revised 2050 Baseline Scenario, the analyzed developments are projected to add approximately 1,900 jobs, 752 residents, and 458 households while having only minimal impacts on overall roadway performance.

To account for uncertainty in future development, Moderate Growth and Aggressive Growth scenarios were evaluated. Under the Aggressive Growth Scenario, the study forecasts increases of approximately 7,079 jobs, 5,344 residents, and 2,392 households beyond KYOVA's current 2050 baseline assumptions. While the network remains largely functional, several critical bottlenecks emerge, particularly near major river crossings, interchanges, and key corridors serving developing areas.

Transportation Deficiencies

Both quantitative and qualitative deficiencies that may hinder future economic growth were identified in the study. Quantitative deficiencies were evaluated using projected Level of Service (LOS) and Volume-to-Capacity ratios on major roadway corridors. Under the Aggressive Growth Scenario, 39 roadway segments totaling approximately 9 miles were projected to experience unacceptable operating conditions, with notable impacts occurring along the WV 2 corridor, US 60 near Culloden, and WV 75 in the Kenova area.

In addition, 23 qualitative deficiencies were identified, including:

- Two unprogrammed poor-condition bridges in Wayne County;
- Five high-risk at-grade railroad crossings;
- Eight locations with recurring roadway flooding;
- Four unprogrammed high-priority safety concerns; and
- Four economic development areas lacking adequate transit access.

Project Priorities and Strategic Investments

Conceptual transportation solutions were developed and evaluated to address identified deficiencies to establish project priorities and strategic investments. Among the most significant findings was the potential benefit of KYOVA Vision Plan Project CAB-29, a proposed Ohio River crossing connecting WV 2 and Ohio State Route 7 near the Merritts Creek Connector (WV 193). Modeling results indicate the project could eliminate approximately 38 percent of the roadway deficiencies identified under the Aggressive Growth Scenario while improving operations across multiple regional corridors.

The importance of advancing currently programmed MTP projects, pursuing bridge and railroad crossing improvements, addressing transit service gaps, and continuing coordination with WVDOH and regional partners will provide an opportunity to pursue discretionary funding.

Recommendations

The study concludes that continued implementation of KYOVA's fiscally constrained MTP projects is essential to maintaining mobility, supporting economic development, and preserving regional competitiveness. Key recommendations include advancing critical MTP and STIP projects, programming improvements for deficient bridges and railroad crossings, pursuing funding for strategic capacity enhancements such as the Ohio River crossing, evaluating transit service expansions, and incorporating newly announced developments into future updates of the TDM and MTP. Regular model updates and ongoing coordination among local, state, and regional stakeholders will be critical to ensure that transportation investments effectively support future growth and economic vitality throughout the KYOVA region.



SUBMITTED BY

Michael Baker

I N T E R N A T I O N A L

*400 Washington Street, Suite 301
Charleston, WV 25301*