


Traffic and Safety Study for US 52 and SR 7
in Lawrence County, Ohio

KYOVA Interstate Planning Commission

Executive Summary

This Traffic and Safety Study for US 52 and SR 7 in Lawrence County, Ohio has been conducted to focus on the mobility and safety along the corridor in Lawrence County, Ohio. This plan was developed by Kimley-Horn and Associates, in conjunction with the KYOVA Interstate Planning Commission and the Ohio Department of Transportation. The goal in developing this study is to examine the corridor's current conditions, reasonably forecast future conditions, and create and evaluate recommendations for dealing with issues impacting safety and mobility along the corridor. This document explains the efforts undertaken to address that goal.

Analysis of Conditions

Initially, the project focused on obtaining data for the corridor including cross-sections, median types, posted speeds, and intersection geometrics, as well as existing link count and state crash data. Once the data were assembled, it was necessary to determine the existing and projected no-build deficiencies along the corridor. This analysis included identifying deficiencies on a global level along the corridor, at specific locations (both safety and congestion related), and at points of interest/concern as noted by key stakeholders. Deficiencies included safety, congestion, access, and mobility constraints.

High crash locations along the US 52/SR 7 corridor were analyzed based on several variables and then prioritized to help with selecting potential highway safety projects. **Table 1** illustrates the rankings for the projects to be included in the **Lawrence County Safety Workplan**. The safety locations are also shown on **Figure 2**. Based on the **Lawrence County Safety Workplan**, six locations were identified to submit to the Ohio Department of Transportation safety program for potential funding of short-term improvements. Three studies addressing six safety Workplan locations were submitted for consideration by ODOT.

- US 52 between Burlington-Macedonia Road (CR 120) and Charley Creek Road (CR 144)
- US 52 and Ashland Bridge
- US 52 and SR 93

Another key component of the study corridor's deficiency analysis was the examination of expected capacity deficiencies along the corridor. The Huntington-Ironton Area Transportation Study (HIATS) travel demand model was obtained from the KYOVA Interstate Planning Commission and was used to identify deficiencies in the US 52/SR 7 corridor. The overall travel demand model volumes for 2005 and the 2030 no-build condition are shown in **Table 3**. Volume to capacity ratios are presented in **Table 4.**

Furthermore, an operational deficiency analysis was conducted for intersections along the US 52/SR 7 corridor. **Table 6** provides the existing intersection levels of service and delay for all of the study intersections. **Figure 7** shows the existing AM deficiencies, while **Figure 8** shows the existing PM deficiencies. Based on the results of the capacity analysis, the only signalized intersections currently operating at an unacceptable LOS during the peak hours are the intersections of the Ashland Bridge with US 52 and Charley Creek Road with US 52. With no additional investment, in 2030, 14 of the study intersections are projected to operate at LOS D or worse in the AM or PM peak hours, and 9 would operate below LOS D in both the AM and PM peak hours.

In addition to analyzing quantitative data, public input was obtained to identify the perceived needs of corridor users. A series of public meetings for the study allowed several issues to be identified for the corridor, including the following.

- There is a lack of alternate routes to SR 7 in Proctorville to use when incidents occur.
- The speed limit on US 52 changes from 65 MPH to 55 MPH at the Scioto County line. Consequently, there is a speed differential near the county line as some vehicles slow down and others do not.
- Vehicles entering US 52 from unsignalized intersections along the corridor have trouble coming up to speed and merging with traffic from a stop.
- Flooding in Ironton affects interchanges and necessitates 24-hour coverage by a police officer to direct traffic onto US 52 across railroad tracks that do not have any flashing indicators or gates.

The community outreach process included a series of 20 individual interviews conducted with community leaders from throughout the study area, as well as two public workshops. Concerns addressed during these sessions included safety, congestion, and access related deficiencies. **Figure 11** shows the geographic locations of the concerns voiced during the leader interviews. A summary of community leader interviews can be found in the **Appendix** of this report.

Finally, this report includes the base year and forecast year network deficiencies identified in the US-52/SR 7 Corridor in Lawrence County. Projects to mitigate these deficiencies along with priorities to implement these mitigating projects are presented in the Alternatives Analysis section. **Figure 12** summarizes the existing deficiencies, including priority safety locations, congested corridors, and intersection level deficiencies. **Figure 13** provides the same information for the 2030 no-build scenario.

Development and Analysis of Recommendations

The results of the deficiency analysis were used to determine locations along the corridor that are in need of traffic and safety improvements in order to mitigate existing and projected shortcomings. The alternatives ranged in complexity from intersection level signalization improvements to the construction of new Ohio River crossings, and range in estimated construction price from $65,000 to $122,000,000. The proposed alternatives are grouped geographically along the corridor and chronologically through the planning horizon. The geographic regions included Western, Central, and Eastern corridors, while the chronological groupings include near term (zero to five years), short term (five to ten years), medium term (ten to twenty years), and long term (greater than twenty years). Detailed schematics of the improvements can be found in **Figures 14, 15, and 16; Table 8;** and the **Appendix** of this report.

Following the development of the alternatives to address the corridor's needs, each alternative was evaluated based on its effectiveness, mobility, and safety, as well as its impact on the regional transportation system, its ability to address community concerns, and its impact on accessibility. Finally, this information was used to develop project priorities for the corridor, identified below:

Near Term (0 to 5 years)

Western Corridor

- ***W5* – Park Drive (SR 93) Safety Improvements — $65,000** — The predominant crash pattern at this location is rear-end crashes, primarily at the ramp termini. The proposed improvements include upgrading the existing traffic signals and adding warning signage.
- ***W7* – Campbell Drive Interchange (SR 141) — $600,000[1]** — This improvement includes the complete signalization of the interchange and intersection as well as the addition of two turning lanes.
- ***W8* – Marion Pike Interchange (SR 243) — $425,000** — This improvement includes signalizing the interchange at Marion Pike (SR 243).

Central Corridor

- ***C3* – Solida Road (CR 18) Interchange — $175,000** — This improvement includes providing intersection enhancements intended to decrease delay at the existing Solida Road (CR 18) interchange. The KYOVA Long Range Transportation Plan calls for signalization of this intersection.
- ***C5* – Burlington-Macedonia Corridor Improvements — $96,000[2]** — The proposed improvements include creating a progression-controlled signal system that would create more consistent traffic flows along the corridor.

Eastern Corridor

- ***E3* – 3rd Avenue and SR 7 (6th Street Bridge) — $400,000 —** This improvement includes constructing free flow right-turn lanes in the eastbound and westbound approaches, and modifying signal cycle length.
- ***E4* – SR 7 and SR 243 (Bradrick) — $780,000 —** This improvement includes constructing a free flow right-turn lane on southbound SR 243.
- ***E5* – SR 775 and Old SR 7 — $1,000,000 —** This improvement includes constructing free flow right-turn lanes on the southbound and westbound approaches. Protected phasing should be given to northbound and southbound left-turn movements.
- ***E6* – East End Bridge and SR 775 Ramp — $1,000,000 —** This improvement includes widening SR 775 to provide a second southbound through lane and a second westbound left turn lane to accommodate heavy volumes of traffic using the East End Bridge to cross the Ohio River.
- ***E7* – SR 775 and Irene Road — $100,000** — This improvement includes modifying the signal timing to improve vehicle progression.
- ***E8* – SR 775 and Chesapeake Bypass — $1,000,000 —** This improvement includes constructing dual left-turn lanes on the westbound approach, as well as free flow right-turn lanes on the northbound and eastbound approaches.

Short Term (5 to 10 years)

Western Corridor

- ***W1* – CR 1A/CR 23 Interchange and US 52 Access Improvements — $4,100,000[3]** — This improvement includes widening the bridge span over Old US 52 (CR 1A) to improve roadway clearance, realigning the Old US 52 (CR 1A) approach to the interchange to improve sight distance, creating a new service road north of US 52 (connects to Patrick Street T-117), and eliminating one highway access point. The consolidation of access to US 52 is anticipated to enhance US 52 mobility.
- ***W3* – 2nd Street Bridge Replacement — $4,500,000** — This improvement includes replacing the 2nd Street Bridge that spans an inlet of the Ohio River between Orchard Street and Sycamore Street. This location is prone to flooding from the Ohio River, and the existing bridge is routinely closed when water levels rise.
- ***W9* – Ashland Bridge (US 60) Ramp Termini Improvements — $3,900,000** — The proposed improvements include signal retiming and optimization and construction of an additional westbound through lane.

[1] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.

[2] Estimated cost based on projections from ODOT Safety Application for Burlington-Macedonia Safety Improvements, submitted April 27, 2006.

[3] Estimated cost based on projections from ODOT Safety Application for SR 93 Safety Improvements, submitted October 5, 2006.

Medium Term (10 to 20 years)

Western Corridor

- ***W2* – US 52 Access Improvements Location 1 — $7,700,000** — This improvement includes managing access to US 52 between Rock Hollow Road (CR 128) and Park Drive (SR 93) through the use of constructing and improving access roads.
- ***W6* – Park Drive (SR 93) Interchange Reconfiguration — $6,800,000** — This improvement includes converting the existing partial cloverleaf interchange to a diamond configuration.

Central Corridor

- ***C1* – US 52 Access Improvements Location 2 — $5,700,000** — This improvement includes closing highway access at Hog Back Road (T-268) and CR 56, as well as constructing a new service road between Lick Creek Road (CR 15) and Grandview Avenue.

Eastern Corridor

- ***E2* – SR 7 Access Improvements Location 1 — $8,600,000** — This improvements include managing access to SR 7 by constructing two new service roads between Kimball Lane (T 287) and Big Branch Road (CR 31).

Long Term (Greater than 20 years)

Western Corridor

- ***W4* – Ironton-Russell Bridge — $122,000,000[4]** — This improvement includes reconstructing the Ironton-Russell Bridge over the Ohio River. The bridge will maintain and enhance the connection of Ironton, OH with Russell, KY.

Central Corridor

- ***C2* – Grandview Avenue/Delta Lane Interchange — $14,200,000** — This improvement includes constructing a diamond interchange at the existing Grandview Avenue intersection, constructing a new service road north of US 52 connecting Grandview Avenue and Delta Lane, and eliminating highway access at Delta Lane.
- ***C4* – I-73/I-74 Bridge — $30,000,000[5]** — This improvement includes the construction of a new bridge over the Ohio River. The bridge would span from I-64 in West Virginia to South Point, Ohio. Exact location is under consideration.
- ***C6* – Burlington Retail Area Interchange — $16,900,000** — This improvement includes constructing a diamond interchange between the Burlington-Macedonia Road (CR 120) and Wal-Mart Way (CR-410) intersections. Highway access would be eliminated at these locations. This improvement would require the construction of a new service road between Dallas-Matthew Pike and Burlington-Macedonia Road (CR 120), eliminating highway access at Dallas-Matthew Pike.
- ***C7* – Charley Creek Road (CR 144) Interchange — $17,400,000** — This improvement includes constructing a diamond interchange at the existing Charley Creek Road intersection. Highway access would be eliminated at Sandusky Road (CR 276). This improvement would require the construction of new service roads north of US 52, connecting to CR 406 on either side, as well as realigning Old US 52 (CR 1) south of US 52.

Eastern Corridor

- ***E1* – Buffalo Creek Road (CR 15) Overpass — $13,000,000** — This improvement includes constructing a new highway overpass from Buffalo Creek Road (CR 15) to Old US 52 (CR 1), removing a highway access point along US 52.
- ***E9* – Chesapeake Bypass Phase 1C — $55,000,000** — This improvement includes the construction of additional through lanes and grade separated interchanges at SR 775 and Kinley Avenue along the Chesapeake Bypass between SR 775 and SR 7 (existing Phase 1A alignment).
- ***E10* – Chesapeake Bypass Phase 2 — $60,000,000[6]** — This improvement includes completion of the full alignment of the Chesapeake Bypass from the SR 775 interchange to an interchange at SR 152 N. The alignment will be built as four lanes divided with grade separated intersections.
- ***E11* – Merrick Creek Bridge — $25,000,000[7]** — This improvement includes the construction of a new bridge over the Ohio River. The bridge would span from the Merrick Creek Connector in West Virginia to the eastern terminus of the Chesapeake Bypass in Ohio.

Corridor Wide Improvements

- **ITS-architecture-based Incident Management/Traffic Management System — $14,250,000** — This improvement includes utilizing Intelligent Transportation System elements to better manage incidents along the corridor to improve congestion and increase safety.

[4] Estimated cost based on projection from ODOT District 9.

[5] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.

[6] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.

[7] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.

Implementation

Project implementation was a key factor throughout the development of this plan Not all improvements must be completed immediately. To adopt and implement this plan, however, KYOVA must work proactively with champions from Lawrence County, ODOT, USDOT, FHWA, local citizens and business owners, and the private development industry to make sure that each project is advanced through the proper planning and funding process. Potential funding sources for the proposed alternatives along the corridor were identified, including:

- Statewide Transportation Improvement Program
- ODOT County Local Bridge Program
- ODOT Local Major Bridge Program
- ODOT Municipal Bridge Program
- Credit Bridge Program
- ODOT County Surface Transportation Program
- ODOT Metropolitan Planning Organizations and Large Cities Program
- ODOT Safety Program
- State Infrastructure Bank
- Appalachian Development Highway System
- Grant Anticipation Revenue Vehicles (GARVEE) Bonds
- Developer Partnerships

Conclusion

This report provides a comprehensive assessment of the mobility and safety conditions along the US 52/SR 7 corridor through Lawrence County, Ohio. This study recommends a variety of improvements to address the multiple needs and uses along the facility.

The recommendations outlined in this study, along with the project prioritization and implementation strategies, should be used as a guide to correcting existing deficiencies as well as offsetting projected deficiencies. The proposed improvements outlined in this report are intended to serve not only the US 52/SR 7 corridor, but also the region as a whole. Locally, the implementation of these projects should relieve congestion and increase safety along the corridor. On a larger scale, the proposed improvements to the US 52/SR 7 corridor should support the continuing population growth and economic development within the region.

Acknowledgements

The development of the US 52/SR 7 Traffic and Safety Study was a collaborative process that involved numerous stakeholders, including the project steering committee, KYOVA Metropolitan Planning Organization, Study Team, and the Ohio Department of Transportation. Special thanks go to the following individuals, who were instrumental in the development of this plan.

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Traffic and Safety Study for US 52 and SR 7
in Lawrence County, Ohio

KYOVA Interstate Planning Commission

Introduction

The Traffic and Safety Study for US 52 and SR 7 represents a comprehensive assessment of the mobility and safety conditions along the US 52/SR 7 corridor through Lawrence County, Ohio. This assessment spans both current and future forecasted conditions, presenting existing and predicted deficiencies along the corridor. Following this analysis, the study presents recommendations for addressing the issues identified in the study analysis. The recommendations include a variety of projects ranging from near term, low cost spot safety projects to larger projects of regional impact which are anticipated to take years to assemble appropriate funding and political support for implementation.

Communities located along the US 52/SR 7 corridor study area include Hanging Rock, Ironton, Coal Grove, South Point, Burlington, Chesapeake, Proctorville, and Rome. **Figure 1A** shows the corridor study area limits. **Figures 1B** through **1E** show issues along the corridor that were examined as part of this project.

The scenic byway studied in this report is nestled between the Ohio River to its south and the hills of southern Ohio rising above it to the north. This topography forces the US 52/SR7 corridor through Lawrence County to serve not only as the primary mobility facility for users traveling through, to, and within the region, but also as a primary access corridor for many communities along the roadway. Portions of the corridor are included in the Appalachian Highway System (AHS). Also, portions of the corridor are identified in plans to form a beltway with I-64 through West Virginia and Kentucky. This beltway is expected to provide a critical alternate route for the continually rising volumes on I-64 and to facilitate changing commuting patterns between the communities of the Greater Huntington/Ashland/Ironton area. A segment of the study corridor has been identified to serve in the I-73/I-74 corridor. Further, the route provides access between the ports along the Ohio River, Tri-State airport, and the region's road and rail network.

In addition to the local and regional mobility supported by the corridor, it also serves as the primary access facility for key locations along its length. Access is provided to heavy industries in the western portions of the study area, retail services in the central portion of the study area near the communities of South Point and Burlington, and residential, retail, and institutional land uses in the Chesapeake and Proctorville areas in the eastern portion of the study area.

In many instances of transportation networks, the functions of mobility and access are typically spread over an entire network of roads. In these cases, the higher classification facilities — such as interstates and major arterials — serve mobility and the need for longer distance trips, while facilities classified as collectors and local roads serve to provide access. Because of the geographic constraints of this corridor, US52 and SR 7 within Lawrence County serves as both a primary mobility facility and access facility, creating traffic conflicts that contribute to congestion and diminished safety in locations throughout the study area.

Relationship of Classification to Service

A multi-step process was undertaken to perform this study. Initial project activities focused on obtaining physical data regarding the corridor including cross-section, median types, posted speeds, and intersection geometrics. Also, existing data including link count data and state crash data were compiled. Following the study of this data, focus turned to the development of a county safety plan that emerged as an outgrowth of the Ohio Department of Transportation (ODOT) and KYOVA Interstate Planning Commission sponsored Safety Conscious Planning Workshop. Fourteen locations along the study corridor were identified in the **Lawrence County Safety Workplan** as having safety issues. With rising traffic volumes and intensified use of land abutting the corridor, this number of locations with safety issues is expected to increase as both conflicting traffic flows and the density of traffic increase.

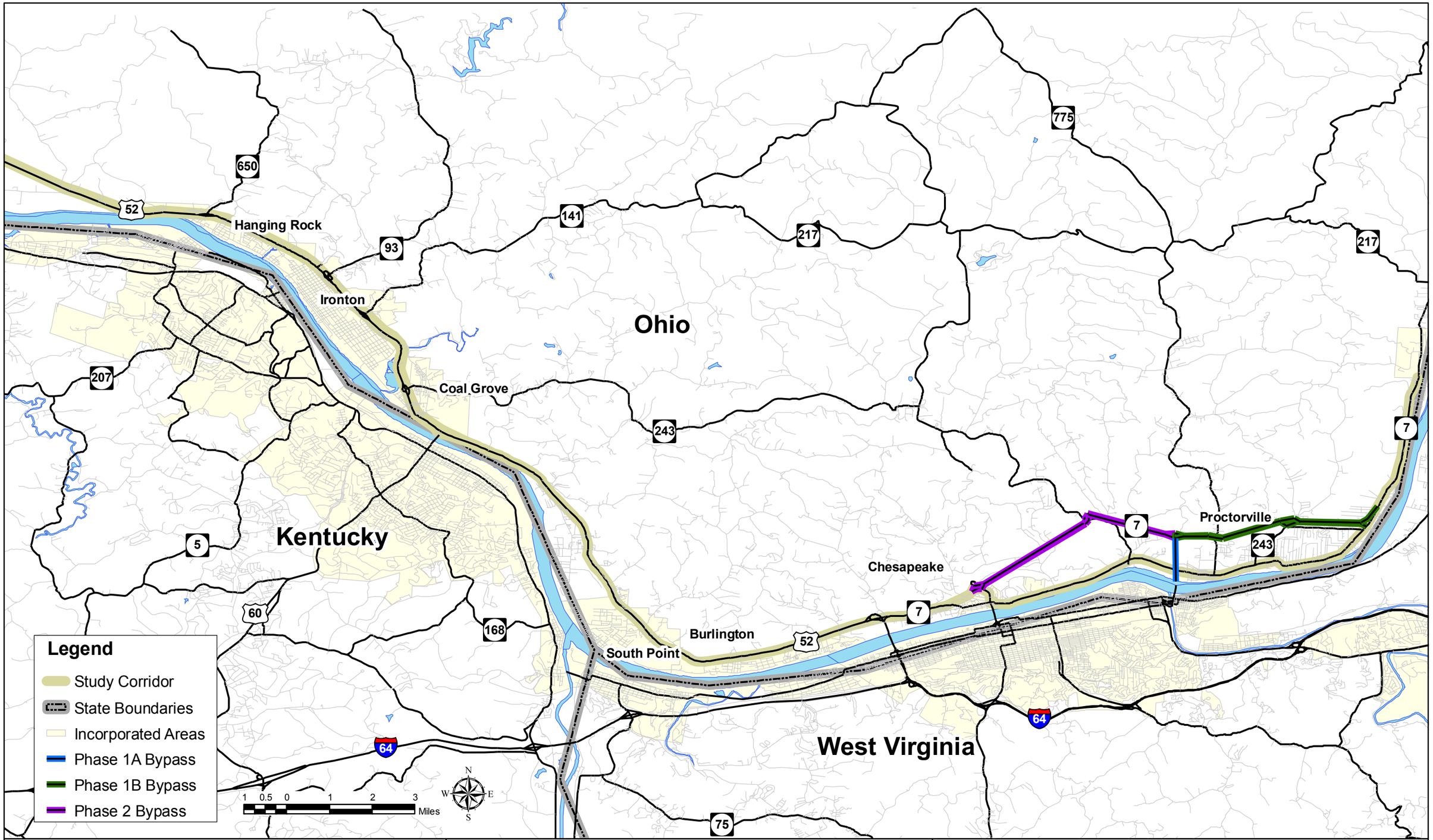
Once the safety plan was developed, efforts to identify projects for consideration by ODOT for expedited implementation under their Tier 1 (projects under $100,000 and anticipated to take less than 1 year to implement) safety funding program were undertaken. Three safety studies addressing six safety plan locations were developed with assistance from ODOT. Two of the studies addressing five of the six locations have moved forward to design.

The next phase of this study focused on public involvement and input. A series of public meetings were held in the spring of 2006 to solicit input on issues within the corridor from the public. A series of 20 interviews were conducted with leaders and key stakeholders to obtain their understanding of challenges and solutions for the corridor. The results of these meetings were used to develop a list of publicly identified deficiencies along the corridor.

A final phase of the study focused on the quantitative assessment of current and forecast congestion along the corridor and the identification of overall corridor deficiencies. These deficiencies were identified at both the segment level (using travel demand modeling) and intersection level (using traffic analysis software). Based upon the analysis undertaken for this study, none of the vehicle miles traveled on US 52, SR7, and Old SR 7 were congested or near congested conditions in 2005. The proportion of vehicle miles traveled over congested or near congested conditions is expected to increase to a total of 15% by 2030.

At a more focused scale, 5 of the 25 at-grade intersections studied in the 2005 base year operate at a level of service (LOS) D or worse in either the AM peak or PM peak hours. Of these, 3 operate at LOS D or worse in both the AM and PM peak hours. With no additional investment, in 2030, 14 of the study intersections will operate at LOS D or worse in either the AM peak or PM peak hours, and 9 will operate below LOS D in both the AM peak and PM peak hour.

Combined with the safety and public deficiencies identified in the previous phases of the study, these deficient locations formed the foundation for the recommended improvements along the corridor. This report outlines the recommended improvements along with a methodology to rate them. Finally, project priorities are identified and project implementation is discussed.



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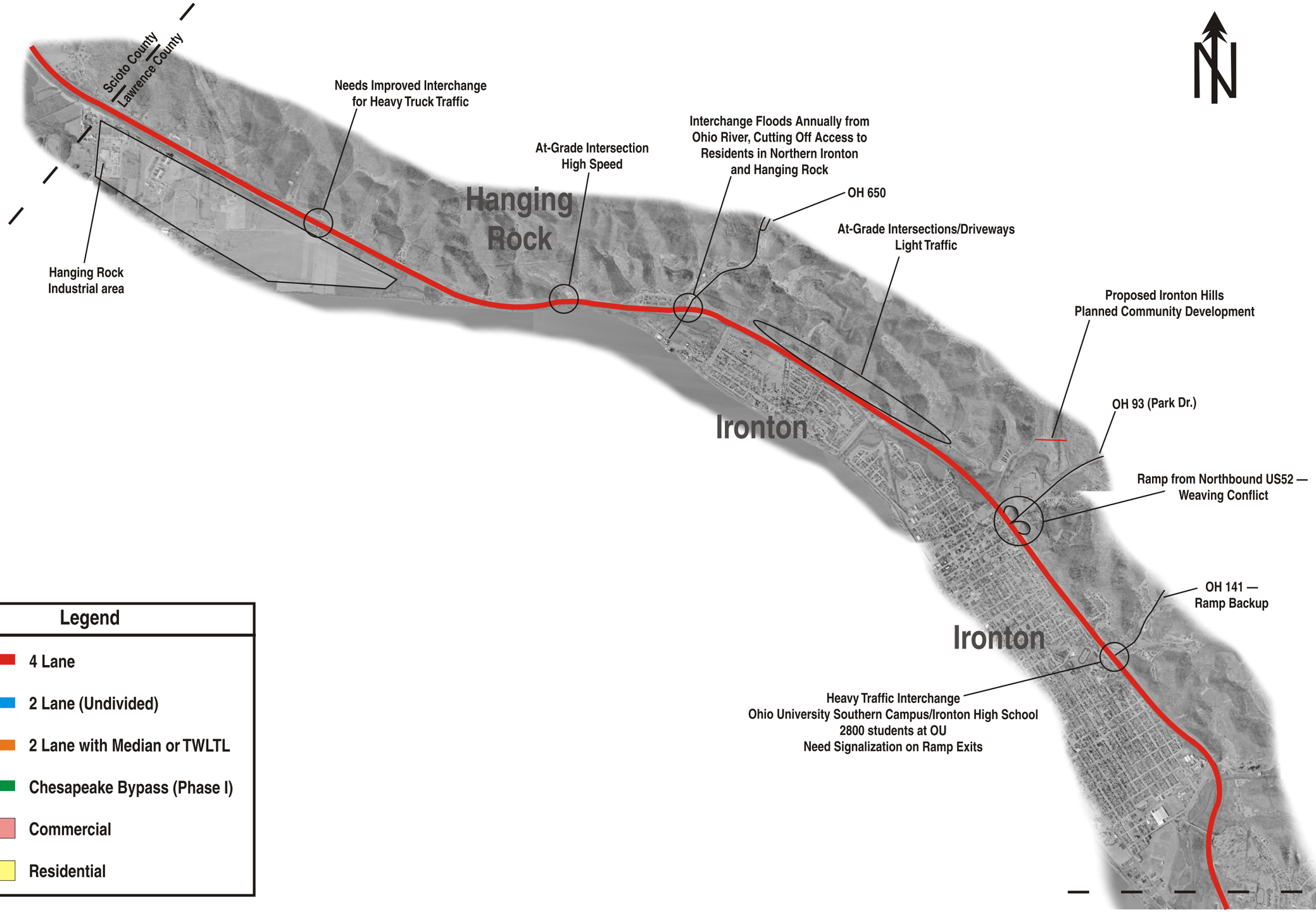
Traffic and Safety Study for US 52 and SR 7

Figure 1A - Study Area



Legend

- 4 Lane
- 2 Lane (Undivided)
- 2 Lane with Median or TWLTL
- Chesapeake Bypass (Phase I)
- Commercial
- Residential

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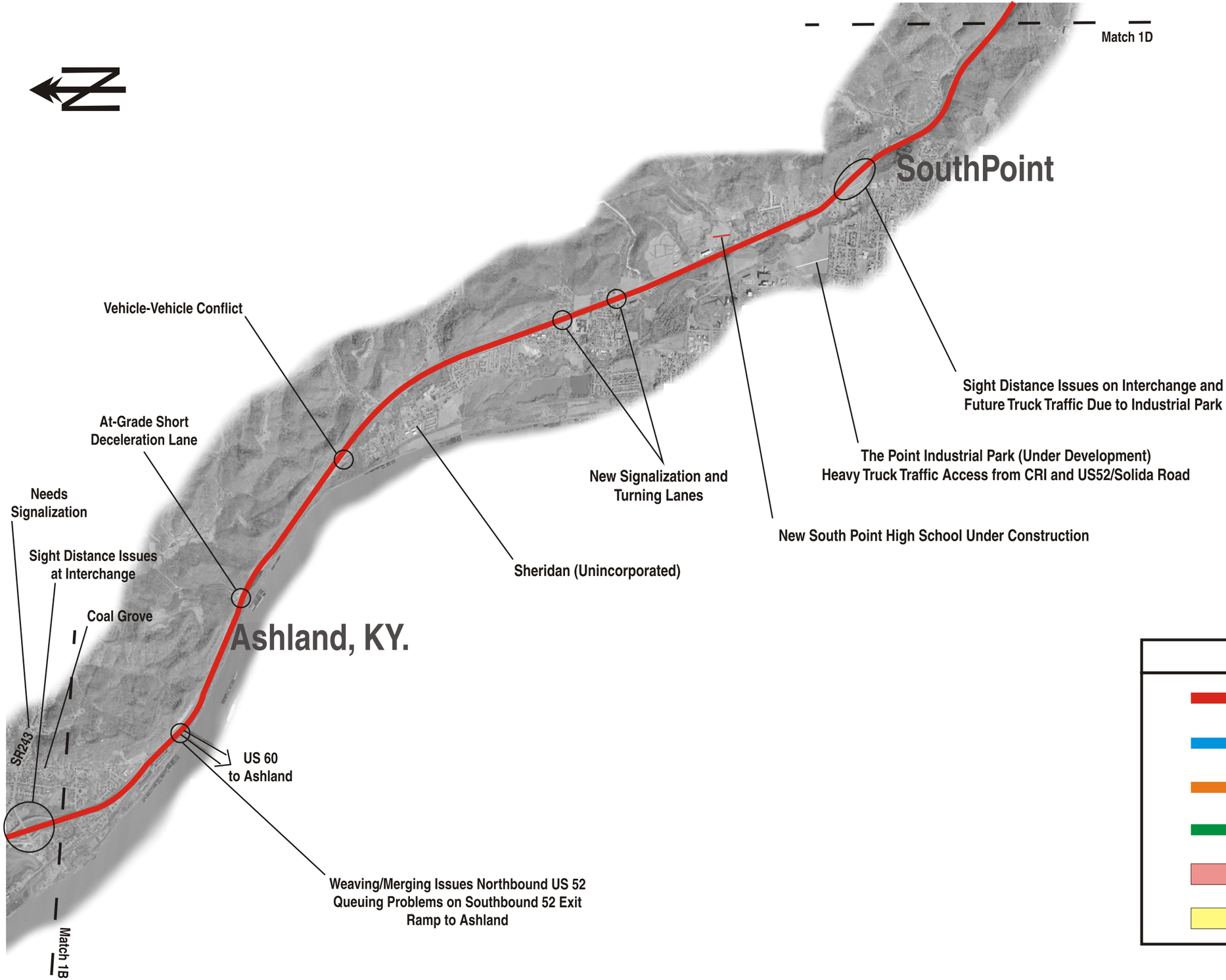
Traffic and Safety Study for US 52 and SR 7

1B - Study Area



Legend

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- 2 Lane with Median or TWLTL
- Chesapeake Bypass (Phase I)
- Commercial
- Residential

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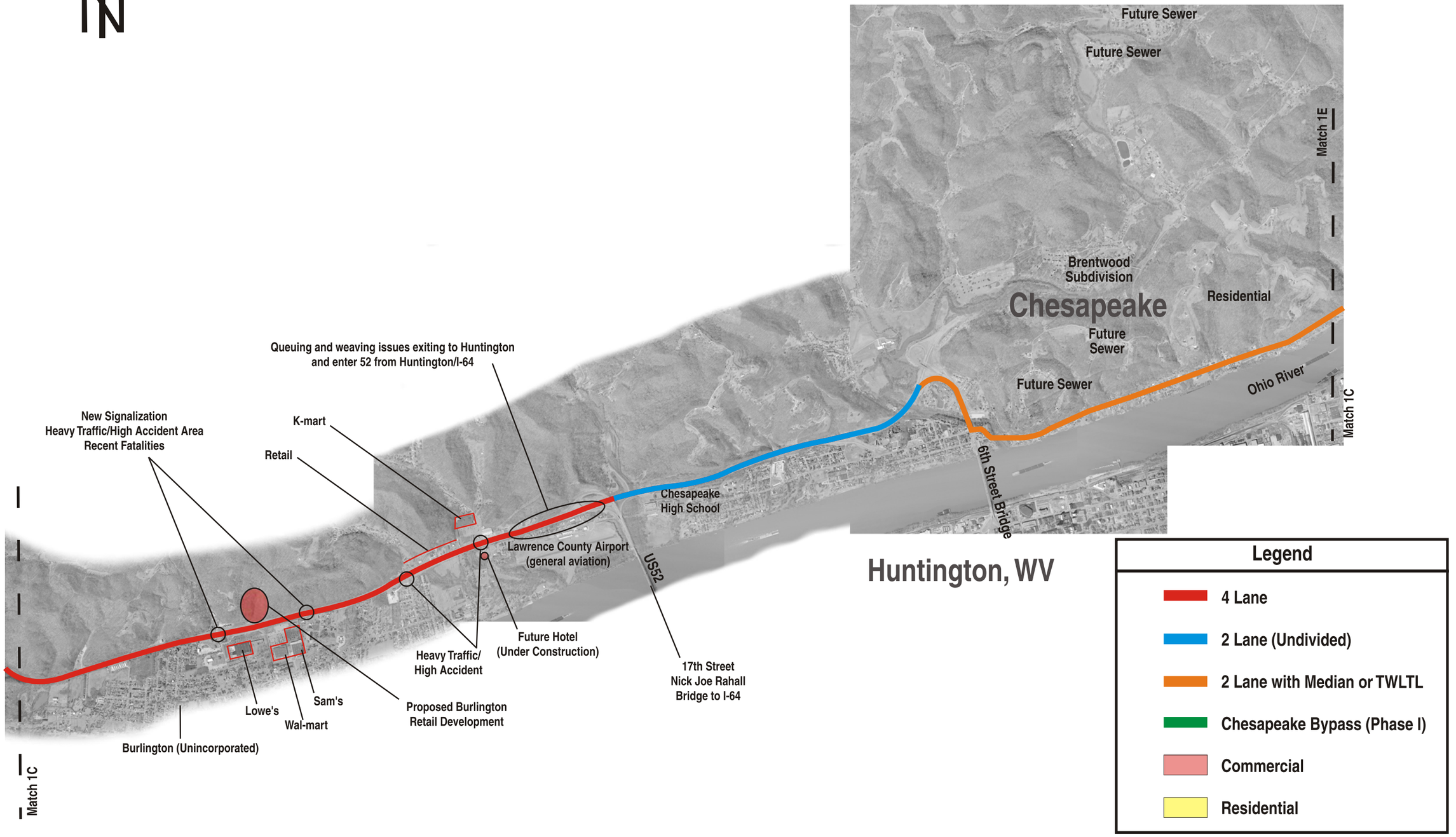
Traffic and Safety Study for US 52 and SR 7

1C - Study Area



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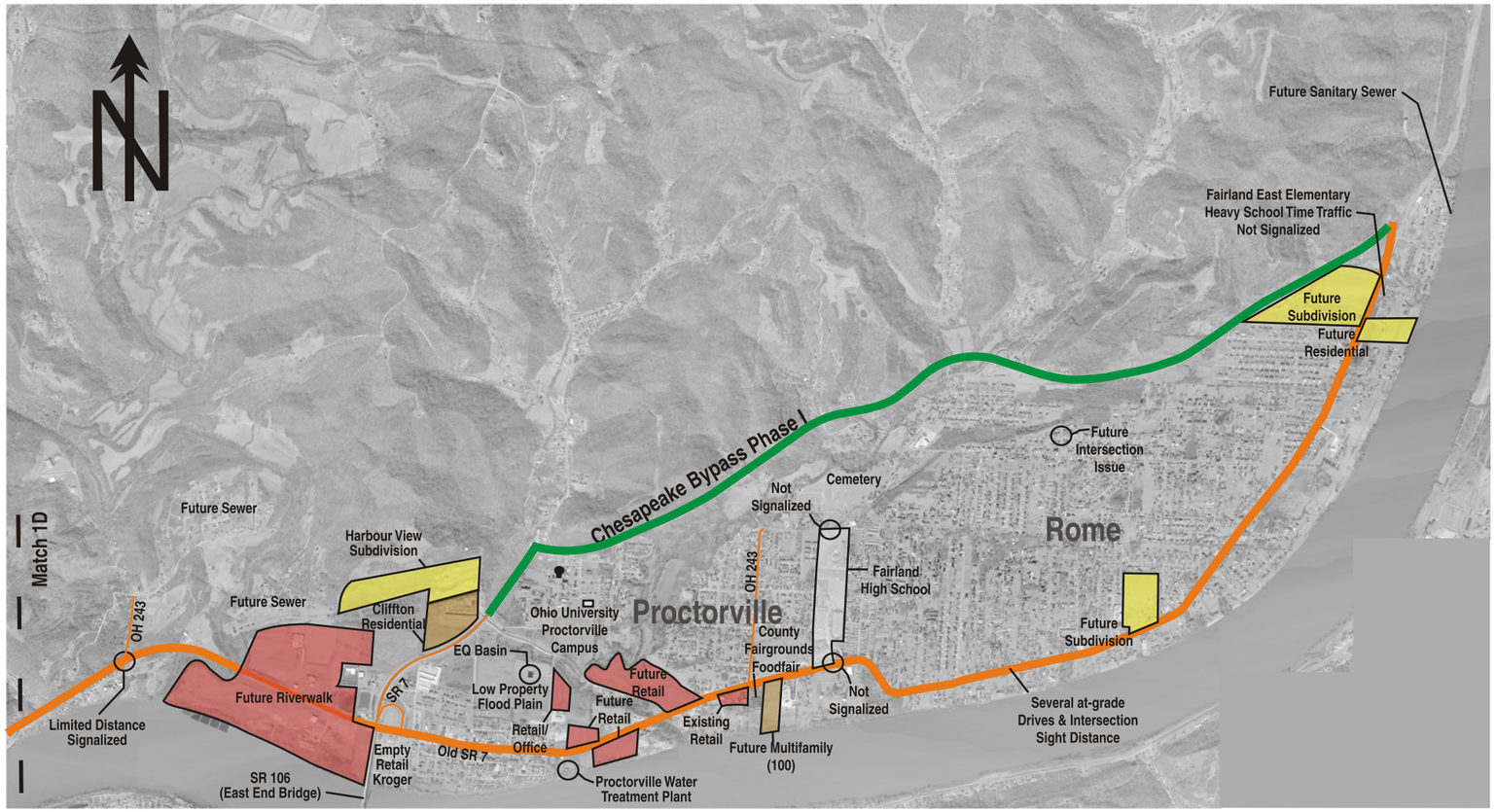
Traffic and Safety Study for US 52 and SR 7

1D - Study Area



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Legend

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- Chesapeake Bypass (Phase I)
- Commercial
- Residential

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1E - Study Area




Public Involvement

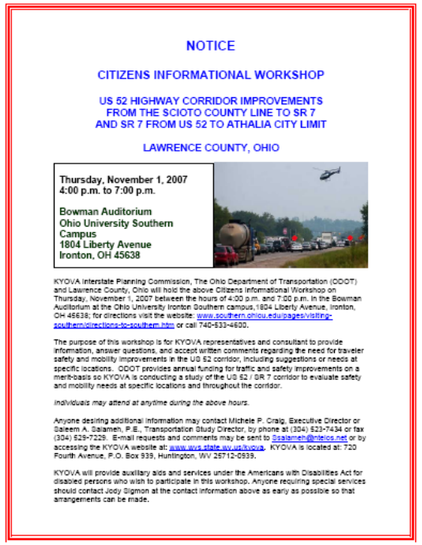
Public engagement was an integral part of the planning process for the traffic and safety study. The KYOVA Public Participation Process requires that the general public be allowed to participate in all transportation plans and transportation improvements. This includes allowing the public the opportunity to review and comment on all plans, providing reasonable public access to technical and policy information regarding plans, providing adequate public notice of public involvement activities, and the demonstration of explicit consideration and response to public input received during the planning and program development process.

Four distinct components made up this project's public involvement process. The following sections briefly describe the efforts of each of these components.

Public Workshops

The general public was invited to provide input for the project through the use of public workshops designed to generate discussions about issues and concerns along the corridor. The public workshops for this study were informal in order to encourage one-on-one and small group discussions.

Two public workshops were held in conjunction with the project at the Ohio University Southern Campus in Ironton, Ohio. The first workshop was held on May 4, 2006 at the outset of the project to gather public input concerning traffic related issues along the corridor. The second workshop was held on November 1, 2007, prior to finalization of the project, to gather input regarding proposed improvements and alternatives developed by the study team.



NOTICE

CITIZENS INFORMATIONAL WORKSHOP

US 52 HIGHWAY CORRIDOR IMPROVEMENTS
FROM THE SCIOTO COUNTY LINE TO SR 7
AND SR 7 FROM US 52 TO ATHALIA CITY LIMIT

LAWRENCE COUNTY, OHIO

Thursday, November 1, 2007
4:00 p.m. to 7:00 p.m.

Bowman Auditorium
Ohio University Southern Campus
1804 Liberty Avenue
Ironton, OH 45638

KYOVA Interstate Planning Commission, The Ohio Department of Transportation (ODOT) and Lawrence County, Ohio will hold the above Citizens Informational Workshop on Thursday, November 1, 2007 between the hours of 4:00 p.m. and 7:00 p.m. in the Bowman Auditorium at the Ohio University Ironton Southern campus,1804 Liberty Avenue, Ironton, OH 45638; for directions visit the website, www.southern.ohiou.edu/pages/visiting-southern/directions-to-southern.htm or call 740-533-4600.

The purpose of this workshop is for KYOVA representatives and consultant to provide information, answer questions, and accept written comments regarding the need for traveler safety and mobility improvements in the US 52 corridor, including suggestions or needs at specific locations. ODOT provides annual funding for traffic and safety improvements on a merit-basis so KYOVA is conducting a study of the US 52 / SR 7 corridor to evaluate safety and mobility needs at specific locations and throughout the corridor.

Individuals may attend at anytime during the above hours.

Anyone desiring additional information may contact Michele P. Craig, Executive Director or Saleem A. Salamen, P.E., Transportation Study Director, by phone at (304) 523-7434 or fax (304) 529-7229. E-mail requests and comments may be sent to Salamen@marco.net or by accessing the KYOVA website at: www.wvs.state.wv.us/kyova. KYOVA is located at: 720 Fourth Avenue, P.O. Box 939, Huntington, WV 25712-0939.

KYOVA will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who wish to participate in this workshop. Anyone requiring special services should contact Jody Digmon at the contact information above as early as possible so that arrangements can be made.

Stakeholder Interviews

Stakeholders with vested interests along the corridor were solicited for additional input regarding issues and concerns along the corridor. The stakeholders included local elected officials, members of the Chamber of Commerce, local engineers, school superintendents, and local business owners. The stakeholders were interviewed concerning their key concerns along the corridor regarding congestion, safety, and access, as well as their ideas for potential solutions to those issues. Finally, they were asked for their vision for growth in the corridor and how improvements to US 52 and SR 7 fit into their vision.

A synopsis of the steering committee interviews can be found in the deficiency analysis section of this report (page 25). **Figure 11** provides a summary of the comments by geographic area. Full transcripts of the stakeholder interviews can be found in the Appendix of this document.

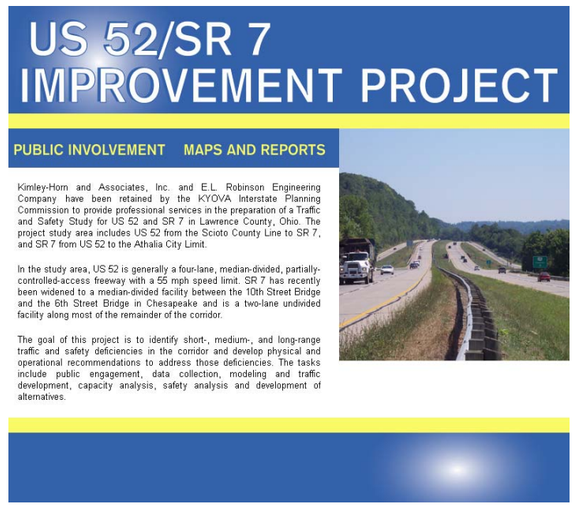
Steering Committee

A project steering committee was formed at the outset of the study to oversee the work performed by the study team. The steering committee met frequently throughout the course of the study to discuss specific findings and alternatives generated throughout the process. Steering committee members included representatives from the Ohio Department of Transportation, KYOVA, Lawrence County, the Lawrence County Chamber of Commerce, and the Ironton-Lawrence Community Action Organization.

The steering committee was involved in all phases of the study, from deficiency identification to project prioritization. The local knowledge of the steering committee provided the study team a strong foundation on which to build the recommendations outlined in this report. In addition, the input of the steering committee made it possible to develop priorities and strategies for implementing the projects along the corridor.

Project Website

The study team created and maintained a project website in conjunction with the study, providing key information to the public throughout the planning process. The website included a project synopsis, as well as periodic updates throughout the duration of the project. Key mapping and documentation were posted for review by the public. In addition, public meeting announcements and notices were posted on the website.



US 52/SR 7
IMPROVEMENT PROJECT

PUBLIC INVOLVEMENT MAPS AND REPORTS

Kimley-Horn and Associates, Inc. and E.L. Robinson Engineering Company have been retained by the KYOVA Interstate Planning Commission to provide professional services in the preparation of a Traffic and Safety Study for US 52 and SR 7 in Lawrence County, Ohio. The project study area includes US 52 from the Scioto County Line to SR 7, and SR 7 from US 52 to the Athalia City Limit.

In the study area, US 52 is generally a four-lane, median-divided, partially-controlled-access freeway with a 55 mph speed limit. SR 7 has recently been widened to a median-divided facility between the 10th Street Bridge and the 6th Street Bridge in Chesapeake and is a two-lane undivided facility along most of the remainder of the corridor.

The goal of this project is to identify short-, medium-, and long-range traffic and safety deficiencies in the corridor and develop physical and operational recommendations to address those deficiencies. The tasks include public engagement, data collection, modeling and traffic development, capacity analysis, safety analysis and development of alternatives.

Deficiency Analysis

The first phase of the study involved determining the existing and projected no-build deficiencies along the corridor. This analysis provides the framework for the remainder of the study, which involves identifying solutions, prioritizing the recommendations, and developing a roadmap for implementation of the proposed improvements. This analysis includes deficiencies on a global level along the corridor, at specific locations (both safety and congestion related), and at points of interest/concern as noted by key stakeholders along the corridor.

The following sections outline the methodologies used to determine existing and projected no-build deficiencies along the corridor, as well as providing the results of the various deficiency analyses. These analyses include safety, corridor congestion, intersection level congestion, and publicly identified deficiencies. The conclusion of this section examines existing and no-build deficiencies at the network level and determines where improvements are most needed as a precursor to alternatives evaluation.

Methodology

For the purposes of the deficiency analysis, four primary methods were used to identify deficiencies. These are described following:

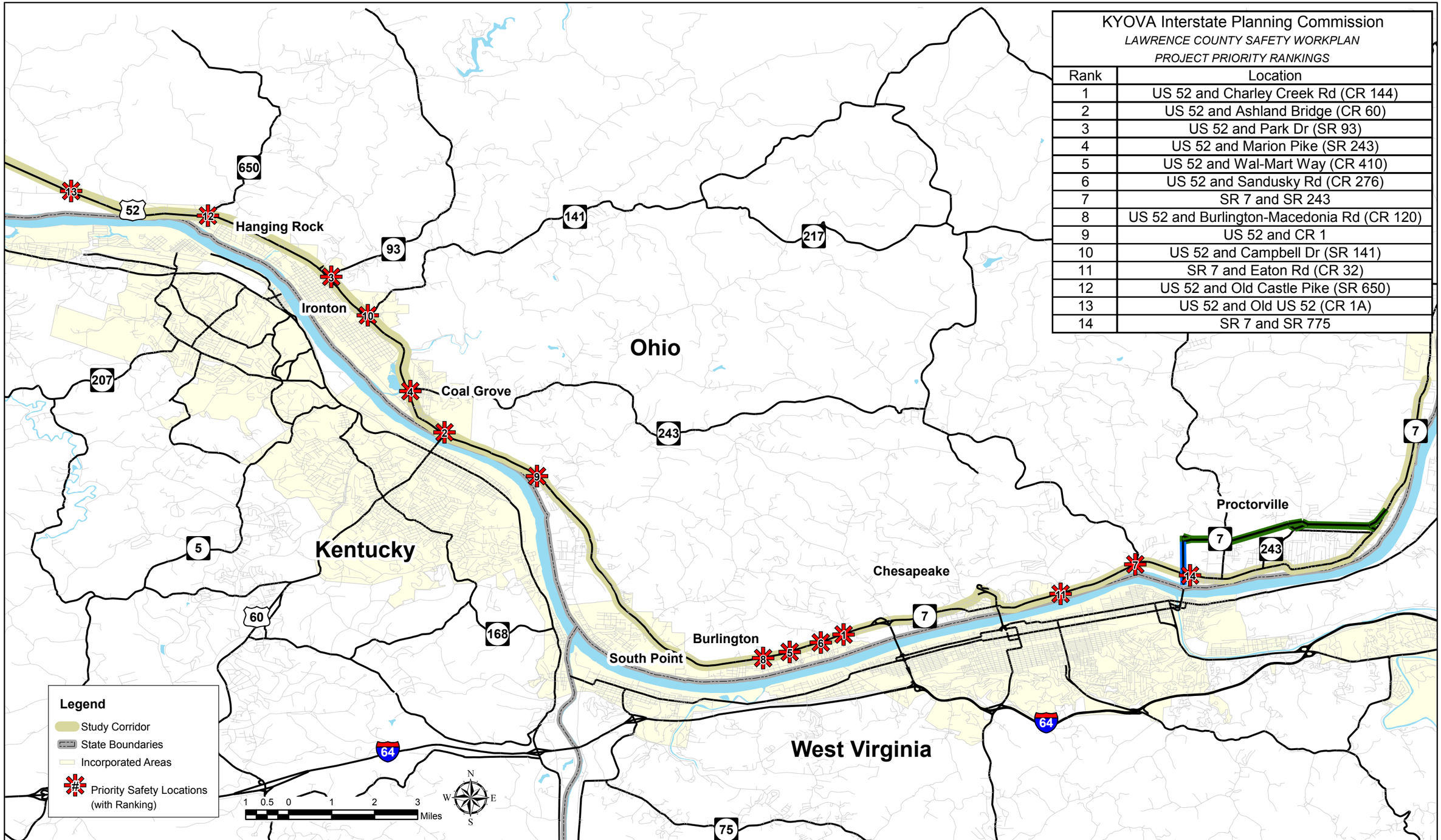
- **Crash Data Analysis.** As part of an earlier phase of the study, a safety plan for Lawrence County was developed in accord with ODOT procedures following the 2004 Safety Conscious Planning Workshop held in Ironton November 9, 2005. To develop this plan, Ohio DOT crash data for the county was acquired. Concurrently, the criteria for ranking crash locations by frequency of crashes, severity of crashes, and crash rate was created. These rankings and their accompanying methodology comprised the safety plan for the county. This ranked list is presented in **Table 1** and illustrated on **Figure 2**. Any location that was included on the Lawrence County Safety Plan is considered deficient, regardless of rank.
- **Travel Demand Model Analysis.** The KYOVA Interstate Planning Commission regional travel demand model was modified to reflect 2005 conditions, including 2005 socioeconomic data. The modifications were completed following the Phases 1A and 1B openings of the Chesapeake Bypass. For most links along the corridor, reported volumes have been normalized to 2005 count data acquired from ODOT. Also, to reflect no-build conditions, traffic demand for the year 2030 was assigned to the 2005 network with committed State Transportation Improvement Plan (STIP) projects (none of which are in the current STIP). Output from these model runs were used to identify network segments operating near or under congested conditions. **Figures 3 and 5** show the 2005 and 2030 existing no-build networks used to determine deficient segments. **Figures 4 and 6** show the 2005 and 2030 no-build network deficiencies. **Table 3** shows 2005 and 2030 volumes. Vehicle miles traveled on segments with volume to capacity ratios greater than 0.85 are considered deficient.
- **Intersection Level of Service.** AM and PM turning movement counts were taken at 25 intersections in the study area. For signalized intersections, existing signal timing parameters were obtained from the Ohio DOT. The traffic capacity analysis tool Synchro™ (Version 6) was used to determine the intersection level of service for each intersection for 2005 conditions. Further, 2030 forecast traffic was used to determine intersection level of service for 2030. The results of these analyses are found in **Tables 6 and 7**. All intersections with an AM or PM level of service of D or worse are considered deficient.
- **Stakeholder Interviews and Field Observation.** Interviews of more than 20 stakeholders in the study area were conducted. These included county commissioners, elected officials from local communities, superintendents of local school districts, and various other stakeholders with vested interest along the corridor. As part of these interviews, stakeholders were asked to identify locations with persistent safety or congestion issues. Locations identified by the community leaders were considered to be deficient. **Figure 11** displays a summary of these locations identified by key stakeholders in the corridor. Correspondingly, during field data collection activities and based upon the consultant team's historic understanding of the corridor, network characteristics that contributed to increased congestion or decreased safety were identified. In most cases, these conditions were echoed in the stakeholder interviews.

Crash Data Analysis

Crash data were obtained for Lawrence County from ODOT. These data were used to determine high-crash locations both in the county, and more specifically, along the US 52/SR 7 corridor.

The high crash locations along the US 52/SR 7 corridor were analyzed based on several variables, including number of crashes, severity of crashes, existing traffic volumes, functional classification, and presence on either the Ohio DOT or Huntington-Ashland-Ironton Transportation Study Long Range Transportation Plans/Transportation Improvement Programs. Based on these variables, the high crash locations were prioritized to help with selecting potential highway safety projects. **Table 1** illustrates the rankings for the projects to be included in the **Lawrence County Safety Workplan**. The safety locations are also shown on **Figure 2**. More information about the **Lawrence County Safety Workplan**, including scoring criteria, can be found in the **Appendix** of this report.

KYOVA Interstate Planning Commission *LAWRENCE COUNTY SAFETY WORKPLAN* *PROJECT PRIORITY RANKINGS*	
Rank	Location
1	US 52 and Charley Creek Rd (CR 144)
2	US 52 and Ashland Bridge (CR 60)
3	US 52 and Park Dr (SR 93)
4	US 52 and Marion Pike (SR 243)
5	US 52 and Wal-Mart Way (CR 410)
6	US 52 and Sandusky Rd (CR 276)
7	SR 7 and SR 243
8	US 52 and Burlington-Macedonia Rd (CR 120)
9	US 52 and CR 1
10	US 52 and Campbell Dr (SR 141)
11	SR 7 and Eaton Rd (CR 32)
12	US 52 and Old Castle Pike (SR 650)
13	US 52 and Old US 52 (CR 1A)
14	SR 7 and SR 775



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Traffic and Safety Study for US 52 and SR 7

Figure 2 - Safety Workplan Priority Locations




Table 1 – Lawrence County Safety Workplan Project Priority Rankings

Rank	Locations	AADT[A]	Crashes[B]	EPDO[C]	MEV[D]	FUNC	LRP[E]	TIP[F]	Score
1	US 52 – Charley Creek Road (CR 144)	17	20	20	20	5	0	0	82
2	US 52 - Ashland Bridge (US 60)	15	20	12	20	5	1	0	73
3	US 52 – Park Drive (SR 93)	16	16	13	20	5	1	0	71
4	US 52 – Marion Pike (SR 243)	19	16	9	20	5	0	0	69
5	US 52 – Wal-Mart Way (CR 410)	17	12	14	14	5	1	0	63
6	US 52 – Sandusky Road (CR 276)	17	12	13	14	5	0	0	61
7	SR 7 – SR 243 (Bradrick)	9	14	14	20	3	0	0	60
8	US 52 – Burlington-Macedonia Rd (CR 120)	17	7	20	10	5	0	0	59
9	US 52 - CR 1	17	10	13	13	5	0	0	58
10	US 52 – Campbell Drive (SR 141)	15	7	20	11	3	1	0	57
11	SR 7 – Eaton Road (CR 32)	10	2	7	10	5	0	0	34
12	US 52 – Old Castle Pike (SR 650)	9	2	1	7	5	0	0	24
13	US 52 – Old US 52 (CR 1A)	8	1	2	7	3	0	0	21
14	SR 7 – East End Bridge (SR 775)	9	1	1	3	5	0	0	19

[A] Average annual daily traffic is for 2005 and was taken from *ODOT Traffic Monitoring*
[B] Crash data were provided by Ohio Department of Transportation (ODOT) from 01/01/2003 to 12/31/2005
[C] EPDO rate was calculated using crash data from ODOT; weighting scale → Fatality = 292.9, Injury = 6.9, PDO = 1
[D] Million Entering Vehicle Rate (MEV) was calculated using traffic volumes taken from *ODOT Traffic Monitoring*
[E] Based on inclusion in the either the ODOT or Huntington- Ironton Area Transportation Study (HIATS) Long Range Transportation Plans
[F] Based on inclusion in the either the ODOT or Huntington- Ironton Area Transportation Study (HIATS) Transportation Improvement Programs

Safety was a key component of the US 52/SR 7 corridor study and implementation of short-term safety improvements was a top priority for the project. Based on the **Lawrence County Safety Workplan**, six locations were identified to submit to ODOT's safety program for potential funding of short-term improvements. Three studies addressing six safety Workplan locations were submitted for consideration by ODOT. Five of the six locations were approved for funding and the sixth is being evaluated further by ODOT. The safety studies submitted are described following.

- **US 52 between Burlington-Macedonia Road (CR 120) and Charley Creek Road (CR 144)** — This 1.6-mile stretch of roadway contains four signalized intersections, including Burlington-Macedonia Road (CR 120) (Safety Workplan Location 8), Wal-mart Way (CR 410) (Safety Workplan Location 5), Sandusky Road (CR 276) (Safety Workplan Location 6), and Charley Creek Road (CR 144) (Safety Workplan Location 1), all of which service various commercial developments in the area. The prevailing crash patterns for this segment and the intersections located within this segment include a high occurrence of rear-end collisions between the traffic signals, as well as angle collisions between the opposing movements at the signals. In addition to high volumes of crashes over the analysis period (215 crashes over a 3-year period), these intersections also experience a fairly high volume of injury crashes (105 crashes involving an injury). The recommended countermeasures for these intersections include:

  1. Study existing phase timing, phase sequences, phase detector parameters, and detection types and locations.
  2. Optimize local intersection parameters, detection, and phase sequencing; develop new time-of-day coordinated system timing plans to enhance vehicle progression; and install a wireless interconnect communications system to help implement and maintain systems timing and to enhance corridor monitoring capabilities.

  ODOT has approved this project and has hired a consultant to perform the data collection, prepare timing plans, and design system modifications to provide clock synchronization and communications interconnect. The project is planned for construction in 2008. More information on this site can be found in the **Appendix** of this report.

- **US 52 and Ashland Bridge (Safety Workplan Location 2)** — The predominant crash pattern at this location is a combination of rear-end crashes and loss of control collisions (mainly single vehicle, either lane departure or collision with fixed object). These crash patterns, along with field verification, point to heavy queuing as the main factor for collisions at this location. During peak hours, traffic on both the eastbound and westbound approaches backs up with vehicles attempting to cross the Ashland Bridge to Kentucky. With the combination of high speeds, horizontal curvature, and grades nearing the intersection, approaching vehicles have less than adequate stopping sight distance and either collide with stopped vehicles or lose control of their vehicle attempting to stop in a short distance. The recommended countermeasures for this location include:

  1. Provide advanced warning for stopped traffic, allowing approaching vehicles to slow down before arriving at the queue.
  2. Use a combination of standard signing and custom static message signing with flashing beacons to provide advanced warnings. These systems would operate using an early warning system consisting of vehicle detection to determine when queued traffic is backed up beyond a typical point.

  This project has been approved by ODOT, and the ODOT Central Office has elected to investigate widening the US 52 approaches to the bridge in order to accommodate dual turn lanes and address the vehicle storage issues. ODOT is developing the plan in house, which will include a review of the crash data produced by Kimley-Horn, and recommendations with design solutions addressing the safety issues at the location. More information on this site can be found in the **Appendix** of this report.

US 52 and SR 93 (Safety Workplan Location 3) — The predominant crash pattern at this intersection is a combination of rear-end crashes and angle collisions, primarily at the ramps, but also along US 52 approaching the interchange. These crash patterns, supported by field verification, indicate that a combination of queuing and limited sight distance due to vertical curvature approaching the interchange cause the majority of the rear-end collisions. The major concern at this intersection is the lack of storage for vehicles attempting to make a left turn onto the westbound ramps. The absence of a dedicated storage lane and a protected left-turn phase creates a queuing problem for the southbound approach at the westbound ramp intersection. The recommended countermeasures include:

1. Overlay the southbound approach to the westbound ramp intersection and re-stripe to provide a dedicated left-turn lane onto the westbound ramp.
2. Upgrade the traffic signal at the westbound ramps to provide a protected left-turn phase onto the westbound ramps.
3. Provide additional signage approaching both the eastbound and westbound ramp intersections to warn motorists of the signalized intersections.

This project has been approved by ODOT, and ODOT will be designing the recommended improvements in-house. ODOT also will coordinate hiring a contractor or using in-house ODOT staff to construct and implement the design. The project is planned for construction in 2008. More information on this site can be found in the **Appendix** of this report.

The Priority Safety locations that have been studied and approved by ODOT, as well as the remaining locations on the Safety Workplan and other locations added in the future, should continuously be monitored even after safety improvements are implemented to ensure that accident reduction is achieved.

Travel Demand Modeling

Another key component of the study corridor's deficiency analysis was the examination of expected capacity deficiencies along the corridor. To perform this analysis, the Huntington-Ironton Area Transportation Study (HIATS) travel demand model was obtained from the KYOVA Interstate Planning Commission for use in the modeling portion of this work. This travel demand model configuration consisted of all input files and folders needed to run the 2000 and 2030 HIATS models.

The HIATS travel demand model was used to identify deficiencies in the US 52/SR 7 corridor. Overall model deficiencies were measured using projected link capacities and volume-to-capacity ratios. Link capacities were developed by converting the saturation flow rate, which is the output capacity for the HIATS model, to daily capacities using various friction factors, such as percentage of heavy vehicles, driver population, and directional distribution (all of which are variables found in the HIATS model). Daily capacities were used to determine the overall deficiency, which was measured using the volume to capacity ratio, which is the ratio of demand flow rate to capacity for a traffic facility.

Before-and-after model runs were performed by using the existing 2000 HIATS model validation runs and then modifying the network for the eastern portion of the study area to account for the 2005 network (prior to the opening of Phase 1 of the bypass) as well as a creation of a post-Phase 1 bypass opening. The pre-opening 2005 condition model volumes were compared to the post-opening model volumes to make sure traffic patterns after completion of Phase 1 of the bypass were reflective of observed conditions. **Figure 3** shows the model network used in the analysis of the 2005 post-bypass analysis scenario. **Figure 4** shows the network deficiencies from that analysis. **Figure 5** shows the model network used in the analysis of the 2030 no-build analysis scenario. **Figure 6** shows the network deficiencies from that analysis.

For this study, the existing year 2000 HIATS travel demand model network and SE data sets needed to be modified for 2005 conditions. The network attributes (such as posted speed or number of lanes) were updated to reflect changes along the US 52/SR 7 corridor between 2000 and 2005, as noted during field observations. In addition to the network attributes, the land use (socio-economic data) information also had to be updated to 2005. Unlike network attributes, which are readily available through local knowledge and field observation, accurate land use information is much more difficult to gather. The travel demand model uses eight socio-economic data variables including the number of automobiles, the number of dwelling units, and the total school attendance. This information is needed at the traffic analysis zone (TAZ) level, which is not usually available or is difficult to obtain.

Census data on population (2005) and housing units (2005) were obtained for each county in the model area. These data were compared to census information from 2000. This information is shown in **Table 2** below.

Table 2 – Census Population and Housing Unit Comparison for Modeled Counties

County	2000 Population	2005 Population	Population % Growth (2000-2005)	2000 Housing Units	2005 Housing Units	Housing Unit % Growth (2000-2005)
Boyd	49,752	49,594	-0.32%	21,976	22,301	1.48%
Greenup	36,891	37,184	0.79%	15,977	16,284	1.92%
Lawrence	62,319	63,112	1.27%	27,189	27,451	0.96%
Cabell	96,784	94,031	-2.84%	45,615	46,068	0.99%
Wayne	42,903	42,091	-1.89%	19,107	19,395	1.51%
Total	**288,649**	**286,012**	**-0.91%**	**129,864**	**131,499**	**1.26%**

Boyd, Cabell and Wayne Counties showed a population decline between 2000 and 2005. Greenup County and Lawrence County showed a small amount of population growth. All five counties showed slight growth in housing units from 2000 to 2005. Overall, the area showed a slight decrease in population and a slight increase in housing units from 2000 to 2005. Based on this information, a growth rate of 1% was used to grow socio-economic data in the 2000 HIATS travel demand model to 2005 conditions.

Once the model was revised with 2005 network attributes and land use data, it was run to produce 2005 baseline results. The overall travel demand model volumes for 2005 and the 2030 no-build are shown in **Table 3**. Volume to capacity ratios are presented in **Table 4**.

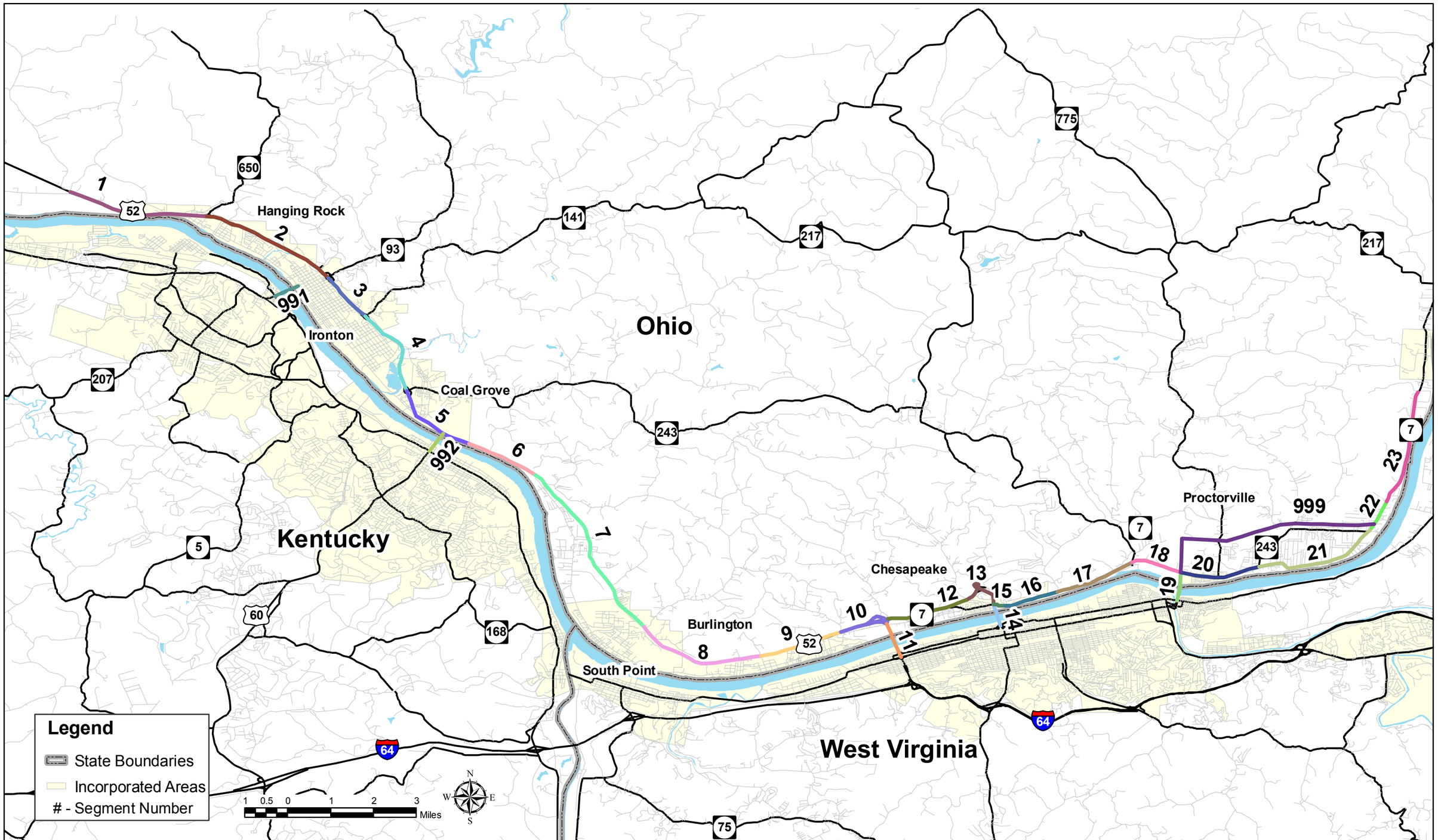

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Figure 3 - 2005 Post-Bypass Model Network

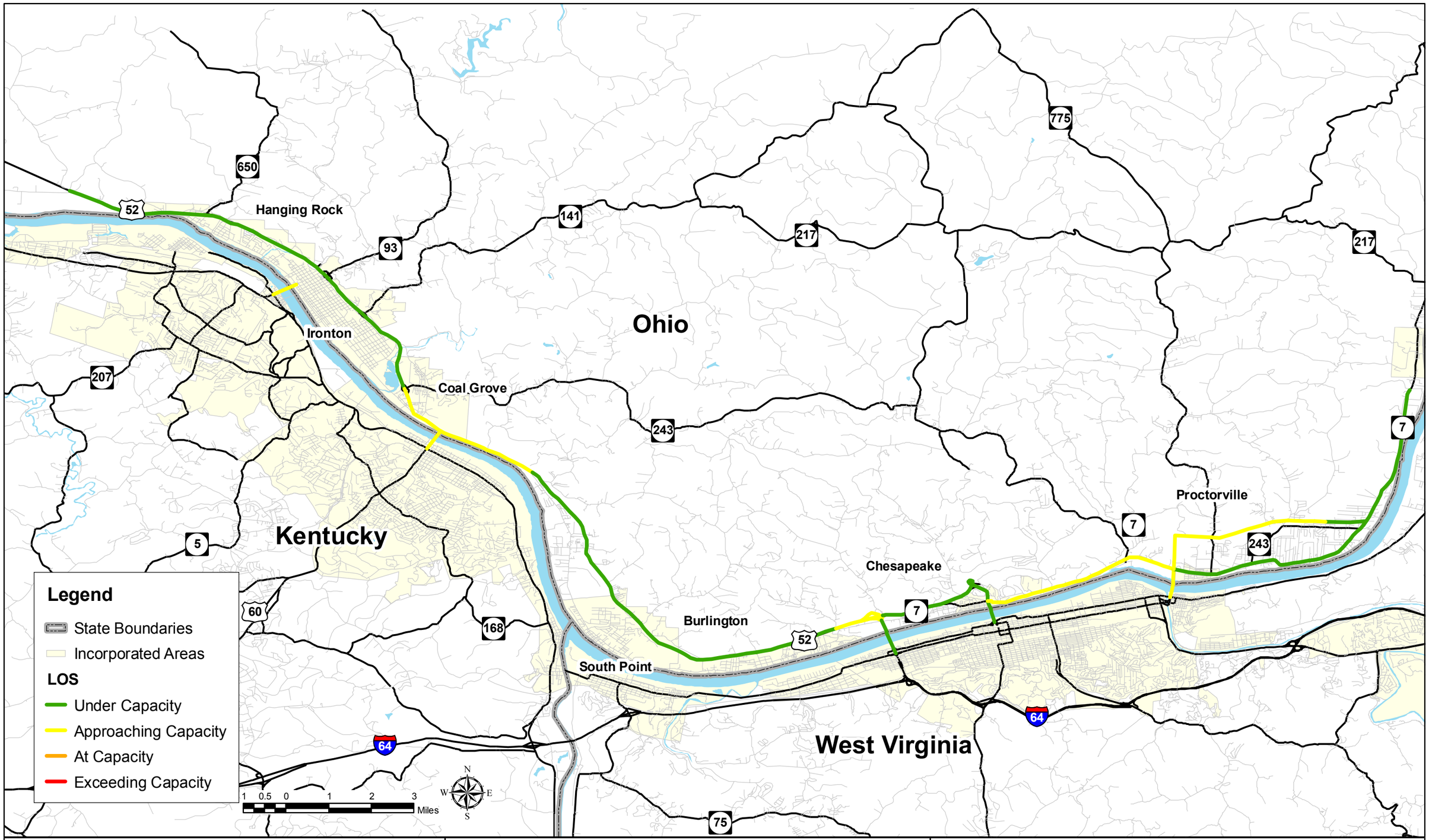

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Figure 4 - 2005 Post-Bypass Opening Deficiencies

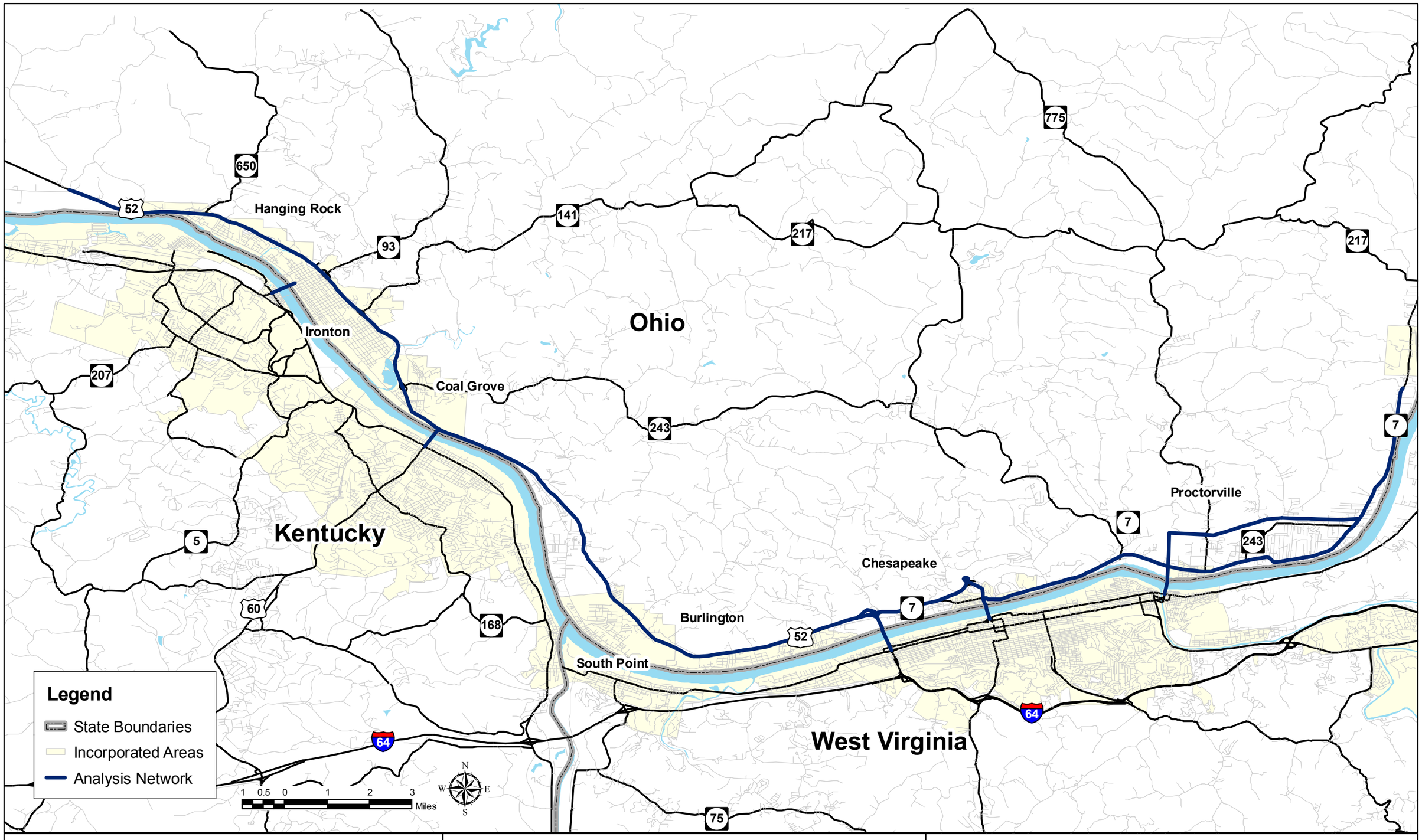

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Figure 5 - 2030 No-Build Analysis Network

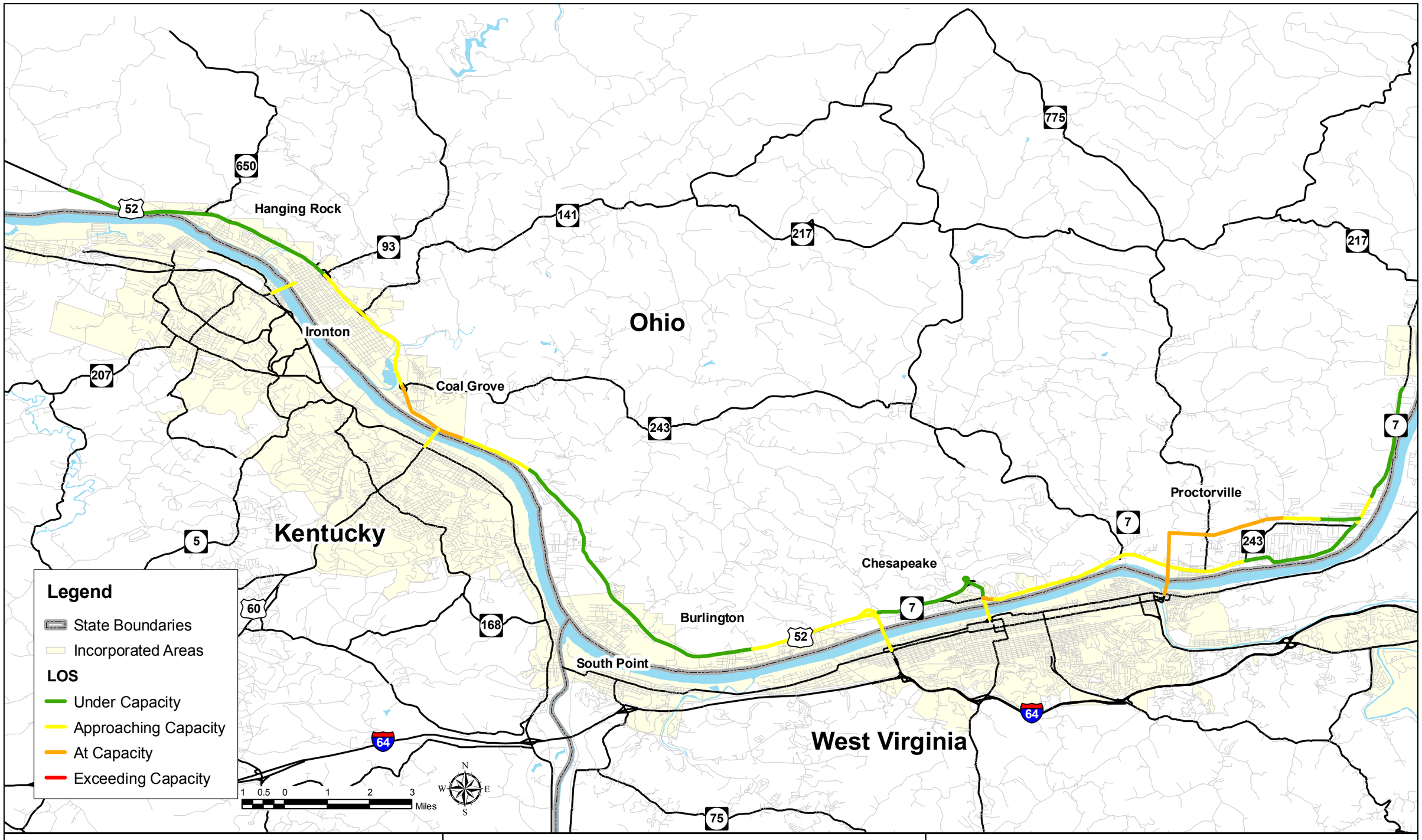

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Figure 6 - 2030 No-Build Deficiencies




Table 3 – Travel Demand Model 2005 Existing and 2030 No-Build Peak Hour Volumes

Section ID	Facility	Limits	2005 Model Volume	2030 No-Build Model Volumes	2005 -2030 Forecast Growth
1	US 52	between Winkler and Stewart	884	1,711	93.5%
2	US 52	between SR 650 and SR 93	780	1,429	83.2%
991	Ironton-Russell Bridge	Ironton-Russell Bridge	1,136	1,182	4.1%
3	US 52	between SR 93 and Campbell Dr	1,270	2,305	81.5%
4	US 52	between Campbell and Maddyville	1,571	2,770	76.3%
5	US 52	west of MLK Jr bridge	2,234	3,493	56.3%
6	US 52	east of MLK Jr bridge	2,239	2,988	33.4%
992	Ashland Bridge	Ashland Bridge	2,102	3,454	64.3%
7	US 52	between Old US 52 and Little Solida	1,905	2,008	5.4%
8	US 52	between Little Solida and County Rd 120	1,943	2,012	3.6%
9	US 52	between County Rd 120 and Charley Creek	2,034	2,131	4.8%
10	US 52	between Charley Creek and West Huntington Bridge	2,052	2,282	11.2%
11	West Huntington Bridge	West Huntington Bridge	1,721	2,153	25.1%
12	SR 7	between West Huntington Bridge and Big Branch	1,190	1,269	6.6%
13	SR 7	between Big Branch and Robert C. Byrd Bridge	1,173	1,227	4.6%
14	Robert C. Byrd Bridge	Robert C. Byrd Bridge	1,921	2,742	42.7%
15	SR 7	between Robert C. Byrd Bridge and Park Dr	1,200	1,581	31.8%
16	SR 7	between Park Dr and Huntington Dr	1,140	1,369	20.1%
17	SR 7	between Huntington Dr and Happy Hollow	945	1,017	7.6%
18	SR 7	between Happy Hollow and SR 106	939	1,297	38.1%
19	East End Bridge (SR 106)	East End Bridge (SR 106)	1,674	2,693	60.9%
20	Old SR 7	between SR 775 and Big Paddy	1,076	1,235	14.8%
21	Old SR 7	between Big Paddy and Arnold	802	823	2.6%
21A	Old SR 7	between Arnold and Bypass	229	446	94.8%
22	Old SR 7	between Bypass and Private Rd	359	721	108.3%
23	Old SR 7	between Private Rd and Private Rd	323	615	90.4%
999	Phase 1A Bypass (SR 7)	between Old SR7 and SR-775s	957	1,277	33.4%
999	Phase 1B Bypass (SR 7)	between SR775 and Little Paddy Rd	957	1,277	33.4%
999	Phase 1B Bypass (SR 7)	between Little Paddy Rd and Kinley Ave	749	882	17.8%
999	Phase 1B Bypass (SR 7)	between Kinley Ave and SR7	228	443	94.3%

Table 4 - Travel Demand Model 2005 and 2030 Capacity, Peak Hour Volume, and Volume to Capacity Ratio

Section ID	Facility	Limits	2005 Model Volume	2005 Volume to Capacity Ratio	2030 Model Volume	2030 Volume to Capacity Ratio
1	US 52	between Winkler and Stewart	884	0.22	1,711	0.42
2	US 52	between SR 650 and SR 93	780	0.19	1,429	0.35
991	Ironton-Russell Bridge	Ironton-Russell Bridge	1,136	0.71	1,182	0.74
3	US 52	between SR 93 and Campbell Dr	1,270	0.31	2,305	0.57
4	US 52	between Campbell and Maddyville	1,571	0.39	2,770	0.68
5	US 52	west of MLK Jr bridge	2,234	0.55	3,493	0.86
6	US 52	east of MLK Jr bridge	2,239	0.55	2,988	0.74
992	Ashland Bridge	Ashland Bridge	2,102	0.52	3,454	0.85
7	US 52	between Old US 52 and Little Solida	1,905	0.47	2,008	0.49
8	US 52	between Little Solida and County Rd 120	1,943	0.48	2,012	0.50
9	US 52	between County Rd 120 and Charley Creek	2,034	0.50	2,131	0.52
10	US 52	between Charley Creek and West Huntington Bridge	2,052	0.51	2,282	0.56
11	West Huntington Bridge	West Huntington Bridge	1,721	0.42	2,153	0.53
12	SR 7	between West Huntington Bridge and Big Branch	1,190	0.29	1,269	0.31
13	SR 7	between Big Branch and Robert C. Byrd Bridge	1,173	0.29	1,227	0.30
14	Robert C. Byrd Bridge	Robert C. Byrd Bridge	1,921	0.47	2,742	0.68
15	SR 7	between Robert C. Byrd Bridge and Park Dr	1,200	0.67	1,581	0.88
16	SR 7	between Park Dr and Huntington Dr	1,140	0.63	1,369	0.76
17	SR 7	between Huntington Dr and Happy Hollow	945	0.53	1,017	0.57
18	SR 7	between Happy Hollow and SR 106	939	0.52	1,297	0.72
19	East End Bridge (SR 106)	East End Bridge (SR 106)	1,674	0.60	2,693	0.96
20	Old SR 7	between SR 775 and Big Paddy	1,076	0.45	1,235	0.51
21	Old SR 7	between Big Paddy and Arnold	802	0.38	823	0.39
21A	Old SR 7	between Arnold and Bypass	229	0.16	446	0.32
22	Old SR 7	between Bypass and Private Rd	359	0.26	721	0.52
23	Old SR 7	between Private Rd and Private Rd	323	0.23	615	0.44
999	Phase 1A Bypass (SR 7)	between Old SR7 and SR-775s	957	0.68	1,277	0.91
999	Phase 1B Bypass (SR 7)	between SR775 and Little Paddy Rd	957	0.68	1,277	0.91
999	Phase 1B Bypass (SR 7)	between Little Paddy Rd and Kinley Ave	749	0.54	882	0.63
999	Phase 1B Bypass (SR 7)	between Kinley Ave and SR7	228	0.16	443	0.32

Intersection Level of Service Analysis

In conjunction with the travel demand model analysis, an operational deficiency analysis was conducted for intersections along the US 52/SR 7 corridor. Existing traffic counts were used as the basis for the analysis, and these counts were adjusted to project future year traffic based on the HIATS travel demand model. All intersection analysis was performed using the Synchro™ (Version 6) traffic analysis software. Standards for capacity analysis were based on information provided on the ODOT website (www.dot.state.oh.us/roadwayengineering/studies/software_standards.asp). Based on these standards, the following default values were used in the analysis:

- Peak hour factor = 0.90
- Right turn on red was not allowed
- Lost time = 3.0 seconds per phase

Synchro uses methodologies contained in the 2000 Highway Capacity Manual to determine the operating characteristics of the study intersections. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The Highway Capacity Manual defines six levels of service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by Synchro Version 5 or computable using methodology published in the Highway Capacity Manual. Results between LOS A and LOS C for the side street approach are assumed to represent short delays. Results between LOS D and LOS E for the side street approach are assumed to represent moderate delays, and LOS F for the side street approach is assumed to represent long delays. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. **Table 5** lists the LOS control delay thresholds published in the Highway Capacity Manual for signalized and unsignalized intersections.

Table 5 – Level-of-Service Control Delay Thresholds

Level-of-Service	Signalized Intersections – Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections – Average Control Delay [sec/veh]	
A	≤ 10	≤ 10	Short Delays
B	> 10 – 20	> 10 – 15	
C	> 20 – 35	> 15 – 25	
D	> 35 – 55	> 25 – 35	Moderate Delays
E	> 55 – 80	> 35 – 50	
F	> 80	> 50	Long Delays

Level of service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is a qualitative measure that describes operational conditions and motorist perceptions with a traffic stream. The Highway Capacity Manual defines six levels of service: LOS A through LOS F, with A being the best and F the worst. ODOT typically identifies any intersection having an LOS of D as operating under failing conditions. Copies of the signalized and unsignalized intersection capacity analyses are included in the Appendix.

Two basic scenarios were analyzed (for both the AM and PM peak hours):

- Existing conditions (post-Phase 1A bypass)
- Future year no-build (2030)

Intersection geometries were based on field reviews conducted in spring 2006, aerial photography, and intersection geometry provided with signal timings by ODOT in spring 2007. In addition, plans for the Chesapeake bypass were provided by ODOT, including both Phase 2 intersection geometry and full-build out with interchange configurations.

Signal timings were provided by ODOT (December 2006) for the following intersections:

- US 52 Ramps and Park Drive (SR 93)
- US 52 and Ashland Bridge (US 60)
- US 52 and Grandview Avenue (CR 450)
- US 52 and Delta Lane (CR 60)
- US 52 and Burlington-Macedonia Road (CR 120)
- US 52 and Wal-Mart Way (CR 410)
- US 52 and Sandusky Road (CR 276)

- US 52 and Charley Creek Road (CR 144)
- SR 7 and Bradrick (SR 243)
- SR 775 and East End Bridge
- SR 7 and Irene Road (CR 403)
- Old SR 7 and SR 775

Synchro was used to optimize signal timings for locations impacted by LRTP projects, as well as at-grade intersections along the Phase 2 bypass. This was performed under the assumption that optimal signal timings will be installed at the time the improvements are constructed.

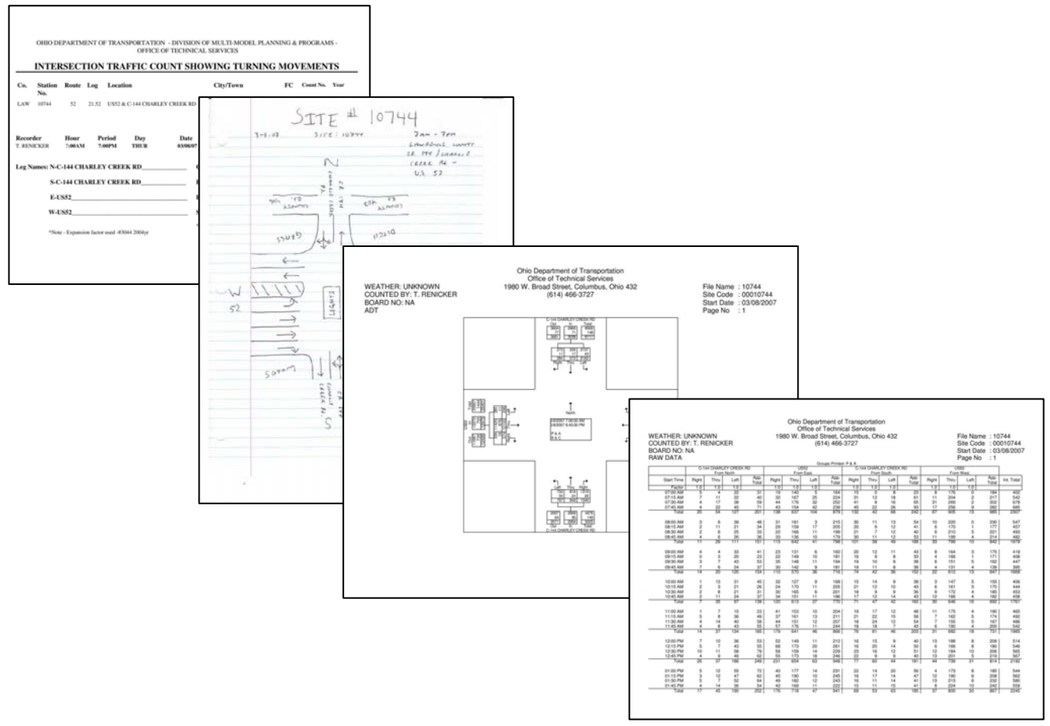
Traffic counts (AM and PM peak) were provided by KYOVA and ODOT (March/April 2007) for the following locations:

- US 52 Ramps and Old US 52 (CR 1A)
- US 52 Ramps and Old Castle Pike (SR 650)
- US 52 Ramps and Campbell Drive (SR 141)
- US 52 Ramps and Marion Pike (SR 243)
- US 52 and Grandview Avenue (CR 450)
- US 52 and Delta Lane (CR 60)
- US 52 Ramps and Solida Road (CR 18)
- US 52 and Burlington-Macedonia Road (CR 120)
- US 52 and Wal-Mart Way (CR 410)
- US 52 and Sandusky Road (CR 276)
- US 52 and Charley Creek Road (CR 144)
- SR 7 and SR 527/3rd Avenue
- SR 7 and Bradrick (SR 243)
- SR 775 and East End Bridge
- SR 7 and Irene Road (CR 403)
- Old SR 7 and SR 775

Counts at the US 52 ramps and Park Drive (SR 93) and US 52 and Ashland Bridge (US 60) were conducted by the project team in conjunction with corresponding safety studies at those locations.

Projected traffic counts for the no-build scenario were developed using the KYOVA model and the existing traffic counts. The calculation steps consisted of the following:

1. Compare 2005 Model Volumes with 2030 Model Volumes and develop growth factor for each approach leg of each intersection
2. Multiply existing turning movement volume by growth factor for approach and departure leg [existing volume*(approach growth*0.7+departure growth*0.3)]


OHIO DEPARTMENT OF TRANSPORTATION - DIVISION OF MULTI-MODEL PLANNING & PROGRAMS - OFFICE OF TECHNICAL SERVICES

INTERSECTION TRAFFIC COUNT SHOWING TURNING MOVEMENTS

SITE # 10744

Ohio Department of Transportation
Office of Technical Services
1980 W. Broad Street, Columbus, Ohio 432
(614) 466-3727

WEATHER: UNKNOWN
COUNTED BY: T. RENICKER
BOARD NO: NA
ADT

File Name : 10744
Site Code : 00010744
Start Date : 03/08/2007
Page No : 1

WEATHER: UNKNOWN
COUNTED BY: T. RENICKER
BOARD NO: NA
RAW DATA

Example Traffic Count Data Received from ODOT

Table 6 provides the existing intersection levels of service and delay for all of the study intersections. For signalized intersections, the delay represents the average delay experienced by all vehicles that pass through the intersection in the peak hour. For unsignalized intersections, the delay represents the average delay experienced on the worst unsignalized approach to the intersection (since vehicles on the primary facility do not experience any delay at an unsignalized intersection). **Figure 7** shows the existing AM deficiencies, while **Figure 8** shows the existing PM deficiencies. Yellow shading indicates level of service D, orange shading indicates level of service E, and red shading indicates level of service F.

Based on the results of the capacity analysis, the only signalized intersections currently operating at an unacceptable LOS during the peak hours are the intersections of the Ashland Bridge with US 52 and Charley Creek Road with US 52. Currently, the Ashland Bridge intersection operates at LOS F in the AM and PM peak hours, while the Charley Creek intersection operates at LOS D in the PM peak hour.

The ramp approaches of the US 52 eastbound and westbound ramps at Marion Pike (SR 243) both experience LOS E during the PM peak hour. The eastbound ramp operates at LOS D in the AM peak hour. Although this is not ideal, it is not uncommon for unsignalized approaches to experience some delay during the peak hour, and it is likely that these approaches operate acceptably for most hours of the day.

Table 6 – Existing Intersection Level of Service

Intersection		Control	AM Peak Hour LOS (Delay in seconds)	PM Peak Hour LOS (Delay in seconds)
1	Old US 52 (CR 1A) and EB Ramp	Ramp Stop Control	A (9.7)	A (8.6)
2	Old US 52 (CR 1A) and WB Ramp	Ramp Stop Control	A (9.2)	A (9.2)
3	Old Castle Pike (SR 650) and EB Ramp	Ramp Stop Control	A (9.7)	B (10.3)
4	Old Castle Pike (SR 650) and WB Ramp	Ramp Stop Control	A (9.0)	B (10.3)
5	Park Drive (SR 93) and EB Ramp	Signalized	A (7.1)	A (7.1)
6	Park Drive (SR 93) and WB Ramp	Signalized	B (12.6)	B (10.9)
7	Campbell Drive (SR 141) and EB Ramp	Ramp Stop Control	B (11.4)	B (12.5)
8	Campbell Drive (SR 141) and WB Ramp	Ramp Stop Control	B (12.7)	C (18.7)
9	Marion Pike (SR 243) and EB Ramp	Ramp Stop Control	D (25.0)	E (35.7)
10	Marion Pike (SR 243) and WB Ramp	Ramp Stop Control	B (13.6)	E (36.8)
11	SB Ashland Bridge (US 60) and US 52	Signalized	F (305.1)	F (305.1)
12	NB Ashland Bridge (US 60) and US 52	Signalized	F (128.1)	F (128.1)
13	Grandview Avenue (CR 450) and US 52	Signalized	A (8.1)	B (12.1)
14	Delta Lane (CR 60) and US 52	Signalized	A (7.4)	A (8.0)
15	Solida Road (CR 18) and EB Ramp	Ramp Stop Control	B (10.4)	B (11.9)
16	Solida Road (CR 18) and WB Ramp	Ramp Stop Control	B (14.0)	B (12.8)
17	Burlington-Macedonia Road (CR 120) and US 52	Signalized	A (8.7)	B (14.1)
18	Wal-Mart Way (CR 410) and US 52	Signalized	A (9.6)	C (23.3)
19	Sandusky Road (CR 267) and US 52	Signalized	A (9.1)	B (18.2)
20	Charley Creek Road (CR 144) and US 52	Signalized	C (26.5)	D (45.7)
21	SR 527/3rd Avenue and SR 7	Signalized	C (29.7)	C (30.4)
22	SR 7 and Bradrick (SR 243)	Signalized	B (12.9)	A (7.2)
23	SR 775 and East End Bridge	Signalized	C (25.9)	B (15.1)
24	Old SR 7 and SR 775	Signalized	C (27.4)	C (29.9)
25	Irene Road (CR 403) and SR 775	Signalized	B (10.7)	A (8.0)

Location	Level of Service
Old US 52 (CR 1A) and Eastbound Ramp	A
Old US 52 (CR 1A) and Westbound Ramp	A
Old Castle Pike (SR 650) and Eastbound Ramp	A
Old Castle Pike (SR 650) and Westbound Ramp	A
Park Drive (SR 93) and Eastbound Ramp	A
Park Drive (SR 93) and Westbound Ramp	B
Campbell Drive (SR 141) and Eastbound Ramp	B
Campbell Drive (SR 141) and Westbound Ramp	B
Marion Pike (SR 243) and Eastbound Ramp	D
Marion Pike (SR 243) and Westbound Ramp	B
Ashland Bridge (US 60) at US 52	F
Grandview Avenue (CR 450) and US 52	A
Delta Drive (CR 60) and US 52	A
Solida Road (CR 18) and Eastbound Ramp	B
Solida Road (CR 18) and Westbound Ramp	B
Burlington-Macedonia Road (CR 120) and US 52	A
Wal-Mart Way (CR 410) and US 52	A
Sandusky Road (CR 276) and US 52	A
Charley Creek Road (CR 144) and US 52	C
3rd Avenue and Ohio Scenic Byway (SR 7)	C
SR 243 and Ohio Scenic Byway (SR 7)	B
SR 607 and East End Bridge	C
Ohio Scenic Byway (SR 7) and SR 607	C
Irene Road (CR 403) and SR 607	B

Eastbound ramp movements experience slight delay and queuing

Heavy delay and queuing for westbound US 52 left turns, eastbound US 52 right turns, and northbound approach on Ashland Bridge

Hanging Rock
Ironton
Coal Grove
Ohio
Kentucky
West Virginia
Burlington
South Point
Chesapeake
Proctorville

650 52 93 141 217 775 207 5 243 7 168 64 75

Legend

- LOS C or Better
- LOS D
- LOS E
- LOS F
- Phase 1A Bypass
- Phase 1B Bypass
- Study Corridor
- State Boundaries
- Incorporated Areas

Average Daily Traffic

- 0 - 10,000 vpd
- 10,001 - 20,000 vpd
- 20,001 - 30,000 vpd
- 30,001 - 40,000 vpd
- Greater than 40,000 vpd

1 0.5 0 1 2 3 Miles

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Figure 7 - 2005 (Post Phase 1A) Intersection Level Deficiencies (AM Peak)

Location	Level of Service
Old US 52 (CR 1A) and Eastbound Ramp	A
Old US 52 (CR 1A) and Westbound Ramp	A
Old Castle Pike (SR 650) and Eastbound Ramp	B
Old Castle Pike (SR 650) and Westbound Ramp	B
Park Drive (SR 93) and Eastbound Ramp	A
Park Drive (SR 93) and Westbound Ramp	B
Campbell Drive (SR 141) and Eastbound Ramp	B
Campbell Drive (SR 141) and Westbound Ramp	C
Marion Pike (SR 243) and Eastbound Ramp	E
Marion Pike (SR 243) and Westbound Ramp	E
Ashland Bridge (US 60) at US 52	F
Grandview Avenue (CR 450) and US 52	B
Delta Drive (CR 60) and US 52	A
Solida Road (CR 18) and Eastbound Ramp	B
Solida Road (CR 18) and Westbound Ramp	B
Burlington-Macedonia Road (CR 120) and US 52	B
Wal-Mart Way (CR 410) and US 52	C
Sandusky Road (CR 276) and US 52	B
Charley Creek Road (CR 144) and US 52	D
3rd Avenue and Ohio Scenic Byway (SR 7)	C
SR 243 and Ohio Scenic Byway (SR 7)	A
SR 607 and East End Bridge	B
Ohio Scenic Byway (SR 7) and SR 607	C
Irene Road (CR 403) and SR 607	A

Hanging Rock
Ironton
Coal Grove
Ohio
Kentucky
Chesapeake
Burlington
South Point
Proctorville
West Virginia

Westbound US 52 ramp approach is deficient (delay)

Eastbound US 52 ramp approach is deficient (delay)

Heavy delay and queuing for westbound US 52 left turns, eastbound US 52 right turns, and northbound approach on Ashland Bridge

Eastbound and northbound approaches are deficient (both queuing and delay)

650 52 93 141 217 775 207 243 7 5 168 64 75

Legend

- LOS C or Better
- LOS D
- LOS E
- LOS F
- Phase 1 Bypass
- Phase 1A Bypass
- Phase 1B Bypass
- Study Corridor
- State Boundaries
- Incorporated Areas

Average Daily Traffic

- 0 - 10,000 vpd
- 10,001 - 20,000 vpd
- 20,001 - 30,000 vpd
- 30,001 - 40,000 vpd
- Greater than 40,000 vpd

1 0.5 0 1 2 3 Miles

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Traffic and Safety Study for US 52 and SR 7

Figure 8 - 2005 (Post Phase 1A) Intersection Level Deficiencies (PM Peak)

Table 7 provides the 2030 no-build intersection levels of service for all of the study intersections. This analysis includes the same roadway and intersection geometries as the existing conditions analysis; however, traffic volumes have been increased, based on the HIATS travel demand model, to represent 2030 conditions. **Figure 9** shows the 2030 no-build AM deficiencies, while **Figure 10** shows the 2030 no-build PM deficiencies.

The 2030 no-build analysis shows that nine signalized intersections and four unsignalized intersections are projected to operate at deficient (LOS D or greater) levels of service in either the AM or PM peak hours, or both. These include the same intersections that operated unacceptably in the existing conditions analysis. The signalized intersections projected to operate unacceptably include:

- Ashland Bridge (US 60) and US 52 (AM and PM peak hours)
- Wal-Mart Way (CR 410) and US 52 (PM peak hour)
- Sandusky Road (CR 276) and US 52 (PM peak hour)
- Charley Creek Road (CR 144) and US 52 (AM and PM peak hours)
- SR 527/3rd Avenue and SR 7 (AM and PM peak hours)
- Bradrick (SR 243) and SR 7 (AM peak hour)
- SR 775 and East End Bridge (AM and PM peak hours)
- Old SR 7 and SR 775 (AM and PM peak hours)
- Irene Road (CR 403) and SR 775 (AM and PM peak hours)

The unsignalized intersections that are projected to operate unacceptably include:

- Old Castle Pike (SR 650) and US 52 (PM peak hour)
- Campbell Drive (SR 141) and US 52 Eastbound Ramp (PM peak hour)
- Marion Pike (SR 243) and US 52 Eastbound Ramp (AM and PM peak hours)
- Marion Pike (SR 243) and US 52 Westbound Ramp (PM peak hour)

Of the 24 at-grade intersections studied in the 2005 base year, 5 operate at a level of service D or worse in the AM peak hour or PM peak hour, with 2 of the 25 operating at LOS D or worse in both the AM and PM peak hours. With no additional investment, in 2030, 13 of the study intersections are projected to operate at LOS D or worse in the AM or PM peak hours, and 8 operate below LOS D in both the AM and PM peak hours.

Table 7 – 2030 No-Build Intersection Level of Service

Intersection		Control	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
1	Old US 52 (CR 1A) and EB Ramp	Ramp Stop Control	B (10.4)	A (8.7)
2	Old US 52 (CR 1A) and WB Ramp	Ramp Stop Control	A (9.8)	A (9.9)
3	Old Castle Pike (SR 650) and EB Ramp	Ramp Stop Control	B (15.0)	C (23.9)
4	Old Castle Pike (SR 650) and WB Ramp	Ramp Stop Control	B (11.0)	D (27.2)
5	Park Drive (SR 93) and EB Ramp	Signalized	B (11.9)	B (14.4)
6	Park Drive (SR 93) and WB Ramp	Signalized	C (34.6)	C (33.2)
7	Campbell Drive (SR 141) and EB Ramp	Ramp Stop Control	C (18.4)	C (22.8)
8	Campbell Drive (SR 141) and WB Ramp	Ramp Stop Control	D (30.1)	F (301.5)
9	Marion Pike (SR 243) and EB Ramp	Ramp Stop Control	F (67.1)	F (200.3)
10	Marion Pike (SR 243) and WB Ramp	Ramp Stop Control	C (21.6)	F (618.2)
11	SB Ashland Bridge (US 60) and US 52	Signalized	F (770.0)	F (770.0)
12	NB Ashland Bridge (US 60) and US 52	Signalized	F(437.1)	F(437.1)
13	Grandview Avenue (CR 450) and US 52	Signalized	B (13.7)	B (19.2)
14	Delta Lane (CR 60) and US 52	Signalized	A (8.9)	B (10.5)
15	Solida Road (CR 18) and EB Ramp	Ramp Stop Control	B (11.8)	C (15.3)
16	Solida Road (CR 18) and WB Ramp	Ramp Stop Control	C (23.5)	C (20.3)
17	Burlington-Macedonia Road (CR 120) and US 52	Signalized	B (12.3)	C (23.9)
18	Wal-Mart Way (CR 410) and US 52	Signalized	B (13.0)	D (44.2)
19	Sandusky Road (CR 267) and US 52	Signalized	B (11.5)	D (39.6)
20	Charley Creek Road (CR 144) and US 52	Signalized	F (127.9)	F (203.4)
21	SR 527/3rd Avenue and SR 7	Signalized	F (83.4)	F (84.3)
22	SR 7 and Bradrick (SR 243)	Signalized	F (86.2)	B (13.9)
23	SR 775 and East End Bridge	Signalized	F (236.2)	D (35.0)
24	Old SR 7 and SR 775	Signalized	F (177.8)	F (147.0)
25	Irene Road (CR 403) and SR 775	Signalized	F (165.8)	D (35.7)

Location	Level of Service
Old US 52 (CR 1A) and Eastbound Ramp	B
Old US 52 (CR 1A) and Westbound Ramp	A
Old Castle Pike (SR 650) and Eastbound Ramp	B
Old Castle Pike (SR 650) and Westbound Ramp	B
Park Drive (SR 93) and Eastbound Ramp	B
Park Drive (SR 93) and Westbound Ramp	C
Campbell Drive (SR 141) and Eastbound Ramp	C
Campbell Drive (SR 141) and Westbound Ramp	D
Marion Pike (SR 243) and Eastbound Ramp	F
Marion Pike (SR 243) and Westbound Ramp	C
Ashland Bridge (US 60) at US 52	F
Grandview Avenue (CR 450) and US 52	B
Delta Drive (CR 60) and US 52	A
Solida Road (CR 18) and Eastbound Ramp	B
Solida Road (CR 18) and Westbound Ramp	C
Burlington-Macedonia Road (CR 120) and US 52	B
Wal-Mart Way (CR 410) and US 52	B
Sandusky Road (CR 276) and US 52	B
Charley Creek Road (CR 144) and US 52	F
3rd Avenue and Ohio Scenic Byway (SR 7)	F
SR 243 and Ohio Scenic Byway (SR 7)	F
SR 607 and East End Bridge	F
Ohio Scenic Byway (SR 7) and SR 607	F
Irene Road (CR 403) and SR 607	F

Hanging Rock
Ironton
Coal Grove
Ohio
Kentucky
West Virginia
Chesapeake
Burlington
South Point
Proctorville

Westbound ramp movements experience slight delay and queuing

Eastbound ramp movements experience slight delay and queuing

Heavy delay and queuing for westbound US 52 left turns, eastbound US 52 right turns, and northbound approach on Ashland Bridge

Eastbound and westbound approaches are deficient (delay)

Irene Road approaches are deficient (both queuing and delay)

Northbound and southbound approaches are deficient (both queuing and delay)

All four approaches are deficient (both queuing and delay)

Eastbound and northbound approaches are deficient (both queuing and delay)

Westbound left turn movements is deficient (delay)

650 52 93 141 775 217 207 243 5 168 7 64 75

Legend

- LOS C or Better
- LOS D
- LOS E
- LOS F
- Phase 1A Bypass
- Phase 1B Bypass
- Study Corridor
- State Boundaries
- Incorporated Areas

Average Daily Traffic

- 0 - 10,000 vpd
- 10,001 - 20,000 vpd
- 20,001 - 30,000 vpd
- 30,001 - 40,000 vpd
- Greater than 40,000 vpd

1 0.5 0 1 2 3 Miles

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Figure 9 - 2030 No-Build Intersection Level Deficiencies (AM Peak)

Location	Level of Service
Old US 52 (CR 1A) and Eastbound Ramp	A
Old US 52 (CR 1A) and Westbound Ramp	A
Old Castle Pike (SR 650) and Eastbound Ramp	C
Old Castle Pike (SR 650) and Westbound Ramp	D
Park Drive (SR 93) and Eastbound Ramp	B
Park Drive (SR 93) and Westbound Ramp	C
Campbell Drive (SR 141) and Eastbound Ramp	C
Campbell Drive (SR 141) and Westbound Ramp	F
Marion Pike (SR 243) and Eastbound Ramp	F
Marion Pike (SR 243) and Westbound Ramp	F
Ashland Bridge (US 60) at US 52	F
Grandview Avenue (CR 450) and US 52	B
Delta Drive (CR 60) and US 52	B
Solida Road (CR 18) and Eastbound Ramp	C
Solida Road (CR 18) and Westbound Ramp	C
Burlington-Macedonia Road (CR 120) and US 52	C
Wal-Mart Way (CR 410) and US 52	D
Sandusky Road (CR 276) and US 52	D
Charley Creek Road (CR 144) and US 52	F
3rd Avenue and Ohio Scenic Byway (SR 7)	F
SR 243 and Ohio Scenic Byway (SR 7)	B
SR 607 and East End Bridge	D
Ohio Scenic Byway (SR 7) and SR 607	F
Irene Road (CR 403) and SR 607	D

Westbound US 52 ramp approach is deficient (delay)

Westbound US 52 ramp approach is deficient (both delay and queuing)

Westbound US 52 ramp approach is deficient (delay)

Heavy delay and queuing for westbound US 52 left turns, eastbound US 52 right turns, and northbound approach on Ashland Bridge

Eastbound US 52 ramp approach is deficient (delay)

Irene Road approaches are deficient (delay)

Northbound and southbound left turns are deficient (both delay and queuing)

Northbound approach is deficient (Queue length and delay)

All four approaches are deficient (excessive queuing and delay)

Westbound turn movement is deficient (delay)

Northbound and southbound approaches are deficient (Queue length and delay)

Eastbound, westbound, and northbound approaches are deficient (both queuing and delay)

Hanging Rock

Ironton

Coal Grove

Chesapeake

Proctorville

Burlington

South Point

Ohio

Kentucky

West Virginia

52 650 93 141 217 775 207 243 7 5 168 64 75

Legend

- LOS C or Better
- LOS D
- LOS E
- LOS F
- Phase 1A Bypass
- Phase 1B Bypass
- Phase 1 Bypass
- Study Corridor
- State Boundaries
- Incorporated Areas

Average Daily Traffic

- 0 - 10,000 vpd
- 10,001 - 20,000 vpd
- 20,001 - 30,000 vpd
- 30,001 - 40,000 vpd
- Greater than 40,000 vpd

N W E S

1 0.5 0 1 2 3 Miles

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Traffic and Safety Study for US 52 and SR 7

Figure 10 - 2030 No-Build Intersection Level Deficiencies (PM Peak)

Stakeholder Interviews and Public Engagement

The first series of public meetings for the corridor study was conducted on Thursday, May 4, 2006. As a result of those meetings, several issues were identified in the corridor, including the following.

- There is a lack of alternate routes to SR 7 in Proctorville to use when incidents occur.
- The speed limit on US 52 changes from 65 MPH to 55 MPH at the Scioto County line. Consequently, there is a speed differential near the county line as some vehicles slow down and others do not.
- Vehicles entering US 52 from unsignalized intersections along the corridor have trouble coming up to speed and merging with traffic from a stop.
- Flooding in Ironton affects interchanges and necessitates 24-hour coverage by a police officer to direct traffic onto US 52 across railroad tracks that do not have any flashing indicators or gates.

As part of the community outreach process, individual interviews were conducted with community leaders from throughout the study area. Community leaders who were interviewed include:

- Bob Blankenship, Hamilton Township Trustee
- Perry Brock, Fayette Township Trustee
- Jim Buchanan, Mayor of Proctorville
- Bob Dalton, Chairman of Lawrence County Chamber of Commerce Committee
- Bill Dingus, Executive Director of Lawrence County Chamber of Commerce and Lawrence Economic Development Group
- John Elam, Mayor of Ironton
- Dan Evans, Dean of Ohio University Southern
- Bill Gaskin, Mayor of South Point
- Rick Gue, Union Township Trustee
- Jeff Joseph, Perry Township Trustee
- Jim Justice, Mayor of Chesapeake
- Ralph Kline, Assistant Executive Director of Community Action
- David Lynd, Lawrence County Engineer
- Doug Malone, Lawrence County Commissioner
- Ron McClintock, former Mayor of Athalia
- Larry McDaniel, Mayor of Coal Grove
- Dean Nance, Superintendent of Ironton Schools
- George Patterson, Lawrence County Commissioner
- Gary Riley, Owner of Riley Development
- Jason Stephens, Lawrence County Commissioner

The community leaders were interviewed concerning their key concerns along the corridor regarding congestion, safety, and access, as well as their ideas for potential solutions to those issues. Finally, they were asked for their vision for growth in the corridor and how improvements to US 52 and SR 7 fit into their vision. **Figure 11** geographically summarizes the concerns voiced during these interviews.

Key congestion concerns cited by numerous community leaders included:

- Too many traffic signals along the corridor/uncoordinated traffic signals, particularly in the Burlington area
- Congestion in the Rome and Proctorville areas of SR 7
- Congestion in the Chesapeake and Rockwood areas of SR 7
- Congestion at the US 52/Marion Pike (SR 243) interchange in Coal Grove
- Queuing and congestion near the Ashland Bridge (US 60)

It was generally felt that completion of the bypass would help to alleviate congestion along SR 7. In the US 52 section of the corridor, there was a desire to make the facility into a limited-access roadway, with the addition of more interchanges to eliminate the traffic signals along the corridor.

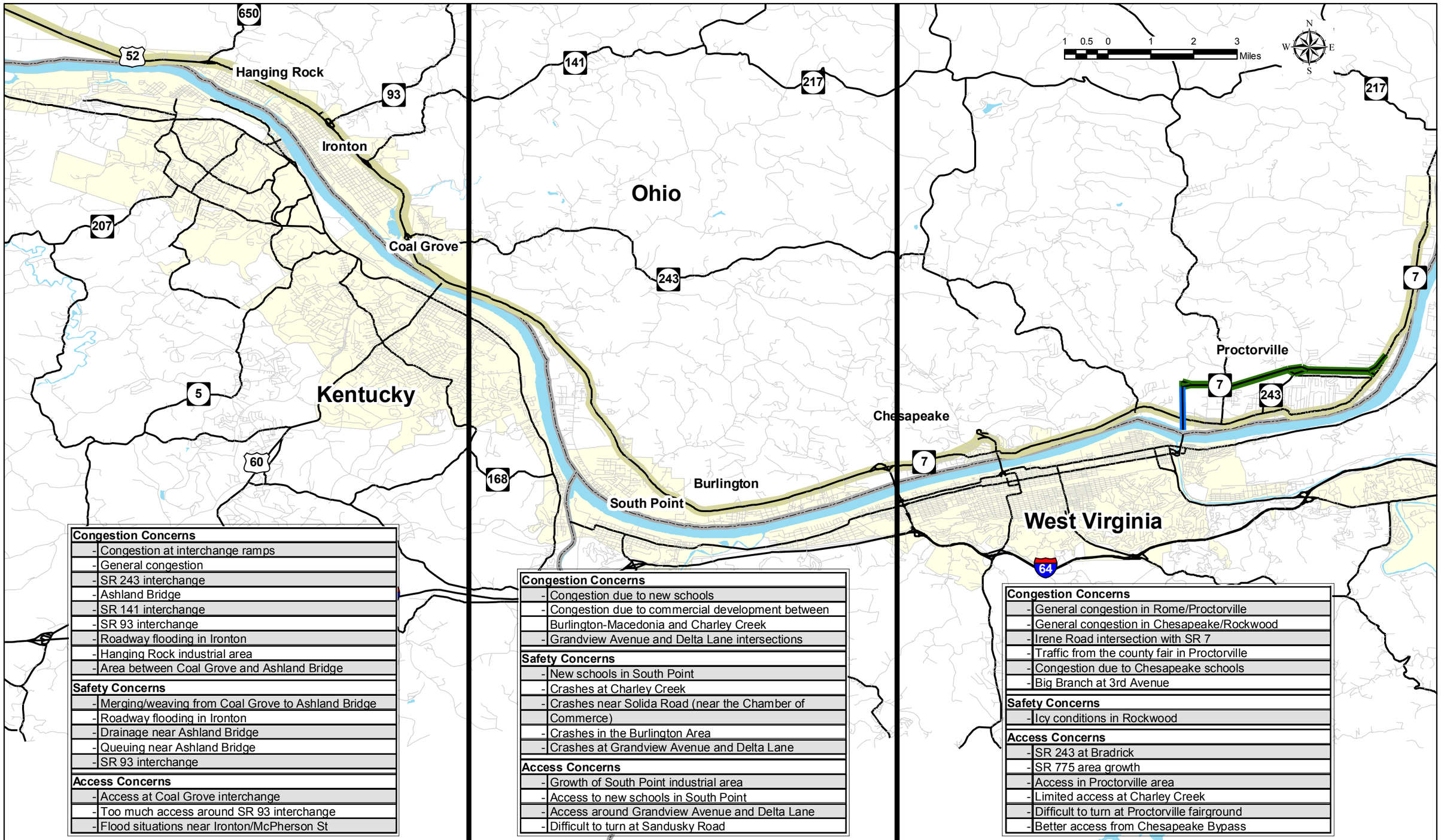
Safety concerns mentioned by multiple interviewees included:

- Numerous unsignalized access points along US 52 where slow traffic has to merge with US 52 traffic
- The intersection of CR 1 and US 52 near Sheridan, particularly for left-turning traffic
- High-traffic intersections in the Burlington area

Similar to the congestion concerns, it was generally expressed that transforming US 52 into a limited-access corridor, with frontage roads where necessary to provide access to adjacent property, would help to alleviate many of the safety concerns.

Finally, the most frequently mentioned concerns regarding access along US 52/SR 7 were:

- Unlimited access from driveways along US 52
- Numerous driveways in the Rockwood Avenue area



Congestion Concerns
- Congestion at interchange ramps
- General congestion
- SR 243 interchange
- Ashland Bridge
- SR 141 interchange
- SR 93 interchange
- Roadway flooding in Ironton
- Hanging Rock industrial area
- Area between Coal Grove and Ashland Bridge
Safety Concerns
- Merging/weaving from Coal Grove to Ashland Bridge
- Roadway flooding in Ironton
- Drainage near Ashland Bridge
- Queuing near Ashland Bridge
- SR 93 interchange
Access Concerns
- Access at Coal Grove interchange
- Too much access around SR 93 interchange
- Flood situations near Ironton/McPherson St

Congestion Concerns
- Congestion due to new schools
- Congestion due to commercial development between Burlington-Macedonia and Charley Creek
- Grandview Avenue and Delta Lane intersections
Safety Concerns
- New schools in South Point
- Crashes at Charley Creek
- Crashes near Solida Road (near the Chamber of Commerce)
- Crashes in the Burlington Area
- Crashes at Grandview Avenue and Delta Lane
Access Concerns
- Growth of South Point industrial area
- Access to new schools in South Point
- Access around Grandview Avenue and Delta Lane
- Difficult to turn at Sandusky Road

Congestion Concerns
- General congestion in Rome/Proctorville
- General congestion in Chesapeake/Rockwood
- Irene Road intersection with SR 7
- Traffic from the county fair in Proctorville
- Congestion due to Chesapeake schools
- Big Branch at 3rd Avenue
Safety Concerns
- Icy conditions in Rockwood
Access Concerns
- SR 243 at Bradrick
- SR 775 area growth
- Access in Proctorville area
- Limited access at Charley Creek
- Difficult to turn at Proctorville fairground
- Better access from Chesapeake Bypass

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Traffic and Safety Study for US 52 and SR 7

Figure 11 - Leader Concerns

Regarding the access concerns, it was felt that completion of the Chesapeake Bypass and conversion of US 52 into a limited-access highway would alleviate many of the concerns.

The community leaders were consistent in their optimism for growth in Lawrence County. Many felt that residential growth would be strong in the eastern end of the study area (from Proctorville to Athalia). Potential for industrial growth at The Point and in the Hanging Rock area was also thought to be strong. Many interviewees see the proposed Tri-State Outerbelt and Merrick Creek Bridge as essential components of future mobility for the region. Upgrading US 52 to an interstate facility (I-73/74) was also mentioned by several leaders as a key component to support growth in the area.

A summary of community leader interviews can be found in the **Appendix** of this report.

Network Deficiencies

This report reflects the base year and forecast year network deficiencies identified in the US-52/SR 7 Corridor in Lawrence County. Projects to mitigate these deficiencies along with priorities to implement these mitigating projects are presented in the Alternatives Analysis section. **Figure 12** summarizes the existing deficiencies, including priority safety locations, congested corridors, and intersection level deficiencies. **Figure 13** provides the same information for the 2030 no-build scenario. **Table 8** summarizes the deficiency definitions used in this report.

Table 8 – Deficiency Definitions

Category	Metric	Threshold
Safety	Presence on Lawrence County Safety Workplan	N/A
Corridor Segment	Vehicles Miles Traveled	V/C Ratio Greater than 0.8
Intersection	Level of Service	LOS D or Worse
Stakeholder Interviews/Public Engagement	Identification of Issue by Multiples Stakeholders/General Public/Consultant Team Historic Knowledge of Corridor	N/A

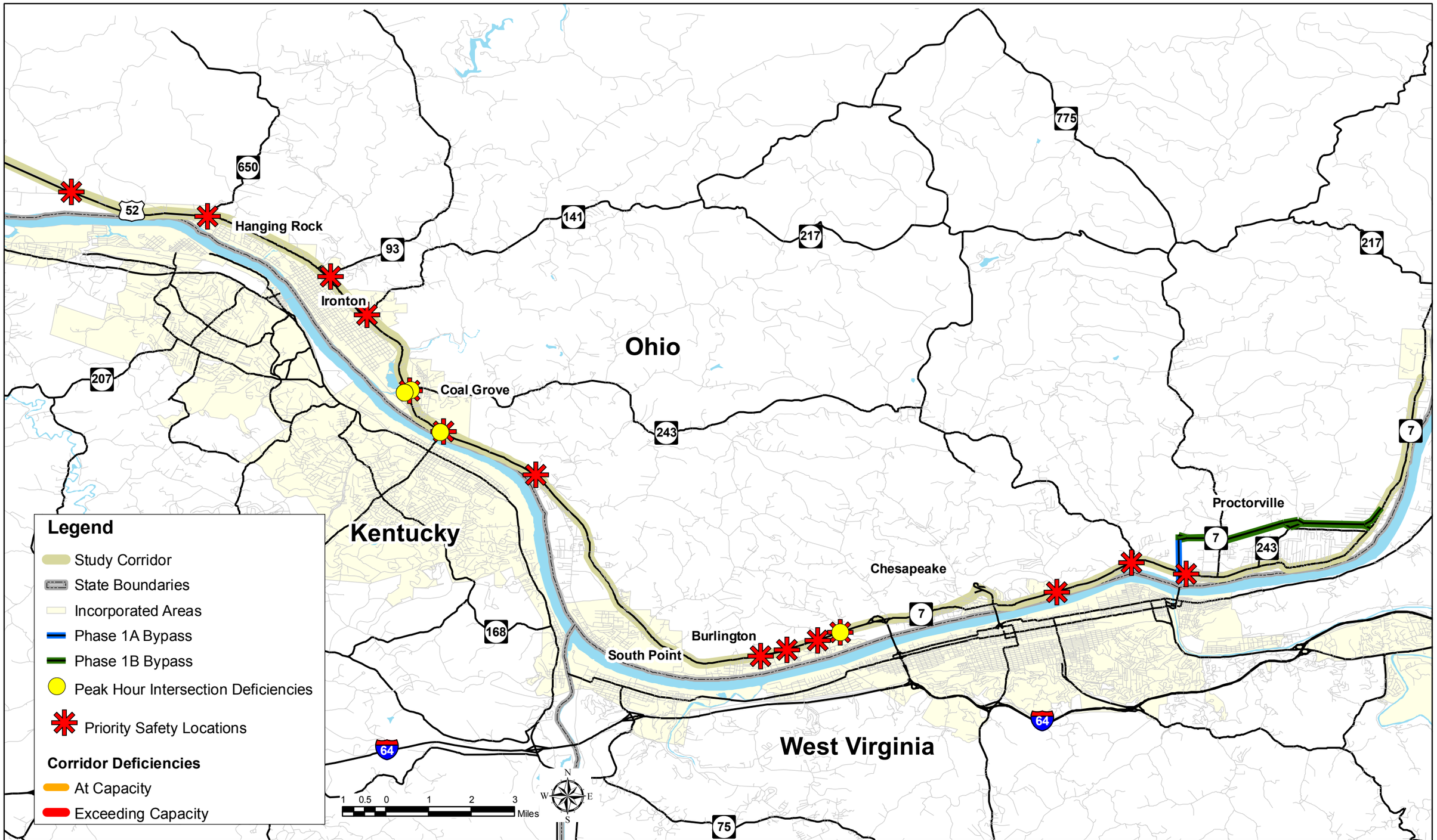

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Figure 12 - Existing (2005) Traffic Related Deficiencies

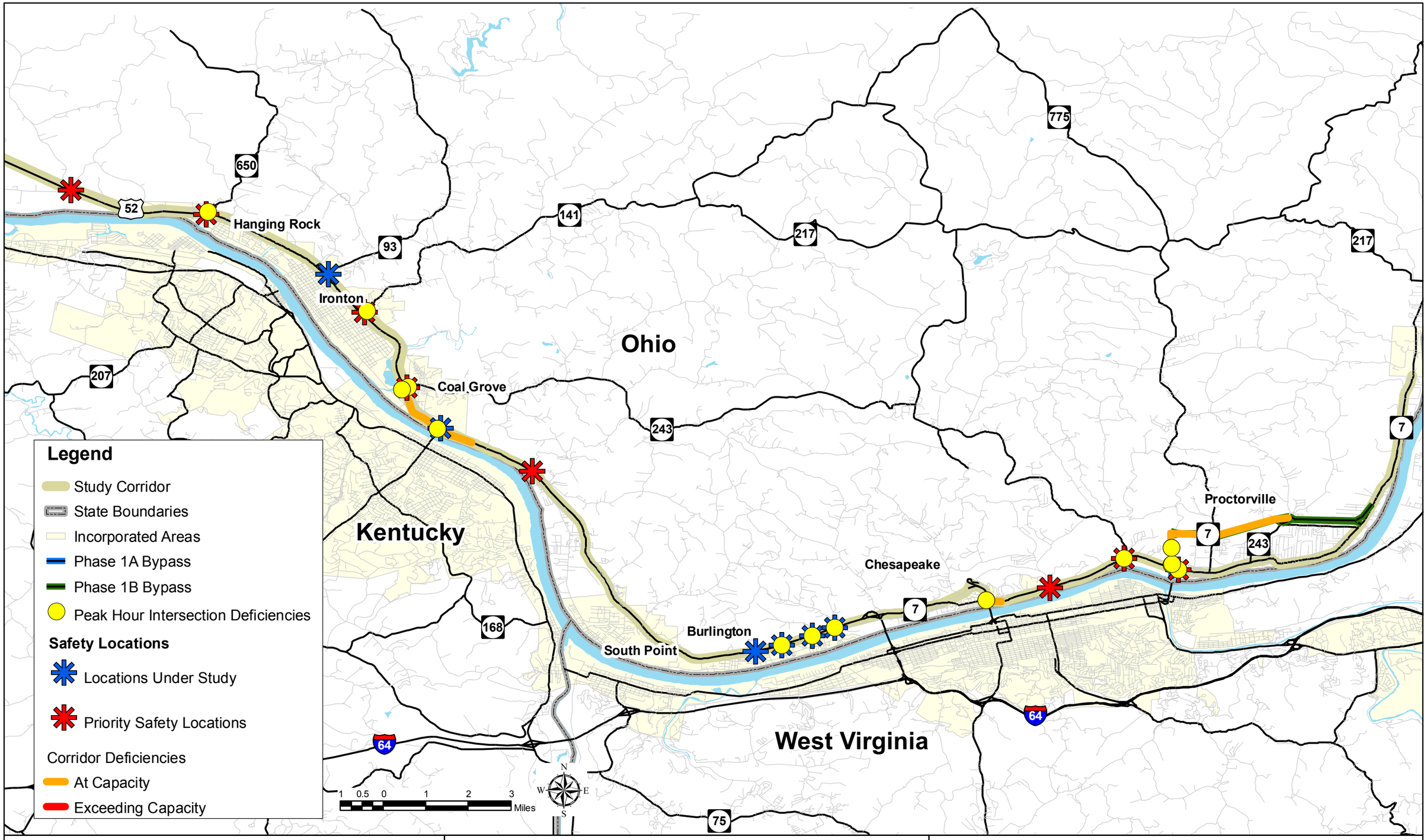

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Figure 13 - No-Build (2030) Traffic Related Deficiencies

Alternatives Analysis

The results of the deficiency analysis were used to determine locations along the corridor that are in need of traffic and safety improvements in order to mitigate existing and projected shortcomings. Each location was analyzed based on the predicted shortcomings. The following set of alternatives is intended to address these deficiencies. Each alternative was crafted with the help of KYOVA, ODOT, and the steering committee for this project.

The following alternatives range in magnitude from intersection level signalization improvements to the construction of new Ohio River crossings. These proposed alternatives include recommendations to address traffic and congestion related deficiencies, safety related deficiencies, and publicly identified deficiencies. The proposed alternatives range in estimated construction price from $65,000 to $122,000,000.

The following sections provide brief descriptions of the proposed alternatives developed for this study as well as an evaluation of each project based on criteria unique to this study. Following evaluation, the projects are prioritized based on anticipated benefit and estimated project cost. Finally, this section provides suggestions for implementation of the proposed projects.

Proposed Alternatives

The proposed alternatives developed in this exercise were grouped geographically along the corridor and chronologically through the planning horizon. The geographic regions include Western, Central, and Eastern corridors, while the chronological groupings include near term (less than five years), short term (five to ten years, within a State Transportation Improvement Program (STIP) period), medium term (ten to twenty years, corresponding to a period beyond the STIP), and long term (greater than twenty years, corresponding to the LRTP planning horizon).

The following sections provide descriptions of each of the projects, as well as estimated construction costs. Following these descriptions, each project is assessed based on a set of evaluation criteria developed through discussion with key stakeholders along the corridor, including the project steering committee. These rankings are used to prioritize the projects, providing decision makers a plan for implementing projects efficiently and effectively. A more detailed description of estimated costs can be found in the **Appendix** of this report.

Western Corridor

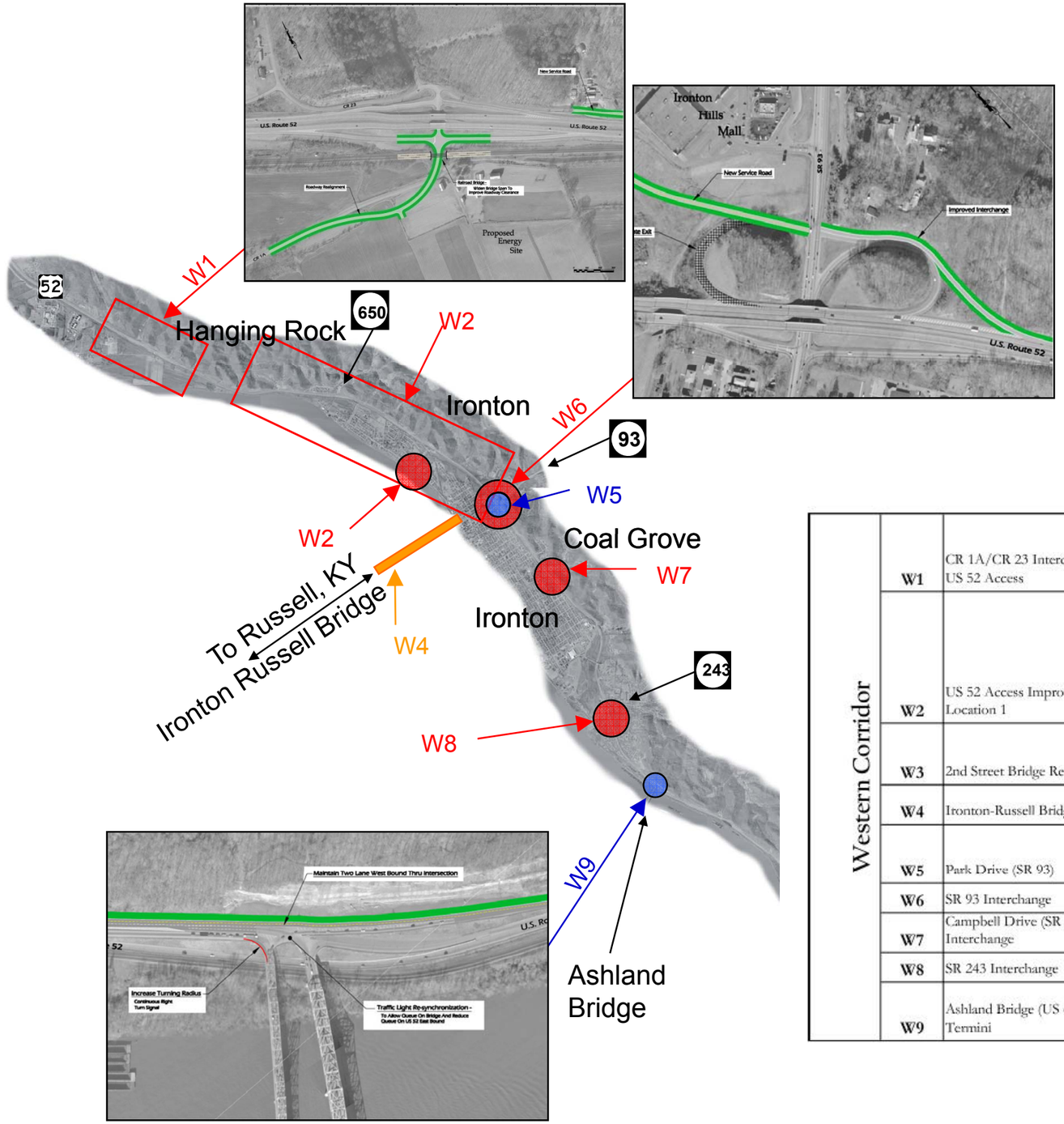
The Western section of the corridor begins at the Lawrence County line in the west and extends to the Ashland Bridge in the east. This section of the corridor is signed as US Highway 52. Existing deficiencies are primarily either publicly identified by corridor stakeholders or related to safety. The interchange at Marion Pike (SR 243) and the Ashland Bridge (US 60) both have intersection level peak hour congestion deficiencies. Projected deficiencies for the 2030 no-build scenario include many of the same publicly identified and safety deficiencies, as well as intersection level peak hour deficiencies at Old Castle Pike (SR 650), Campbell Drive (SR 141), Marion Pike (SR 243), and Ashland Bridge (US 60).A section of the corridor, between Campbell Drive and the Ashland Bridge area, is projected to operate near capacity in the 2030 no build scenario. The following projects are proposed for the Western section of the corridor. Each project is given a project number (*W#*) which corresponds to both **Figure 14** and **Table 9**. Detailed schematics of the improvements can be found in the **Appendix** of this report.

Near Term (0 to 5 years)

- ***W5:*** **Park Drive (SR 93) Safety Improvements** — This improvement includes upgrading the existing signal phasing at the interchange with US 52. The proposed configuration is a Texas Diamond, which is a coordinated signal configuration used at diamond interchanges. The system operates two signals under one controller and is intended to operate the heaviest movements simultaneously. In addition to the signal upgrade, the proposed improvements include providing additional warning signage approaching the intersection. This improvement is primarily safety-driven and was submitted and approved by ODOT as a project for spot safety funding. This location is found on the **Lawrence County Safety Workplan**. The projected cost is $65,000.[8]
- ***W7:*** **Campbell Drive Interchange (SR 141)** — This improvement includes signalizing the ramp termini at the interchange of Campbell Drive (SR 141) and US 52. The existing configuration is stop-controlled, which is projected to operate at deficient levels in the 2030 no-build scenario. This improvement is based on planning level assumptions, and needs further study to determine if it meets engineering standards. The intersections are projected to operate at acceptable levels of service with the construction of the traffic signals. This improvement is included in the current **KYOVA Long Range Transportation Plan**. This location is also found on the **Lawrence County Safety Workplan**. The estimated cost of this improvement is $600,000.[9]
- ***W8:*** **Marion Pike Interchange (SR 243)** — This improvement includes signalizing the ramp termini at the interchange of Marion Pike (SR 243) and US 52. The existing configuration is stop-controlled, which is projected to operate at deficient levels under the 2030 no-build conditions. The intersections are projected to operate at acceptable levels of service with the construction of the traffic signals. This improvement is included in the current **KYOVA Long Range Transportation Plan**. This location is also found on the **Lawrence County Safety Workplan**. The estimated cost of this improvement is $425,000.

[8] Estimated cost based on projections from ODOT Safety Application for SR 93 Safety Improvements, submitted October 5, 2006.

[9] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.



Legend

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

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

Short Term (5 to 10 years)

- ***W1:*** **CR 1A/CR 23 Interchange and US 52 Access Improvements** — This project includes widening the existing railroad bridge span over Old US 52 (CR 1A) to improve roadway clearance. Old US 52 (CR 1A) approaching the proposed overpass widening should be realigned to create better sight distance for vehicles approaching the interchange with US 52. This project should also improve sight distance for vehicles stopped at the eastbound off ramp. In addition, a new service road is proposed north of the interchange, connecting CR 23 with Patrick Street (T-117). The proposed roadway will allow for the closure of highway access at Patrick Street. The anticipated benefits of this project include enhanced mobility along the US 52 corridor and safety improvements at a **Lawrence County Safety Workplan** location (US 52 and CR 1A); in addition, the improvements address a publicly identified deficiency (congestion related to the Hanging Rock industrial area). The estimated cost for these improvements is $4,100,000.
- ***W3:*** **2nd Street Bridge Replacement** — This improvement includes replacing the 2nd Street Bridge that spans an inlet of the Ohio River between Orchard Street and Sycamore Street. This location is prone to flooding from the Ohio River, and the existing bridge is routinely closed when water levels rise. The proposed replacement should elevate the bridge to at least four feet above the 100 year flood elevation. The anticipated benefits of this project include an improvement of access from community to community, particularly outside of the US 52 corridor; in addition, the improvement addresses a publicly identified deficiency (flooding in the Ironton area, which requires the provision of temporary at grade access onto US 52). The estimated cost for this improvement is $4,500,000.
- ***W9:*** **Ashland Bridge (US 60) Ramp Termini Improvements** — This improvement includes signal retiming and geometric improvements intended to reduce crashes at the bridge, as well as at the divergence points between the ramps and US 52. The proposed improvements include adding a second through lane to the westbound US 52 movement, providing additional turning radius on the ramp for vehicles turning southbound onto the Ashland Bridge from US 52 eastbound, installing plastic bollards on southbound US 52 to provide free-flow right-turn operations, and retiming the traffic signal at the intersection to queue vehicles on the Ashland Bridge instead of the approach ramps. This improvement is included in the current **KYOVA Long Range Transportation Plan**. This location is also found on the **Lawrence County Safety Workplan**. In addition to safety enhancements, this project is anticipated to enhance mobility along the US 52 corridor as well as address a publicly identified deficiency (congestion and safety). The estimated cost of these improvements is $3,900,000.

Medium Term (10 to 20 years)

- ***W2:*** **US 52 Access Improvements Location 1** — This improvement includes implementing access control strategies (such as median closure or highway access consolidation) along US 52 between Happy Hollow Drive (T-330) and Park Drive (SR 93). At the western end of this improvement, a new service road is proposed between Happy Hollow Drive (T-330) and Scioto Avenue. This new facility will allow for highway access closure at Happy Hollow Drive (T-330) and Rock Hollow Road (CR 128). Veterans Way between Scioto Avenue and Old Castle Pike (SR 650) is proposed to be realigned to create better access between the two aforementioned facilities. Farther east, highway access closure at Township Road 277 is anticipated to enhance mobility along the adjacent sections of US 52. Continuing east, a new service road is proposed between Orchard Road (T-142) and Little Storms Creek Road (CR 22), closing highway access at Orchard Road (T-142). From Little Storms Creek Road (CR 22), a new service road is proposed connecting to the existing interchange at Park Drive (SR 93). This roadway will require a new grade separated structure above the adjacent creek. The anticipated benefits of this project include enhanced mobility along the US 52 corridor and safety improvements at a **Lawrence County Safety Workplan** location (US 52 and SR 650). The estimated cost for these improvements is $7,700,000.
- ***W6:*** **Park Drive (SR 93) Interchange Reconfiguration** — This improvement includes reconfiguring the existing partial cloverleaf interchange at Park Drive (SR 93) and US 52. The existing configuration has diamond ramps in the southern quadrants and cloverleaf ramps in the northern quadrants. The proposed reconfiguration includes closing the westbound cloverleaf off ramp (northwest quadrant) and adding a diamond ramp (northeast quadrant) to replace it. The remaining ramps will remain in place. The anticipated benefits of this project include safety improvements (addresses weaving movement) at a **Lawrence County Safety Workplan** location (US 52 and SR 93); in addition, the improvement addresses a publicly identified deficiency (congestion, safety, and access concerns).The estimated cost is $6,800,000.

Long Term (Greater than 20 years)

- ***W4:*** **Ironton-Russell Bridge** — This improvement includes reconstructing the existing Ironton-Russell Bridge over the Ohio River. The existing structure connects Ironton, Ohio with Russell, Kentucky. It was constructed in 1922 and then reconstructed in 1962. The existing bridge has a sufficiency rating of 7.2 out of 100 and structural condition of 4, which corresponds to poor conditions with significant problems.[10] The bridge is scheduled to be replaced in the near future. This improvement is included in the current **KYOVA Long Range Transportation Plan**. The anticipated benefits of this project include enhanced mobility along the US 52 corridor and an improvement in community to community access. The estimated cost for this improvement is $122,000,000.[11]

[10] Federal Highway Administration, National Bridge Inventory, http://nationalbridges.com/

[11] Estimated cost based on projection from ODOT District 9.

Central Corridor

The Central section of the corridor begins at the Ashland Bridge in the west and extends to the US 52 Bridge in the east. This section of the corridor is signed as US Highway 52. Existing deficiencies are primarily either publicly identified or related to safety. The intersection of Charley Creek Road (CR 144) and US 52 experiences intersection-level peak hour congestion deficiencies.

For the 2030 no-build projected deficiencies, many of the same publicly identified deficiencies emerge; however, the safety deficiencies should be solved by near-term spot safety improvements in the Burlington-Macedonia area. Intersection level peak hour deficiencies occur at the intersections of US 52 and Wal-Mart Way (CR 410), Sandusky Road (CR 267), and Charley Creek Road (CR 144).

The following projects are proposed for the Central section of the corridor. Each project is given a project number (***C#***) which corresponds to both **Figure 15** and **Table 9**. Detailed schematics of the improvements can be found in the **Appendix** of this report.

Near Term (0 to 5 years)

- ***C3:*** **Solida Road (CR 18) Interchange** — This improvement includes signalizing the ramp termini at the interchange of Solida Road (CR 18) and US 52 and the intersection of Solida Road (CR 18) and Collins Avenue. The existing interchange configuration is stop-controlled, which is projected to operate at deficient levels under the 2030 no-build conditions. This improvement is based on planning level assumptions, and needs further study to determine if it meets engineering standards. The intersections are projected to operate at acceptable levels of service with the construction of the traffic signals. The signalization of these intersections is proposed in the current **KYOVA Long Range Transportation Plan**. The anticipated benefits of this project include a reduction in intersection level congestion and addressing a publicly identified deficiency (congestion at interchange ramps). The estimated cost of this improvement is $175,000.
- ***C5:*** **Burlington-Macedonia Corridor Improvements** — This improvement includes creating a progression-controlled signal system at the intersections of US 52 and Burlington-Macedonia Road (CR 120), Wal-Mart Way (CR 410), Sandusky Road (CR 276), and Charley Creek Road (CR 144). The proposed signal system improvements should include optimization of local intersection parameters, detection, and phase sequencing; development of new time-of-day coordinated signal system timing plans to enhance vehicle progression; and the installation of a wireless interconnect communications system to help implement and maintain systems timing and enhance corridor monitoring capabilities. This improvement is primarily driven by safety and was submitted and approved by ODOT as a project for spot safety funding. All four of these intersections are found on the **Lawrence County Safety Workplan**. In addition to safety enhancements, this project is anticipated to enhance mobility along the US 52 corridor, as well as improve intersection level congestion at each of the locations. The estimated cost of this improvement is $96,000.[12]

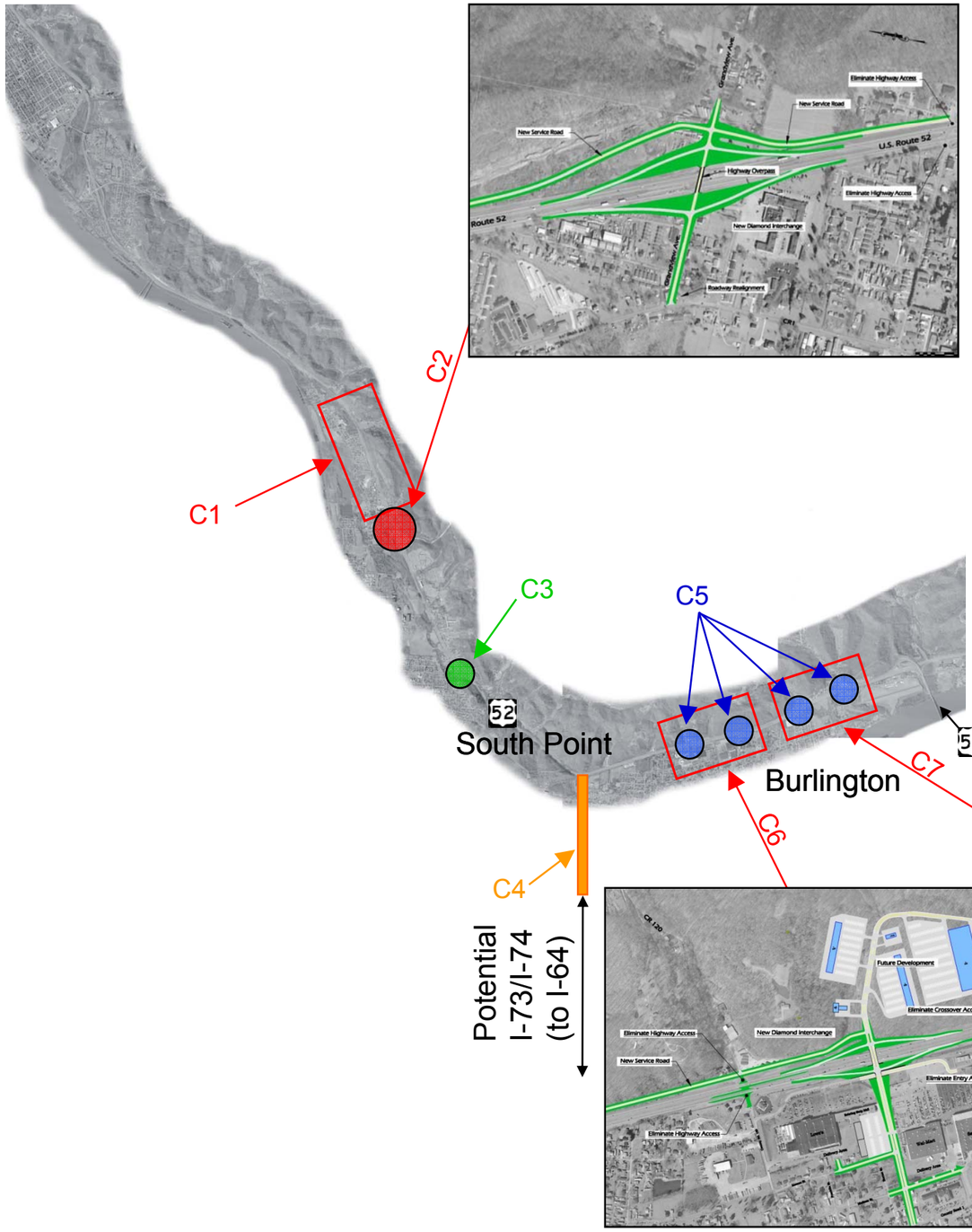
Medium Term (10 to 20 years)

- ***C1:*** **US 52 Access Improvements Location 2** — This improvement includes implementing access control strategies along US 52 between Hog Back Road (T-268) and Grandview Avenue. At the western end of this improvement, highway access closure is proposed at Hog Back Road (T-268), which is located approximately one mile east of the Ashland Bridge. Farther east, highway access closure is proposed at CR 1, which experiences existing safety deficiencies. This location is found on the **Lawrence County Safety Workplan**. Continuing east, highway access closure is proposed at Lick Creek Road (CR 15). A new service road is proposed to provide connections between the proposed highway closures and Grandview Avenue, which will serve as highway access to US 52. The new service road is proposed between Lick Creek Road (CR 15) and Grandview Avenue. The anticipated benefits of this project include enhanced mobility along the US 52 corridor, safety improvements at a **Lawrence County Safety Workplan** location (US 52 and CR 1), and improvement of community to community access, particularly outside of the US 52 corridor. The estimated cost of this improvement is $5,700,000.

Long Term (Greater than 20 years)

- ***C2:*** **Grandview Avenue/Delta Lane Interchange** — This improvement includes constructing a diamond interchange at the intersection of US 52 and Grandview Avenue. The interchange will include constructing a new grade separated structure over US 52 along the existing Grandview Avenue alignment. The proposed improvement also includes realigning Grandview Avenue as it approaches CR 1. The straightened approach will provide an easier turning movement for heavy vehicles traveling from CR 1 to the new interchange. In addition, the proposed improvement will include a new service road connecting Grandview Avenue and Delta Lane, creating a connection for those vehicles that would typically use Delta Lane. This will allow for full access closure at Delta Lane, which is anticipated to enhance mobility along US 52 and improve access from community to community; in addition, the project addresses publicly identified deficiencies (congestion, safety, and access). The estimated cost of this improvement is $14,200,000.

[12] Estimated cost based on projections from ODOT Safety Application for Burlington-Macedonia Safety Improvements, submitted April 27, 2006.



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

Legend

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

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Figure 15 – Central Corridor Alternatives

- ***C4:*** **I-73/I-74 Bridge** — This improvement includes constructing a new Ohio River crossing between I-64 in West Virginia and South Point, Ohio. Interstate 73 is a mostly incomplete freeway which is planned to travel from South Carolina to Michigan. Interstate 74 is a Midwestern freeway that currently travels between Iowa and Ohio, with future portions expected to connect Ohio to South Carolina. In the vicinity of the study area, these two freeways will share an alignment that is parallel to US 52. This bridge will be built to interstate standards and will serve as the freeway crossing of the Ohio River. As of the development of this report, ODOT is not actively planning to develop the I-73 corridor in the near term although West Virginia and other states are constructing their respective portions which would officially dump traffic onto the US 52 system. This improvement is included in the current **KYOVA Long Range Transportation Plan**. The anticipated benefits of this project include enhancements to mobility along the US 52 corridor, improvement of community to community access, and contribution to the completion of the I-73/I-74 corridor in Ohio. The estimated cost of this improvement is $30,000,000.[13]
- ***C6:*** **Burlington Retail Area Interchange** — This improvement includes constructing a diamond interchange between the Burlington-Macedonia Road (CR 120) and Wal-Mart Way (CR 410) intersections. The proposed interchange will connect to the existing retail developments south of US 52 and future developments projected north of US 52 with a new four lane divided boulevard that passes over US 52. Highway access at both Burlington-Macedonia Road (CR 120) and Wal-Mart Way will be closed as a result of the interchange. In addition, a new service road north of US 52 is proposed to provide connection between Dallas-Matthew Pike and Burlington-Macedonia Road (CR 120). This new roadway will allow for closure of highway access at Dallas-Matthew Pike. The anticipated benefits of this project include enhanced mobility along the US 52 corridor, improvements to intersection level congestion, and safety improvements at a **Lawrence County Safety Workplan** location (CR 120 and CR 410). The estimated cost of this improvement is $16,900,000.
- ***C7:*** **Charley Creek Road (CR 144) Interchange** — This improvement includes constructing a diamond interchange at the existing Charley Creek Road (CR 144) intersection. This improvement will realign the existing service roads that connect Sandusky Road (CR 276) and Charley Creek Road (CR 144) to the north of US 52. South of US 52, CR 1 will be realigned to create a smoother alignment approaching the interchange. The combination of the interchange and realigned service roads will allow for highway access closure at Sandusky Road (CR 276), which is anticipated to enhance mobility along US 52. In addition, this project is anticipated to provide improvements to intersection level congestion and safety improvements at a **Lawrence County Safety Workplan** location (CR 276 and CR 144).The estimated cost of this improvement is $17,400,000.

Eastern Corridor

The Eastern section of the corridor begins at the US 52 Bridge in the west and extends east to the Lawrence County line. This section of the corridor is signed as State Route 7. Existing deficiencies are primarily either publicly identified or related to safety. 2030 no-build projected deficiencies include many of the same publicly identified and safety deficiencies, as well as intersection level peak hour deficiencies at the following intersections:

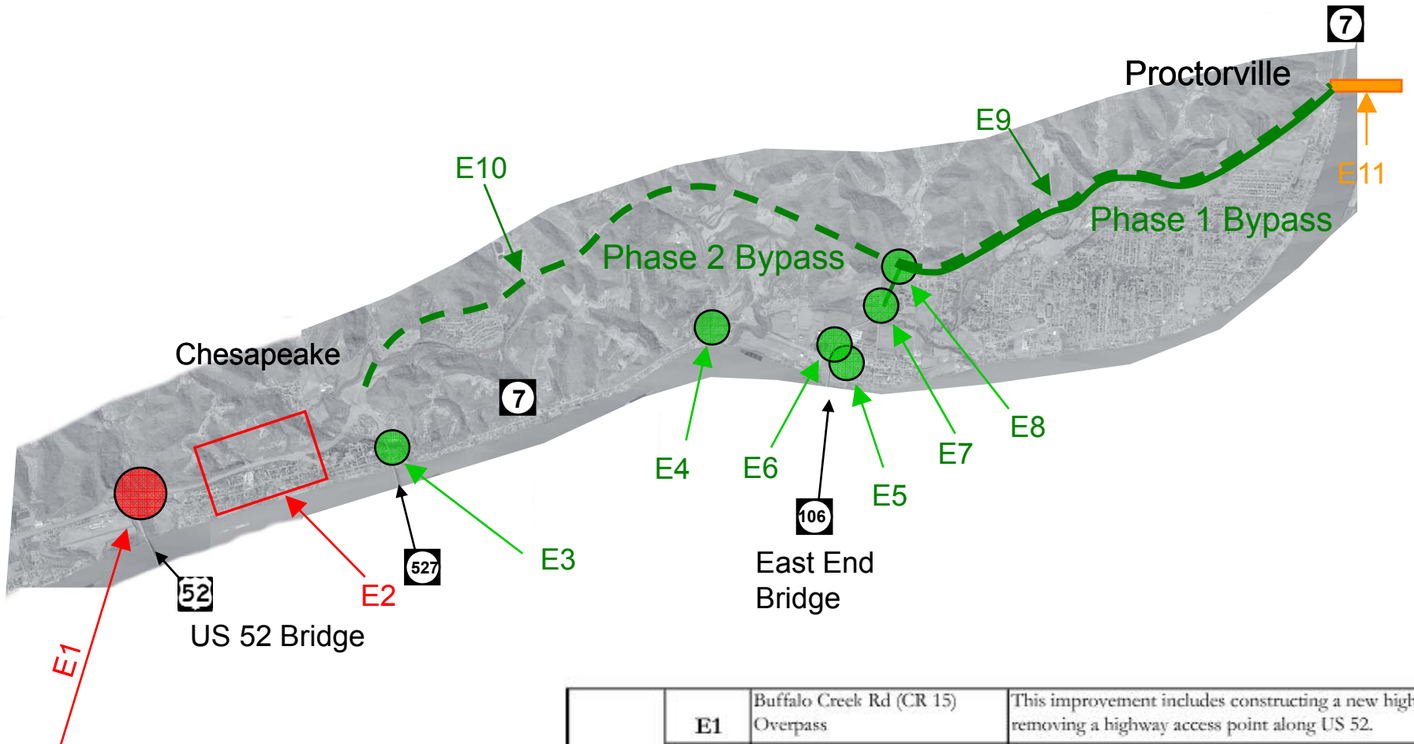
- 3rd Avenue and SR 7 (6th Street Bridge terminus)
- SR 243 and SR 7 (Bradrick)
- SR 775 and Old SR 7
- East End Bridge terminus (SR 775 ramp)
- SR 775 and Irene Road.

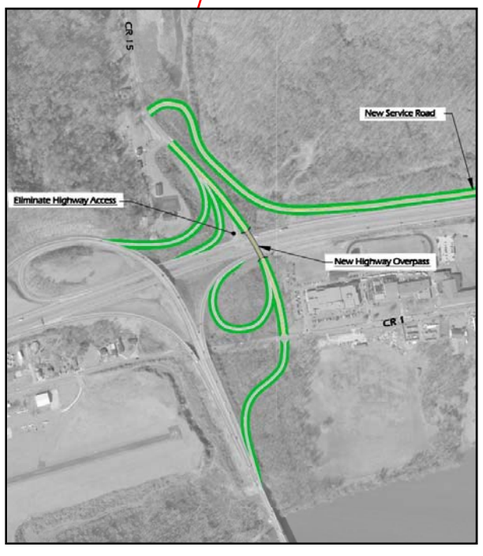
The following projects are proposed for the Eastern section of the corridor. Each project is given a project number (***E#***) which corresponds to both **Figure 16** and **Table 9**. Detailed schematics of the improvements can be found in the **Appendix** of this report.

Near Term (0 to 5 years)

- ***E3:*** **3rd Avenue and SR 7 (6th Street Bridge)** — This improvement includes constructing free-flow right-turn lanes on the eastbound (3rd Avenue) and westbound (SR 7) approaches to the intersection. The existing intersection configuration operates at LOS F under the 2030 no-build condition. With the proposed improvements in place, the intersection is projected to operate at acceptable levels of service. The estimated cost of this improvement is $400,000.
- ***E4:*** **SR 7 and SR 243 (Bradrick)** — This improvement includes constructing a free-flow right-turn lane on the southbound (SR 243) approach to the intersection. The existing intersection configuration operates at LOS F under the 2030 no-build conditions. With the proposed improvements in place, the intersection operates at acceptable levels of service. The estimated cost of this improvement is $780,000.
- ***E5:*** **SR 775 and Old SR 7** — This improvement includes constructing a free-flow right-turn lane on the westbound (SR 7) approach to the intersection. The existing intersection configuration operates at LOS F in the 2030 no-build scenario. With the proposed improvements in place, the intersection operates at acceptable levels of service. The estimated cost of this improvement is $1,000,000.

[13] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.





Legend

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

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

- ***E6:*** **East End Bridge and SR 775 Ramp** — This improvement includes widening SR 775 to provide a second southbound (towards East End Bridge) through lane and a second westbound (SR 775 ramp) left-turn lane to accommodate heavy volumes of traffic using the East End Bridge to cross the Ohio River. The existing intersection configuration operates at LOS F in the 2030 no-build condition. With the proposed improvements in place, the intersection operates at acceptable levels of service. The estimated cost of this improvement is $1,000,000.
- ***E7:*** **SR 775 and Irene Road** — This improvement includes modifying the signal timing at the intersection to provide additional clearance for vehicles northbound/southbound between the Chesapeake Bypass and the East End Bridge. The existing intersection configuration operates at LOS F under the 2030 no-build conditions. With the proposed improvements in place, the intersection operates at acceptable levels of service. The estimated cost of this improvement is $100,000.
- ***E8:*** **SR 775 and Chesapeake Bypass** — This improvement includes constructing dual left-turn lanes on the westbound approach (Chesapeake Bypass), as well as free-flow right-turn lanes on the northbound and eastbound approaches. The existing intersection configuration operates at LOS F in the 2030 no-build condition. With the proposed improvements in place, the intersection operates at acceptable levels of service. The estimated cost of this improvement is $1,000,000.

Medium Term (10 to 20 years)

- ***E2:*** **SR 7 Access Improvements Location 1** — This improvement includes constructing a new service road between Lick Creek Road (CR 15) and Tallow Ridge Road (CR 124), creating opportunities to close highway access points along SR 7. In particular, highway access points at Kimball Lane (T-287N) and Tallow Ridge Road (CR 124) can be closed with the addition of the new service road, which is anticipated to enhance mobility along US 52. The estimated cost of this improvement is $8,600,000.

Long Term (Greater than 20 years)

- ***E1:*** **Buffalo Creek Road (CR 15) Overpass** — This improvement includes constructing a new highway overpass and ramps connecting Buffalo Creek Road (CR 15) to US 52 and the existing ramps traveling to and from the US 52 Bridge. The proposed improvement would allow for highway access closure at Buffalo Creek Road (CR 15). The new ramps would serve all movements from Buffalo Creek Road entering US 52. From US 52, westbound traffic could use the new ramps to enter Buffalo Creek Road. Vehicles traveling eastbound on US 52 would need to exit at Charley Creek Road (CR 144) and travel Old US 52 to reach Buffalo Creek. This movement would need to be properly signed to notify drivers. The anticipated benefits of this project include enhancement of mobility along the US 52 corridor. The estimated cost of this improvement is $13,000,000.
- ***E9:*** **Chesapeake Bypass Phase 1C** — This improvement includes upgrading the existing Chesapeake Bypass to four lanes, divided with grade separated interchanges between SR 775 and SR 7. The existing configuration is two lanes with at grade intersections. This phase of the bypass is intended to provide additional capacity along the existing alignment of the bypass. The anticipated benefits of this improvement include enhanced mobility along the US 52 corridor as well as the Old SR 7 corridor. In addition, this project will contribute to the completion of the Tri-State Outer Belt. The estimated cost for this improvement is $55,000,000.
- ***E10:*** **Chesapeake Bypass Phase 2** — This improvement includes completing the entire alignment of the Chesapeake Bypass from SR 775 to the US 52 Bridge. This phase of the bypass is proposed to be four lanes divided with grade separated interchanges. In addition, the previously built section of the alignment would be upgraded to four lanes divided with grade separated interchanges. This project is found in the current Long Range Transportation Plan The anticipated benefits of this improvement include enhanced mobility along the US 52 corridor as well as the Old SR 7 corridor. In addition this project will contribute to the completion of the Tri-State Outer Belt. The estimated cost for this improvement is $60,000,000.[14]
- ***E11:*** **Merrick Creek Bridge** — This improvement includes constructing a new Ohio River crossing between West Virginia and Ohio. This crossing would span between the Merrick Creek Connector in West Virginia to the eastern terminus of the Chesapeake Bypass in Ohio. It is anticipated that this crossing will provide relief to the East End Bridge, which is currently the only crossing between West Virginia and Ohio in this area. This improvement is included in the current **KYOVA Long Range Transportation Plan**. The anticipated benefits of this project include enhancement of community to community access and contribution to the completion of the Tri-State Outer Belt. The estimated cost of this improvement is $25,000,000.[15]

Corridor-Wide Improvements

While the previous improvements were separated into geographic sections of the corridor, the following recommendation is intended to provide safety enhancement and congestion relief corridor-wide. It is recommended that a comprehensive Intelligent Transportation System (ITS) be implemented along the corridor. The function areas to be covered by such a system include incident management, freeway management, arterial management, and traffic management. It is recommended that this be a regional system, including both the US 52/SR 7 corridor in Ohio and the I-64 corridor in Kentucky and West Virginia. The primary elements included in this recommendation include network surveillance (closed circuit television), in-route guidance (dynamic message signs), advanced traveler information (both telephone and internet accessed), incident management (utilizing a motorist assistance patrol), and a transportation management center, which would serve as the hub of incident management operations for not only the corridor, but also Ironton,

[14] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.

[15] Estimated cost based on projections from KYOVA Interstate Planning Commission HIATS 2030 LRTP, dated April 2005.

Huntington, and Lawrence County as a whole. **Figure 17** shows the proposed locations for these ITS elements. It is anticipated that this improvement would increase safety as well as improve congestion related to incidents. The estimated cost of this improvement is $14,250,000.

Evaluation Matrix

A qualitative screening was performed to assess the potential benefits of the proposed projects along the corridor. Each project was evaluated based on study specific measures of effectiveness (MOE). These measures of effectiveness were developed uniquely for this study, and are based on the goals of this study, as well as issues and concerns raised by the steering committee and community leaders. The measures of effectiveness include:

- Mobility Improvements
- Safety Improvements
- Enhancements to the Regional Transportation System
- Address Community Concerns
- Accessibility Improvements

Table 9 shows the rankings for each project. The projects were scored as follows:

- ● Major Improvement
- ◒ Partial Improvement
- ○ No Improvement

The anticipated mobility and safety benefits were measured quantitatively using travel demand modeling, traffic projections, and raw safety data. The transportation system enhancement, leader concern, and accessibility impacts were measured qualitatively using the project team's and steering committee's understandings of the corridor, as well as the anticipated impact each project should have along the corridor. The results of the evaluation matrix, along with estimated project cost, will form the basis of the prioritization of projects.

The following sections describe the measures of effectiveness used to evaluate each of the projects.

Mobility Improvements

Each project was evaluated to determine the level of mobility improvements anticipated along the corridor. Mobility improvements were measured at the corridor level as well as the intersection level. Improvements to segment mobility were evaluated using the Huntington-Ironton Area Transportation Study (HIATS) travel demand model. A segment was considered to be improved if the volume to capacity ratio was lowered based on the proposed improvements. Several projects specifically target segment mobility, such as the Burlington Retail Area Interchange (***C6***) and the Charley Creek Road (CR 144) Interchange (***C7***).

Intersection level mobility improvements were measured using Synchro 6 traffic analysis software. An intersection was considered to be improved if the existing deficient level of service was improved slightly (LOS F improved to LOS E or LOS D; LOS E improved to LOS D). An intersection was considered to be relieved if the deficient level of service (LOS D, E, or F) was improved to LOS C or better. Many of the projects in the Eastern corridor (***E3***-***E8***) are intended to provide intersection level congestion relief, and as such receive high scores in these categories.

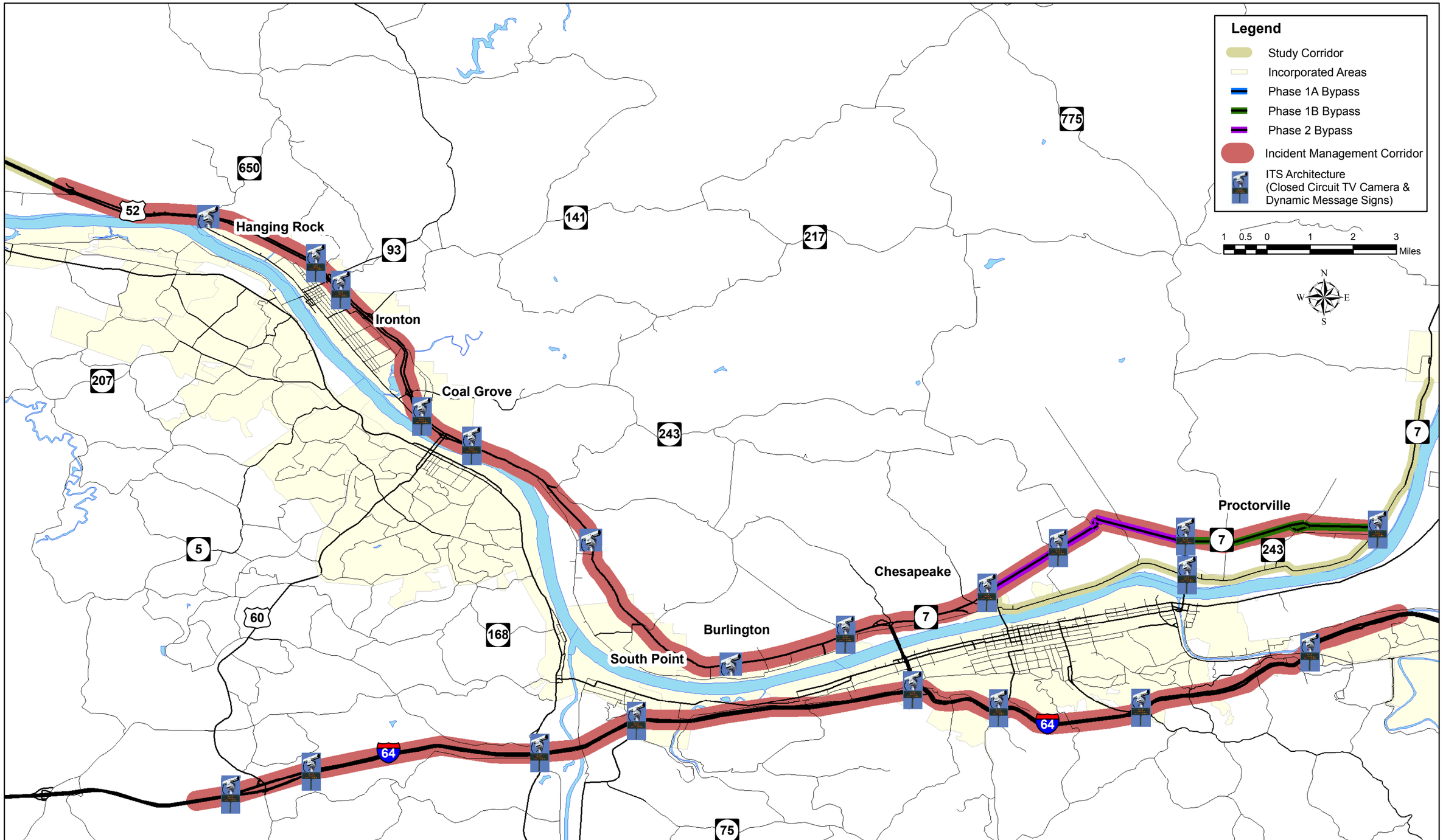
Safety Improvements

Each project was evaluated to determine the relative safety improvements at locations found on the **Lawrence County Safety Workplan** (**Table 1**). A site was considered to be improved if the proposed improvement is anticipated to reduce total crashes, crash severity, or crash rates. Several projects specifically address safety improvements at these locations, such as Park Drive Safety Improvements (***W5***), Ashland Bridge Ramp Termini Improvements (***W9***), and Burlington-Macedonia Corridor Improvements (***C5***). All three of these projects were submitted and approved for funding from the ODOT Safety Program.

Enhancements to the Regional Transportation System

Each project was evaluated to determine whether its completion would contribute to the completion of either the Tri-State Outer Belt or the I-73/I-74 corridor. The Tri-State Outer Belt is a loop system intended to connect southeast Ohio, northeast Kentucky, and northwest West Virginia with freeway-like (high speed, low access) corridors. The major routes in this loop include the Chesapeake Bypass (incomplete), I-64, and the Merrick Creek Connector. **Figure 18** shows the potential connections created by the Tri-State Outer Belt. Several projects in the Eastern corridor are intended to complete the Tri-State Outer Belt, including Phases 2 and 3 of the Chesapeake Bypass (***E11*** and ***E12***) and the Merrick Creek Bridge (***E13***).

Interstate 73 is intended to travel from Iowa to South Carolina, while Interstate 74 is intended to travel from Michigan to South Carolina. The two facilities are proposed to share the same alignment through southeastern Ohio in the vicinity of this study. This section of the corridor is proposed to travel parallel to US 52. The I-73/I-74 Bridge (***C4***) project is intended to provide the Ohio River crossing for this corridor.



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KYOVA Interstate Planning Commission

Traffic and Safety Study for US 52 and SR 7

Figure 17 - Incident Management/ Traffic Management System

KYOVA Interstate Planning Commission - US 52 Traffic and Safety Study
Table 9 - Alternative Ranking Matrix

Location	Number	Projects	Description	Listed in LRTP?	Mobility			Safety	Regional System	Community Concerns	Accessibility
					Improves Segment Mobility	Improves Congested Intersection LOS	Relieves Intersection Congestion	Improves Safety at Lawrence County Safety Workplan Location	Contributes to Completion of Tri-State Outer Belt or I73/74	Addresses Issues Raised During Public Engagement	Improves Community to Community Access within KYOVA MPO Boundary
Western Corridor	**W1**	CR 1A/CR 23 Interchange and US 52 Access	This improvement includes widening the bridge span over Old US 52 (CR 1A) to improve roadway clearance, realigning the Old US 52 (CR 1A) approach to the interchange to improve sight distance, creating a new service road north of US 52 (connects to Patrick Street T-117), and eliminating one highway access point. The consolidation of access to US 52 is anticipated to enhance US 52 mobility		◒	○	○	●	○	●	○
	W2	US 52 Access Improvements Location 1	This improvement includes managing access to US 52 between Rock Hollow Rd (CR 128) and Park Dr (SR 93) by: **1.** Creating a new service road between Happy Hollow Dr (T-330) and Scioto Ave, eliminating two highway access points **2.** Eliminating highway access at Township Rd 277 **3.** Improving an existing service road between Orchard Rd (T 142) and Little Storms Creek Rd (CR 22), eliminating one highway access point **4.** Creating a new service road between Little Storms Creek Rd (CR 22) and Park Dr (SR 93)		◒	○	○	◒	○	◒	○
	W3	2nd Street Bridge Replacement	This improvement includes replacing the 2nd Street Bridge that spans an inlet of the Ohio River between Orchard Street and Sycamore Street. This location is prone to flooding from the Ohio River, and the existing bridge is routinely closed when water levels rise.		○	○	○	○	○	●	◒
	W4	Ironton-Russell Bridge	This improvement includes reconstructing the Ironton-Russell Bridge over the Ohio River. The bridge will maintain and enhance the connection between Ironton, OH with Russell, KY.	Yes	●	○	○	○	○	●	●
	W5	Park Drive (SR 93)	The predominant crash pattern at this location is rear-end crashes primarily at the ramp termini. The proposed improvements include upgrading the existing traffic signals to a three-phase Texas diamond configuration and adding warning signage.		○	○	○	●	○	○	○
	W6	SR 93 Interchange	This improvement includes converting the existing partial cloverleaf interchange to a diamond configuration.	Yes	○	○	○	●	○	●	○
	W7	Campbell Drive (SR 141) Interchange	This improvement includes the complete signalization of the interchange and intersection as well as the addition of two turning lanes.	Yes	○	●	●	●	○	○	○
	W8	SR 243 Interchange	This improvement includes signalizing the interchange at Marion Pike (SR 243).	Yes	○	●	●	●	○	●	○
	W9	Ashland Bridge (US 60) Ramp Termini	The predominant crash pattern at this location is a combination of rear-end and loss-of-control collisions due to heavy queuing at the signalized intersection. The proposed improvements include signal retiming and optimization and construction of an additional westbound thru lane.	Yes	◒	○	○	●	○	●	●
Central Corridor	**C1**	US 52 Access Improvements Location 2	This improvement includes closing highway access at Hog Back Road (T-268) and CR 56, as well as constructing a new service road between Lick Creek Rd (CR 15) and Grandview Ave.		◒	○	○	◒	○	○	◒
	C2	Grandview Ave/Delta Ln Interchange	This improvement includes constructing a diamond interchange at the existing Grandview Ave intersection, constructing a new service road north of US 52 connecting Grandview Ave and Delta Ln, and eliminating highway access at Delta Ln.		◒	○	○	○	○	●	◒
	C3	Solida Rd (CR 18) Interchange	This improvement includes signalizing the eastbound ramp at the existing Solida Rd (CR 18) interchange.		○	○	○	○	○	●	○
	C4	I 73/I 74 Bridge	This improvement includes the construction of a new bridge over the Ohio River. The bridge would span from I-64 in West Virginia to South Point, Ohio. Exact location under consideration.	Yes	◒	○	○	○	●	○	●
	C5	Burlington-Macedonia Corridor Improvements	The predominant crash pattern at this location is rear-end collisions between the signals and angle collisions at the intersections. The proposed improvements include creating a progression-controlled signal system that would create more consistent traffic flows along the corridor.		○	●	●	●	◒	●	◒
	C6	Burlington Retail Area Interchange	This improvement includes constructing a diamond interchange between the Burlington-Macedonia Rd (CR 120) and Wal-Mart Way (CR-410) intersections. Highway access would be eliminated at these locations. This improvement would require the construction of a new service road between Dallas-Matthew Pike and Burlington-Macedonia Rd (CR 120), eliminating highway access at Dallas-Matthew Pike.		●	●	●	●	●	●	●
	C7	Charley Creek Rd (CR 144) Interchange	This improvement includes constructing a diamond interchange at the existing Charley Creek Rd intersection. Highway access would be eliminated at Sandusky Rd (CR 276). This improvement would require the construction of new service roads north of US 52, connecting to CR 406 on either side, as well as realigning Old US 52 (CR 1) south of US 52.		●	●	●	●	●	●	●

KYOVA Interstate Planning Commission - US 52 Traffic and Safety Study
Table 9 - Alternative Ranking Matrix

Location	Number	Projects	Description	Listed in LRTP?	Mobility			Safety	Regional System	Community Concerns	Accessibility
					Improves Segment Mobility	Improves Congested Intersection LOS	Relieves Intersection Congestion	Improves Safety at Lawrence County Safety Workplan Location	Contributes to Completion of Tri-State Outer Belt or I73/74	Addresses Issues Raised During Public Engagement	Improves Community to Community Access within KYOVA MPO Boundary
Eastern Corridor	**E1**	Buffalo Creek Rd (CR 15) Overpass	This improvement includes constructing a new highway overpass from Buffalo Creek Rd (CR 15) to Old US 52 (CR 1), removing a highway access point along US 52.		◒	○	○	●	○	○	○
	E2	SR 7 Access Improvements Location 1	These improvements include managing access to SR 7 by constructing two new service roads: 1. Between Kimball Ln (T-287) and Tallow Ridge Rd (CR 124), eliminating two highway access points 2. Between Tallow Ridge Rd (CR 124) and Big Branch Rd (CR 31), creating alternate access between these two routes		◒	○	○	◒	◒	○	○
	E3	3rd Avenue and SR 7 (6th Street Bridge)	This improvement includes constructing free flow right-turn lanes in the eastbound and westbound approaches. Modify signal cycle length.		○	●	●	●	○	○	◒
	E4	SR 7 and SR 243 (Bradrick)	This improvement includes constructing a free flow right-turn lane on southbound SR 243.		○	●	●	●	○	●	○
	E5	SR 775 and Old SR 7	This improvement includes constructing free flow right-turn lanes on the southbound and westbound approaches. Protected phasing should be given to northbound and southbound left-turn movements.		○	●	●	●	○	○	○
	E6	East End Bridge and SR 775 Ramp	This improvement includes widening SR 775 to provide a second southbound thru lane and a second westbound left turn lane to accommodate heavy volumes of traffic using the East End Bridge to cross the Ohio River.		●	●	●	○	○	○	●
	E7	SR 775 and Irene Road	This improvement includes modifying the signal timing to improve vehicle progression.		○	●	●	○	○	○	●
	E8	SR 775 and Chesapeake Bypass	This improvement includes constructing dual left-turn lanes on the westbound approach, as well as free flow right-turn lanes on the northbound and eastbound approaches.		○	●	●	○	○	○	●
	E9	Chesapeake Bypass Phase 1C	This improvement includes the construction of additional thru lanes and grade separated interchanges at SR 775 and Kinley Avenue along the Chesapeake Bypass between SR 775 and SR 7 (existing Phase 1A alignment).		○	○	○	○	◒	○	○
	E10	Chesapeake Bypass Phase 2	This improvement includes completion of the full alignment of the Chesapeake Bypass from the SR 775 interchange to an interchange at SR 152N. The alignment will be built as four lanes divided with grade separated intersections.	Yes	◒	○	●	○	●	●	●
	E11	Merrick Creek Bridge	This improvement includes the construction of a new bridge over the Ohio River. The bridge would span from the Merrick Creek Connector in West Virginia to the eastern terminus of the Chesapeake Bypass in Ohio.	Yes	○	○	○	○	●	●	●
Corridor -Wide	**CW1**	Incident Management/Traffic Management Improvements	This improvement includes utilizing Intelligent Transportation System elements to better manage incidents along the corridor to improve congestion and increase safety		●	◒	○	◒	○	○	◒

Addresses Community Concerns

Each project was evaluated to determine whether its completion would address concerns voiced by community leaders and the general public. Community leaders were interviewed during the early stages of this project and the general public was polled during public outreach meetings. Both groups identified potential deficiencies that might not surface based on quantitative analysis. These deficiencies include roadway flooding, merging/weaving issues, access (either overabundance or lack of), and localized conditions (such as weather or special event traffic), as well as concerns over congestion and traffic safety. Several projects are intended to address these concerns, such as the 2nd Street Bridge Replacement (***W3***) which addresses road flooding issues in Ironton.

Accessibility Improvements

Each project was evaluated to determine whether its completion would improve accessibility between communities located along the corridor and within the KYOVA MPO Boundary. Improved access could be provided through new connections (i.e., bridges) or improved connections on US 52 (i.e., interchanges). Several projects specifically addressed access between communities, such as the Ironton Russell Bridge (***W4***) and the Merrick Creek Connector (***E13***).

Prioritization

The scoring outlined in the Evaluation Matrix provides the foundation for determining project priority. Combined with the estimated cost for each project, it is possible to begin developing a plan for construction of the proposed projects. A prioritization matrix was developed for each geographic section along the corridor to compare proposed projects. Those projects with the highest benefit and lowest cost rose to the top of the priority ranking. Projects with high costs and low benefits were listed at the bottom of the priority rankings. All projects that fell in between these categories were judged based on their perceived need along the corridor and ranked accordingly. The following sections provide the project priorities for each of the geographic sections along the corridor.

Western Corridor

In total, nine projects are proposed along this section of the corridor, totaling $150,090,000 in improvements. These projects range from signalization to bridge replacement. **Table 10** below provides the prioritization matrix for the Western section of the corridor.

Table 10 – Western Corridor Priority Matrix

		Anticipated Benefit	
		Low	High
Cost	Low	▪ *W3* – 2nd Street Bridge Replacement ▪ *W5* – Park Drive (SR 93) Safety Improvements	▪ *W1* – CR 1A/CR 23 Interchange and US 52 Access Improvements ▪ *W7* – Campbell Drive Interchange (SR 141) ▪ *W8* – Marion Pike Interchange (SR 243) ▪ *W9* – Ashland Bridge (US 60) Ramp Termini Improvements
	High	▪ *W2* – US 52 Access Improvements Location ▪ *W6* – Park Drive (SR 93) Interchange Reconfiguration	▪ *W4* – Ironton-Russell Bridge

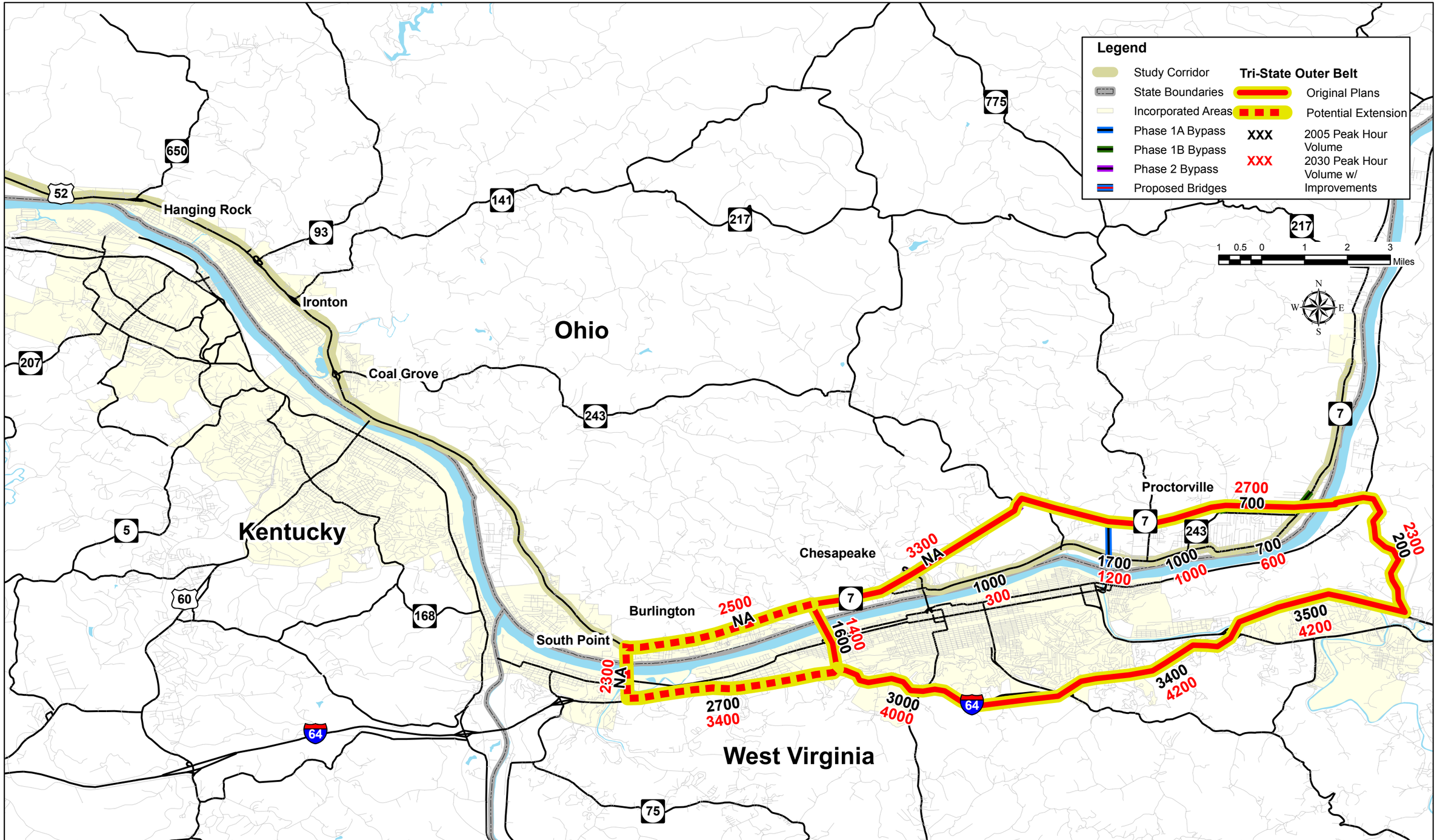
Based on the matrix above, the following project priorities are recommended for the Western section of the corridor:

Near Term (0 to 5 years)

1. ***W7* – Campbell Drive Interchange (SR 141)** – $600,000
2. ***W8* – Marion Pike Interchange (SR 243)** – $425,000
3. ***W5* – Park Drive (SR 93) Safety Improvements** – $65,000

Short Term (5 to 10 years)

1. ***W1* – CR 1A/CR 23 Interchange and US 52 Access Improvements** – $4,100,000
2. ***W9* – Ashland Bridge (US 60) Ramp Termini Improvements** – $3,900,00
3. ***W3* – 2nd Street Bridge Replacement** – $4,500,000



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Traffic and Safety Study for US 52 and SR 7

Figure 18 - Tri-State Outer Belt

Medium Term (10 to 20 years)

1. ***W2* – US 52 Access Improvements Location 1** – $7,700,000
2. ***W6* – Park Drive (SR 93) Interchange Reconfiguration** – $6,800,000

Long Term (Greater than 20 years)

1. ***W4* – Ironton-Russell Bridge** – $122,000,000

Central Corridor

In total, seven projects are proposed along this section of the corridor, totaling $84,471,000 in improvements. These projects range from signalization to bridge replacement. **Table 11** below provides the prioritization matrix for the Central section of the corridor.

Table 11 – Central Corridor Priority Matrix

		Anticipated Benefit	
		Low	High
Cost	Low	▪ *C3* – Solida Road (CR 18) Interchange	▪ *C5* – Burlington-Macedonia Corridor Improvements
	High	▪ *C1* – US 52 Access Improvements Location 2 ▪ *C2* – Grandview Avenue/Delta Lane Interchange	▪ *C4* – I-73/I-74 Bridge ▪ *C6* – Burlington Retail Area Interchange ▪ *C7* – Charley Creek Road (CR 144) Interchange

Based on this matrix, the following project priorities are recommended for the Central section of the corridor:

Near Term (0 to 5 years)

1. ***C5* – Burlington-Macedonia Corridor Improvements** – $96,000
2. ***C3* – Solida Road (CR 18) Interchange** – $175,000

Medium Term (10 to 20 years)

1. ***C1* – US 52 Access Improvements Location 2** – $5,700,000

Long Term (Greater than 20 years)

1. ***C4* – I-73/I-74 Bridge** – $30,000,000
2. ***C6* – Burlington Retail Area Interchange** – $16,900,000
3. ***C7* – Charley Creek Road (CR 144) Interchange** – $17,400,000
4. ***C2* – Grandview Avenue/Delta Lane Interchange** – $14,200,000

Eastern Corridor

In total, twelve projects are proposed along this section of the corridor, totaling $275,880,000 in improvements. These projects range form signalization to bridge replacement. **Table 12** on the following page provides the prioritization matrix for the Central section of the corridor.

Table 12 – Eastern Corridor Priority Matrix

		Anticipated Benefit	
		Low	High
Cost	Low	▪ *E2* – SR 7 Access Improvements Location 1	▪ *E3* – 3rd Avenue and SR 7 (6th Street Bridge) ▪ *E4* – SR 7 and SR 243 (Bradrick) ▪ *E5* – SR 775 and Old SR 7 ▪ *E6* – East End Bridge and SR 775 Ramp ▪ *E7* – SR 775 and Irene Road ▪ *E8* – SR 775 and Chesapeake Bypass
	High	▪ *E1* – Buffalo Creek Road (CR 15) Overpass ▪ *E9* – Chesapeake Bypass Phase 1C	▪ *E10* – Chesapeake Bypass Phase 2 ▪ *E11* – Chesapeake Bypass Phase 3 ▪ *E12* – Merrick Creek Bridge

Based on the matrix above, the following project priorities are recommended for the Eastern section of the corridor:

Near Term (0 to 5 years)

1. ***E7* – SR 775 and Irene Road** – $100,000
2. ***E3* – 3rd Avenue and SR 7 (6th Street Bridge)** – $400,000
3. ***E4* – SR 7 and SR 243 (Bradrick)** – $780,000
4. ***E5* – SR 775 and Old SR 7** – $1,000,000
5. ***E6* – East End Bridge and SR 775 Ramp** – $1,000,000
6. ***E8* – SR 775 and Chesapeake Bypass** – $1,000,000

Medium Term (10 to 20 years)

1. ***E2* – SR 7 Access Improvements Location 1** – $8,600,000

Long Term (Greater than 20 years)

1. ***E10* – Chesapeake Bypass Phase 2** – $60,000,000
2. ***E12* – Merrick Creek Bridge** – $25,000,000
3. ***E1* – Buffalo Creek Road (CR 15) Overpass** – $13,000,000
4. ***E9* – Chesapeake Bypass Phase 1C** – $55,000,000

Corridor-Wide Improvements

The corridor-wide improvements include an ITS-architecture-based Incident Management/Traffic Management System, with an estimated cost of $14,250,000. This system is projected to be built in the long term. Despite the high costs, the project should be considered a priority because of the expected benefits to the corridor as well as the region.

Implementation

Completion of this study symbolizes an important step toward implementing traffic and safety improvements along the US 52/SR 7 corridor. The nature of the recommendations does not require that all improvements are completed in unison. The grouping of projects geographically and chronologically allows KYOVA and ODOT the opportunity to construct projects in several phases while employing multiple funding sources. The first step toward successful implementation of the projects along the corridor is the adoption of this plan. To adopt and implement this plan, KYOVA must work proactively with leaders from Lawrence County, ODOT, USDOT, FHWA, local citizens and business owners, and the private development industry to make sure that each project is advanced through the proper planning and funding process.

The lack of funding sources and time for implementation of the proposed improvements can produce great frustration during the implementation process. The planning, design, and construction of publicly-funded transportation projects typically takes ten years in environmentally-sensitive areas. Transportation improvement funds are scarce and competition for them is fierce. Some MPOs are negotiating with developers to shift some responsibility for the cost of growth to developers and eventually to home buyers and businesses. To fully implement the recommendations in this plan, KYOVA will have to identify stable, timely, and equitable methods of funding. Local, state, and private partnerships offer strategic advantages to implementing improvements on a timely basis. The following section provides a brief description of potential funding sources for the proposed alternatives along the corridor.

Potential Funding Sources

The following programs are potential sources of funding for the proposed improvements outlined and prioritized in the previous sections:

Statewide Transportation Improvement Program[16]

Ohio's Statewide Transportation Improvement Program (STIP) currently covers Fiscal Years 2008-2011. The program is updated biennially, and is scheduled to be updated again in FY 2010. The STIP presents the fiscally balanced, multimodal transportation plan for the state and includes projects funded with federal and state resources. Projects included on the STIP are intended to have some phase of implementation occur in the four-year planning horizon. The plan serves as a reference document required by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for use in approving federal funds for transportation projects in Ohio. It is the requirement of each Metropolitan Planning Organization to develop a Transportation Improvement Program for its area. These regional TIPs are incorporated into the STIP.

Transportation Review Advisory Council[17]

The Transportation Review Advisory Council (TRAC) selects major new capacity projects to be constructed in a six-year period. Major new capacity projects include those that cost more than $5 million and accomplishes one of the following objectives: increase mobility, provide connectivity, increase the accessibility of a region for economic development, increase the capacity of a transportation facility, or reduce congestion. ODOT typically determines the amount of money available for major new projects after basic maintenance and operational needs have been met. ODOT has generally allocated $500 million per year for TRAC projects. Funding may be used for preliminary engineering, right-of-way acquisition, and construction. Eligible projects include highway lane additions, bypasses, corridor upgrades, and roadway extensions that increase the system's ability to handle more traffic.

ODOT County Local Bridge Program[18]

The ODOT County Local Bridge Program provides federal funds to counties for bridge replacement or rehabilitation. The Local Bridge Program is funded annually at approximately $32 million. The federal match is typically 90% of construction cost, based on the availability of toll revenue credits. Each county has a $5 million federal funding limit within a four-year program period. Funding is typically only provided for construction, unless the program manager determines that preliminary engineering and right-of-way costs are warranted. Eligibility is based on several factors:

- The structure must carry vehicular traffic
- The structure must meet the federal definition of a bridge (greater than 20 feet long)
- The structure must be listed in the ODOT bridge management system (sufficiency rating less than 80 for rehabilitation and less than 50 for replacement)
- The structure must be classified as structurally deficient or functionally obsolete
- The structure must have a general appraisal rating less than 7 for rehabilitation and less than 5 for replacement

Counties with the worst bridge conditions (deficiencies greater than the state average) are provided greater opportunities for funding, with up to $10 million earmarked for these areas. After funding is provided for these bridges, the remaining locations are ranked according to condition and importance to the community. Counties that do not receive funding for six years or more are given priority.

ODOT Local Major Bridge Program[19]

The ODOT Local Major Bridge Program provides federal funding to counties and municipalities for bridge replacement or major bridge rehabilitation project. The program receives approximately $25 million per year. ODOT provides an 80% match for construction only on selected projects. The county or municipality is responsible for the remaining 20% of construction, as well as all costs for preliminary design, environmental study, final design, and right-of-way. The local match is required to be cash. Eligible projects must be vehicular carrying local major bridges with a deck area greater than 35,000 square feet.

[16] Source: ODOT Systems Planning and Program Management - http://www.dot.state.oh.us/Planning/STIP/STIPprocess_new.htm

[17] Source: ODOT Program Resource Guide-http://www.dot.state.oh.us/programresource/transportation_review_advisory_council.htm

[18] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/programresource/county_local_bridge.htm

[19] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/programresource/local_major_bridge.htm

ODOT Municipal Bridge Program[20]

The ODOT Municipal Bridge Program provides federal funding to municipalities for bridge replacement or rehabilitation. The program receives approximately $8 million per year. ODOT provides an 80% match for construction only on selected projects. The county or municipality is responsible for the remaining 20% of construction, as well as all costs for preliminary design, environmental study, final design, and right-of-way. The local match is required to be cash.

Eligibility is based on several factors:

- The structure must carry vehicular traffic
- The structure must meet the federal definition of a bridge (greater than 20 feet long)
- The structure must be listed in the ODOT bridge management system (sufficiency rating less than 80 for rehabilitation and less than 50 for replacement)
- The structure must be classified as structurally deficient or functionally obsolete

Credit Bridge Program[21]

The Credit Bridge Program was an ODOT program in place during the 1990s that provided cities and counties "soft match credit" by spending local money on bridge projects that would otherwise qualify for federal funding. The program was suspended when Toll Revenue Credit balances became too high during the capital expansion of the Ohio Turnpike. ODOT decided to reinstate the program once the Toll Revenue Credit balance started depleting. The Credit Bridge Program is currently available to local governments that use federal funding to replace or rehabilitate bridges. The program allows counties and municipalities to replace or rehabilitate a bridge that is not on a federal-aid highway and receive credit for up to 80% of the construction cost. The credit then serves as the 20% non-federal share for a future federal-aid bridge project. Bridges must meet the eligibility requirements for federal bridge funding to be eligible for the Credit Bridge Program.

ODOT County Surface Transportation Program[22]

The ODOT County Surface Transportation Program is set up to provide funding for eligible roadway improvements and safety studies. The safety study portion of the program is administered by the Ohio Department of Public Safety. The program receives approximately $20 million per year; of this total, $750,000 is set aside for safety studies. Federal matching on selected projects is 80% on roadway projects and 100% on safety studies and projects. To receive funding, the project must be on a facility classified at or above an Urban Collector or Rural Major Collector. Eligible projects include new construction, major reconstruction, center line and edge line striping, and raised pavement markers. Eligible safety projects include guardrail reconstruction and construction, center line and edge line striping, raised pavement markers, and traffic signs and signals.

ODOT Metropolitan Planning Organizations and Large Cities Program[23]

The ODOT MPO and Large City Program provides funding for multimodal transportation system improvements. The program provides funding for multimodal maintenance, operational, and new construction projects within urban areas. Enhancement funds are also available for historic, scenic, and bicycle/pedestrian projects. The funding is sub-allocated from the ODOT County Surface Transportation Program.

ODOT Safety Program[24]

The ODOT Safety Program provides funding for highway safety treatments or corrective measures designed to alleviate safety problems and potentially hazardous situations. The program receives $64 million per year. ODOT provides a 90% match for preliminary engineering, detailed design, right-of-way, or construction. Project priority is based on crash frequency/density, crash rate, relative severity index, equivalent property damage only rate, percent trucks, and rate of return. Eligible projects include signalization, turn lanes, pavement markings, traffic signs, guardrails, impact attenuators, concrete barrier end treatments, and break away utility poles. Applications are due by April 30 and September 30, and must be approved by the respective District Safety Review Team. Each application must be accompanied by a safety engineering study, unless the application is for funding to perform that study.

State Infrastructure Bank[25]

The State Infrastructure Bank (SIB) is a revolving loan program that maximizes the use of federal and state funds, making direct loans to eligible projects. The intent of this program is to increase the number of transportation projects completed in the state that would not be considered for traditional financing. The SIB was created with $87 million in federal funds, $40 million in general revenue funds, and $10 million in motor fuel tax funds. The current availability depends on SIB activity and loan repayment. There is no set limit and 100% financing is available for any highway or transit project eligible under Code of Federal Regulations' Title 23. Financing terms are 2 to 10 years, with interest rate determined at time of financing.

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[20] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/programresource/municipal_bridge.htm

[21] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/local/credit_bridge_program.htm

[22] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/programresource/county_surface_transportation.htm

[23] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/programresource/MPO+large_cities.htm

[24] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/programresource/safety1.htm

[25] Source: ODOT Program Resource Guide - http://www.dot.state.oh.us/programresource/state_infrastructure_bank_sib.htm

Appalachian Development Highway System [26]

The Appalachian Development Highway System (ADHS) was created from the Appalachian Regional Development Act of 1965. The core purpose of this program was to spur economic development in the Appalachia region, which did not have a viable road network to support this necessary growth. The ADHS aimed to create a highway system that would link Appalachia communities to each other and the Interstate system, creating economic growth in the region. The ADHS is currently located in Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

The funding for ADHS roadways, provided by the Appalachian Regional Commission (ARC) and the Federal Highway Administration (FHWA), may be used for the construction, reconstruction, or improvement of highways on the designated 3,090 miles of ADHS highway. In total, 24 corridors are in the ADHS system (Corridor A – X). Corridor B, which travels between Asheville, North Carolina and Portsmouth, Ohio, contains a short portion of US 52 between Wheelersburg and Portsmouth. Funding for the ADHS (based on SAFETEA-LU) is authorized at $470 million per year from 2005 to 2009.

Grant Anticipation Revenue Vehicles (GARVEE) Bonds[27]

GARVEE Bonds can be utilized by a community to implement a desired project more quickly than if they waited to receive state or federal funds. These bonds are let with the anticipation that federal or state funding will be forthcoming. In this manner, the community pays for the project up front, and then receives debt service from the state. GARVEE bonds also are an excellent way to capitalize on lower present-day construction and design costs, thereby finishing a project more quickly and economically than if it was delayed to meet state timelines.

Developer Partnerships

Financial partnerships between developers and planning officials provide an additional source of funding when other avenues are exhausted. Continued transportation improvements will encourage economic growth within the vicinity of the corridor. As private development increases, opportunities for public-private partnership will occur, allowing KYOVA to construct projects without seeking traditional funding measures. To accomplish this goal, it will take a cooperative effort between the KYOVA planning staff, state transportation officials and the development community to determine those opportunities where proposed improvements provide enough economic incentive to be funded by private sources.

Conclusion

Overall, this report provides a comprehensive assessment of the mobility and safety conditions along the US 52/SR 7 corridor through Lawrence County, Ohio. Fundamentally, this corridor serves multiple needs for various groups. The corridor serves as both a primary mobility and primary access facility for the region. This combination creates traffic conflicts that contribute to congestion and diminished safety in locations along the corridor. As such, this study recommends a variety of improvements to address the multiple needs and uses along the facility.

The recommendations outlined in this study, along with the project prioritization and implementation strategies, should be used as a guide to correcting existing deficiencies as well as offsetting projected deficiencies. The proposed improvements along the corridor range from low cost, near term spot safety improvements to high cost, long term roadway and bridge construction that are anticipated to provide congestion relief at a regional level. The projects range in cost from $65,000 to $110,000,000.

The proposed improvements outlined in this report are intended to serve not only the US 52/SR 7 corridor, but also the region as a whole. Locally, the implementation of these projects should relieve congestion and increase safety along the corridor. On a larger scale, the proposed improvements to the US 52/SR 7 corridor should support the continuing population growth and economic development within the region.

[26] Source: Federal Highway Administration - http://www.fhwa.dot.gov/federalaid/projects.cfm?progProj=curr

[27] Source: Federal Highway Administration - http://www.fhwa.dot.gov/innovativeFinance/garguid1.htm