2040 OKI REGIONAL Transportation Plan

Moving the Region Forward

Ohio-Kentucky-Indiana Regional Council of Governments

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OKI 2040 REGIONAL TRANSPORTATION PLAN
JUNE 21, 2012

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OKI 2012-14

RESOLUTION

OF THE BOARD OF DIRECTORS OF THE OHIO-KENTUCKY-INDIANA REGIONAL COUNCIL OF GOVERNMENTS

CONCERNING ADOPTION OF THE OKI 2040 REGIONAL TRANSPORTATION PLAN FOR BUTLER, CLERMONT, HAMILTON, AND WARREN COUNTIES, OHIO AND BOONE, CAMPBELL, KENTON COUNTIES, KENTUCKY, AND DEARBORN COUNTY, INDIANA

WHEREAS, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) requires that all transportation plans and programs in urban areas of more than 50,000 population be prepared by the metropolitan planning organization (MPO) based on a continuing, comprehensive transportation planning process carried on cooperatively between state and local communities; and

WHEREAS, the MPO refers to a forum for cooperative transportation decision-making for the metropolitan planning area and OKI is the designated MPO for the counties of Butler, Clermont, Hamilton, and Warren; Boone, Campbell, and Kenton; Dearborn by the states of Ohio, Kentucky and Indiana, respectively; and

WHEREAS, OKI in conjunction with local and state representation has prepared an updated metropolitan transportation plan, entitled *OKI 2040 Regional Transportation Plan* as part of the transportation planning process; and

WHEREAS, OKI has held two rounds of open houses within the planning area and has deliberated upon the regional transportation plan in several meetings; and

WHEREAS, the environmental justice impacts of this plan have been considered in accordance with "Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations"; and

WHEREAS, the projects and programs in this plan result in a plan that is both consistent with the region's air quality goals, is fiscally constrained, and meets SAFETEA-LU planning requirements;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the Ohio-Kentucky-Indiana Regional Council of Governments at its public meeting of June 21, 2012 adopts the *OKI 2040 Regional Transportation Plan* and recommends that its members incorporate the plan recommendations into planning and implementation of transportation improvements for their respective governmental units.

Todd Portune, First Vice President

06/21/12
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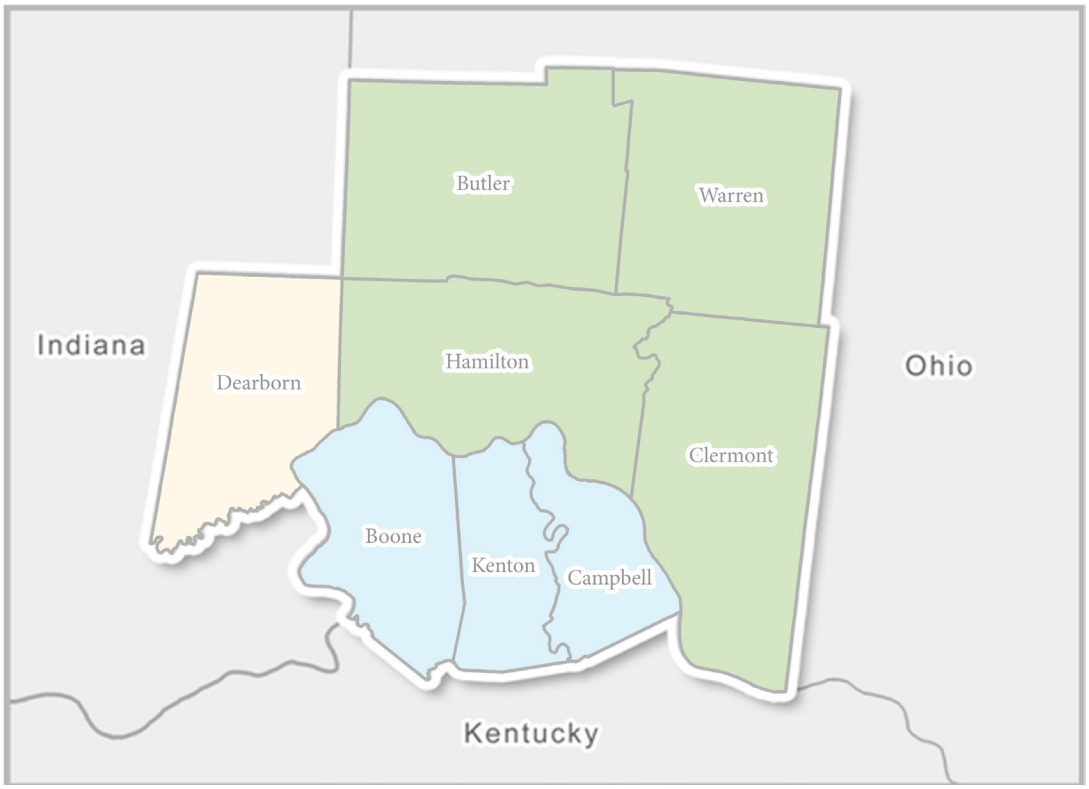
Moving the Region Forward

THE 2040 OKI REGIONAL TRANSPORTATION PLAN

This is the metropolitan transportation plan for the Ohio-Kentucky-Indiana Regional Council of Governments (OKI). OKI is the federally designated regional transportation planning entity for Butler, Clermont, Hamilton and Warren counties in Ohio; Boone, Campbell and Kenton counties in Kentucky; and Dearborn County in Indiana. Figure 1-1 presents the eight-county, tri-state OKI region. All figures in this plan, unless otherwise noted by a source, originated internally from OKI staff efforts or previous OKI plans.

Figure 1-1: The OKI Region



As the designated metropolitan planning organization (MPO), OKI must ensure that the region it serves has a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes and supports regional community development and social goals.

Transportation has long been a major contributor to the region's prosperity and quality of life. For individuals and businesses, the efficiency of the transportation system in moving people and goods has a direct financial impact. From a broader perspective, the transportation system's efficiency has repercussions for the entire economy.

In the year 2012 and beyond, the transportation system's efficiency will become increasingly important as prosperity becomes more dependent on regional performance in a global economy. If steps are not taken to improve the region's transportation system, it will become less efficient as evidenced by more congestion, reduced opportunity for travel by different modes, and poorer connections between modes. Transportation system inefficiencies could impede economic growth and lower the region's competitive edge by adding to transportation costs and delays, and reducing travel and transport opportunities.

In addition to its economic impacts, transportation also plays an important role in the region's quality of life. The interstate system, for example, has improved mobility at the same time that it has promoted a population and job shift from core areas to suburbs with significant social, environmental, and economic consequences. Transportation improvements will continue to have an effect on development, travel patterns and opportunities.

This document, the OKI 2040 Regional Transportation Plan, defines the policies, programs, and projects to be implemented over the next 20plus years to create an integrated, intermodal transportation system that facilitates the efficient movement of people and goods. The plan's recommendations cover the following types of surface transportation infrastructure: roadways, public transportation, freight, Intelligent Transportation Systems (ITS), and bicycle/pedestrian facilities.

The transportation system should be balanced so that no group or groups of people assume a disproportionate share of positive or negative impacts. This plan provides transportation opportunities in an equitable manner and is developed with attention to environmental justice populations and specialized needs. Recommendations were evaluated to assure that positive and negative impacts of the proposed transportation investments are distributed in an equitable and meaningful manner.

RELATED PLANS, PROGRAMS AND COMMITTEES

There are several plans and planning processes that served as precursors to this 2040 OKI Regional Transportation Plan. Some of the most significant ones are described below. Additional plans and standing OKI committees are discussed in their appropriate chapter. For example OKI Land Use Commission is discussed in Chapter 4 along with a brief overview of the environmental and land use planning OKI accomplishes through the Strategic Regional Policy Plan (SRPP).

Unified Planning Work Program

The Unified Planning Work Program (UPWP) document is prepared annually by OKI in cooperation with local and state officials, transit agencies and others, and documents all planning activities anticipated during the fiscal year regardless of funding sources, while incorporating the comprehensive multi-modal planning process. This continuous planning process is responsive to the needs of the local area and to the changes occurring in the region for which current data concerning land use, travel and transportation facilities must be continuously maintained. The Fiscal Year 2013 UPWP was approved by the OKI Board of Directors in April 2012.

Transportation Improvement Program

The Transportation Improvement Program (TIP) document is normally developed every two years and reviewed periodically in cooperation with state and local officials, regional and local transit operators and other affected transportation, regional planning and implementing agencies.

The OKI Board of Directors through Resolution 2011-15 adopted the latest TIP, OKI Fiscal Year 2012-2015 Transportation Improvement Program, in April 2011. The document was forwarded to the Ohio Department of Transportation (ODOT), the Kentucky Transportation Cabinet (KYTC), the Indiana Department of Transportation (INDOT), Federal Highway Administration (FHWA) divisions in Ohio, Kentucky and Indiana, Federal Transit Administration (FTA) Region V and the Environmental Protection Agency (US EPA) for review and approval.

The TIP consists of improvements recommended from the short range planning process, elements of the transportation plan and the transit development programs of the various transit systems. Specifically, the TIP: 1) identifies transportation improvements recommended for advancement during the four year program period; 2) indicates the area's priorities; 3) groups improvements of similar urgency and anticipated staging into appropriate staging periods; 4) includes realistic estimates of total costs and revenues for the program period, including year of expenditure cost estimates; and 5) is financially constrained. The entire TIP is tested to establish its conformity with the State Implementation Plan for air quality.

The TIP includes project-by-project listings which are modified periodically and contain: 1) sufficient descriptive material of work, termini and length to identify the project; 2) estimated total cost and the amount of federal funds proposed to be obligated during the program year; 3) proposed source of federal and non federal funds; and 4) identification of the recipient and state and local agencies responsible for carrying out the project.

Board of Directors

More than 100 members serve on the OKI Board of Directors, the governing body of the Ohio-Kentucky-Indiana Regional Council of Governments. The Board brings together leaders from government, business and civic institutions. Board members represent local government, planning commissions, chambers of commerce, public transit authorities, state departments of transportation and environmental organizations. The Board's organizational strength and vision enables OKI to effectively address regional transportation, environmental and economic issues. Through ongoing collaboration, a wide range of agendas, priorities, and solutions are focused into a viable plan of action that generates measurable results. The Board meets on a quarterly basis.

Executive Committee

The Executive Committee oversees the findings of the many advisory groups. This diverse group is selected from the ranks of and by the full Board of Directors. The Executive Committee has authority to make all policy decisions for the Board of Directors. The Executive Committee meets monthly to discuss agency programs, establish policies, adopt plans and resolve issues.

Intermodal Coordinating Committee

The Intermodal Coordinating Committee (ICC) is an advisory subcommittee to the Board of Directors and Executive Committee on technical matters related to the transportation planning process. The ICC holds regular monthly meetings. It is composed of representatives of the various municipal and county departments involved in the transportation planning process as well as various state and federal agency staff.

The ICC's primary responsibility is to review and comment on the agency planning tasks described in the UPWP. These include the updates to this plan, analyses of operational issues in the thoroughfare system, recommendations for various transportation investment programs, and the public involvement process for OKI as the MPO.

COORDINATION WITH FEDERAL TRANSPORTATION PLANNING REQUIREMENTS

This plan is intended to comply with statewide and metropolitan transportation planning regulations issued by the United States Department of Transportation's (US DOT) FHWA and FTA governing the development of transportation plans and programs for urbanized areas. This plan was prepared in accordance with federal statute (23 CFR Part 450), which requires the development and update of transportation plans every four years in air quality maintenance or non-attainment areas.

National Air Quality Standards

Air quality designations are based on comparisons of actual pollutant emissions against the National Ambient Air Quality Standards (NAAQS). The OKI region was previously nonattainment for both the ozone and fine particulate (PM2.5) NAAQS. In 2011, the US EPA determined that the OKI region had attained both the ozone and fine particulates standards and was reclassified as a maintenance area. By the end of 2012, it is anticipated that a more stringent ozone NAAQS will cause the region to once again be designated nonattainment.

OKI's previous plan, the OKI 2030 Regional Transportation Plan, was updated in 2008 and the US DOT approved the Transportation Conformity Determination on September 26, 2008. The 2030 Plan and Conformity Determination will lapse on September 26, 2012. In conjunction with the approval of this OKI 2040 Regional Transportation Plan, the OKI Board of Directors approved the Conformity Determination whereby this plan will not contribute to the exceedance of any NAAQS. The procedures for the quantitative conformity analysis were reviewed by an interagency consultation process and are based on population, employment and travel projections. A more detailed discussion of OKI's air quality conformity is presented in Chapter 16.

SAFETEA-LU Requirements

Passed in August 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

(SAFETEA-LU) is the most recent federal transportation legislation. SAFETEA-LU established new and revised requirements for statewide and metropolitan transportation plans and programs, as well as the underlying planning processes. Compliance with SAFETEA-LU's new and revised planning provisions has been required for new plans since July 1, 2007. These provisions are set forth in SAFETEA-LU, and described more fully in the joint regulation issued by the FHWA and FTA (23 CFR Parts 450 and 500 and 49 CFR Part 613: Statewide Transportation Planning; Metropolitan Transportation Planning). These requirements include:

Security of the Transportation System

The statewide metropolitan planning process and the metropolitan planning process for a metropolitan planning area shall provide for consideration of projects and strategies that will increase the security of the transportation system for motorized and non-motorized users [49 USC 5303(h)(1)(C) and 23 USC 134(h)(1)(C)]. OKI compliance with this requirement is described in Chapter 6 of this plan.

Potential Environmental Mitigation Activities

MPOs and Departments of Transportation (DOTs) are to include in their metropolitan and statewide transportation plans a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. These discussions are to be developed in consultation with federal, state, and tribal wildlife, land management, and regulatory agencies [49 USC 5303(i)(2)(B), 5304(f)(4)(A)(B) and 23 USC 134(i)(2)(B)]. OKI compliance with this requirement is presented in Chapters 4 and 16 of this plan.

Utilization of a Participation Plan

MPOs are to develop and utilize a participation plan. A participation plan is to be developed in consultation with all interested parties and provide that all interested parties have reasonable opportunities to comment on the contents of the transportation plan [49 USC 5303(i)(5)(B)(i) & (ii) and 23 USC 134(i)(5)(B)(i) & (ii)]. The Board of Directors approved the OKI Participation Plan in June 2007. An update to this plan was approved by the OKI Executive Committee in May 2010. The information presented in Chapter 2 and detailed in Appendix C of this plan is in direct accordance with the most current OKI Participation Plan.

State and Local Agency Consultations

MPOs and DOTs are to consult, as appropriate, with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of an LRTP [49 USC 303(i)(4)(A), 49 USC5304(f)(2)(D)(i), and 23 USC 134(i)(4)(A)]. The LRTP shall be developed, as appropriate, in consultation with state, tribal, and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation [49 USC 5304(f)(2)(D) and 23 USC 135(f)(2)(D)]. The Secretary of US DOT shall encourage each MPO to consult with officials responsible for other types of planning activities that are affected by transportation in the area (including state and local planned growth, economic development, environmental protection, airport operations, and freight movements) or to coordinate its planning process, to the maximum extent practicable, with such planning activities [49 USC 5303(g)(3) and 23 USC 134(g)(3)]. OKI compliance with this requirement is accomplished as presented in Chapter 4 of this plan.

Public Information Format and Techniques

The MPO and state DOT shall, to the maximum extent practicable, employ visualization techniques to describe plans [49 USC 5303(i)(5)(C)(ii), 23 USC 134(i)(5)(C)(ii)], and 5304(f)(3)(B)(ii). MPOs and DOTs shall, to the maximum extent practicable, make public information on the transportation plan available in electronically accessible format and means, such as the World Wide Web, as appropriate to afford reasonable opportunity for consideration of public information [49 USC 5303(i)(5)(C)(iii), 23 USC 134(i)(5)(C)(iii), and 23 USC 135(f)(8)]. OKI compliance with this requirement is met with the information presented in Chapter 2 of this plan and detailed in Appendix C.

Coordinated Plan

Proposed projects under three FTA formula funding programs—Elderly Individuals and Individuals with Disabilities [49 USC 5310(d)(2)(B)(i) & (ii)]; Job Access and Reverse Commute [49 USC 5316 (g)(3)(A) & (B)]; and New Freedom [49 USC 5317 (f)(3)(A) & (B)]—must be derived from a locally developed and coordinated public transit-human services transportation plan. Local officials will determine the appropriate "lead" which may or may not be the MPO. The OKI Board of Directors approved a Coordinated Public Transit-Human Services Transportation Plan for the OKI Region in August 2007. An update to this plan was recently approved by the OKI Executive Committee in May 2012. Findings and recommendations from this most recent update are presented in Chapters 4, 10 and 14.

Annual Project Listing

An annual listing of projects, including investments in pedestrian walkways and bicycle transportation facilities, for which Federal funds have been obligated in the preceding year shall be published or otherwise made available by the cooperative effort of the state, transit operator, and metropolitan planning organization for public review. The listing shall be consistent with the categories identified in the TIP [49 USC 5303(j)(7)(B) and 23 USC 134(j)(7)(B)]. OKI publishes an Annual Listing of Obligated Projects in the OKI Region prior to the close of every calendar year. The latest such listing for Fiscal Year 2011 was completed on December 8, 2011 and is available at www.oki.org.

SUMMARY OF PROGRESS MADE

In addition to noting the changes in federal requirements made over time to the plan, it is important to identify the projects that have been completed since the 2008 update. A summary of progress made is included as Appendix A. The appendix is separated into six categories by type of project and includes bicycle projects, enhancement projects, Land Use Commission recommendations, TIP projects, transit services and corridor studies. This list illustrates the span of transportation plans and projects that affect residents, businesses and workers in the region and will impact future planning efforts.

PLANNING FACTORS

In concert with the directives of SAFETEA-LU, this update presents a plan to maximize the utility of the existing transportation facilities and services to reduce congestion and increase travel choices for people. Like its predecessor,

the plan continues to place emphasis on community impacts and public participation. This plan also draws on an ongoing data acquisition effort that provides baseline data on observed travel time for significant roadways in the region and identifies locations with safety issues. This plan's base year for data modeling is 2005 with the exception of freight data which used 2009 as a base year. This plan's planning horizon has been extended to 2040. As with previous plans, this plan conforms to air quality standards and is fiscally constrained.

Among the issues to be addressed as part of this transportation planning process are the metropolitan planning factors retained and expanded upon in SAFETEA-LU. OKI has established a set of eight planning factors which define the goals which must be met to address the region's transportation needs both now and in the future (Figure 1-2). Each planning factor represents a key issue that has been considered and reflected in this plan. Objectives clarify how the planning factor has been achieved in this plan.

Figure 1-2: OKI 2040 Regional Transportation Plan Goals

- Economic vitality
- Safety
- Security
- Accessibility and mobility options
- Environmental protection, energy conservation and sustainable development
- System integration and connectivity
- Efficient system management and operations
- Preservation of the existing system

Economic Vitality

The transportation network can support the economic vitality of the region by enabling global competitiveness, productivity and efficiency as shown through the plan's emphasis on ideas that address this issue. Chapter 4 discusses the OKI Land Use Commission's development of policies that will promote the economic vitality of the region. Chapter 3 analyzes the region's demographic trends and notes that the population in the OKI region is projected to grow 23 percent and employment to increase 26 percent over the planning period. Chapter 7 provides a list of management strategies and technologies to deal with this growth through development and travel pattern ideas. Finally, Chapter 11 deals with expanding ITS to reduce congestion and delay.

Objectives

- Implement techniques that improve traffic operations and mobility so that travel times are reliable and the cost of doing business in the OKI region is competitive and predictable
- Increase the coverage area and effectiveness of ARTIMIS so that traveler information is readily available and the impacts of incidents can be minimized
- Increase security for travel by transit and non-motorized modes

Safety

The transportation system should provide for reducing the risk of crashes that cause death or injuries. Chapter 5 is devoted to the topic of vehicular safety. The highest crash rate locations in the region are identified. Engineering studies are recommended for problem locations. Chapter 11 describes the integration of ITS with other agencies and systems to facilitate emergency response. Chapter 13 includes several recommendations for bicycle and pedestrian travel safety.

Objectives

- Reduce the number and severity of traffic crashes
- Expand the deployment of ITS to reduce crashes and improve incident response time
- Reduce crashes occurring during transfers between transit and pedestrian facilities
- Facilitate use of improved design of shared roadways to increase safety for motorists, cyclists and pedestrians

Security

A regional security strategy relates to sustainable prevention, detection, response and recovery efforts to protect regional transportation systems' critical infrastructure from terrorism and natural disasters. Chapter 6 documents actions and strategies being implemented throughout the region for strengthening regional security.

Objectives

- Facilitate implementation of homeland security measures to protect key regional infrastructure assets
- Incorporate the transit providers' system security program plans into this plan and other regional transportation planning efforts
- Collaborate with agencies throughout the region to assist in developing security goals and appropriate strategies
- Utilize the most current technology and guiding principles in helping to minimize risks to regional security

Accessibility and Mobility Options

To enable people and commodities to have greater accessibility and to be moved with greater speed and safety, major investments are needed to improve the transportation system and reduce congestion. Improvements are needed both for expanding the present system and improving its efficiency. Improvements should be sensitive to differences in development patterns and community needs with special consideration given to safe use of the transportation system by the region's older population. Chapter 3 provides demographic information to help determine future travel needs in the region, including population and household projections, anticipated age structure changes, employment projections, and commuting patterns. Chapter 7 discusses means to improve roadway travel operations, such as access management and improved signalization, thereby increasing accessibility. By enabling roadways to perform more efficiently, operational improvements increase roadway capacity, which will help reduce the need for expansion projects and help preserve and maintain the existing infrastructure. Preservation of right of ways recommended in Chapter 10 safeguards rail transit as a mobility option in the future. Chapter 12 presents a summary of the OKI Regional Freight Plan which includes recommendations that facilitate efficient freight movement throughout the region.

Objectives

- Improve the operating efficiency of existing infrastructure
- Expand transportation infrastructure to provide additional access and capacity for moving people and goods
- Reduce congestion by expanding alternatives to SOV travel and reducing peak hour travel
- Expand the implementation of ITS such as Advanced Regional Traffic Interactive Management and Information System (ARTIMIS)
- Acknowledge and incorporate the use of non-motorized travel (walking and biking) into the planning process as an alternative mode of travel and means of connecting modal options
- Facilitate efficient intermodal transfers for both passengers and freight

Environmental Protection, Energy Conservation and Sustainable Development

Air quality is a major environmental issue in the OKI region. Much progress has been made in reducing mobile source emissions but the impact of travel growth on total emissions could threaten the region's ability to maintain federal clean air standards. Emission reductions are needed to protect air quality. Strategies that promote the effective and efficient use of natural resources would reduce mobile source emissions and would also have a beneficial effect on other environmental issues and quality of life. Chapter 10 focuses on public transportation improvements including making recommendations for expansion of bus service, facilitating bus ridership through technological improvements, and construction of transit hubs and park and ride lots.

In addition, development of rail transit in the Eastern Corridor is recommended to reduce SOV travel, thereby reducing vehicular emissions. Chapter 13 includes planning efforts to encourage walking and bicycling, which would have the effect of conserving fuel, reducing vehicle emissions, and improving personal health. Chapter 14 provides information on current transportation systems operating in the region such as ridesharing and teleworking that promote energy conservation through reducing SOVs. Chapter 16 deals with transportation initiatives to improve air quality and other environmental factors. One project highlighted in the chapter is the Regional Clean Air Program, a program committed to reducing smog in the region. This local commitment, which began in 1994, encourages voluntary efforts by individuals and businesses to reduce ozone and particulate matter pollution.

The OKI Strategic Regional Policy Plan (SRPP) calls for sustained cooperation and coordination among transportation planning, land use planning, housing, capital budgeting, natural resource and economic development organizations. The transportation system, along with other infrastructure, has a significant impact on future land use, economic development, and the environment. Transportation decisions should be consistent with local land use policies, resulting in travel and land use patterns that promote multimodal travel alternatives and reduced vehicle trips. Chapter 4 discusses the SRPP and regional sustainability efforts integrating land use and transportation planning.

Objectives

- Reduce SOV travel
- Facilitate greater use of non-motorized modes (walking, biking)
- Promote strategies that reduce motorized vehicular travel
- Reduce mobile source emissions
- Encourage use of alternative fuels by both individuals, public transportation providers and private freight fleets
- Encourage measures that reduce the impact transportation has on water quality and noise levels
- Implement the recommendations of the SRPP
- Improve consistency between local land use planning and regional transportation planning
- Consider local planning recommendations as part of transportation studies, transportation improvements and funding prioritization
- Promote regional and local land development techniques and policies that create transportation choices and that ensure coordination between the provision of public facilities and services and land development and redevelopment

System Integration and Connectivity

A functional transportation system is one that allows people and goods to travel efficiently between their desired destinations. Chapter 10 provides recommendations to improve the connectivity between various modes of transportation in the region. Proposed rail transit developments would integrate transit services to rail sites. Transit hubs, including the intermodal transit center in downtown Cincinnati, are facilities where transfers can be made between bus routes and proposed rail transit lines, or between different transit lines. Chapter 12 highlights the importance of integrating the various freight transport modes such as roadway, rail, water, air and intermodal and recommends the continued monitoring and facilitation of the movement of freight in, around, and through the region. Chapter 13 encourages the creation of linkages between roadway and transit with bicycle and pedestrian facilities.

Objectives

- Plan in such a way that the functional design of a roadway is consistent with the intended use of the roadway
- Optimize the surface transportation facilities access to airports, transit facilities, park and ride lots and freight intermodal facilities

Efficient System Management and Operations

The Congestion Management Program (CMP) is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. Chapter 7 provides information on managing congestion in the region. Chapters 9 through 14 address different strategies for managing travel demand that focus on altering travel behavior to mitigate traffic congestion, in lieu of building infrastructure to accommodate travel needs.

Objectives

- Implement techniques that improve traffic operations including access management techniques that improve mobility and safety
- Identify and prioritize locations that require system enhancement and/or expansion
- Advance the coverage area of intelligent transportation systems
- Identify new or expanded transit services

Preservation of the Existing System

Financial resources are needed to maintain the region's transportation system and address its deficiencies. In light of limited federal and state resources, there is a real need to generate funds from within the region for transportation improvements. New funding sources are needed, particularly for capital formation, and strategies to use funds prudently. Each travel mode has its own chapter in this plan. Each chapter begins with a snapshot of the region's existing transportation system. In the ever-changing transportation environment, these overviews serve as a baseline to which policies, alternatives and improvements can be referenced. Chapter 9 highlights the plan's effort to optimize the existing system through recommendations for applying roadway operational improvements. In addition, information on roadway expansion is provided however funding priority is given to system preservation with the allocation of a sizeable portion of available revenues to this purpose. Chapter 11 discusses expanding the use of ITS technologies to optimize the existing system.

Objectives

- Insure adequate funding to preserve and maintain the integrity of the existing transportation infrastructure
- Initiate efforts to establish a local revenue base to fund transportation system improvements

PLAN RECOMMENDATIONS

The impacts of the federal directives are evident in the plan's recommendations. The recommendations place emphasis on expanding modal alternatives and improving the transportation system's efficiency. More specifically, the recommendations for improving roadways are accompanied by recommendations for improving transit service; using advanced technologies to move traffic more efficiently; applying strategies to help reduce SOV; promoting ridesharing, bicycle and pedestrian travel; upgrading roadway operating efficiency; and further exploring options for achieving plan objectives.

In addition to meeting the future travel needs created by growth and development, the plan's recommendations address requirements for sustainable development, safety, security, congestion management, fiscal constraint, special social and economic populations, and the environment with a particular emphasis on air quality conformity. To tie together local growth and development with regional transportation planning, the reciprocal impacts of land use and transportation are examined to reach continuing, comprehensive, and cooperative solutions. To reduce the risk of crashes that cause death or injuries, the plan analyzes data in order to advance projects which address the region's safety needs. To respond and recover from manmade and natural disasters, OKI utilizes the most current technology and guiding principles in assisting collaborative regional security planning. To mitigate congestion, strategies for managing travel demand are considered for their regional applicability. To address

financial concerns, the plan identifies revenue sources and distinguishes between expenditures needed to maintain existing infrastructure and expenditures needed for capital and operational improvements. To secure an active and representative participation from all segments of the community and minimize the extent of adverse impacts, OKI analyzes the social, economic, and environmental effects of proposed actions taking into consideration the needs of Environmental Justice populations in its transportation planning process and decision making activities. To protect air quality, the plan's recommendations are assessed to insure that future travel growth does not prevent the region from achieving air quality goals.

Everyone has a role in meeting transportation challenges. Local governments, for example, are presented with increased opportunities to work together on multi-jurisdictional issues. To reduce congestion, public agencies and private employers are encouraged to take new initiatives. The public is asked to support new measures and consider altering traditional travel behavior.

This plan continues a process designed to transform the region's transportation system into one that offers a variety of modes and reduces SOV travel. The transportation system envisioned for this plan is an intermodal, multimodal system that expands travel options and improves and maintains transportation infrastructure. Finally, improving the project delivery process must be a key goal. Developing and implementing projects more quickly will reduce project costs and provide higher user benefits.

Project Recommendation Process

To respond to the region's transportation needs and create the plan's recommended multimodal improvements, OKI evaluated all proposed transportation improvement projects using an iterative quantitative and qualitative process. The starting point for this plan update was the project listing from the 2008 plan. Added to the 2008 plan list were locations identified through the Congestion Management Process and all amendments made to the plan since 2008. Amendments reflect recommendations identified by regional and local transportation studies completed since 2008.

An initial draft list was distributed to local communities with the request that they provide a local prioritization (high, medium or low), detailed description, primary purpose, and cost estimate for all of the projects located within their communities. They were also asked to identify any needed, but missing projects from the draft list.

Staff then applied the project scoring process (Appendix B) to a new list of more than 600 multimodal projects. The prioritization process assigns numerical scores for 11 to 15 criteria depending on the project's mode (transit, freight or roadway). The criteria include the following items: impact to economic vitality, environmental justice populations, air quality, and the environment; local priority; inclusion of multimodal investments; inclusion in local and regional studies; average daily traffic volume; facility type; crash rate; impact on improving safety; existing congestion; 2040 level of service; impact on improving level of service; percent trucks; feasibility; impacts to transit operation and ridership; implementation time frames; and freight criteria. Finally, the financial resources available were considered to determine the number of projects that could be included in a draft list to produce a fiscally constrained plan.

The OKI Board of Directors and ICC reviewed the list and provided comments. The list was adjusted as necessary to produce a draft plan project list. The draft list was presented to the public via www.oki.org and a series of eight public open houses held in April 2012.

Staff reviewed and incorporated suggestions into the list of projects. The OKI Board of Directors, ICC and local and state agencies were once again asked for comments. Staff made modifications to the list based on all comments received to determine the final list of projects included in this plan. Recommended transportation improvement projects are presented in separate chapters of this plan based on these respective travel modes: roadway (Chapter 9), public transportation (Chapter 10), Intelligent Transportation Systems or ITS (Chapter 11), freight (Chapter 12), bicycle and pedestrian travel (Chapter 13), and other travel mode alternatives (Chapter 14). Recommendations for further transportation study are also included (Chapter 8).

Finally, the plan requires adoption by the OKI Board of Directors. Projects included in the plan will be eligible to advance to the TIP once a sponsor and funding is identified.

SUMMARY

Today, the OKI region has an extremely diverse, well-developed transportation system for the mobility of both people and goods. It includes roads and rails, highways and bridges, buses, trucks, planes, and bicycles. Transportation options must be reliable, flexible and affordable enough to safely connect people to each other, to their workplaces, to the institutions that matter to them and to the services on which they depend. The system must also support the region's economic vitality and development demands. This plan works to address these public interests and travel demands to result in a coordinated regional roadmap for guiding transportation improvements for the next 20 plus years.

INTRODUCTION

OKI is committed to the goal of securing active and representative participation from all segments of the community in its transportation planning and decision making process. In accordance with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU) guidelines, all OKI public participation activities include an Environmental Justice (EJ) component, where appropriate, which is designed to involve EJ communities in a meaningful way. Environmental Justice communities include minority, low income, disabled and elderly population groups, and zero car households. The purpose of EJ efforts is to analyze the environmental and social effects of proposed actions to ensure that these groups have adequate access to public information related to locally preferred alternatives developed, to provide opportunities for participation in the process and to ensure that federal funds are used fairly and without discrimination. Alternatives are reviewed in such a way that adverse impacts are minimized to every extent possible.

The success of efforts to engage the public to participate in transportation planning efforts depends upon the methods employed to publicize opportunities for participation, access to information for education or comment, type and format of information provided, timing of participation in terms of frequency and correlation to final decision making, opportunities for dialogue and comment, consideration given to public comments and discussion, and incorporation of public participation.

OKI'S ORGANIZATIONAL STRUCTURE

Independent of OKI's Participation Plan, the public is involved in decision making through provisions in OKI's organizational structure. This structure is related to OKI's establishment as a public, non-profit organization under the Ohio Revised Code. Agency structure, responsibilities and authority are described in the OKI Articles of Agreement.

The structure of OKI includes four standing committees that involve public officials and others in the development of plans, programs and policy adoption. These committees are the Board of Directors, the Executive Committee, the Intermodal Coordinating Committee (ICC) and the EJ Advisory Committee. Additional opportunities for direct participation are provided by interim groups such as task forces, stakeholder groups or subcommittees, which are established for specific purposes of short duration.

As legally required, OKI's policy level committees consist of public officials that represent local governments and major transportation and planning agencies. Other public organizations as well as individual citizens also serve on these committees. The times and agendas of committee meetings are made available in advance by notification through direct mail, electronic mail and OKI's website (www.oki.org). All meetings are open to the public.

FOCUS OF PARTICIPATION EFFORTS

In addition to the public's participation or representation through OKI's organizational structure, opportunities for participation are provided as part of the transportation planning program. Meaningful opportunities for participation in transportation decision making are provided through the scheduled updates of the Annual Listing of Obligated Projects, the Transportation Improvement Program (TIP), corridor or special studies, and this plan.

OKI 2040 Regional Transportation Plan Update Process

This plan addresses the region's transportation needs for a minimum 20 year period. The public is provided opportunities for participation in the update of the plan, which occurs every four years. To support public participation in the plan update process, OKI has made a concentrated, ongoing effort to identify deficiencies in the existing transportation system's ability to meet year 2040 travel demand, present the range of issues and concerns to be addressed through transportation planning, introduce potential transportation improvement strategies and projects for public review and debate, provide adequate opportunities for public discussion of the plan's financial implications, integrate public preferences into the transportation plan update, and consult, as appropriate, with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation in developing long range transportation plans.

To meet these objectives, OKI applied a combination of techniques to provide information and obtain input from both transportation stakeholders and the general public (Appendix C). The key elements of the public participation program for the plan update involved OKI working with members from its standing committees throughout the process, conducting presentations to interested organizations, hosting two series of interactive public open houses, providing displays of information at libraries centrally located in Ohio, Kentucky and Indiana, conducting two surveys and making accessible all information and data on the OKI website.

ICC, Board and Executive Committee

Staff presented key components of the plan update on a monthly basis to the OKI ICC and Board of Directors or Executive Committee beginning in August 2011. The presentations were posted each month to the OKI website. Written updates and information were also included in monthly mailings for these committees.

Presentations

OKI staff took the opportunity to share information on the plan update during activities with jurisdictions and agencies throughout the region including the Cincinnati Cycle Club, OKI Air Quality Interagency Consultation Conference Call and Regional Planning Forum.

Public Open Houses

Public participation included two rounds of interactive public open houses which were used to communicate with the region's residents about transportation issues and issues of special concern in particular geographic areas within the region. The open houses provided participants with opportunities to obtain and review information, ask questions and express their opinions. Comments were recorded and reported to the ICC and Board/Executive Committee for their consideration and kept on file at OKI. Public comments included not only the statements made at the open houses, but also public comments shared with OKI via phone, email, regular mail, twitter, facebook and fax. Comments received also included those from local, regional and state transportation agencies. Public open houses were held at central locations easily accessible by EJ populations. Notice of the open houses was provided via OKI's website, announcements at committee meetings, during meetings of various civic groups, area community councils, neighborhood associations meetings and newsletters, telephone calls, direct mailings, twitter, facebook and emails. In addition, press releases were sent to major regional media sources and minority oriented newspapers.

The open house formats featured stations where participants viewed information which was most frequently presented in map form. Open house attendees talked one-on-one with staff to ask questions and share input.

Held in September 2011, the first round consisted of four open houses at which OKI shared information on base data, projections and the alternatives to be considered in addressing year 2040 travel needs. Public comments from the first round of open houses related to defining what the region's existing and future transportation concerns were or would be. Public perspectives on transportation issues provided direction for the plan's development.

Held in April 2012, the second round consisted of eight open houses held in each of the region's member counties.

Public comments from the second round of open houses provided feedback to better refine the draft list of fiscally constrained plan improvement projects. Second round comments were also considered in the final draft of plan projects.

Surveys

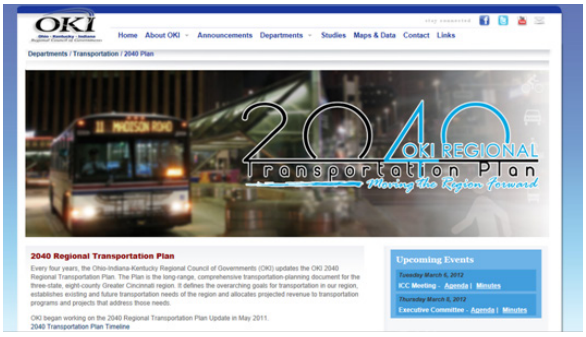
At each of the two rounds of public open houses, participants were asked to complete a survey. The surveys sought perceptions of the overall quality of the region's transportation system, invited suggestions for specific multimodal transportation improvements and asked respondents to rate the importance of various types of transportation improvements. Space was also provided for general comments. An online survey was also available on the OKI website throughout the entire plan update process.

Visualization Techniques

Throughout this plan's update, OKI strove to engage active public participation by making transportation planning information more accessible and easier to understand through the use of multiple visualization techniques such as artist renderings, audio-visual slide/PowerPoint presentations, 3D computer imaging, traffic simulation, drawings, flowcharts, interactive geographic information systems, online surveys, websites, maps, models, photo manipulation, animation, scenario planning tools, simulated photos, sketches, videos and visual preference surveys.

A special 2040 Plan Facebook page was established to take advantage of its 24/7 social media benefits. Several public open house attendees listed Facebook as how they "heard" about the event.

The plan also had its own dedicated page on oki.org. The same information was posted online, so that attendance in person at meetings and open houses was not a necessity and people could access information any time – day or night throughout the entire update process.



Draft Plan Update

Draft chapters of the plan were posted on the OKI website as they became available. The entire final draft plan was posted electronically on oki.org by May 29, 2012. The program distributed to everyone who attended the second round of public open houses included notice that the final draft plan would be available at oki.org by this date. By this same date, a physical copy of the final draft plan was made available in the main public libraries of each of OKI's eight member counties and in the OKI lobby for public review and comments. May 29, 2012 was also the date in which physical copies of the final draft plan were received via mail at the Ohio, Kentucky and Indiana departments of transportation.

Public Hearing

A public hearing was held on Monday, June 11, 2012 at 5:00 pm in the OKI Board room. There were 19 people in attendance. There was a request to edit the desciption of Project 314 (I-75/Galbraith Road Interchange Improvement) "retain northbound access" be added to the description. On Project 330 (Eastern Corridor/Relocated 32) during the past week over 175 emails have been received from citizens voicing concern in regard to this project and that all messages were identifical in all emails received and have been accepted into the record. The statements received were recorded and shared with the OKI Intermodal Coordinating Committee and Board of Directors for their consideration at their respective June meetings prior to plan adoption.

Executive Summary and Adoption

Each ICC and Board member received an executive summary of the plan for review purposes in their June 2012 mailings. Printed, full copies of the plan were provided to members upon request. The June 11, 2012 public hearing served as the conclusion for all public comments on the draft plan update. All final editing necessitated by public comment was made to the draft plan update, posted to the oki.org website and presented in the final staff presentation made to the OKI Board of Directors on June 21, 2012. The plan update was presented to the ICC for recommendation to the Board of Directors at their June 21, 2012 meeting. With recommendation from the ICC, the 2040 OKI Regional Transportation Plan 2012 Update was formally adopted by the Board of Directors on Thursday, June 21, 2012.

SUMMARY

The OKI Participation Plan describes in detail, the process for collecting public input on regional studies, initiatives, and other documents. The Participation Plan's public involvement process has been summarized in this chapter. In addition, the public participation used during the update of this plan has been presented and shows OKI's commitment to the goal of securing active and representative participation from all segments of the community in its transportation planning process and decision making activities. Further discussion of the special social and economic considerations are presented in Chapter 16 along with the environmental factors and impacts of this plan.

INTRODUCTION

The purpose of this chapter is to present existing and projected demographic conditions for the region. Areas of the region exhibiting different population and employment characteristics have different transportation needs. By exploring the various residential and employment development trends existing and anticipated within the OKI region transportation planners can better understand travel needs and plan for adequate public facilities and services. There are multiple transportation options to serve the development patterns that exist in the region. By responding to distinctive transportation needs in differently developed areas, this plan strives to improve mobility throughout the region.

POPULATION CHANGE

Data from the 2010 decennial census was not available at the time the demographic data for this plan update was developed. As a result, 2005 was retained as the base year from the 2008 plan update. However, the horizon year was extended from 2030 to 2040 to meet the federal requirement of a minimal 20-year planning period from the date of plan adoption. Population projections for 2005 through 2040 were developed by the Ohio, Kentucky and Indiana state data centers following the 2000 census; new projections based on the 2010 census were not available at the time this update was undertaken. County level poputlation projections developed by the state data centers are mandated for use in OKI's transportation planning efforts.

Based on the available projections, the OKI region's population is expected to surpass the two million mark by 2015. Over the 2005 to 2040 planning period, the population of the eight-county region is expected to grow 23 percent, from 1.9 million to 2.4 million (Figures 3-1 and 3-2).

Figure 3-1: Population by County, 2005-2040

	2005	2015	2020	2030	2040
Butler	350,880	385,919	403,864	439,744	468,950
Clermont	190,230	213,806	225,342	245,003	262,279
Hamilton	825,710	787,937	771,539	730,571	707,538
Warren	184,210	242,712	276,250	338,350	406,133
Boone	105,435	137,072	153,545	186,373	217,141
Campbell	86,957	88,044	88,117	87,125	84,236
Kenton	153,378	163,985	167,940	175,814	182,969
Dearborn	49,082	52,667	54,017	55,884	56,251
OKI Region	**1,945,882**	**2,072,141**	**2,140,614**	**2,258,864**	**2,385,497**

Source: 2005-2040 projections by the Ohio Department of Development (2003 Edition for 2005-2030 and 2011 special projection for 2040), Kentucky State Data Center (2009 Edition) and Indiana Business Research Center (2007 Edition).

Figure 3-2: Population Change by County, 2005-2040

	2005-2040		Percent Share of Regional Population	
	Actual Change	Percentage Change	2005	2040
Butler	118,070	33.6	18.0	19.7
Clermont	72,049	37.9	9.8	11.0
Hamilton	-118,172	-14.3	42.4	29.7
Warren	221,923	120.5	9.5	17.0
Boone	111,706	105.9	5.4	9.1
Campbell	-2,721	-3.1	4.5	3.5
Kenton	29,591	19.3	7.9	7.7
Dearborn	7,169	14.6	2.5	2.4
OKI Region	**439,615**	**22.6**	**100.0**	**100.0**

Source: Figure 3-1 Population by County, 2005-2040.

As the Cincinnati metropolitan area has expanded over the years, growth has radiated through Hamilton County into the surrounding counties. In fact, Warren and Boone counties have been and are predicted to continue to be among the fastest growing counties in their respective states.

Population is also projected to increase in the remaining counties over the 35 year planning period, with the exception of Hamilton and Campbell counties. Hamilton County consistently lost population during the last three decades of the 20th century, a trend that is expected to continue during the first four decades of the 21st century. As the largest county, Hamilton is expected to have a decreasing share of the region's population (a projected drop from 42 percent in 2005 to 30 percent in 2040) but nonetheless continue to have at least 50 percent more people than any of the other counties. Campbell County's population is anticipated to continue fluctuating as it has in decades past, with an overall population loss by 2040.

Between 2005 and 2040, the OKI region is projected to experience a rate of growth higher than two (Ohio and Indiana) of the three states in which its counties are located (Figure 3-3). In comparison to other major metropolitan areas in these states, projected growth in the OKI region shows mixed results. Its projected 23 percent growth during the planning period approximates that of the Louisville and Indianapolis metropolitan areas. However, the Columbus and Lexington growth rates are expected to be 19 and 32 percentage points higher, respectively, than the OKI region. The Dayton metropolitan area, to the immediate north of the OKI region, is projected to lose population over the planning period while Cleveland's population is projected to increase minimally.

Figure 3-3: Population Trends for Selected Metropolitan Areas and States

						2005 - 2040	
	2005	2015	2020	2030	2040	Actual Change	Percentage Change
OKI Region	1,945,882	2,072,141	2,140,614	2,258,864	2,385,497	439,615	22.6%
Cleveland	2,131,880	2,122,242	2,132,687	2,134,859	2,140,739	8,859	0.4%
Columbus	1,708,410	1,901,647	2,007,172	2,222,500	2,416,774	708,364	41.5%
Dayton	844,060	837,323	837,227	836,235	835,415	-8,645	-1.0%
Lexington	432,298	493,072	524,841	596,497	665,964	233,666	54.1%
Louisville	1,232,112	1,333,898	1,383,942	1,482,490	1,560,296	328,184	26.6%
Indianapolis	1,718,892	1,940,863	2,022,820	2,136,786	2,222,776	503,884	29.3%
OHIO	**11,501,180**	**11,816,168**	**12,005,730**	**12,317,610**	**12,547,697**	**1,046,517**	**9.1%**
KENTUCKY	**4,170,163**	**4,506,569**	**4,669,801**	**5,001,748**	**5,277,618**	**1,107,455**	**26.6%**
INDIANA	**6,271,973**	**6,581,875**	**6,739,126**	**7,018,710**	**7,213,781**	**941,808**	**15.0%**

Source: 2005-2040 projections by the Ohio Department of Development (2003 Edition for 2005-2030 and 2011 special projection for 2040), Kentucky State Data Center (2009 Edition) and Indiana Business Research Center (2007 Edition).

THE CHANGING AGE STRUCTURE

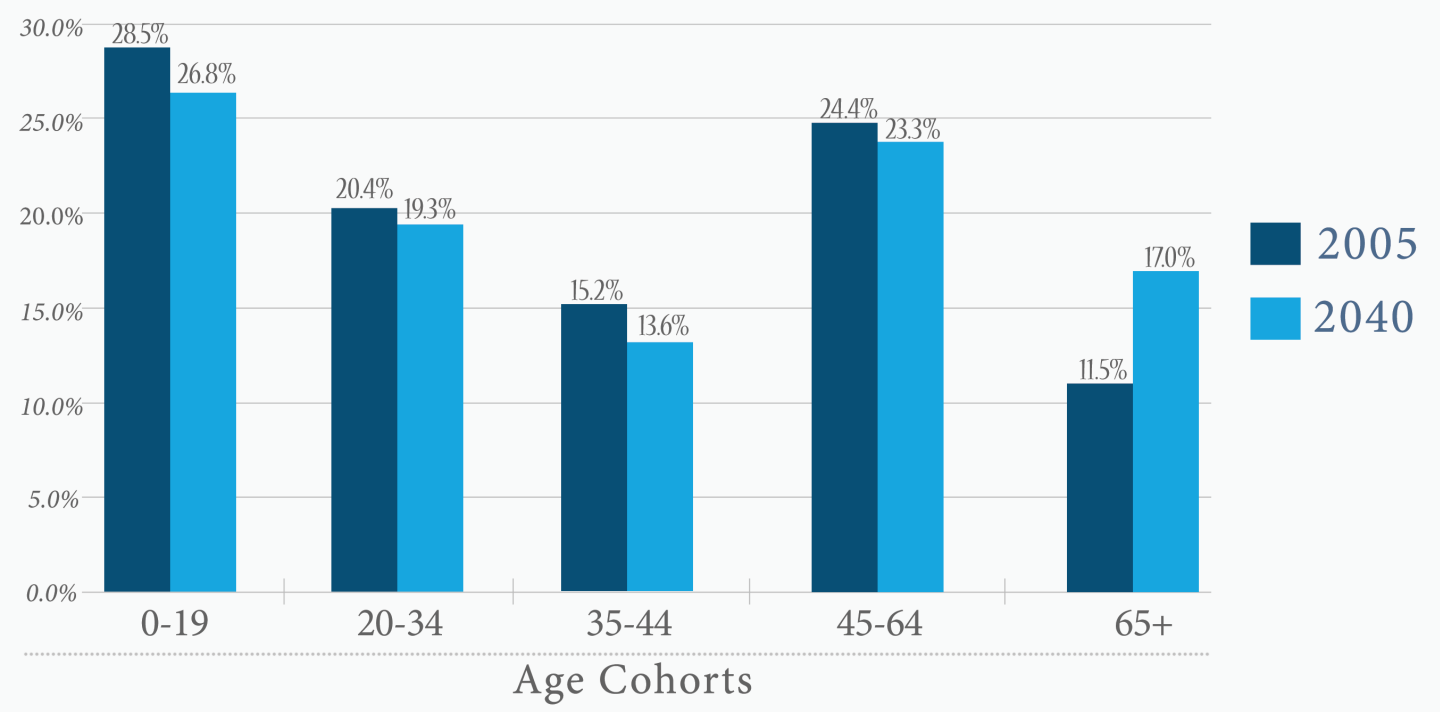
Population's effects on transportation needs and travel patterns are indicated not only by geographic distribution and household trends, but also by age structure.

Figure 3-4: Age Composition for the OKI Region, 2005 and 2040

	Age Cohorts					
	0-19	20-34	35-44	45-64	65+	Total Population
2005	28.5%	20.4%	15.2%	24.4%	11.5%	100%
2040	26.8%	19.3%	13.6%	23.3%	17.0%	100%

Source: 2005-2040 projections by the Ohio Department of Development (2003 Edition for 2005-2030 and 2011 special projection for 2040), Kentucky State Data Center (2009 Edition) and Indiana Business Research Center (2007 Edition).

Figure 3-5: Age Composition for the OKI Region, 2005 and 2040



Source: Figure 3-4 Age Composition for the OKI Region, 2005 and 2040.

While the percent of population in all of the age groups younger than 65 will be lower in 2040 than in 2005, the percent in the oldest age cohort will be higher (Figures 3-4 and 3-5). Among the changes in the population's age composition, the most significant is the aging of the "Baby Boom" cohort, born between 1946 and 1964. In the 1950s and 1960s, the large number of children in this age group created a need to expand schools and housing. As this generation reached adulthood and flooded the labor force, it caused high unemployment in the 1970s and 1980s and significant out-migration from Cincinnati's saturated industrial-based economy. As this generation established its own households, it triggered a second wave of suburban development that is expected to continue through the planning period.

With the front end of the baby boom generation beginning to reach age 65 in 2010, growth in the elderly population is becoming significant for its travel implications. This age sector is projected to grow from under 12 percent of the region's population in 2005 to 17 percent in 2040.

While the proportion and number of persons in their retirement years will be increasing during the planning

period, the proportion of this age group that drives will increase even faster. As today's population ages, the elderly of the future will be almost universally licensed to drive, accustomed to driving on a nearly daily basis and concentrated in suburban areas that are auto-dependent. The elderly will continue to drive as long as they are physically or legally able.

As the "over 65" age sector grows, safety will become increasingly important as a mobility issue. As people age, a number of the physical capabilities needed for safe vehicle operation gradually decline. These physical factors include depth perception, visual acuity, peripheral vision, glare tolerance, reaction time and hearing. Upon becoming aware that these capabilities are impaired, elderly drivers generally compensate by driving less and avoiding night driving, inclement weather, unfamiliar routes, and peak traffic periods. Safety issues related to the elderly are discussed in greater detail in Chapter 5. Nonetheless, there will be a greater need to improve the legibility of highway signs, upgrade lane widths and otherwise improve driving conditions. Transit stops will need paved access and sheltered benches. For elderly pedestrians, walking should be facilitated by traffic calming to slow traffic, reduce crosswalk distance, and increase crosswalk timing. To insure mobility for the elderly in suburban settings, there will be an increased need for attractive alternatives to the single-occupant vehicle.

In addition to mobility issues, the increased size of the elderly population will affect travel patterns by its withdrawal from the labor force and entry into retirement. There will be fewer commute trips and a higher proportion of trips will be made for shopping, personal, social, recreational and medical purposes. For the elderly, driving will become less frequent and trips will shift from major highways to local streets in urban areas.

ENVIRONMENTAL JUSTICE POPULATION GROUPS

The concept of Environmental Justice (EJ) is rooted in Title VI of the Civil Rights Act of 1964 which prohibits discriminatory practices in programs and activities receiving federal funds. Transportation planning regulations issued in October 1993 require that metropolitan planning processes be consistent with Title VI. In February 1994, President Bill Clinton signed an executive order which amplified the provisions of Title VI by requiring federal agencies to make "achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low income populations" (Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations).

In compliance with this directive, OKI incorporated EJ evaluation into its long-range planning process. Specific groups in the OKI region identified for EJ evaluation include the elderly, minority population, people with disabilities, population in poverty and zero car households (Figure 3-6).

Figure 3-6: Definitions of EJ Population Groups

Elderly: Persons aged 65 or older

Minority population: Persons from every racial category except White Alone plus all Hispanic persons

People with disabilities: Non-institutionalized persons aged 16 to 64 years with any disability

Population in poverty: Persons below the poverty level

Zero car households: Occupied housing units for which no car is available

Concentrations of EJ populations within the OKI region were identified by establishing thresholds equal to the regional averages for the various target populations according to 2000 census data (Figure 3-7). (More current data was not available for all groups at the time analysis was completed.)

Figure 3-7: 2000 Environmental Justice Population Thresholds

Environmental Justice Population Group	2000 OKI Region Total Population	Threshold
Elderly (65+ years)	221,093	11.7%
Minority population	300,718	15.9%
People with disabilities (16-64)	196,888	16.3%
Population in poverty	173,901	9.4%
Zero car households	71,694	9.8%

Source: 2000 U.S. Census.

Data for each EJ population were aggregated by Traffic Analysis Zone (TAZ), the geographic unit used in OKI's transportation analysis. Using as a basis a methodology developed by the Ohio Department of Transportation (ODOT) and adding refinements, OKI classified geographic areas both exceeding the threshold values and having a numerical incidence of more than 100 as target zones for impact assessment purposes. Figures 3-8 through 3-12 highlight the concentrations of the target populations by TAZ in the OKI region.

Figure 3-8: Elderly Population Environmental Justice Concentrations

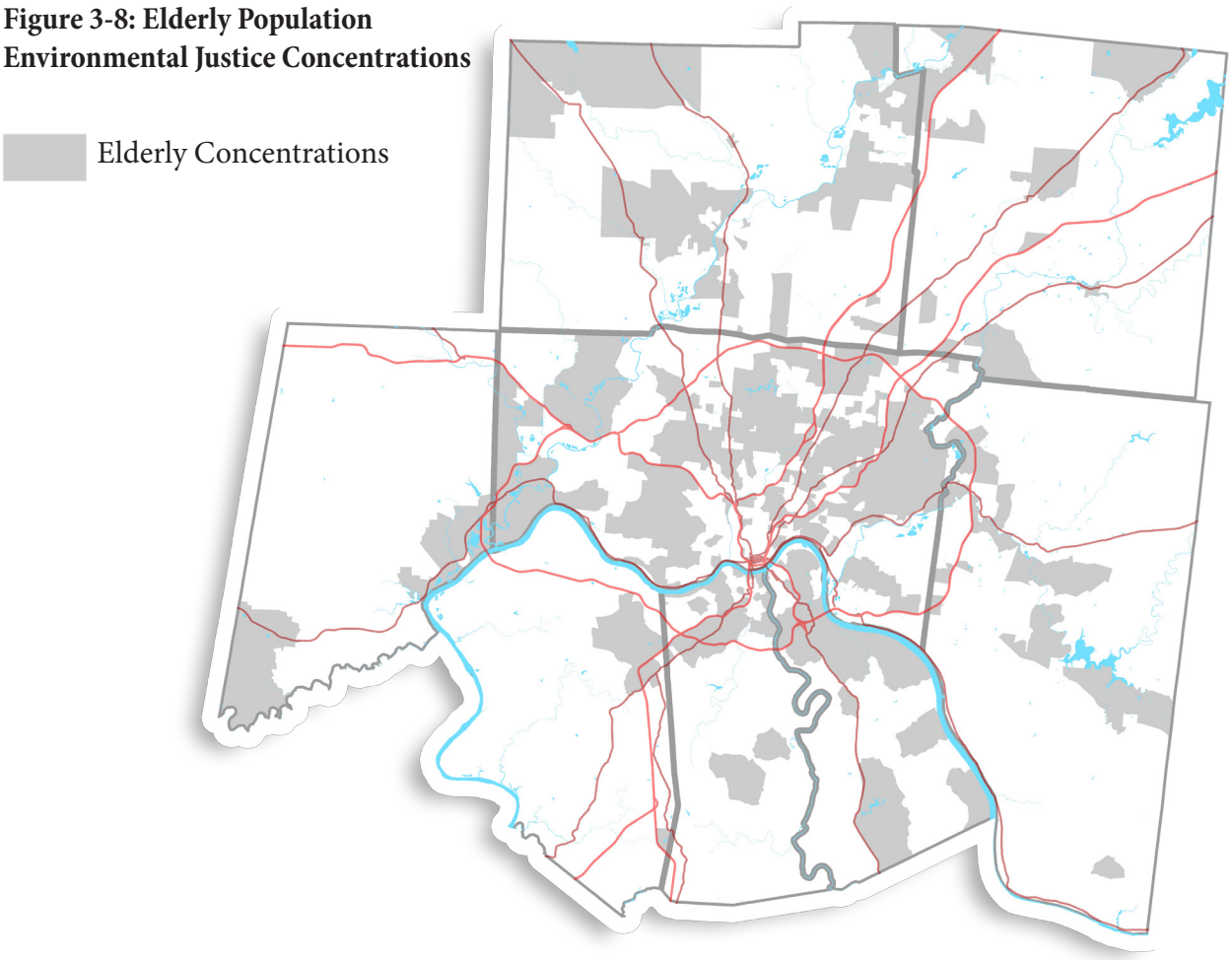


Figure 3-9: Minority Population Environmental Justice Concentrations

Minority Concentrations

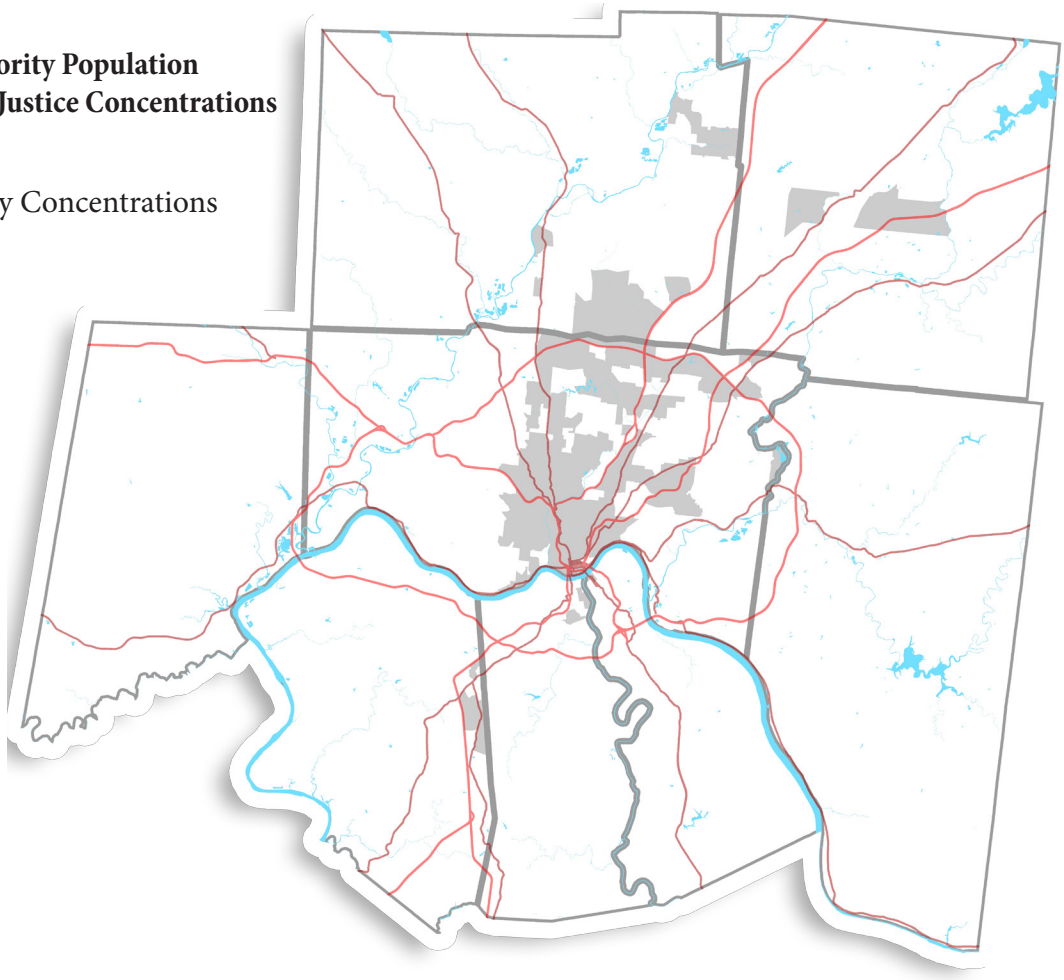


Figure 3-10: Population in Poverty Environmental Justice Concentrations

Poverty Concentrations

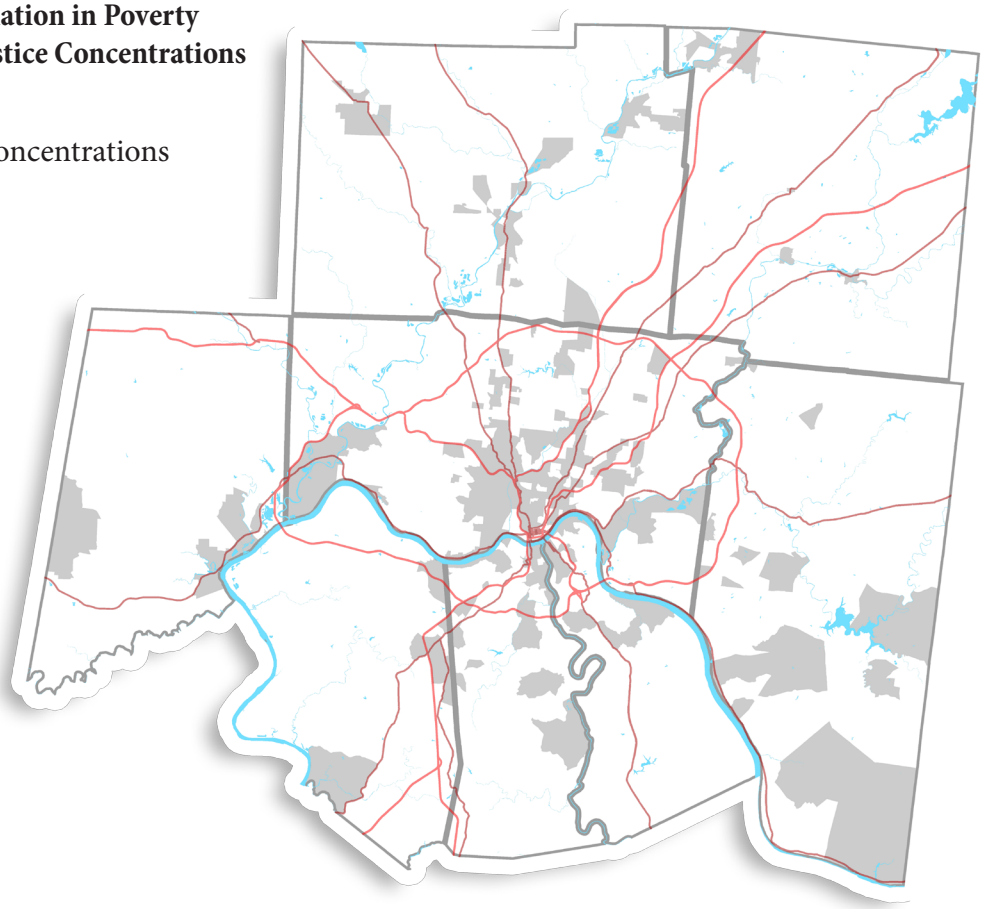


Figure 3-11: People with Disabilities Environmental Justice Concentrations

Disabled Concentrations

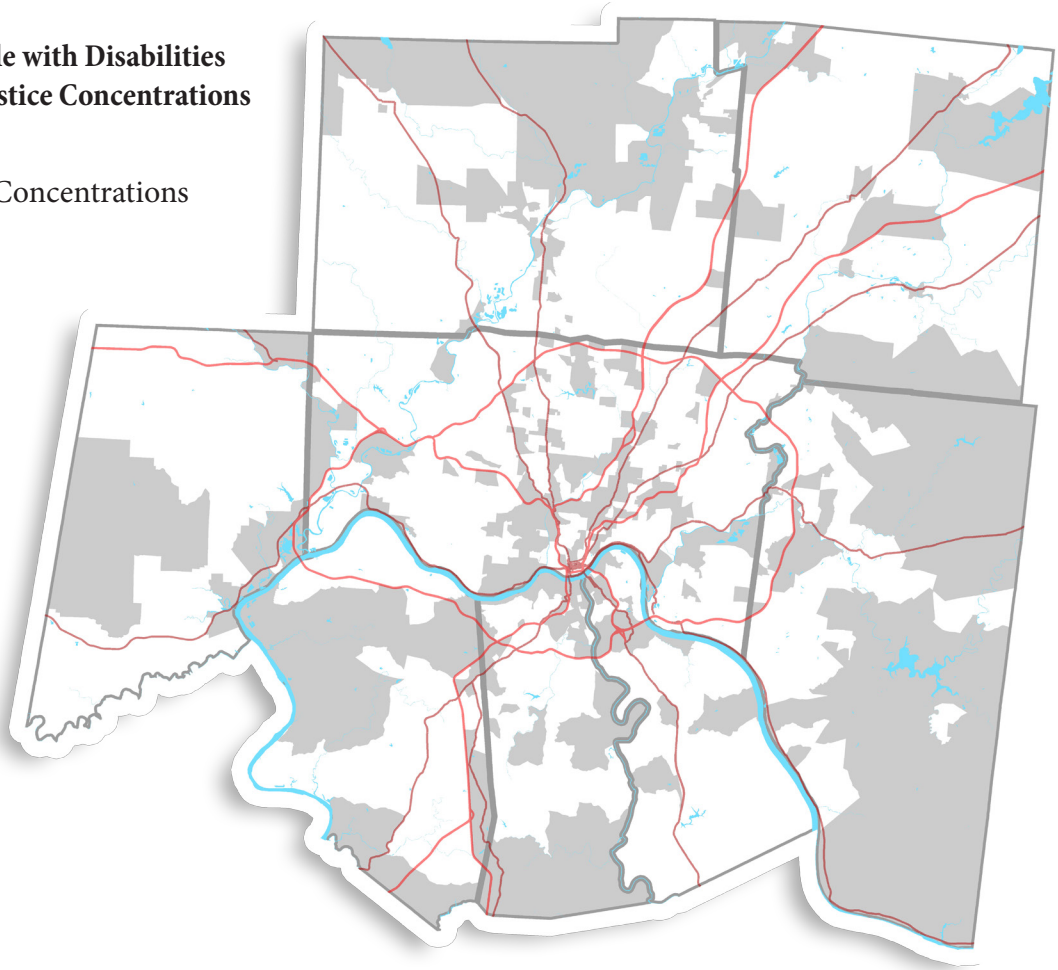
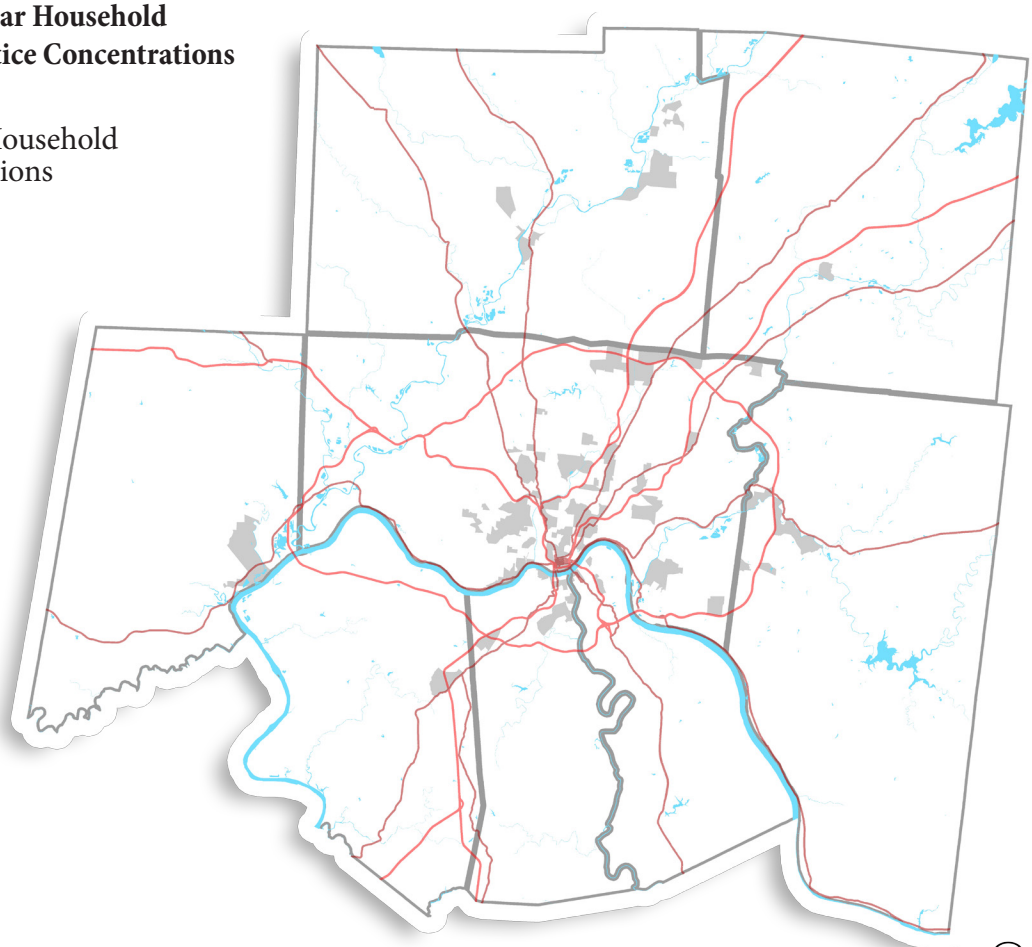


Figure 3-12: Zero Car Household Environmental Justice Concentrations

Zero Car Household Concentrations



HOUSEHOLD CHANGE

In addition to population, household change is also a strong indicator of transportation needs. Between 2005 and 2040, households are expected to increase 196,000 (25 percent) in the OKI region. Based on a long-term trend toward smaller household size, households are projected to continue to grow faster than population in all of the OKI counties experiencing population growth (Figures 3-13 and 3-14).

Figure 3-13: Households by County, 2005–2040

	2005	2015	2020	2030	2040
Butler	130,874	148,748	157,618	170,461	182,022
Clermont	71,599	83,709	90,025	98,140	105,119
Hamilton	352,583	335,825	337,508	319,371	308,978
Warren	65,758	88,539	101,373	126,716	152,723
Boone	38,097	51,894	58,719	72,812	85,350
Campbell	35,954	36,642	37,559	38,415	37,989
Kenton	61,346	65,215	67,573	67,399	74,426
Dearborn	18,225	20,712	21,982	21,953	23,663
OKI Region	**774,436**	**831,284**	**872,357**	**915,267**	**970,270**

Source: 2005-2040 projections derived by OKI from population projections for corresponding counties.

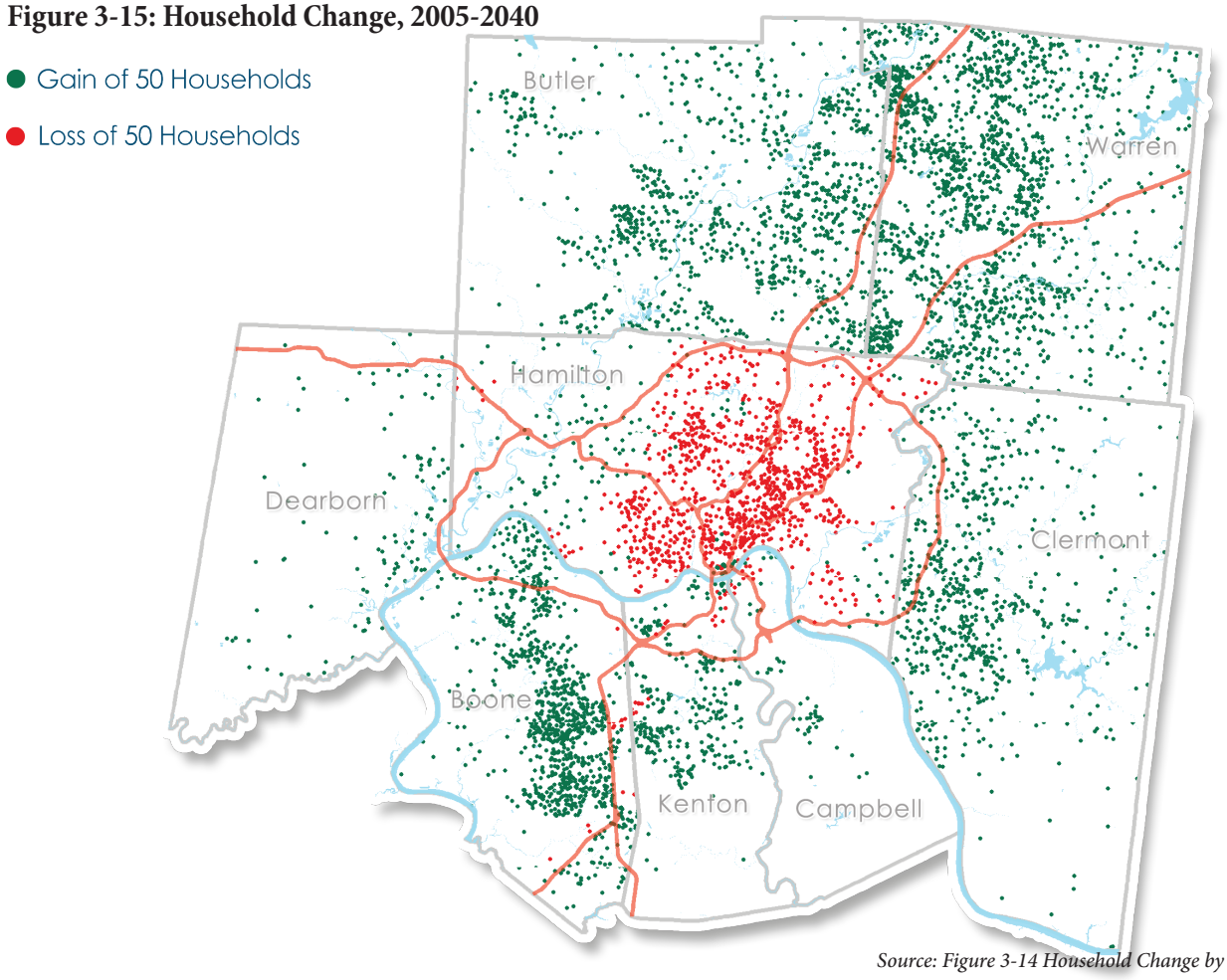
Figure 3-14: Household Change by County, 2005-2040

	2005-2040		Percent Share of Regional Population	
	Actual Change	Percent Change	2005	2040
Butler	51,148	39.1%	16.9%	18.8%
Clermont	33,520	46.8%	9.2%	10.8%
Hamilton	-43,605	-12.4%	45.5%	31.8%
Warren	86,965	132.3%	8.5%	15.7%
Boone	47,253	124.0%	4.9%	8.8%
Campbell	2,035	5.7%	4.6%	3.9%
Kenton	13,080	21.3%	7.9%	7.7%
Dearborn	5,438	29.8%	2.4%	2.4%
OKI Region	**195,834**	**25.3%**	**100.0%**	**100.0%**

Source: Figure 3-13 Households by County, 2005-2040.

As with population, the greatest household growth rate will be found in Warren and Boone counties where the number of households is expected to more than double during the planning period (Figure 3-15). In contrast, Hamilton County is projected to lose households due to the continued loss of population, aging of remaining population and redevelopment (resulting in lower density housing).

Figure 3-15: Household Change, 2005-2040



Source: Figure 3-14 Household Change by County, 2005-2040.

HOUSEHOLD DENSITY

Housing density, the number of dwelling units per acre, impacts the transportation needs of those dwelling units' residents. Within the OKI region, housing densities vary considerably. Furthermore, these densities are projected to continue to change over the planning period.

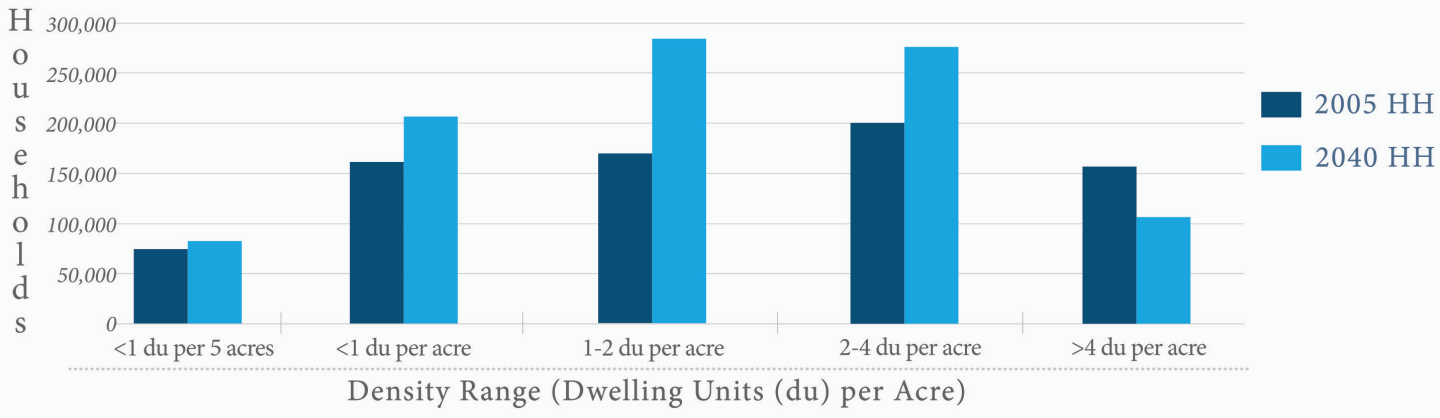
An analysis of households per acre by traffic analysis zone indicates that the majority of the acreage in the OKI region is currently, and will remain in 2040 to be, categorized at a density of one dwelling unit (du) per five acres or less (Figures 3-16 and 3-17). These low densities are occurring in the region's rural and developing areas. The largest proportion of households and population in the region is located in areas with a density ranging from two to four dwelling units per acre. This category encompasses over 70,000 acres and holds almost 200,000 households and over 450,000 people. This is only a slight margin over areas with a density under one dwelling unit per acre and areas ranging between one and two dwelling units per acre. Thus, the region's population is fairly evenly dispersed within housing densities of one to four dwelling units per acre.

Comparing the number of acres to the number of households shows how development has occurred over time at decreasing densities as it has extended farther from the region's center (Figure 3-16). For example, the higher densities of the region's urban areas encompass much less acreage (just over 28,000) and contain over 157,000 households, averaging 6.48 dwelling units per acre. Conversely, more recently developed areas encompass more than four times as much acreage (just over 120,000) and contain just slightly more households (approximately 170,000), resulting in an average household density of 1.43 dwelling units per acre.

Figure 3-16: Household Density by Traffic Analysis Zone, 2005

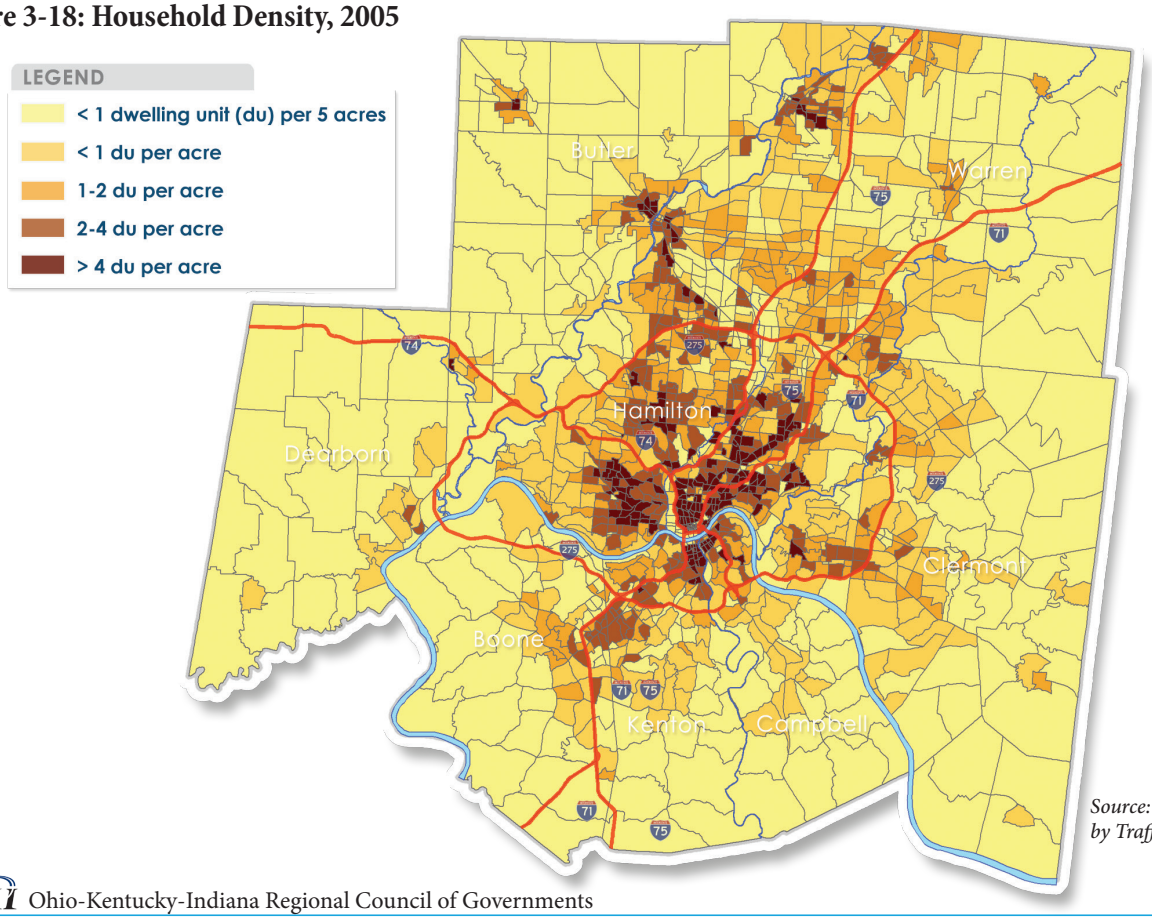
Household Density	Number of TAZs	Acreage	Average Household Density	Number of Households	Population
Without households	96	26,931	0.00	0	0
< 1 du per 5 acres	320	1,105,135	0.08	77,586	215,067
< 1 du per acre	396	332,339	0.58	166,866	450,742
1-2 du per acre	288	123,553	1.43	173,323	444,400
2-4 du per acre	289	72,205	2.84	198,951	462,011
> 4 du per acre	219	28,557	6.48	157,710	327,408
Total	**1,608**	**1,688,720**		**774,436**	**1,899,628**

Figure 3-17: Household Distribution, 2005–2040



Source: Figures 3-16 Household Density by Traffic Analysis Zone, 2005 and 3-19 Household Density by Traffic Analysis Zone, 2040.

Figure 3-18: Household Density, 2005



Source: Figure 3-16 Household Density by Traffic Analysis Zone, 2005.

Projections for 2040 indicate that the number of households in the region will increase by approximately 25 percent (Figure 3-19). The majority of the acreage in the region will still have a density of less than one dwelling unit per five acres. While the highest number of households in 2005 was in areas with a density of two to four dwelling units per acre, in 2040 the highest number of households will be in areas with one to two dwelling units per acre with an average density of 1.45 dwelling units per acre.

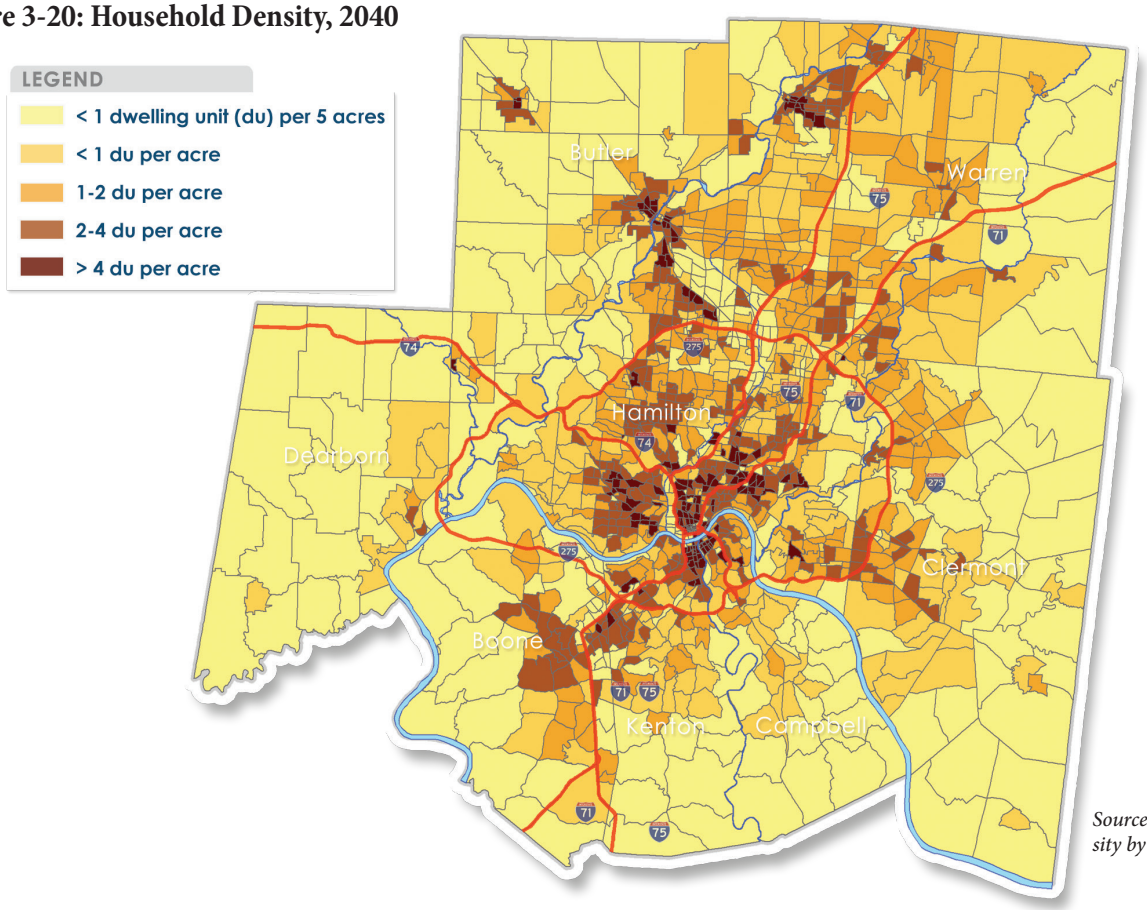
Also, the number of people in areas with higher density (more than four dwelling units per acre) will decrease by more than 100,000 people, resulting in an average density of 6.60 dwelling units per acre.

Figure 3-19: Household Density by Traffic Analysis Zone, 2040

Household Density	Number of TAZs	Acreage	Average Household Density	Number of Households	Population
Without households	125	35,178	0.00	0	0
< 1 du per 5 acres	227	918,260	0.10	83,836	753,625
< 1 du per acre	363	407,910	0.59	211,221	536,910
1-2 du per acre	369	204,036	1.45	283,999	722,133
2-4 du per acre	352	103,139	2.87	282,187	640,462
> 4 du per acre	172	20,197	6.60	109,027	218,278
Total	**1,608**	**1,688,720**		**970,270**	**2,871,408**

Increasing household densities are projected for portions of every county in the region except Hamilton County (Figure 3-19). However, over the 35-year planning period, average household densities in these areas will be no higher than two dwelling units per acre.

Figure 3-20: Household Density, 2040



Source: Figure 3-19 Household Density by Traffic Analysis Zone, 2040.

The percent of total households is projected to change slightly in each category from 2005 to 2040 (Figure 3-21). In 2005, the highest percentage of households is found in the two to four dwelling units per acre category. However, in 2040 the highest percentage is projected to be in the one to two dwelling units per acre category. Another dramatic change over the 35-year period is projected to occur in the more than four dwelling units per acre category. In 2005, 20 percent of the households in the region were in this category, but in 2040 only about 11 percent are anticipated to be in this category.

Figure 3-21: Household Density by Traffic Analysis Zone, 2040

	Percentage of Total Households		Percentage of Total Population	
Household Density	2005	2040	2005	2040
< 1 du per 5 acres	10.0%	8.6%	11.3%	26.2%
< 1 du per acre	21.5%	21.8%	23.7%	18.7%
1-2 du per acre	22.4%	29.3%	23.4%	25.1%
2-4 du per acre	25.7%	29.1%	24.3%	22.3%
> 4 du per acre	20.4%	11.2%	17.2%	7.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Areas of the region exhibiting different population and household characteristics have different transportation opportunities and challenges. Densities and development patterns in the region's downtown areas and the suburban areas immediately adjacent are suited for facilitating the use of public transit, bicycling and pedestrian activity. Further, infill development complements the available transportation infrastructure. Issues in downtowns and first suburbs include preservation and maintenance of existing facilities and corridors, right of way concerns for expansion of the roadway system, providing context sensitive design alternatives and adequate provision for parking.

Developed suburban and developing rural areas face a different set of transportation issues. Low-density development does not facilitate efficient public transit systems and transit service is often inconvenient to potential riders. In addition, the trend toward lower densities predicted for the OKI region over the planning period will result in new infrastructure that serves fewer people which, in turn, increases per capita construction and maintenance costs. However, in developing areas, there is the opportunity for inclusion of bicycle and pedestrian facilities in transportation systems. Providing connectivity, ensuring that adequate infrastructure is in place at the time development occurs and planning for access management are topics to consider when determining transportation systems for areas that are planned for development.

Rural areas of the region also have distinct transportation needs. Pavement management, bridge replacement and scenic byway preservation may be primary concerns in rural areas. Preservation of right of way and access management for future development may be planning topics of interest for rural areas.

EMPLOYMENT CHANGE

Employment patterns affect the number, length and distribution of trips. Although work trips comprise only one-fifth of the region's total person trips, they create the greatest demand on the transportation system because

of their morning and afternoon peak time periods. Currently, one-half of the region's population is employed. Employment as a percent of population in the OKI region is expected to hover around the 50 percent mark throughout the planning period.

For years, the region's employment grew much more rapidly than its population as the baby boom generation reached working age and raised the proportion of the population absorbed into the labor force, and, in recent decades, as a greater proportion of women entered the labor force. During the planning period, the regional employment growth rate will decelerate, reflective of a slowing in the region's population growth rate, stabilization of women's labor force participation rates, and retirement of the baby boomers. In 2040, the region's employment level is projected to be 26 percent above its 2005 level, which represents an addition of approximately 248,000 jobs (Figures 3-22 and 3-23).

Figure 3-22: Employment by County of Work, 2005-2040

	2005	2015	2020	2030	2040
Butler	137,675	154,061	162,253	178,639	190,809
Clermont	56,067	61,813	64,687	70,433	74,611
Hamilton	527,172	550,861	562,706	586,395	603,006
Warren	72,532	85,078	91,352	103,898	112,528
Boone	77,137	86,559	91,270	100,693	105,190
Campbell	28,016	30,232	31,340	33,557	35,471
Kenton	61,362	68,852	72,596	80,086	85,619
Dearborn	14,843	14,965	15,025	15,147	15,901
OKI Region	**974,804**	**1,052,421**	**1,091,229**	**1,168,848**	**1,223,135**

Source: 2005 derived by OKI from QCEW data and other sources. 2015-2040 projections derived from projected population and age-specific labor force participation rates adjusted for commuting in and out of the region.

Figure 3-23: Employment Change by County, 2005-2040

	Actual Change 2005-2040	Percent Change 2005-2040	Percent Share of Regional Employment 2005	2040
Butler	53,134	38.6%	14.1%	15.6%
Clermont	18,544	33.1%	5.8%	6.1%
Hamilton	75,834	14.4%	54.1%	49.3%
Warren	39,996	55.1%	7.4%	9.2%
Boone	28,053	36.4%	7.9%	8.6%
Campbell	7,455	26.6%	2.9%	2.9%
Kenton	24,257	39.5%	6.3%	7.0%
Dearborn	1,058	7.1%	1.5%	1.3%
OKI Region	**248,331**	**25.5%**	**100.0%**	**100.0%**

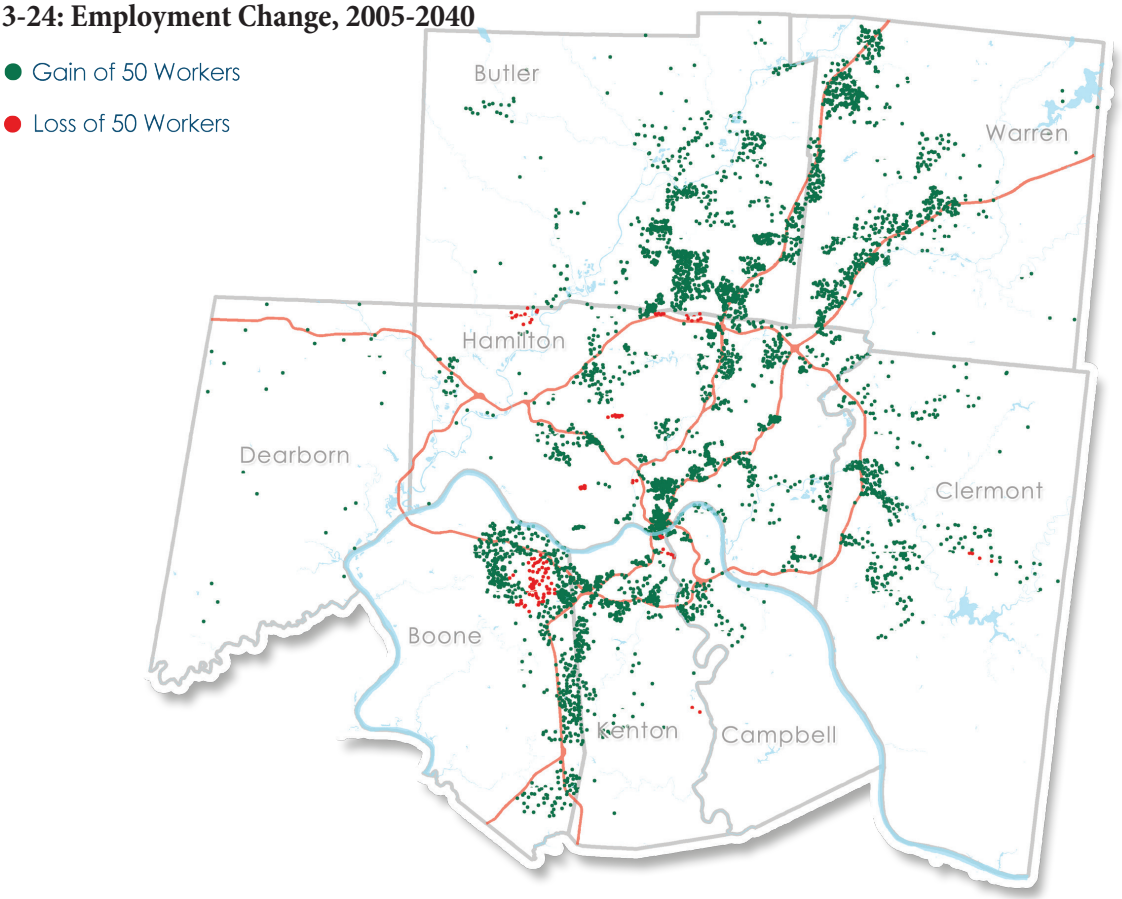
Source: Figure 3-22 Employment by County of Work, 2005-2040.

The slowing growth of the labor force and employment causes some uncertainty about the future. Unlike what happens in an economic downturn and restructuring, the loss of workers in this case does not in itself represent a loss of jobs. On both regional and national levels, the aging of the workforce is actually likely to cause a shortage of workers.

This shortage may be offset by increased in-migration in response to employment opportunities or by an influx of workers drawn out of retirement or drawn from other members of the labor force not currently employed. On the other hand, there may not be a worker shortage if automation achieves new increases in productivity.

In regard to its distribution, employment growth is expected to follow the suburbanizing pattern of the population, as it has in recent decades. Five of the region's eight counties are projected to continue to increase their shares of the region's employment while Hamilton, Campbell and Dearborn counties' shares are projected to level off or decrease (Figure 3-23). Regardless of shifts occurring in the region, Hamilton County is still expected to account for nearly half of all of the region's jobs in 2040. The highest number of new jobs is expected to be in Butler and Hamilton counties and the urban core (the cities of Cincinnati, Covington and Newport) is expected to remain a strong employment center as a result of economic development efforts (Figure 3-24)

Figure 3-24: Employment Change, 2005-2040



Source: Figure 3-23 Employment Change by County, 2005-2040.

COMMUTING PATTERNS

Historically, workers within the eight counties of the OKI region have exhibited varying intra- and inter-county commuting patterns. Compared to 1980, higher percentages of workers in Butler, Hamilton, and Dearborn counties commuted to jobs outside their county of residence but elsewhere in the OKI region in 2006-2008. This trend

suggests that residents of these counties increasingly found attractive job opportunities in other OKI counties and that the commute to those locations was acceptable. In contrast, Boone, Clermont, and Warren workers were increasingly more likely to commute within their home counties over time, indicating that those counties were providing more employment opportunities for their residents (Figure 3-25).

Figure 3-25: Intra- and Inter-County Commuting by Number of Workers, 1980 to 2006-2008

From County of Residence	To County of Work: Same County				To County of Work: Different County				To County of Work: Total			
	1980	1990	2000	2006-08	1980	1990	2000	2006-08	1980	1990	2000	2006-08
Butler	71,075	79,112	90,481	95,860	33,451	55,533	69,833	64,655	104,526	134,645	160,314	160,515
Clermont	17,752	27,257	35,454	38,625	35,071	44,119	52,918	52,500	52,823	71,376	88,372	91,125
Hamilton	346,950	356,399	336,246	329,220	24,723	43,007	62,219	63,550	371,673	399,406	398,465	392,770
Warren	15,454	19,789	29,470	40,820	24,387	34,287	47,078	40,920	39,841	54,076	76,548	81,740
Boone	9,806	14,102	23,589	31,930	10,021	14,412	20,918	25,990	19,827	28,514	44,507	57,920
Campbell	13,112	14,316	15,474	15,140	19,824	24,717	27,346	26,590	32,936	39,033	42,820	41,730
Kenton	22,773	28,611	30,771	31,675	34,573	39,797	45,398	44,475	57,346	68,408	76,169	76,150
Dearborn	7,848	7,336	9,508	10,670	5,604	9,972	13,203	12,270	13,452	17,308	22,711	22,940
OKI Region	**504,770**	**546,922**	**570,993**	**593,940**	**187,654**	**265,844**	**338,913**	**330,950**	**692,424**	**812,766**	**909,906**	**924,890**

Source: 1980 Urban Transportation Planning Package 1980 census, 1990-2000 Census Transportation Planning Package 1990 and 2000 censuses, 2006-2008 Census Transportation Planning Products 2006-2008 American Community Survey

Figure 3-26: Intra- and Inter-County Commuting by Percent of Workers, 1980 to 2006-2008

From County of Residence	To County of Work: Same County				To County of Work: Different County			
	1980	1990	2000	2006-08	1980	1990	2000	2006-08
Butler	68.0%	58.8%	56.4%	59.7%	32.0%	41.2%	43.6%	40.3%
Clermont	33.6%	38.2%	40.1%	42.4%	66.4%	61.8%	59.9%	57.6%
Hamilton	93.3%	89.2%	84.4%	83.8%	6.7%	10.8%	15.6%	16.2%
Warren	38.8%	36.6%	38.5%	49.9%	61.2%	63.4%	61.5%	50.1%
Boone	49.5%	49.5%	53.0%	55.1%	50.5%	50.5%	47.0%	44.9%
Campbell	39.8%	36.7%	36.1%	36.3%	60.2%	63.3%	63.9%	63.7%
Kenton	39.7%	41.8%	40.4%	41.6%	60.3%	58.2%	59.6%	58.4%
Dearborn	58.3%	42.4%	41.9%	46.5%	41.7%	57.6%	58.1%	53.5%
OKI Region	**72.9%**	**67.3%**	**62.8%**	**64.2%**	**27.1%**	**32.7%**	**37.2%**	**35.8%**

Source: Figure 3-25 Intra- and Inter-County Commuting by Number of Workers, 1980 to 2006-2008.

With regard to specific destinations, more workers in seven of the eight OKI counties commuted within their county of residence than traveled elsewhere in the OKI region during the 2006-2008 period; the second largest number of workers from each of those seven counties were employed in Hamilton County. In contrast, more Clermont County workers commuted to Hamilton County than traveled within their home county to work (Figure 3-27).

The 2006-2008 commuting patterns data also show that, in six of the eight OKI counties, over 95 percent of the workforce was employed within the region. In Warren County, the influence of the Dayton metropolitan area is evidenced by the 20 percent of the county's workers who worked outside the region. Workers in Dearborn County are similarly drawn, though to a lesser extent, to Ripley County, Indiana (Figure 3-28).

Figure 3-27: Inter-County Commuting by Number of Workers, 2006-2008

From County of Residence	To County of Work								In Region	Out of Region	Total
	Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn			
Butler	95,860	1,300	46,720	14,325	715	330	1,145	120	160,515	8,675	169,190
Clermont	3,860	38,625	40,010	4,640	1,595	765	1,565	65	91,125	2,810	93,935
Hamilton	22,095	8,845	329,220	12,265	7,270	3,465	8,360	1,250	392,770	7,599	400,369
Warren	10,795	2,015	26,990	40,820	290	195	575	60	81,740	18,903	100,643
Boone	940	560	10,930	215	31,930	1,340	11,270	735	57,920	1,875	59,795
Campbell	700	975	14,105	525	4,075	15,140	6,155	55	41,730	929	42,659
Kenton	905	1,195	20,080	580	16,735	4,830	31,675	150	76,150	1,835	77,985
Dearborn	645	185	8,900	170	1,615	75	680	10,670	22,940	1,783	24,723
OKI Region	**135,800**	**53,700**	**496,955**	**73,540**	**64,225**	**26,140**	**61,425**	**13,105**	**924,890**	**44,409**	**969,299**

Source: Census Transportation Planning Products 2006-2008 American Community Survey. Table excludes workers commuting into the region from outside.

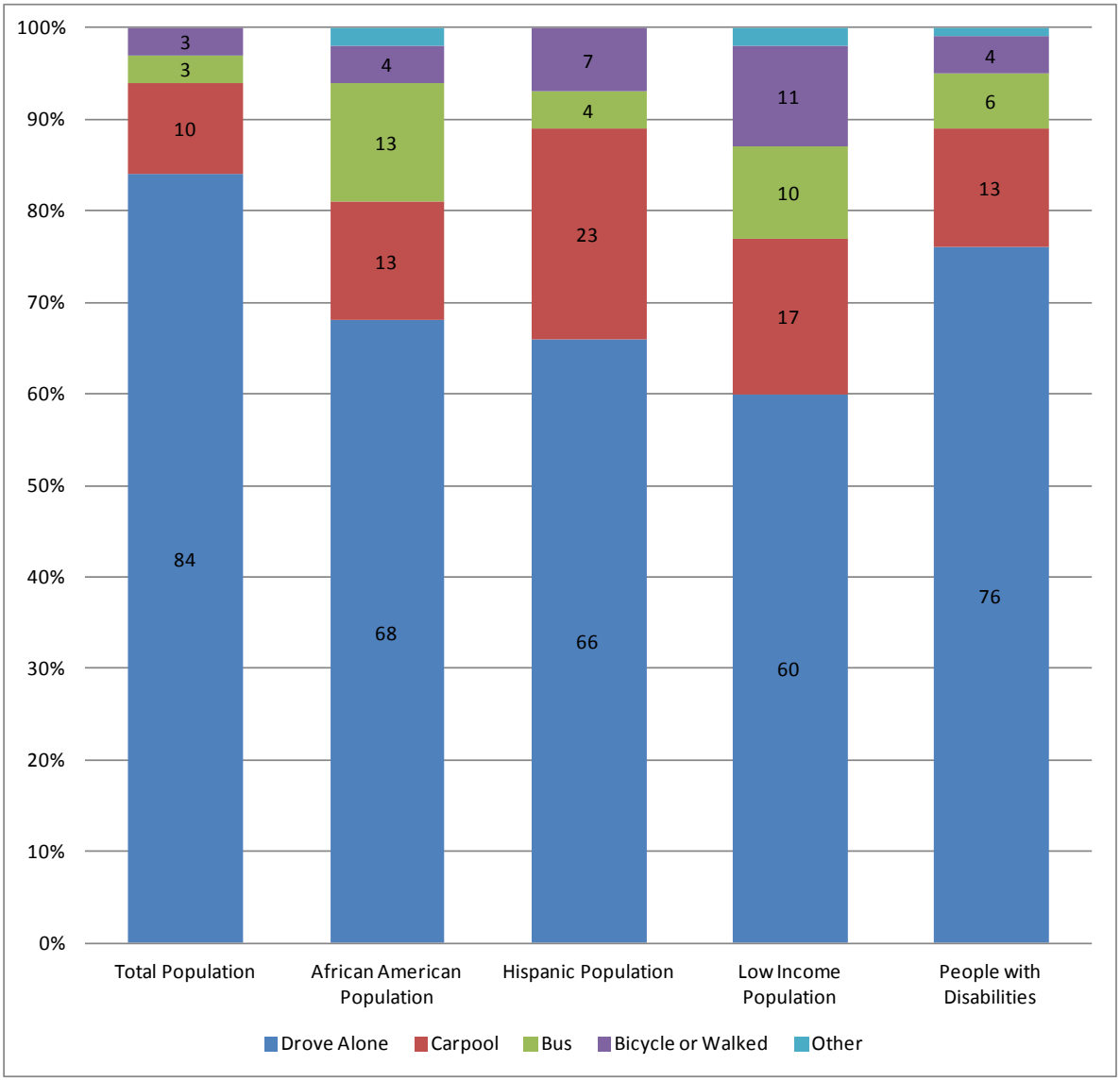
Figure 3-28: Inter-County Commuting by Percent of Workers, 2006-2008

From County of Residence	To County of Work								In Region	Out of Region	Total
	Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn			
Butler	56.7%	0.8	27.6%	8.5%	0.4%	0.2%	0.7%	01.%	94.9%	5.1%	100.00%
Clermont	4.1%	41.1%	42.6%	4.9%	1.7%	0.8%	1.7%	0.1%	97.0%	3.0%	100.00%
Hamilton	5.5%	2.2%	82.2%	3.1%	1.8%	0.9%	2.1%	0.3%	98.1%	1.9%	100.00%
Warren	10.7%	2.0%	26.8%	40.6%	0.3%	0.2%	0.6%	0.1%	81.2%	18.8%	100.00%
Boone	1.6%	0.9%	18.3%	0.4%	53.4%	2.2%	18.8%	1.2%	96.9%	3.1%	100.00%
Campbell	1.6%	2.3%	33.1%	1.2%	9.6%	35.5%	14.4%	0.1%	97.8%	2.2%	100.00%
Kenton	1.2%	1.5%	25.7%	0.7%	21.5%	6.2%	40.6%	0.2%	97.6%	2.4%	100.00%
Dearborn	2.6%	0.7%	36.0%	0.7%	6.5%	0.3%	2.8%	43.2%	92.8%	7.2%	100.00%
OKI Region	**14.0%**	**5.5%**	**51.3%**	**7.6%**	**6.6%**	**2.7%**	**6.3%**	**1.4%**	**95.4%**	**4.6%**	**100.00%**

Source: Figure 3-27 Inter-County Commuting by Number of Workers, 2006-2008.

Commuters within the OKI region exhibit very different behaviors in their journey-to-work patterns. Data from Census 2000 provides insight into the differing modes of transportation to work utilized by the African-American population, Hispanic population, persons with disabilities and those in poverty (Figure 3-29).

Figure 3-29: Commute Transportation Mode



Source: Census 2000, Census of Population, U.S. Census Bureau. Note: No usable data is available about commuters from zero-car households.

Whereas 84 percent of the total population of the OKI region drove alone to work, only two-thirds or less of the African American, Hispanic, and poverty populations did so. In contrast, over three-fourths of the population with disabilities commuted solo. The Hispanic population was most likely to carpool whereas the African American population was the highest population utilizing transit. Those living in poverty walked or biked to work with the greatest frequency, followed by the Hispanic population.

SUMMARY

Like many urban centers around the country, the Cincinnati region is experiencing growth outside the central city and county. This growth in population and employment outside Hamilton County is predicted to continue, causing increasing infrastructure needs in the outlying counties. However, as this chapter has presented, Hamilton County will remain the leader in population and employment into the year 2040, thereby having its own share of significant travel needs.

LAND USE AND TRANSPORTATION RELATIONSHIP

Transportation systems and services are provided in the context of both the built environment and the natural environment. Transportation affects and is affected by development patterns and the availability of infrastructure, such as water and sewer systems. Transportation affects and is affected by the location of natural resources such as slopes, soils and streams and their characteristics and conditions.

Fundamentally, the relationship between land use and transportation is reciprocal: increased land use intensities in a community typically increase demand for transportation facilities and services; and transportation facilities and services typically are catalysts for land development. This increased demand for adequate public facilities and services necessitates timely capital budgeting and construction, both in individual communities and also cumulatively in the region for planning transportation improvements.

In addition to influencing transportation improvements or expansion, development patterns also influence the mode of travel. Automobiles are necessary where subdivision design makes transit and walking a challenge and the separation of land uses in low–density developments makes driving a necessity. Transportation policy and projects influencing land development patterns is evidenced by commercial development stretching out along highway corridors (Figure 4-1); new subdivisions built soon after new freeway capacity opens; and high-volume franchises, gas stations, and malls at or near interchanges.

Figure 4-1:
Dixie Highway Corridor in Kenton County

Transportation investments can contribute to economic growth. Successful business retention and recruitment activities, for example, can generate demand for capital investments in new or upgraded public facilities and services; economic development efforts are more fruitful when businesses know that adequate public facilities and services are in place when they need them. Economic development efforts that help shape employment or commercial centers also help shape commuting and travel patterns.

Underlying all these issues, and especially transportation, is land use. Land use is the way in which, and the purpose for which, land and its resources are employed. Transportation is just one factor that influences land use, but it is an essential part of local and regional infrastructure. Strategies for improving transportation system efficiency such as multimodal options and access management are most effective when coupled with strategies for promoting compact, efficient land use development patterns.

National Trends and Perspective

The relationship between land use and transportation has been known over the years but metropolitan planning organizations (MPOs) around the country did not always address it in planning documents. A new era in federal transportation investment began with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) which mandated that MPOs maintain a continuing, comprehensive and cooperative transportation planning process and that 16 "planning factors," including land use, be considered during transportation planning.

In 2009, the Partnership for Sustainable Communities was formed between the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA). This partnership agreed to collaborate to help communities become economically strong and environmentally sustainable. This partnership is guided by six livability principles to coordinate investments and align policies that support communities to enable more housing choices, make transportation systems more efficient and reliable, reinforce existing investments, and support vibrant and healthy neighborhoods that attract businesses. In 2010 and 2011 OKI was awarded Preferred Sustainability Status by the HUD Office of Sustainable Housing and Communities. The Preferred Sustainability Status is a special designation provided by HUD recognizing the OKI region as having taken extraordinary steps toward strategic planning and development for the region that is aligned with the federal Partnership for Sustainable Communities' Livability Principles.

The "Great Recession" beginning in 2007 resulted in unprecedented shifts in the national economy and have resulted in a sharp decrease in the rate of new development in the region. There were less than half the number of building permits issued within the Cincinnati Metropolitan

Statistical Area (MSA) in 2010, at 3,206, than the 6,884 issued in 2007 (US Census Data). In 2012, as the economy continues to recover from the recession, new development investments are forecasted to maintain a much slower pace than pre-recession activity in large part due to a tightening of lending practices. The Congressional Budget Office (CBO) 2010 Budget and Economic Outlook: Fiscal Years 2010 to 2020 report forecasts a slow economic recovery due to, among other factors, dampened household spending due to slow income growth, lost wealth, and constraints on households' ability to borrow. The CBO also forecasts that investment spending (resulting in real estate development) will be slowed in the next few years by the large number of vacant homes and offices available for absorption by the real estate market.

The restricted household spending ability for much of the region's population increases the demand for more efficient and cost effective means of travel. Rates of fuel cost increases surpassing wage increases has been a challenge for all travelers.

Diversity and Destinations

Focusing new development in areas already developed can help create land use diversity and provide more options for people to work, shop and recreate close to where they live. Mixed use developments at the corridor level can reduce travel times by shortening the distance people have to drive.

Providing non-motorized connections with a mix of land uses and higher density development can reduce single-occupant vehicle trips. More people may choose to walk or ride a bike for short trips if facilities that accommodate pedestrians and bicyclists are in place. Compact nodes of mixed use can also generate centers of development that can be linked by convenient transit service. Mixed use centers of integrated office, retail, residential and civic uses – of a scale appropriate to their surroundings – can concentrate uses in a manner that supports walking, biking, public transit, and automobiles.

Density and Patterns

Over the past few decades newer residential development in the region has generally been characterized by one-half to one acre lots in cul-de-sac type subdivisions. This is the case in all parts of the region where relatively large tracts of vacant land have been available. New business development in the region also has had a tendency to occur on vacant land on the fringe of the urbanized areas.

As described in Chapter 3, the greatest number of households is expected to remain in the density range of one to two households per acre through 2040, but household density is projected to increase in every county of the OKI

region except for Hamilton County. Although it is not projected to increase, Hamilton County will still retain the highest household density overall.

Higher densities in growing and infill areas can make transit more feasible by creating destinations and concentrated populations that may choose to use transit as an alternative to single-occupant automobile trips. Transit development plans can facilitate the design of a system that incorporates multiple modes of transit service, links stations/stops and adjacent land uses, and integrates station/stops into neighborhoods. The recommendations of transit development plans typically focus on the desired outcomes of transit-friendly development including accessibility, walkability, and interconnectivity and high levels of ridership.

Suburban businesses throughout the region are typically automobile oriented and have large parking areas in front of the buildings. They are designed for the automobile, not the pedestrian. Communities that are attractive to pedestrians and bicyclists and functional for transit use can influence travel behavior. Design elements that facilitate walking and biking can reduce single-occupant vehicle trips and increase modal choice. The placement of buildings, parking, landscaping, lighting, architectural details, and bicycle, pedestrian and transit facilities can reduce the visual scale of larger buildings, provide interest at the pedestrian level, and create an atmosphere that encourages multimodal transportation.

Distance and Connectivity

People make travel route decisions based on three factors: distance, time and personal preference. Generally speaking, people will choose the shortest route in terms of distance; however, if the shortest route has a low speed limit, multiple traffic signals and curb cuts, people will take a longer route because it will save them time. In the OKI region, many people have a tendency to use the interstates for short trips because it saves them time. Providing efficient alternate routes can influence travel behavior.

The curvilinear cul-de-sac street pattern typical of recent subdivision design in the OKI region usually has very long blocks and many dead end streets. This pattern offers few route options since all traffic is typically funneled out onto a small number of arterial roads, causing congestion. Connectivity involves a system of streets providing multiple routes and connections to the same origins and destinations. Improving street connectivity by providing parallel routes and cross connections, and a small number of closed end streets can reduce traffic on arterial streets and reduce travel time.

Neighborhoods should be linked by a network of interconnected streets and walkways as part of a larger system that provides safe motorized and non-motorized access to homes, businesses, schools, recreation facilities and services, and other destinations. These networks, designed to keep local traffic off major arterials and high-speed, through-traffic off local streets, can reduce congestion and travel time. Interconnected streets incorporating traffic calming techniques, streetscape elements and other pedestrian oriented design can also create safe and more direct routes for travel by walking and biking and reduce single-occupant vehicle trips. These relationships are recognized throughout the OKI Strategic Regional Policy Plan (SRPP) and incorporated into this regional transportation plan as well.

Land development and most economic development projects depend on the availability and adequacy of transportation and other public facilities and services. Transportation improvements, water capacity improvements, sewer capacity improvements, storm water management, greenspaces and school capacities all have an impact on a community's ability to accommodate land use changes. The timing, location and cost of water, sewer, and road facilities can have a significant impact on land use patterns; and the density and intensity of land development is influenced by the availability and adequacy of these public facilities and services. Land use changes, in turn, create a greater or lesser need for roads and public transit. OKI's SRPP encourages land use patterns that promote multimodal travel and the efficient use of land, natural resources, and public facilities and services.

THE STRATEGIC REGIONAL POLICY PLAN

In 2005, after extensive review by local officials and public participation, the OKI Board adopted the OKI Strategic Regional Policy Plan. Development of the SRPP was initiated by the OKI Land Use Commission to bring about more consistency between the long range transportation plan and local land use policies. The SRPP encourages consistent local comprehensive planning and rewards it with additional consideration in the funding for transportation projects.

Due to the inseparable connection between transportation and land use, the role of the OKI Board in developing the SRPP and the integration of the SRPP recommendations with the region's transportation project prioritization process, this regional transportation plan incorporates, by reference, the Strategic Regional Policy Plan as adopted in 2005.

WHERE DO WE GROW FROM HERE?

Figure 4-2:
OKI Strategic Regional Policy Plan Logo

SRPP Development and Regional Transportation Plan Integration

While acknowledging that OKI has no authority and seeks no authority over local land use decisions, OKI's Board has worked since 1998 as a Land Use Commission to bring about better coordination between local land use planning and regional transportation planning, and to develop and implement an SRPP that focuses on a regional vision and the region's critical challenges and fundamental policy concerns.

Figure 4-3:
Land Use Commission Working on SRPP Development, November 2005

Early on, the commission adopted this mission: "Through

open dialogue and communication with decision makers and the public, the OKI Commission on Land Use shall develop a strategic regional plan which encourages land use patterns that promote multimodal travel and the efficient use of land, natural resources, and public facilities and services." The commission then methodically created the SRPP by preparing detailed inventories and analyses; establishing a regional vision; identifying strategic regional issues; developing goals, objectives, and policies for the strategic issues, all based upon extensive public input.

Twenty-eight strategic regional issues were identified as the region's critical challenges or fundamental policy concerns. For each strategic issue, an analysis of trends and conditions was conducted. Then, the OKI Board created sets of goals, objectives, and policies. The final draft of the SRPP incorporates all the phases of the Land Use Commission's work, including its mission and vision. Its strategic regional issues; trends and conditions statements; goals, objectives, and policies were assembled into six general categories: transportation, public facilities and services, natural systems, housing, economic development, and land use. The SRPP addresses transportation, or a relationship to transportation demand and needs, in all six of its six topical areas.

SRPP Implementation

As envisioned by the OKI Board when adopted in 2005, the SRPP is being implemented through voluntary cooperation among local governments, OKI, and many other organizations. Consequently, the SRPP is coming to fruition in phases ranging from the near term to the very long term in the following ways:

- **Through Consultation**

Implementation of many SRPP recommendations is up to the affected jurisdictions and other organizations on a voluntary basis. For that reason, OKI is continuing to build relationships and continue consultations that were key to developing the SRPP and are essential for implementing it. The types of groups that are or will be consulted include state and federal regulatory agencies; state and local agencies responsible for land use management, natural resources, environmental protection, and conservation agencies; local planning and major economic development agencies; and, local agencies that promote transit and alternatives to the single-occupant automobile. In 2011, OKI launched the OKI Regional Planning Forum to ensure a continued dialog occurs in the region surrounding the SRPP policy recommendations and to ensure the dialog involves the vast array of stakeholders necessary to implement the SRPP. The forum is a regional outlet for sharing information, experience and expertise among planners and those in related disciplines. The forum is open to representatives from throughout the tri-state region who are working to affect the future, whether through local planning or community foundations or by planning for community development, business, workforce development, public housing, environmental issues, efficient food systems, public transportation, energy, social services, or public health - in short, any issue that affects either the built environment or the natural environment.

- **Through Comprehensive Planning Assistance**

The classic first-level planning tool is the local comprehensive plan, which should address all aspects of land development including traffic circulation, bicycle and pedestrian access, economic development, public facilities, housing, natural resources, recreation, intergovernmental coordination, and capital budgeting. Comprehensive

plans are treated differently by state laws in Ohio, Kentucky and Indiana. Ohio law mandates a comprehensive plan as a prerequisite to zoning and subdivision regulation but provides no requirements or guidance as to content or updates. Kentucky law requires a regularly updated comprehensive plan as a prerequisite to zoning and subdivision regulation, and includes detailed guidelines for comprehensive plan preparation. Indiana law permits comprehensive planning and provides a list of what may be included in the plan. Comprehensive plans should be implemented through local regulations and incentives, such as zoning and subdivision regulations, that are consistent with such comprehensive plans.

The plans can improve transportation through land use planning and development strategies that help to reduce single-occupant vehicle trips, reduce trip length and increase modal choice.

When requested, OKI provides technical assistance to communities in the region as local comprehensive plans are created, updated, and maintained. In 2006 OKI developed the Elements of an Effective Local Comprehensive Plan to serve as a guide for local governments in the region. OKI staff has provided technical assistance to several communities in the region and will continue to provide this service.

- **Through Consistency**

One way the SRPP and this regional transportation plan strive to improve consistency with planned growth and development patterns is to encourage better comprehensive planning at the local level. When local governments base their future land use and transportation needs on sound data and analyses and a better understanding of the implications of alternative development patterns, OKI is able to be more proactive when planning for transportation improvements on the regional scale.

In an effort to stay informed about local planned growth and development patterns, OKI has and will continue to update the composite existing land use and existing zoning maps that were created as part of the SRPP, as well as maintain a library of local government comprehensive plans throughout the region when they are made available.

Perhaps most significantly, OKI has utilized the prioritization process for regional transportation investments to incentivize project consistency with the goals and recommendations of the SRPP. A total of 100 points maximum can be awarded when transportation projects are evaluated and scored. Of these 100 points, 10 points are based directly on the projects consistency with the SRPP. Up to five points can be awarded for projects addressing strategic regional issues identified by the SRPP including points for projects located in areas with mixed land uses or enhancing mixed land uses, projects serving brownfield or greyfield properties where infrastructure is underutilized, and for projects employing techniques to minimize or offset environmental impacts including green infrastructure strategies. Another five points are awarded for projects consistent with a community's current comprehensive plan.

OKI will continue to encourage local planners to engage in proactive planning processes and to make the transportation elements of their local comprehensive plans consistent with the regional transportation plan and the Transportation Improvement Plan (TIP).

- **Through Tools: Estimating Public Costs and Fiscal Impacts**

Another aspect of promoting consistency between planned transportation improvements and local growth patterns is to look at the likely public costs and fiscal impacts of proposed land use changes on public infrastructure and public services. Decisions on land development, redevelopment and improvements to public facilities and services should be made with a clear understanding of their fiscal impacts to individual communities and the region.

It is most economical to provide adequate public facilities and services concurrent with the impacts of development. Retrofitting adequate public facilities and services in response to growth is typically more expensive than directing or managing growth with public investments. The SRPP addresses the need for communities to have a full understanding of the public costs and benefits associated with development proposals.

In 2009, OKI developed the Fiscal Impact Analysis Model (FIAM) to aid local governments in analyzing benefits and fiscal consequences of land use changes within local communities. The FIAM assesses the costs and revenues associated with land use activities and their existing and potential impacts on community budgets. These estimates help communities anticipate and plan for current and future costs of growth. As communities better understand associated costs and revenues of development through fiscal impact analyses, they will be better able to plan for transportation investments to serve new development or fix existing deficiencies. OKI's model was initially tested by 10 communities. OKI will continue working to expand this partnership with other communities.

Figure 4-4: OKI Fiscal Impact Analysis Model Logo

Congestion Management

Implementing the SRPP is also helping OKI address the SAFETEA-LU requirement for a process that provides for effective management of congestion. OKI's Congestion Management Process includes evaluating and promoting travel demand management strategies such as parking management, trip reduction programs and growth management. Details on OKI's Congestion Management Process are provided in Chapter 7.

OKI has worked with peer reviewers and local planning agencies in every county to create and disseminate several related planning tools as part of the SRPP implementation. These tools and techniques promote reduction in vehicle miles traveled, reduction in single-occupant vehicle trips and travel demand management. They include such measures as encouraging street and parking networks designed for pedestrians, people with disabilities, bicyclists, transit and automobiles; supporting compact pedestrian, bicycle and transit-friendly land uses, where appropriate; encouraging local comprehensive plans to support a mix of land uses, higher density development, infill development and non-motorized connections, where appropriate; and, promoting the use of local strategies for connectivity and access management.

Air Quality

In 1990, Congress adopted the Clean Air Act Amendments (CAAA) to address the country's major air pollution problems. The CAAA regulates six major pollutants: sulfur dioxide, nitrogen dioxide, lead, carbon monoxide, particulate matter and ozone. As of June 2012, the Greater Cincinnati region meets the National Ambient Air Quality Standards for all of the six pollutants.

Pursuant to provisions of the CAAA of 1990, the U.S. EPA designated the nine county area Cincinnati area as nonattainment for ozone under the eight-hour ozone standard in April 2004. Ozone is formed through chemical reactions induced when sunlight reacts with volatile organic compounds, or VOC's and oxides of nitrogen (NOx). VOC's and NOx occur from incomplete combustion of fossil fuels. Transportation-related sources are a major contributor of these pollutants. Transportation sources account for nearly one-half of the total regional emissions of VOC's and 31 percent of NOx emissions. Industry sources account for about one-third of all VOC and NOx emissions. The remaining "area" sources include individually insignificant sources that when added together have a significant impact, such as lawn mowers, oil-based paints, boats and dry cleaners. In December 2004, U.S. EPA designated an eight county Cincinnati area as nonattainment under the annual fine particulate matter (PM2.5) standard. PM2.5 refers to a complex mixture of fine particulates, primarily from fossil fuel combustion. PM2.5 is emitted directly and will also form indirectly through reactions with precursor emissions, especially NOX. A primary contributor of transportation-related PM2.5 is diesel emissions.

Following significant progress in reducing air pollutant concentrations, the region has attained both the ozone and PM2.5 standards. The U.S. EPA redesignated this region as an ozone maintenance area in 2010 and a PM2.5 maintenance area in 2011. The area must continue to maintain the standards, keep previous regulatory commitments and must continue to demonstrate transportation conformity. The Cincinnati ozone maintenance area includes Lawrenceburg Township in Dearborn County, Indiana, the Kentucky counties of Boone, Campbell and Kenton, and the Ohio counties of Butler, Clermont, Clinton, Hamilton and Warren. The PM2.5 nonattainment area is identical except for the exclusion of Clinton County.

Sometime in 2012, U.S. EPA is expected to designate nonattainment areas under a revised, more stringent ozone standard. It is anticipated that the Cincinnati region will be designated as nonattainment under this more stringent standard. Further discussion of OKI's air quality analysis and conformity process are included as part of Chapter 16 and Appendix G.

Transportation and Climate Change

According to 2008 U.S. EPA data, about 28 percent of greenhouse gas (GHG) emissions in the United States come from transportation, making it the second largest contributor of GHG emissions, with industrial emissions being the largest. Of this percentage, more than 62 percent is estimated to come from passenger cars and light-duty trucks and more than 20 percent from medium and heavy duty trucks. Since transportation emissions are a key

source of GHG emissions, their reductions continue to be an important consideration in regional transportation planning.

According to the U.S. EPA, some degree of future climate change will occur regardless of future greenhouse gas emissions. The U.S. EPA states adapting to or coping with climate change will therefore become necessary in certain regions and for certain socioeconomic and environmental systems. The U.S. DOT's Transportation and Climate Change Clearinghouse defines adaptation as the adjustment in natural or human systems to a new or changing environment. This includes actions to avoid, withstand or take advantage of climate changes and impacts, including adapting transportation assets to the new and emerging effects of climate change.

To better understand and anticipate climate change effects considered most likely to impact the OKI region, research specific to the Midwest region of the U.S. was reviewed. The U.S. Global Change Research Program (USGCRP) coordinates and integrates federal research on changes in the global environment and their implications for society. The USGCRP began as a presidential initiative in 1989 and was mandated by Congress in the Global Change Research Act of 1990 (P.L. 101-606). According to USGCRP research, depending on geographic location in the U.S., regions will experience varying impacts and degrees to which these impacts affect their communities. The OKI region is split between the Midwest region, which includes Indiana and Ohio, and the Southeast region, which includes Kentucky. For the OKI region, anticipated impacts on both USGCRP defined regions were reviewed in the context of their relevance to other geographic features such as rivers, topography, and average climate zones. Listed below are the most important and relevant national issues identified in recent USGCRP research on climate change that will have the most direct impacts on the OKI region's future climate trends:

- The average temperature has risen over 2°F over the past 50 years. Between 2040 and 2070, the Midwest is projected to experience an annual mean temperature increase of 4.0 to 5.0°F and the Southeast is projected to undergo a 3.2 to 4.0°F increase.
- Precipitation has increased on average about five percent of the past 50 years.
- Heavy downpours have averaged a 20 percent increase over the past century.
- Extreme weather events such as heat waves and droughts have become more frequent and intense over the past 50 years. Between 2040 and 2070, the Midwest is projected to have much wetter winters and springs and drier summers. The Southeast is also projected to have reduced precipitation during the summer and fall months.
- The strength of storms has increased over the past few decades.

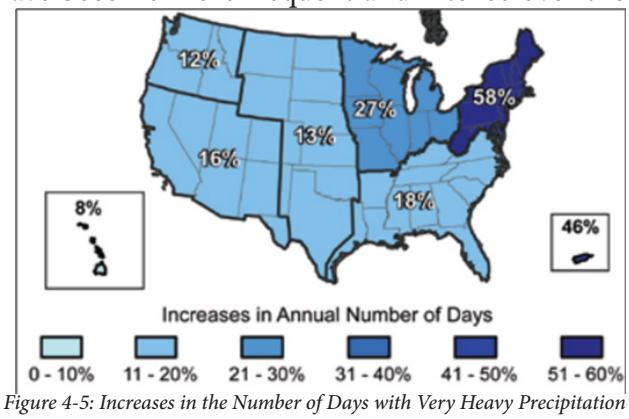


Figure 4-5: Increases in the Number of Days with Very Heavy Precipitation (1958-2007)
Source: USGCRP

Stormwater runoff is an important consideration for future transportation improvements. Climate change effects predicted for the region will increase the amount of stormwater runoff. Figure 4-5 shows the percentage increases in the average number of days with very heavy precipitation

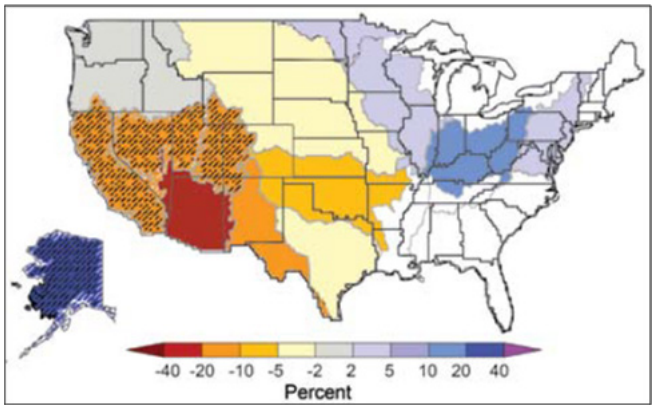


Figure 4-6: Changes in Median Runoff for 2041-2060
Source: USGCRP

(defined as the heaviest 1 percent of all events) from 1958 to 2007 for each US region.

According to USGCRP, there are clear trends toward more days with very heavy precipitation for the nation as a whole, and particularly in the Northeast and Midwest. USGCRP data forecasts an increase of 18 to 27 percent in annual number of days with very heavy precipitation for the OKI region between 2041 and 2060. According to USGCRP, climate models project continued increases in the heaviest downpours during this century, while the lightest precipitation is projected to decrease. Heavy downpours that are now one-in-20-year occurrences are projected to occur about every four to 15 years by the end of this century, depending on location, and the intensity of heavy downpours is also expected to increase. The one-in-20-year heavy downpour is expected to be between 10 and 25 percent heavier by the end of the century than it is now.

The USGCRP projected changes in median runoff for 2041-2060, relative to a 1901-1970 baseline, are mapped by water-resource region in Figure 4-6. Colors indicate percentage changes in runoff. The OKI region is projected to see increases in runoff of 10 to 20 percent.


Figure 4-7: Example of a Bioswale
Source: www.blog.lpainc.com

Another consideration for our region are wet weather landslides. As increased precipitation intensity creates additional stormwater volume to manage, it also creates issues as it saturates soils resulting in a reduction of soil strength on steep hillsides. Water plays a key role in landslides and intense rainfall is considered a trigger of landslide events in this region. As rainfall event intensity increases, there will be an increase in the likelihood of landslide activity in the region. Proper consideration and design of slopes adjacent to a roadway reduces the risk of future slippage. This factor should be considered in roadway construction and reconstruction activities in prone areas.

This transportation plan encourages the use of green infrastructure to reduce the volumes and potential negative impacts of stormwater runoff. For example, best management practices designed to infiltrate stormwater from transportation facilities, such as bioswales, reducing curb-and-gutter and daylighting streams, are examples of techniques that are encouraged and provided with higher scores during the transportation project ranking process.

ENVIRONMENTAL CONSIDERATIONS

Environmental resources have immeasurable benefits that include a role in social well-being and also in local and regional economies. The term "environmental resources" as used here encompasses natural systems and natural

resources and can include areas defined as greenspace or as green infrastructure.

Environmental resources affect local and regional economies and financial conditions in two fundamentally different but related ways. On the one hand, the occurrence of high-quality or rare environmental resources – such as clean streams, productive aquifers, aesthetic open space, or forested hillsides – are economic assets that help sustain and can attract new development. The existence of impaired resources, on the other hand, results in increased costs. Costs may be associated with damage or mitigation related to an individual project. The more significant cost of impaired resources, however, is the financial effect of cumulative damage over extended time, such as costs related to flood protection, repair of flood damage, and higher levels of water treatment. As high-quality resources in metropolitan areas become scarcer, project and mitigation costs are expected to increase. The region's long-term viability is tied to the quality of its environmental resources.

Transportation planning provides opportunity to slow negative and costly environmental impacts. That opportunity lies in making transportation improvements that avoid adverse environmental impacts and – because transportation improvements can facilitate new development – in making changes to conventional development trends and practices that contribute to the cumulative damage of environmental resources. Regional transportation planning offers the potential to result in better decisions for improving transportation and how development occurs, with related cost benefits.

Sustainability as a Planning Framework

National policy calls for protecting environmental resources. The National Environmental Policy Act of 1969 (NEPA) calls for stewardship, with each generation acting as trustee of the environment for succeeding generations, and for a sustainable environment balanced with other needs of present and future generations. It establishes procedures for considering the environmental effects of proposed federal actions so that environmental factors are weighted equally with other factors in federal decision-making. The policy of environmental stewardship is further strengthened by the Clean Air Act, the Clean Water Act, the Endangered Species Act and by recent initiatives to promote sustainable housing and communities.

At a regional level, progress in protecting environmental resources is related to the implementation of the Strategic Regional Policy Plan, several OKI water quality management programs, greenspace planning, and response to new requirements for regional transportation planning.

Transportation Planning's Consideration of Environmental Effects

Environmental considerations are an integral part and increasingly important element of transportation planning. The need to protect environmental resources as part of the process for improving transportation is clarified in FHWA policy, integrated into project-level planning and has been progressively strengthened in regional transportation planning.

FHWA policy clarifies that environmental considerations are to be integrated into every phase of transportation decision making (1994 Environmental Policy Statement) and that "Metropolitan Transportation Planning should

include consideration of the protection of important natural ecosystems and biological resources…" and provide for "incorporation of ecological considerations early in the transportation system planning and development process" (1995 FHWA policy memorandum). FHWA, with assistance from seven other Federal agencies, prepared Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects. Eco-Logical articulates a vision for an infrastructure development process that endorses ecosystem-based mitigation through integrating plans and data across agency and disciplinary boundaries. The goal of this program is to enable the integration of ecosystem-based planning to arrive at more efficient and cost-effective transportation projects with better environmental outcomes.

For transportation projects that use federal funds, environmental effects are considered during project planning, design, and engineering as part of a federally required environmental review process. This process addresses NEPA requirements and is intended to result in decisions "based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." An unintended consequence of the NEPA process, however, has been to increase costs for project planning and implementation. Its effectiveness in protecting resources has been under-mined by the frequency of allowing for adverse environmental impacts to occur but to offset resource loss and degradation through mitigation projects. The need for earlier review that would enable adverse impacts to be avoided instead of mitigated has lead to new requirements for regional transportation planning.

In 2005, new transportation legislation (SAFETEA-LU) added two new requirements to regional transportation planning for agencies like OKI. One requirement calls for "environmental consultations" to bring state and local agencies involved in conservation and environmental protection more fully into the transportation plan's development. The other requirement calls for the plan to include "a discussion of potential mitigation of environmental effects," which involves consulting with federal and state agencies on types of strategies for avoiding, minimizing, or compensating for transportation effects.

OKI Environmental Consultations

Environmental consultations are a recent requirement for regional transportation planning. Metropolitan planning agencies like OKI, are to consult with state and local conservation, environmental protection, and land use management agencies concerning the transportation plan's development. These consultations are to involve a comparison of the transportation plan with environmental resources (per 23 CFR Sec 450.322 [g]). This new process expands participation in the transportation plan's development and consideration of potential environmental effects and their financial implications.

The comparison that is central to the consultations serves to clarify how the transportation system and potential improvements contribute to environmental impacts or consequences that increase financial costs -- and how those impacts and related costs can be reduced. At a project level, improvements that avoid the need for environmental mitigation can result in lower costs. At a broader scale, the cumulative result of transportation improvements and related development on environmental resources is tied to public expenditures such as flood control, water treatment, stormwater management, and species recovery efforts. Planning provides opportunity to change

conventional transportation and development trends and practices and reduce negative and costly environmental impacts.

The financial implications of increased mitigation and continued development trends are the basis for the federal requirement for consultations. Consultations are integrated into transportation planning as a strategy to advance sustainable development and environmental stewardship. Consultations are intended to result in better decisions for transportation planning that more fully account for environmental effects and their financial consequences.

The requirement for environmental consultations involves state and local agencies in a comparison of the transportation plan with environmental resources identified for state conservation or protection. Participating agencies have responsibilities for land use management, conservation or environmental protection. Participating individuals are provided a review of environmental resources and transportation projects relevant for the comparison, involved in a discussion of options for reducing or avoiding environmental impacts from proposed projects and related development, and asked for comments on the transportation plan's potential environmental effects.

The consultations bring new insights to transportation planning and expand opportunity for transportation investments to advance sustainable development and reduce negative and costly environmental impacts. More specifically, they provide opportunity to consider:

- the extent and vulnerability of the region's least impaired environmental resources,
- the potential environmental effects of transportation improvements at the project level and from a larger and cumulative perspective,
- options for avoiding project impacts that could result in mitigation and higher costs, and
- options for reducing adverse impacts from conventional development trends and practices.

OKI has conducted two rounds of environmental consultations. The first round -- which focused on the 2030 Regional Transportation Plan Update prepared in 2008 -- helped OKI to prepare for the second round of consultations. The second round which focused on a draft version of this 2040 Regional Transportation Plan, was used to identify concerns about recommendations proposed for inclusion in the transportation plan and present information on those concerns for consideration at public meetings and by the OKI Board prior to the plan's adoption. Further discussion of OKI's environmental consultation process and a summary of findings are included as part of Chapter 16 and Appendix G.

Discussion of Environmental Mitigation

OKI is responsible for developing a Discussion of Environmental Mitigation as part of its regional transportation planning. The discussion is for considering potential mitigation strategies and areas for their application that are regional in scope and may have the greatest potential to restore and maintain the environmental functions affected by the regional transportation plan. The discussion is to be developed in consultation with appropriate federal and state agencies. A preliminary and partial beginning of that discussion is provided in an OKI report: A Discussion

of Environmental Mitigation: Phase 1 Report (December 2009).

"Environmental mitigation" is required for projects that use federal funds and have adverse impacts on certain natural resources or environmental functions. Mitigation is a sequential process in which impacts are to be avoided, impacts that cannot be avoided are to be minimized, or -- as a last resort -- impacts are to be offset or compensated for.

For projects recommended in an adopted plan, the opportunity to avoid or minimize impacts is often precluded and the usual course is to allow impacts to be offset by a "mitigation project." Mitigation projects usually involve the restoration or creation of an environmental resource to replace or provide a "like value" substitute for the impaired environmental resource and functions. The mitigation project boosts the transportation project cost and incurs additional costs for maintaining the mitigation site.

OKI initiated consultations on mitigation with state agencies as part of its first round of environmental consultations and also developed base information on federal and state mitigation processes. The information resulting from state agency discussions varied greatly. Each state's mitigation process, existing sites and potential mitigation options were the focus for this portion of state agency consultations. Kentucky's mitigation process was the most regional in scope and the use of the Mitigation Fund in northern Kentucky for identifying and addressing restoration needs has generated some significant success. OKI will continue to develop a discussion of environmental mitigation in accord with federal requirements. Future work for completing the discussion will include consulting with federal and state agencies and collecting additional base information for sites or resources for restoration that have the greatest potential to restore and maintain environmental functions.

INTRODUCTION

Motor vehicle deaths in the United States declined from 37,526 in 2000 to 32,788 in 2010, the last year for which data is available. It remains to be seen whether this decline is the beginning of a new trend or an anomaly. However, even at the 2010 level, someone dies every 16 minutes in a motor vehicle crash somewhere in the nation.[i] Moreover, the National Center for Injury Prevention and Control has determined that motor vehicle crashes are the leading cause of death for persons of every age from five through 34 years old.[ii] Clearly, traffic crashes are a significant concern. One of the primary goals of this plan is to improve travel safety by reducing the risk of crashes that cause death or injuries.

REGIONAL CRASH DATA

Within the OKI region, more than 61,000 crashes occurred in 2010, ending 131 lives, and causing more than 12,000 injuries.

Figure 5-1: Household Change by County, 2005-2040

County	Total	Fatal	Injury	Property Damage Only	Unknown
Butler	8,354	29	2,208	6,008	109
Clermont	5,125	14	1,399	3,660	52
Hamilton	28,972	39	5,594	23,205	134
Warren	5,173	15	1,195	3,926	37
Boone	4,241	9	614	3,618	0
Campbell	2,824	8	385	2,431	0
Kenton	5,006	9	753	4,244	0
Dearborn	1,981	8	288	1,685	0
OKI Region	**61,676**	**131**	**12,436**	**48,777**	**332**

Source: Ohio Traffic Safety Facts 2010; Kentucky Traffic Collision Facts 2010 Report; Indiana Traffic Safety Facts 2011.

COORDINATION WITH STATEWIDE PLANS

To reach this plan's safety goals, OKI will coordinate fully with the individual states and local communities in its planning area. In compliance with requirements from the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Ohio, Kentucky, and Indiana have developed State Highway Safety Plans. Within those plans are long-range goals for reducing fatalities. To achieve these goals, each state has identified emphasis areas in its Highway Safety Plan.

Each state also has a Five Percent Plan as mandated by SAFETEA-LU. These Five Percent Plans identify the most severe highway safety needs statewide. Each state developed its own unique methodology for identifying its Five Percent locations for 2011. Within the OKI region, 14 locations were identified by the Ohio Department of Transportation, 80 locations were identified by the Kentucky Transportation Cabinet, and two locations were identified by the Indiana Department of Transportation as posing severe

safety threats. All of the Five Percent locations identified by Ohio and Indiana as well as the 10 most severe Five Percent locations in the Kentucky counties of the OKI region are listed (Figures 5-2, 5-3 and 5-4) and mapped (Figures 5-5, 5-6 and 5-7) below.

Figure 5-2: Ohio Five Percent Locations

Map Reference	Route	Location
A	SR 63 and Cincinnati-Dayton Road	Intersection
B	CR 747	From Port Union to 0.35 south of Smith
C	SR 131	From west of Wild Rose Lane to 0.2 mile west of SR 132
D	SR 28	From east of Business 28 to Branch Hill Guinea
E	SR 28	From east of Branch Hill Guinea to west of Smith
F	Westwood Northern Boulevard	From west of Beekman to east of Burlington
G	Winton and Kemper Roads	Intersection
H	Harrison Avenue	From west of Orland to east of Bielger
I	Queen City Avenue	From east of Timbercrest to east of Ridge Top
J	Montana Avenue	From west of Mustang to West Fork
K	Warsaw Avenue	From Glenway to east of Parkson
L	Glenway Avenue	From Ferguson to Kreis
M	Colerain Avenue	From West Fork to south of Mt. Airy
N	US 27	From 0.5 mile south of Galbraith to Sovereign

Source: Federal Highway Administration Ohio 2011 Five Percent Report.

Figure 5-3: Kentucky Five Percent Locations

Map Reference	Route	Location
A	KY 1998	Between mile points 0.000 and 1.000
B	I-75	Between mile points 185.362 and 186.362
C	I-75	Between mile points 189.472 and 190.472
D	I-275	Between mile points 0.000 and 1.000
E	KY 1501	Between mile points 0.002 and 1.002
F	I-75	Between mile points 183.316 and 184.316
G	I-75	Between mile points 174.764 and 175.764
H	I-75	Between mile points 180.955 and 181.955
I	I-75	Between mile points 179.943 and 180.943
J	I-75	Between mile points 184.319 and 185.319

Source: Federal Highway Administration Kentucky 2011 Five Percent Report.

Figure 5-4: Indiana Five Percent Locations

Map Reference	Route	Location
A	US 50	Intersection cluster and two driveways near SR 48
B	US 50	Intersection cluster at SR 1 and two driveways west of I-275
C	North Dearborn Road	From two miles west of SR 1 then east to Kline Creek Lane

Source: Federal Highway Administration Indiana 2011 Five Percent Report.

Figure 5-5: Ohio Highest Crash Rate and Five Percent Locations

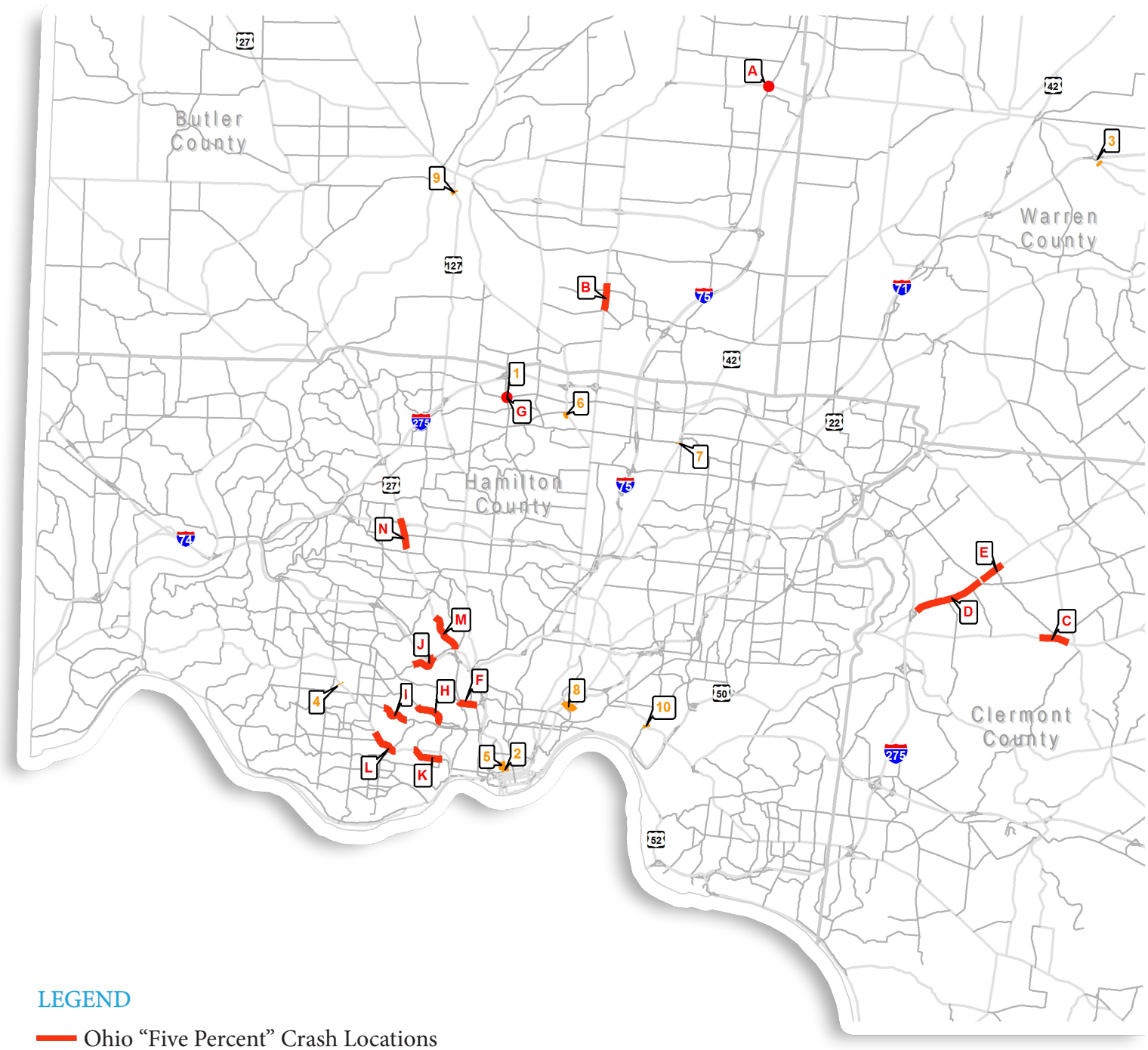
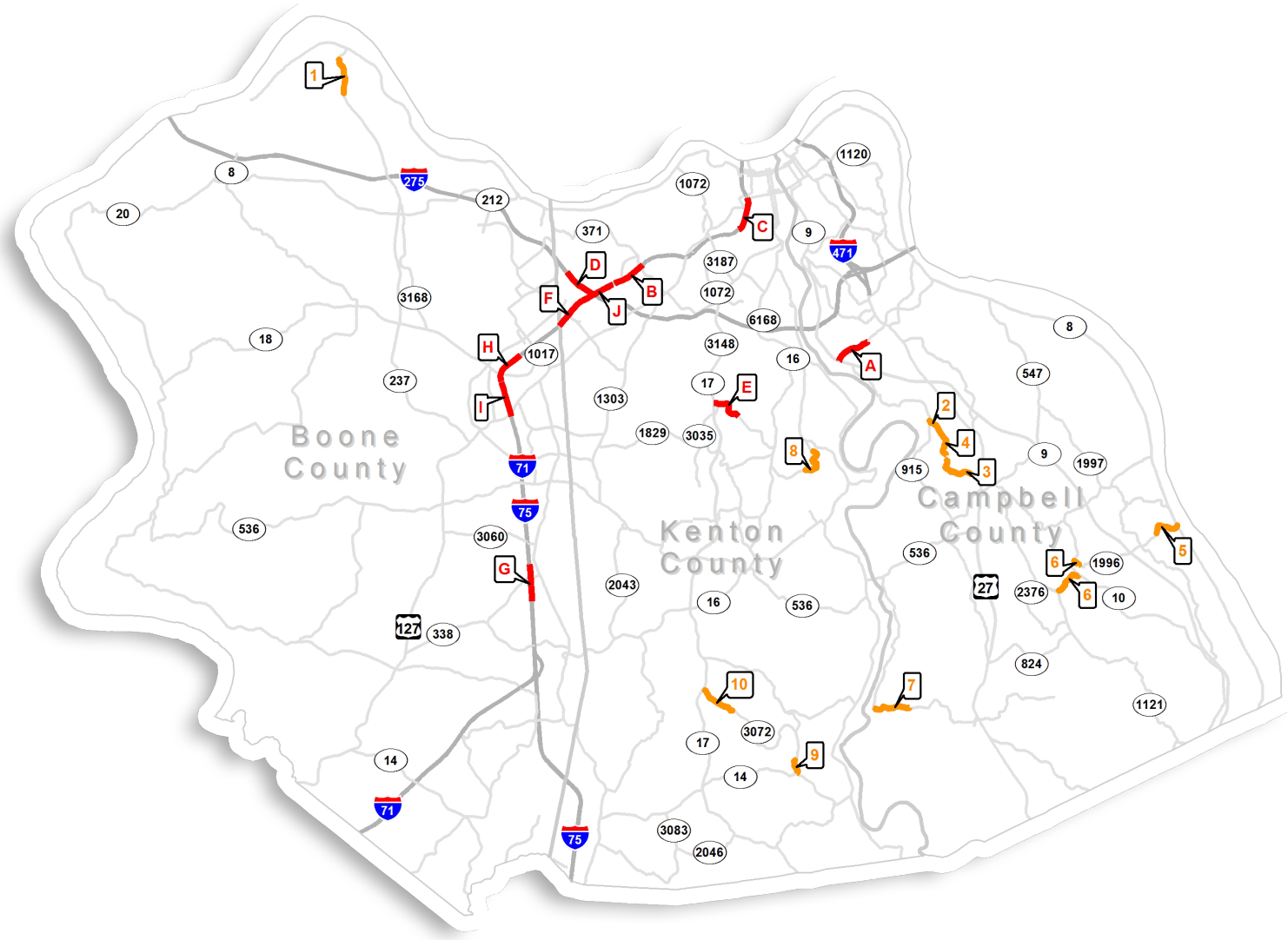


Figure 5-6: Kentucky Highest Crash Rate and Five Percent Locations

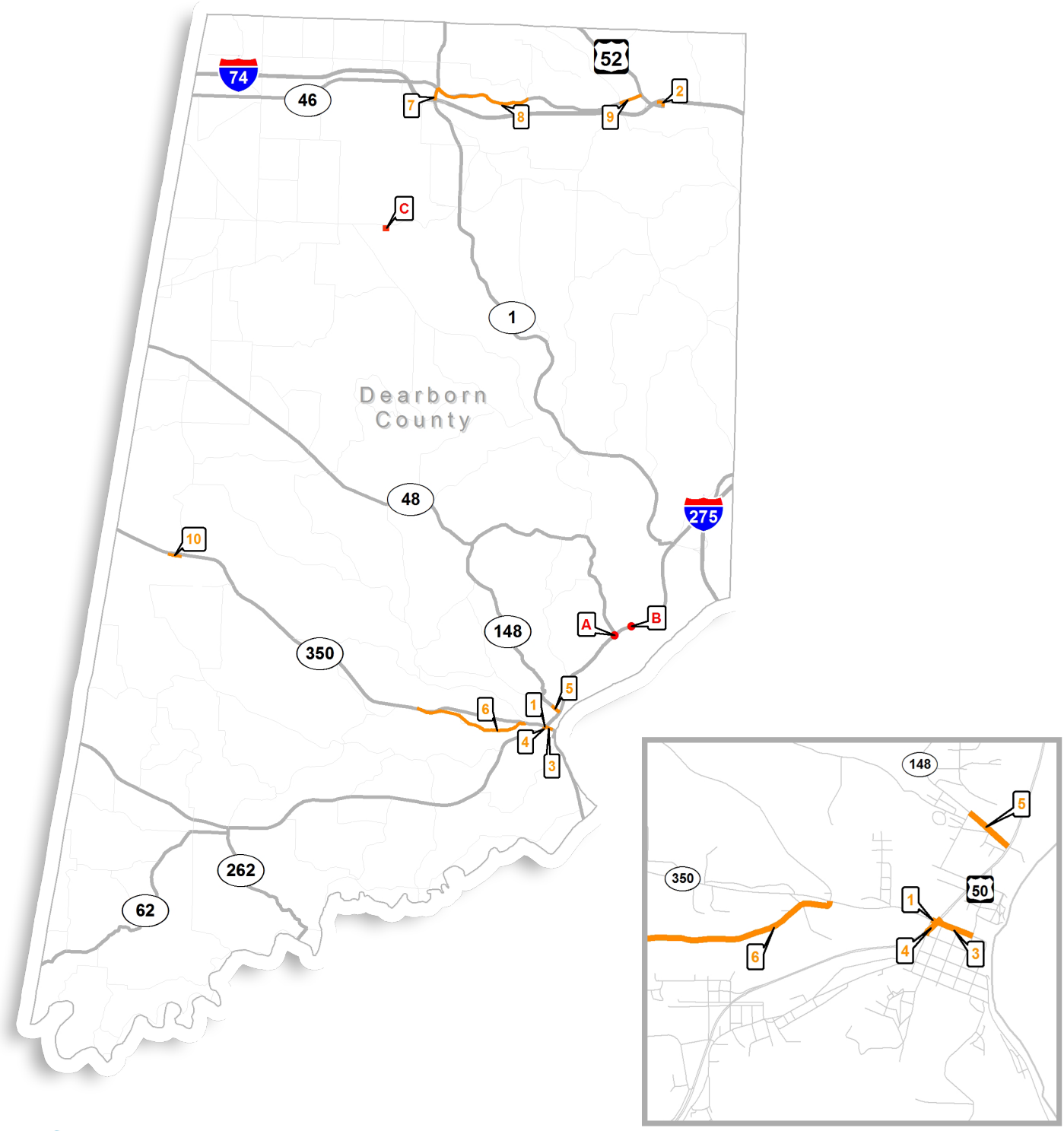


LEGEND

Kentucky "Five Percent" Crash Locations

Kentucky Highest Crash Rate Locations

Figure 5-7: Indiana Highest Crash Rate and Five Percent Locations



LEGEND

Indiana "Five Percent" Crash Locations

Indiana Highest Crash Rate Locations

Within the Ohio counties of the OKI region, most of the Five Percent locations are found in Hamilton County, particularly in the southern section of the county. In the Kentucky portion of the OKI region, eight of the top 10 Five Percent locations (based on total number of crashes) are found on expressways I-75 and I-275 in Boone and Kenton counties. Within Dearborn County, both Five Percent locations are located in the southeast portion of the county.

Another example of OKI's commitment to statewide coordination is its involvement in the development of a pilot project to improve safety on high-risk rural roads for the Kentucky Transportation Cabinet. OKI has developed a program to identify and address safety issues on horizontal curves along rural, non-state, two-lane roadways across the commonwealth. The pilot program is being successfully implemented in OKI's Kentucky counties.

In addition, OKI is contributing to the fulfillment of each individual state's safety goals by analyzing crash data on roadways within the agency's tri-state planning area. While implementing state and local governmental agencies are responsible for determining engineering improvements to the roadway system, OKI assists in identifying high risk locations. These analyses result in the identification of locations where safety needs are greatest in the OKI region.

In 2010, there were 131 fatal crashes on on-system (interstate, state and federal) roadways in the OKI planning area. Beyond the potential individual devastation wrought by crashes, the costs of such incidents impact every person in the OKI region. These costs are felt by an incremental loss in productivity due to non-recurring congestion, actual property damage costs and monetary costs associated with medical expenses, increased insurance premiums, and legal fees. Improving travel safety will have positive impacts for everyone in the OKI region.

In a review of crash trends, a crash rate which is expressed as the number of crashes per million vehicle miles is a better measure of the safety condition of the roadway than a simple crash tally because it takes into account traffic volume. An examination of crash rates for 2009 by roadway segment reveals crash trends in the OKI region (Figures 5-8, 5-9 and 5-10).

Within the Ohio counties of the OKI region, eight of the 10 highest crash rate locations are in the southern, urban portion of Hamilton County (see Figures 5-8 and 5-11). In contrast, most of the highest crash rate locations in the Kentucky counties are scattered in more rural sections (see Figures 5-9 and 5-12). In Dearborn County, half of the locations with the highest crash rates are clustered in the southeast portion of the county (see Figures 5-10 and 5-13).

Figure 5-8: Crash Rates By Roadway Segments, Ohio

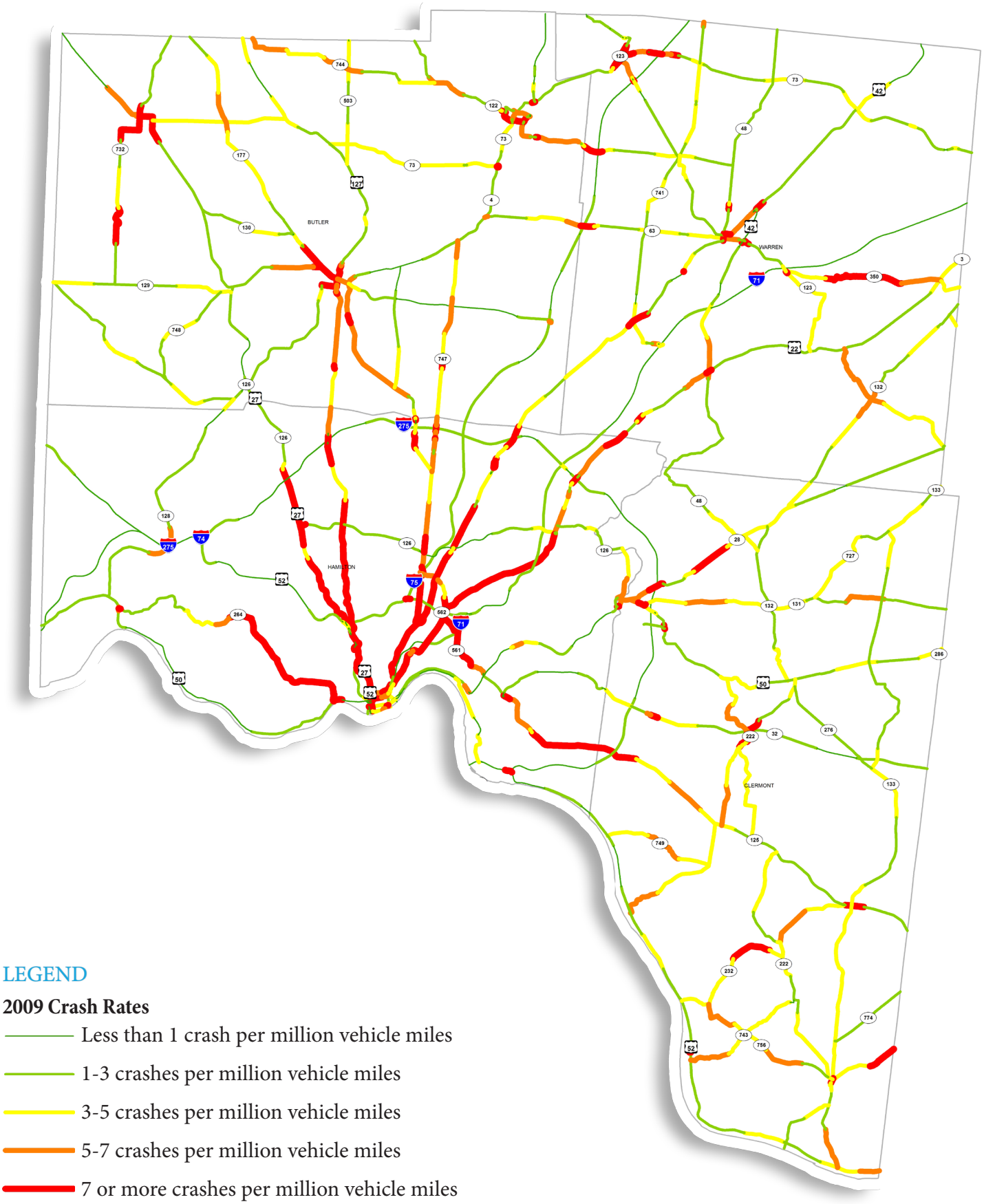
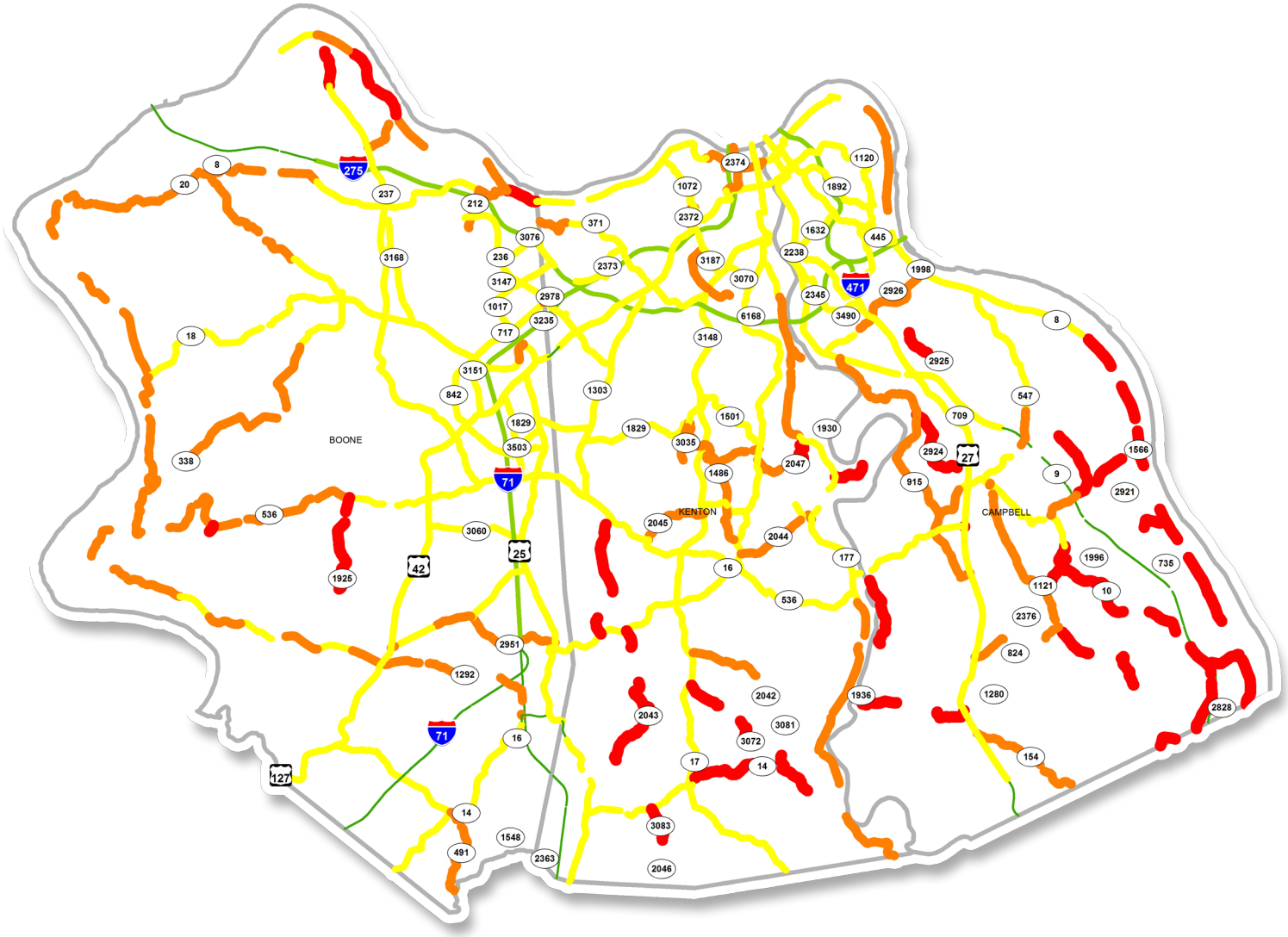


Figure 5-9: Crash Rates By Roadway Segments, Kentucky

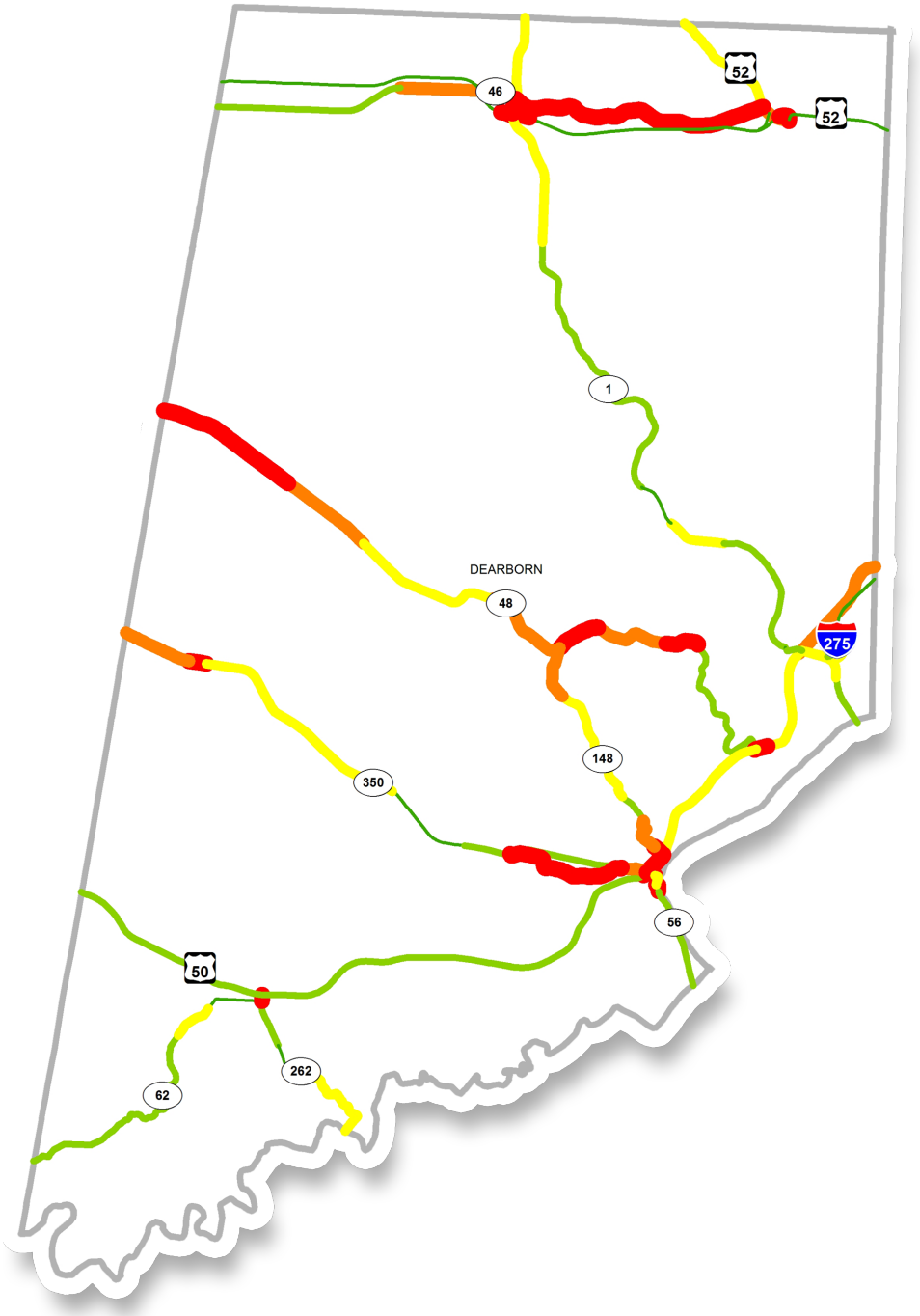


LEGEND

2009 Crash Rates

- Less than 1 crash per million vehicle miles
- 1-3 crashes per million vehicle miles
- 3-5 crashes per million vehicle miles
- 5-7 crashes per million vehicle miles
- 7 or more crashes per million vehicle miles

Figure 5-10: Crash Rates By Roadway Segment, Indiana



LEGEND

2009 Crash Rates

- Less than 1 crash per million vehicle miles
- 1-3 crashes per million vehicle miles
- 3-5 crashes per million vehicle miles
- 5-7 crashes per million vehicle miles
- 7 or more crashes per million vehicle miles

Figure 5-11: Ten Highest Crash Rate Locations in OKI Ohio Counties

Map Reference	County	Route	From	To	Crash Rate
1	Hamilton	SR 747	East Kemper Road	371 feet south of East Kemper Road	65.9
2	Hamilton	US 27	West Ninth Street	406 feet north of West Court Street	56.8
3	Warren	SR 123	SR 350	491 feet south of SR 350	32.3
4	Hamilton	SR 264	92 feet north of Parkcrest	252 feet north of Parkcrest	31.9
5	Hamilton	US 27	West Court Street	Ezzard Charles Drive	31.0
6	Hamilton	SR 4	Cameron Road	Northland Boulevard	27.6
7	Hamilton	Reading Road	East Sharon Road	164 feet south of East Sharon Road	25.9
8	Hamilton	Gilbert Avenue	Woodburn Avenue	411 feet west of Victory Parkway	25.5
9	Butler	Central Avenue	98 feet north of Long Street	Hanover Street	24.4
10	Hamilton	Linwood Avenue	219 feet south of Delta Avenue	222 feet north of Delta Avenue	24.3

Source: Ohio Department of Transportation.

Figure 5-12: Ten Highest Crash Rate Locations in OKI Kentucky Counties

Map Reference	County	Route	From	To	Crash Rate (million vehicle Miles)
1	Boone	KY 237	230 feet south of Coachtrail Drive	3,100 feet north of Conway Hills Drive	10.1
2	Campbell	Tollgate Road	Licking Pike	50 feet west of West Low Gap Road	10.5
3	Campbell	Tollgate Road	2000 feet west of Alexandria Pike	one mile west of Alexandria Pike	10.3
4	Campbell	Tollgate Road	West Low Gap Road	one mile south of West Low Gap Road	10.1
5	Campbell	KY 1996	Mary Ingles Highway	4000 feet west of Mary Ingles Highway	13.4
6	Campbell	KY 1996	KY 10	900 feet east of SR 1121	13.4
7	Campbell	KY 1936	Pleasant Ridge Road	Pond Creek Road	10.7
8	Kenton	KY 2047	137 feet east of Rice Road	2651 feet north of Marshall Road	12
9	Kenton	Hempfling Road	Rich Road	2200 feet north of Rich Road	9.9
10	Kenton	Hempfling Road	400 feet south of KY 17	5600 feet south of KY 17	9.9

Source: Kentucky Transportation Cabinet.

Figure 5-13: Ten Highest Crash Rate Locations in Dearborn County, Indiana

Map Reference	Route	From	To	Crash Rate (million vehicle Miles)
1	SR 350	US 50	172 feet west of Eads Parkway	225.9
2	I-74 Ramp	Eastbound to US 52	Not Applicable	166.2
3	SR 56	US 50	Main Street	67.2
4	US 50	Second Street	136 feet north of Importing Street	51.9
5	SR 48	US 50	Manchester Street	36.5
6	Wilmington Pike	North Hogan Road	SR 350	35.1
7	SR 1	SR 46	I-74	21.7
8	SR 46	SR 1	Bischoff Hill Road	21.2
9	SR 46	Harrison-Brookville Road	Barber Road	18.0
10	SR 350	Hogan Hill Road	East Main Street	16.1

Source: Indiana Department of Transportation.

SAFETY COUNTERMEASURES

In January 2012, the Federal Highway Administration published a list of nine research-proven roadway safety countermeasures and is advocating their implementation across the country. This list was an update to a prior list of such countermeasures published in 2008.[iii] These countermeasures, some new, some carried over from the previous list, include:

- Safety edge
- Roundabouts
- Corridor access management
- Backplates with retroflective borders
- Longitudinal rumble strips and stripes on two-lane roads
- Enhanced delineation and friction for horizontal curves
- Medians and pedestrian crossing islands in urban and suburban areas
- Pedestrian hybrid beacon
- "Road diets" (roadway configuration)

State departments of transportation are encouraged to incorporate these countermeasures when planning transportation projects.

OLDER DRIVER SAFETY

During the planning period 2005 to 2040, a safety challenge will present itself in a magnitude not seen previously in the OKI region: the older driver. More than 406,000 persons aged 65 and older are projected to populate the region in 2040, compared with 224,000 in 2005, and constitute roughly one-fifth of the population of driving age in the OKI region. Chapter 3 contains additional information on issues faced by older drivers.

Nationally and locally, crash data analysis indicates that the older driver is over-represented in right angle crashes and in crashes at intersections compared to the general motoring population (Figure 5-14). Further, drivers 65 and older are at greater risk for more severe crashes due to bodily frailty.

Figure 5-14: Comparison of Crash Location, Type and Severity for All Drivers with Drivers Aged 65 and Older in Ohio Counties of the OKI Region

	All Drivers	Drivers Aged 65+
Crash Location		
Intersection	29.6%	39.5%
Non-Intersection	60.1%	47.2%
Crash Type		
Angle	13.9%	22.8%
Fixed Object	14.7%	5.8%
Crash Severity		
Fatal	0.2%	0.3%
Injury	21.4%	22.9%
Property Damage Only	78.4%	76.7%

Source: OKI analysis of 2008-2010 crash data for Butler, Clermont, Hamilton and Warren counties.

Countermeasures to help seniors drive more safely include explanatory signage, larger signage, redundant signage, advance notice signage, explicit pavement markings and backplating on signals. All of these countermeasures are low-cost and implementable within the confines of the existing roadway.

After driving, walking is the second most popular means of transportation among the elderly.[iv] Because the elderly may need additional time to cross a street due to shorter stride, slower gait and slower reaction time, educational plaques andleading pedestrian intervals on signals can improve pedestrian safety.[v]

SUMMARY

Crashes are a significant issue for transportation planning due to their impact on the individuals involved as well as the economic impacts on the entire OKI region. Research into the locations where crashes are occurring at a greater rate than the norm can lead to improvement in safety for the traveling public. Safety data from all three states has been reviewed in the preparation of this plan. Moreover, interagency consultation and cooperation result in advancement of projects which address the region's safety needs.

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i. National Highway Traffic Safety Administration. Updated 2009 fatality data. Accessed August 5, 2011.

ii. National Center for Injury Prevention and Control, WESQARS Leading Causes of Death Reports, 1999-2007. Accessed August 5, 2011.

iii. "Guidance Memorandum on the Consideration and Implementation of Proven Safety Countermeasures," Federal Highway Administration, 2008.

iv. How the Travel Patterns of Older Adults Are Changing: Highlights from the 2009 National Household Travel Survey by Jana Lynott and Carlos Figueiredo, Fact Sheet 218, April 2011.

v. Travel Better, Travel Longer: A Pocket Guide to Improve Traffic Control and Mobility for Our Older Population, Federal Highway Administration, 2003, pages 12 and 24.

INTRODUCTION

With the passage of the Safe Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) (23 USC 134/49 USC 5303(h)(1) and 23 USC 134/49 USC 5304(d)(1)) in 2005, security became a separate, stand-alone planning factor to be reflected in, and coordinated between, both statewide and metropolitan planning processes, and consistent with security planning and review processes, plans, and programs. A regional security strategy relates to sustainable prevention, detection, response and recovery efforts to protect regional transportation systems' critical infrastructure from terrorism and natural disasters. This chapter documents actions and strategies being implemented throughout the region for strengthening regional security.

HOMELAND SECURITY

The events of September 11, 2001 changed how transportation systems are viewed. Transportation assets are now seen as targets for terrorist attack. In addition to the potential loss of life from terrorist attack, incapacitating strategic infrastructure could be a way for terrorists to disrupt the U.S. economy for a period of months or years.

Figure 6-1: Image from 9-11
Source: http://www.crystalinks.com/wtcphotos.html.

While transportation facilities can be potential targets of terrorist actions, natural disasters like Hurricane Katrina have also exposed the vulnerability of infrastructure and the disruption possible if major human or natural catastrophes destroy parts of the transportation system. For this reason, the discussion of homeland security for OKI includes both human and natural calamity.

was developed and based on the tenets outlined in the NIPP and the principles of Executive Order 13416, Strengthening Surface Transportation Security. The Transportation Systems Sector-Specific Plan describes the security framework that will enable sector stakeholders to make effective and appropriate risk-based security and resource allocation decisions. The program is meant to identify assets that are vulnerable to hazards caused by both security breaches and natural disasters, as well as assess the risks and develop countermeasures around those risks.

The U.S. Department of Homeland Security (DHS) coordinates emergency preparedness and response. Of relevance to this plan, the DHS developed a National Infrastructure Protection Plan (NIPP) which integrates several programs to protect the nation's infrastructure. The NIPP includes 17 sector-specific plans that manage, mitigate and minimize risk factors. One of these sector-specific plans covers transportation. According to the report, the Transportation Systems Sector-Specific Plan's strategic approach was developed and based on the tenets outlined in the NIPP and the principles of Executive Order 13416, Strengthening Surface Transportation Security. The Transportation Systems Sector-Specific Plan describes the security framework that will enable sector stakeholders to make effective and appropriate risk-based security and resource allocation decisions. The program is meant to identify assets that are vulnerable to hazards caused by both security breaches and natural disasters, as well as assess the risks and develop countermeasures around those risks.

Figure 6-2: Image from Hurricane Katrina
Source: http://cargocollective.com/flotsam_jetsam/filter/katrina.

STATEWIDE PLANS

State of Ohio

The 2011 version of the Ohio Homeland Security Strategic Plan provides a framework for the state to continue progress toward developing and maintaining the capabilities to

prevent, protect against, respond to, and recover from threatened or actual domestic terrorist attacks, major disasters, and other emergencies through well-prepared citizens, responders, and community leaders who are coordinated across disciplines and jurisdictional boundaries. The Ohio Department of Public Safety, Division of Homeland Security coordinates the development and implementation of the Strategic Plan including planning, development, and coordination of statewide policies developed in support of public and private organizations responsible for preventing terrorism, raising awareness, reducing vulnerabilities, responding to, and recovering from terrorist acts. Ohio has four primary preparedness mission areas:

- Prevention: Actions to avoid an incident or to intervene or stop an incident from occurring
- Protection: Actions to reduce the vulnerability of critical infrastructure or key resources in order to deter, mitigate, or neutralize terrorist attacks, major disasters, and other emergencies
- Response: Activities that address the short term, direct effects of an incident
- Recovery: Activities that include the development, coordination, and execution of human, economic, and infrastructure restoration plans

A full copy of the Ohio security plan can be found at http://www.publicsafety.ohio.gov/links/Strategic_Plan.pdf.

Commonwealth of Kentucky

The Kentucky Office of Homeland Security (KOHS) strives to ensure that the commonwealth's communities, first responders, and families have the resources they need to be ready and prepared. KOHS is operated through the coordination of four internal divisions, each with specific areas of responsibility:

- Operations and Prevention Team
- Grants and Finance Team
- External and Legislative Relations Team
- Training and Exercise Team

Each day, more than 70,000 commercial vehicles travel through Kentucky, carrying tons of freight to destinations throughout the nation making the security of commonwealth's highways a critical issue. KOHS works in partnership with the Kentucky Transportation Cabinet and the Kentucky State Police to improve the safety and reliability of the transportation system while also supporting the state's commercial and economic infrastructure.

As of spring 2009, several measures were being taken to address Kentucky transportation security. Radiation detectors were being installed at weigh stations throughout Kentucky. This technology works to improve roadway security. The state also recognized the critical need to keep ports-of-entry weigh stations open 24 hours a day, seven days a week. An analysis was being conducted to determine the cost and staffing feasibility of this initiative. Another analysis was also being conducted to determine the viability of implementing mobile interdiction teams trained to patrol commercial vehicles traveling the state's secondary routes. This program partnered with the Domestic Nuclear Detection Organization under the U.S. Department of Homeland Security to provide federal assistance to this effort. Additional information on KOHS can be found at http://homelandsecurity.ky.gov/default.htm.

State of Indiana

The Indiana Department of Homeland Security (IDHS) supports emergency management and homeland security organizations throughout Indiana to prepare, prevent, protect against, respond to and recover from man-made or natural threats to people, property, and the economy. As the state's coordinating agency, IDHS strives to provide statewide leadership, exemplary customer service, and subject matter expertise for the assurance of local, state and federal collaboration to continually develop Indiana's public safety capabilities.

With the advancement of modern technology in today's world, the need for cyber security has become more critical. In 2009, IDHS and the Indiana Office of Technology (IOT) worked with several state agencies to implement the Indiana Cyber Security Strategy. An implementation plan for the Critical Infrastructure Protection Program was based on local, state and federal partner input. Using a federally sponsored tracking system known as Automatic Critical Asset Management System (ACAMS), information can be processed regarding key sites within public and private sectors and identifying gaps in prevention, protection, and response capabilities for critical infrastructure across Indiana communities. The State of Indiana Comprehensive Emergency Management Plan (CEMP) was revised and updated by collaborating with state and local partners. The document is used to manage and coordinate preparedness, response, and recovery events statewide. Counties throughout Indiana are actively reviewing and

updating their local Emergency Management Plans. At the same time, nearly 50 Indiana state agencies have drafted continuity of operations plans as well as other critical documents designed to identify the critical services in the wake of a disaster or emergency. Indiana was awarded over $28.5 million dollars in federal preparedness funding in the federal fiscal year 2009. Over eighty percent of federal grant dollars were passed on to Indiana communities.

Training remains a key component of IDHS initiatives. Over 11,000 training certificates were issued in 2009 for first responders throughout Indiana for classes such as Mandatory, Firefighter I/II, Fire Officer I and II, Hazard Material Operations, and Technical Rescue Awareness. In 2009, IDHS created the new Field Services Division with the goal of enhancing the local response capabilities for day to day emergencies through planning, training and exercise efforts of emergency responders within all ten IDHS homeland security districts. Thus, Indiana's ability to respond to large scale events also increases. Additionally, the Chemical, Biological, Radiological, Nuclear and Explosives Section provided technical support and training to emergency responders as well as responded to several incidents throughout the State of Indiana to offer assistance to local responders.

The Hazard Mitigation Program continued to improve community awareness and resilience to disasters. Nearly eight million dollars was awarded to Indiana communities for the acquisition of homes and programs to avoid repetitive flooding. IDHS strives to provide the citizens of Indiana with the confidence they deserve that the state is taking appropriate precautions to prevent emergency situations from happening with publicly used facilities and equipment. Additional information on IDHS can be found at http://www.in.gov/dhs/index.htm.

CRITICAL INFRASTRUCTURE

The OKI region contains critical transportation infrastructure, any disruption of which could severely impact the flow of freight, economic activity, and the quality of life in the area. The Emergency Evacuation Report Card 2006, the most recent of such studies compiled from research findings by the American Highway Users Alliance, ranks Cincinnati's evacuation capacity as sixth best out of the 37 largest U.S. urban areas with more than one million in population. A brief description of these assets is included in the following sections.

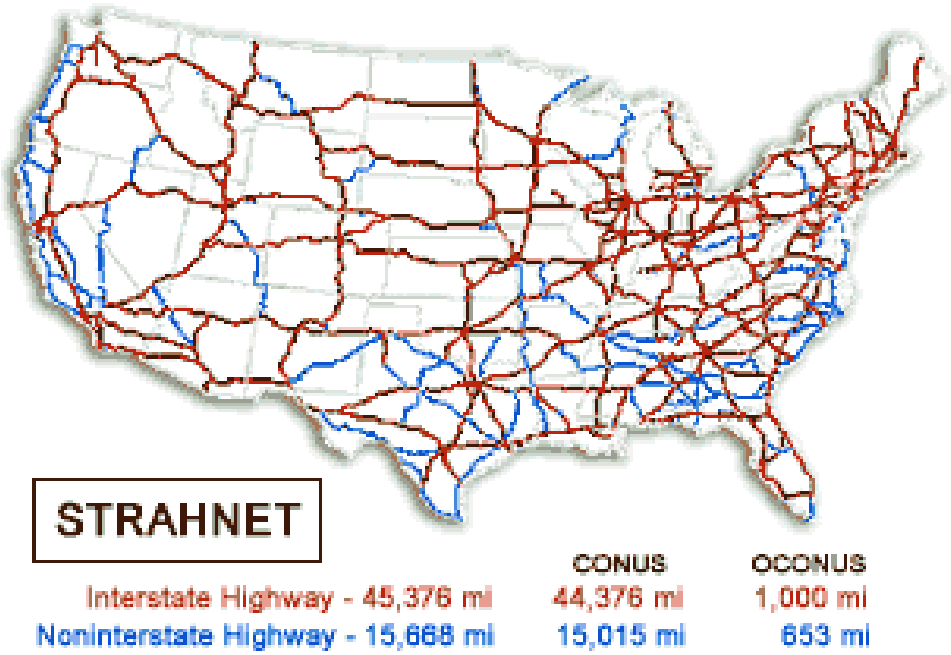
Highways

Highways are essential for evacuation, and in response and recovery efforts. OKI has approximately 3,000 miles of highway network and many of these can be considered as being critical structures and/or on essential corridors. An additional 6,000 miles of other roadways are used to transport both passengers and goods carrying approximately 45 million vehicle miles a day.

The core of the roadway network is this region's components of the National Highway System (NHS). The 398 miles of NHS within the OKI region include I-71, I-74, I-75, I-275, I-471, US 27 (in Ohio, north of I-74; in Kentucky, between the Ohio state line and I-471 in Southgate and between I-471 in Highland Heights and SR 9), KY 8 (between I-71/75 and I-471) and KY 9 (the AA Highway) in Kentucky, and SR 4 (north of I-75), SR 32 (east of I-275), SR 125, SR 126 (Ronald Reagan Highway) SR 129 (Butler County Veterans Highway), and SR 562 (Norwood Lateral) in Ohio. This region's NHS components carry over 50 percent of the region's daily traffic.

The Strategic Highway Network (STRAHNET) is a national system of about 61,000 miles of highways, including the interstate system. An additional 2,000 miles of STRAHNET Connectors link important military installations and ports. Together, STRAHNET and its connectors define the total minimum public highway network necessary to support Defense deployment needs. States, counties and cities are responsible for vehicle operations on their highways, including movement on the Dwight D. Eisenhower System of Interstate and Defense Highways.

Figure 6-3: Strategic Highway Network



Limitations on dimensions, weight and/or other characteristics of vehicle movement over roads and bridges are necessary to ensure the safe passage and prevent damage to highway infrastructure. Other limitations, including hours of movement for oversize/overweight, or other shipments, are predicated on traffic congestion periods and hazardous operating conditions. Limitations are determined by each jurisdiction and can vary considerably. It is imperative that the military services comply with all size and weight ordinances. Detailed policy and procedures can be found at http://www.transcom.mil/j5/pt/dtrpart3/dtr_part_iii_app_f.pdf.

Transit

The effectiveness of transit systems depends on their accessibility. As a result, transit agencies face significant challenges in making their systems secure. For example, the high ridership of some transit agencies makes them attractive targets for terrorists but also makes certain security measures, like metal detectors, impractical. In a chemical spill or other emergency event, transit could assist in evacuating large numbers of people out of harm's way. Yet another challenge is funding identified security enhancements. Although some security improvements, such as locking bus doors at night, have little or no cost, most improvements require substantial funding. Funding security improvements is problematic for a number of reasons including tight budget environments, competing budget priorities, and the prohibition on transit agencies that serve areas with populations of 200,000 or more from using federal urbanized area formula funds for operating expenses. In addition, coordination among all transit stakeholders can also pose challenges. Despite the formidable challenges in securing transit systems, transit agencies in the OKI region have taken a number of steps to improve the security of their systems. Discussion of

transit security plans and strategies is continued later in this chapter.

Bridges

The OKI region consists of almost two million people. Their livelihood and the economy of the region greatly depend on the highway system. With the natural barrier of the Ohio River, bridges are a critical element of the region and a key consideration of disaster preparedness. The population and economy of the region depends on seven bridges listed in Figure 6-4 in alphabetical order.

Figure 6-4: Artist Rendering of the Ohio River Bridges
Source: University of Cincinnati College of Design, Architecture, Art & Planning, 2001.

Figure 6-5: Ohio River Bridges in the OKI Region

- I-71/75 - Brent Spence Bridge
- I-275 - Carroll C. Cropper Bridge
- I-275 - Combs-Hehl Bridge
- I-471 - Daniel Carter Beard Bridge
- John A. Roebling Suspension Bridge
- US 27 - Taylor Southgate Bridge
- US 42 - Clay Wade Bailey Bridge

Of particular importance to the OKI Region and all of North America is the consistent operation of the Brent Spence Bridge. Interstate 75 connects Miami, Florida and Sault Ste. Marie, Canada. The current configuration of the Brent Spence Bridge presents a problem for homeland security efforts. The movement of emergency vehicles across the bridge in the event of serious emergency is restricted by the lack of shoulders and substandard vertical clearance which is less than 15 feet.

The Brent Spence Bridge was originally designed for 80,000 vehicles per day. In 1995, it carried 143,000 vehicles a day and in 2009 it carried 172,000 vehicles per day. This is over twice its original design capacity. By the year 2040, the traffic volume is expected to increase to around 220,000 vehicles per day which will place it over 2.5 times its current bridge capacity. This is a 150 percent increase in traffic volumes since 1995 and almost 130 percent increase in traffic volumes since 2009.

Figure 6-6: Brent Spence Bridge's Vital Lifeline in North America
Source: I-71/I-75 Brent Spence Bridge Congressional Debriefing Journal, February 26, 2003.

Ohio River Ports

The Ohio River is the largest tributary by volume of the Mississippi River Inland Waterway System. The river's current depth is at least nine feet along the length of the entire navigation system.

Figure 6-7: Ohio River Barge Tow

The OKI maritime system consists of approximately 50 river terminals along the Ohio River handling a variety of bulk cargo. Coal, grain, petroleum products, stone and chemical products make up about 90 percent of the barge shipments to and from the OKI region. Other important commodities for the region include steel coils, wire rod and aluminum. The Ohio River system is dominated by private terminal operators.

Upstream of St. Louis, tows are limited to 15 barges because of the size of the locks—chambers that lift or lower towboats through dam structures—which are required to maintain the minimum channel depth of nine feet. Two lock and dam complexes in the OKI region illustrate their importance to interstate commerce and security. The Markland lock and dam, located at Ohio River Mile 531.5 is 3.5 miles downstream of Warsaw, Kentucky. Markland had a miter gate failure in 2009. The disruption of the 1,200 foot lock forced large barge tows to disassemble in order to pass through Markland's 600 foot auxiliary chamber. This malfunction caused by age and disrepair resulted in delivery delays of almost 11 hours on average. Improvements to the Markland locks and dam were completed in 2010. Upstream of the OKI region, the Captain Anthony Meldahl lock and dam underwent reconstruction in 2010 which included the addition of a low-impact hydroelectric plant.

Modernization and maintenance along the Ohio, Mississippi and Tennessee-Tombigbee river systems continues to be a top local, regional, and national priority. Within four years, more than half of the current navigation structures will be past their structural design life. Plans are underway to modernize several locks and dams, however a systematic improvements program for inland maritime networks is needed to ensure continued commerce and security.

Railroads

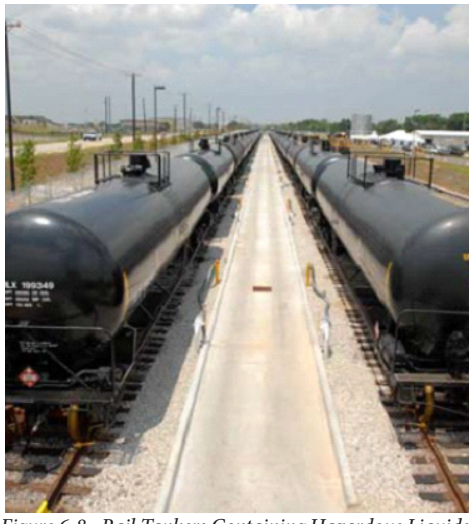


Figure 6-8: Rail Tankers Containing Hazardous Liquids
Source: Association of American Railroads.

Railroads are vital to the economy, national defense and public health. Some 40 percent of all intercity freight goes by rail, including 67 percent of the coal used by electric utilities to produce power. The chemicals used to purify the nation's water supplies also move by rail. And railroads provide critical support to the Department of Defense Strategic Rail Corridor Network (STRACNET) which includes more than 30,000 miles of interconnected rail line and provides the backbone for the movement of Department of Defense shipments. Figure 6-7 highlights impacts on major U.S. industries should the rail network be incapacitated and the statistics listed assume that truck traffic would continue, otherwise the impacts would occur much more rapidly.

Figure 6-9: Impact of a Total Rail Shutdown

Industry	Shutdown Would Occur Within:
Plastics	4 days
Paper	1 week (partial)
Automobile	1 to 2 weeks
Coal Mining	2 weeks
Electric Power	1 to 2 months

Source: FRA.

The main railroad lines through the Mill Creek Valley form the spine of the region's rail system. CSX operates more than 70 trains per day through the area and Norfolk Southern Railroad (NS) operates as many as 50 trains per day. Any major disruption to these lines would result in rerouting trains around the region with significant impacts to congestion on other rail lines, shipment time and delays. It could also result in a temporary mode shift, exacerbating truck congestion in the region. The NS and CSX railroads have bridges crossing the Ohio River south of Cincinnati and these structures represent a security risk with a profile similar to the Ohio River highway bridges.

Because enhanced security has become a long-term necessity, the Board of Directors of the Association of American Railroads (AAR) has established the mandate to ensure that the railroads would be more secure. Using national intelligence community best practices, some 150 railroad industry members (including AAR members CSX, NS and Rail America), security and intelligence personnel scrutinized different aspects of the railroad system. Their analysis examined and prioritized all railroad assets, vulnerabilities and threats, and then identified countermeasures. In the end, Cincinnati was included as one of 46 DHS High Threat Urban Areas (HTUA's).

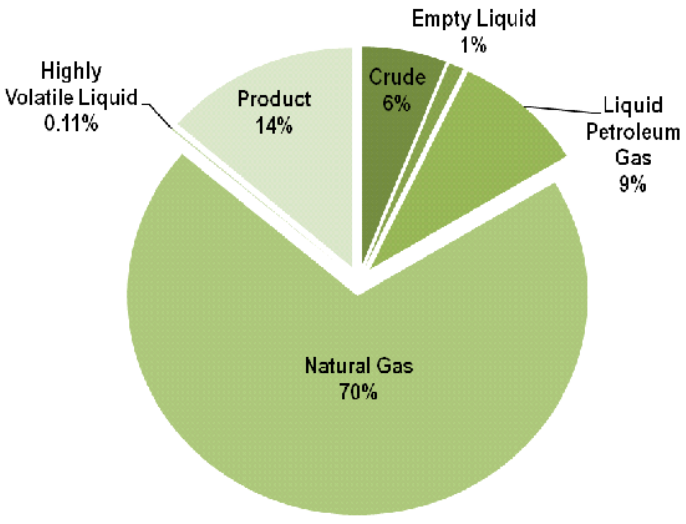
The railroad security plan is a living document, because the risk assessment process is a continuous one. As conditions warrant, that plan is updated, revised, and strengthened to ensure the security of the railroads and their continued service to the nation.

Pipelines

The U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA) provides public data on pipelines in the U.S. PHMSA illustrates the efficiency of pipeline transportation, using the example of a large pipeline that can transport roughly two million barrels of gasoline a day. By way of comparison, to transport an equivalent amount by another mode would take the following:

- 9,375 large semi-truck tankers
- Twenty-four 100-car unit trains extending three miles each
- Ten 15-unit barge tows

Figure 6-10: OKI Pipeline Commodities by Total Linear Mile



Source: U.S. Department of Transportation, PHMSA.

Trucks, vessels and trains consume diesel or other liquid fuels and contribute to congestion in the nation's freight and passenger transportation corridors. Further, as the National Transportation Safety Board has observed, pipeline transportation has a consistently lower accident rate than other modes.

The OKI region consists of more than 904 miles of pipelines. These pipelines carry natural gas, product, liquid petroleum gas, crude, empty liquid and highly volatile liquid. There are a number of river terminals and pipeline operators in the region, although an exact number is difficult to ascertain because of security measures surrounding the pipeline industry. Therefore, the following information describes pipeline operations in the region to the degree that could be discerned from various public sources.

The majority of pipelines serving the OKI region carry natural gas and are dispersed throughout the region. Petroleum and other pipeline operations are also prevalent. A single crude pipeline runs approximately 50 miles in a north-south direction through the OKI region. Not shown in Figure 6-10 is the number of pipelines designated as "unspecified" by the PHMSA. These "unspecified" pipelines comprise the second greatest percentage of total linear miles.

Figure 6-11: Ohio Pipeline Transmission Mileage by County

County	Gas Miles	Liquid Miles	Percentage of All Ohio Pipeline Miles
Butler	144	98	1.70
Clermont	66	0	0.40
Hamilton	94	75	1.20
Warren	161	51	1.50
OKI COUNTY TOTALS - OHIO	**465**	**221**	**4.80**
STATE TOTALS - OHIO	**10,240**	**3,370**	**100.00**

Source: Table extracted from: http://primis.phmsa.dot.gov/comm/reports/safety/OH_detail1.html | Report generated on 02/03/11.

Figure 6-12: Kentucky Pipeline Transmission Mileage by County

County	Gas Miles	Liquid Miles	Percentage of All Ohio Pipeline Miles
Boone	22	29	0.60
Campbell	63	0	0.70
Kenton	16	4	0.20
OKI COUNTY TOTALS - KENTUCKY	101	33	1.50
STATE TOTALS – KENTUCKY	8,226	859	100.00

Source: Table extracted from http://primis.phmsa.dot.gov/comm/reports/safety/IN_detail1.html | Report generated on: 02/03/11.

Figure 6-13: Indiana Pipeline Transmission Mileage by County

County	Gas Miles	Liquid Miles	Percentage of All Ohio Pipeline Miles
Dearborn	84	0	0.90
STATE TOTALS – INDIANA	5,342	3,637	100.00

Source: Table extracted from http://primis.phmsa.dot.gov/comm/reports/safety/IN_detail1.html | Report generated on: 02/03/11.

Figure 6-14: Total Pipeline Transmission Mileage for the OKI Region

	Gas Miles	Liquid Miles	Percentage of All Ohio Pipeline Miles
OKI REGIONAL TOTAL	650	254	904

Source: Previous three tables.

HAZARDOUS FREIGHT

Hazardous materials (HAZMAT) make up approximately 5 percent of total freight flows in the OKI region. Figure 6-13 provides a breakdown of HAZMAT by mode and their projected growth over a 30 year horizon.

Figure 6-15: OKI Region Hazardous Materials Traffic by Mode

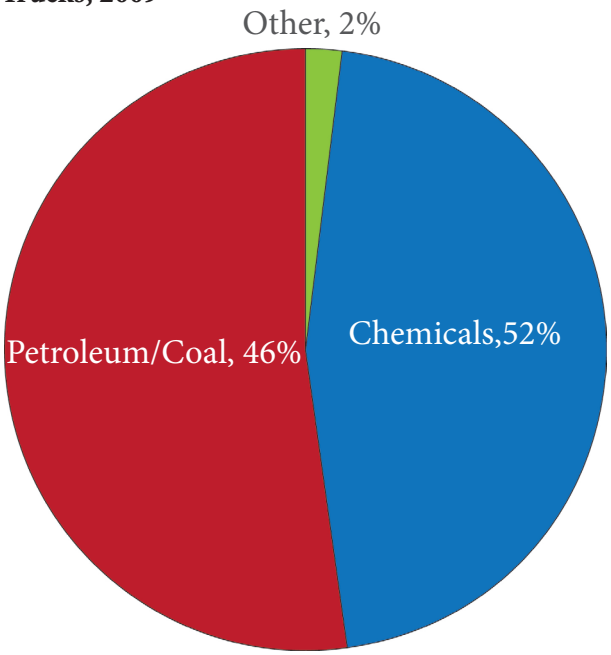
	Tons in Thousands			
	2009		2040	
Air	5	0%	7	0%
Rail	702	6%	731	5%
Truck	8,913	76%	11,669	80%
Water	2,090	18%	2,130	15%
OKI REGION TOTAL	11,710	100%	14,537	100%

Source: IHS Global Insight Commodity Flows in the Cincinnati and Dayton Regions.

Based on the forecast, HAZMAT volumes are expected to grow at a rate of 0.7 percent per year, which represents half the growth rate of overall freight volumes in the OKI region. Today, approximately three-quarters of HAZMAT moves by truck, followed by inland water. Rail represents a nominal share of HAZMAT movements in the region of approximately 6 percent. The breakdown of HAZMAT materials by mode is expected to remain relatively stable over the 30 year horizon with trucks gaining slightly more market share (80 percent) at the slight expense of rail and water. The HAZMAT volumes that move by truck are primarily chemical and petroleum/coal products.

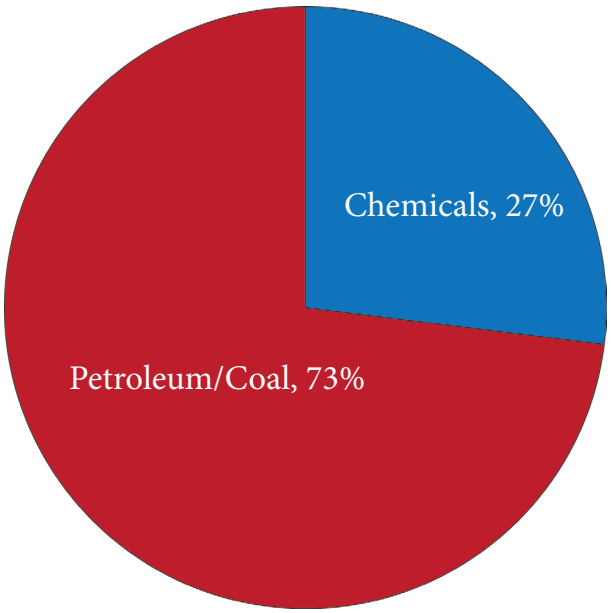
Given that a good portion of this volume is through-traffic (approximately 38 percent), most of the materials move along the north-south corridor on I-71, as well as I-75. Comparatively, water movements represent over 90 percent of inbound traffic moving more petroleum/coal products than chemicals. Petroleum and coal products represent nearly three-quarters of the HAZMAT volumes moved by inland waterways and that number is expected to increase slightly to 77 percent by 2040.

Figure 6-16: Composition of HAZMAT Moved by Trucks, 2009



Source: IHS Global Insight Commodity Flow Report.

Figure 6-17: Composition of HAZMAT Moved by Inland Waterway, 2009



Source: IHS Global Insight Commodity Flow Report.

According to the USDOT's Office of Hazardous Materials Safety, the Incidents Reports Database indicated 81 HAZMAT transportation incidents in the last 10 years by mode (Figure 6-18). Of the total incidents, approximately 40 percent of the incidents occurred in Hamilton County—the highest number in the OKI region. Furthermore, highways represented the largest number of HAZMAT incidents of cargo while in transit.

Figure 6-18: OKI Region HAZMAT Incidents by County and Mode of Transportation (2000-2010)

	Boone	Butler	Dearborn	Hamilton	Kenton	Grand Total	Break-down of Incidents by Mode
Air	3				4	7	9%
Highway	15	3	3	29	17	67	83%
Rail		1	1	3	2	7	9%
OKI REGION TOTALS	**18**	**4**	**4**	**32**	**23**	**81**	
Breakdown of HAZMAT Incidents by County	**22%**	**5%**	**5%**	**40%**	**28%**		

Source: USDOT's Office of Hazardous Materials Safety, the Incidents Reports Database.

Again, the high proportion of HAZMAT incidents on Hamilton County highways reflects the large population and concentration of traffic where key interstate highways and state highway corridors converge, increasing the accident rates in this locality. Of the 81 incidents, three occurred in a HAZMAT release and gas dispersion was the

common occurrence. There were no fatalities reported and only one HAZMAT related injury.

REGIONAL HOMELAND SECURITY

For several years, work has been underway to broaden emergency planning and response efforts in the Greater Cincinnati region. Many groups have been formed and meet to address regional issues associated with homeland security.

Security and Emergency Management Agencies

There are three levels of emergency response in the OKI region: local fire and police agencies, which have the resources and equipment to manage most natural and human disasters; county emergency management agencies, which plan and coordinate major response activities; and state emergency management agencies, which coordinate emergency response staff and equipment from a deeper resource pool.

For the vast majority of security and emergency cases, local police and fire agencies are equipped to handle incidents including HAZMAT releases or major infrastructure failures. Where there is an uncommon release of material, agencies have "mutual aid" agreements to share technical resources if a certain agency lacks capacity or expertise. Similarly, larger emergency incidents—such as extraordinary fires, materials spills, or infrastructure failures—can draw on the combined human and equipment resources of multiple jurisdictions across a region.

County emergency management agencies play a key role in emergency planning and coordination. Planning includes inventorying resources that might be deployed in the event of a disaster, planning for infrastructure disruptions, identifying temporary housing resources for displaced people and conducting mock disaster exercises with local response agencies.

with local response agencies.

Southwestern Ohio, Southeastern Indiana and Northern Kentucky

From the original 2003 Urban Area Security Initiative definition of the region which defined the urban area as Cincinnati/Hamilton County, representatives from the city of Cincinnati and Hamilton County reached out in early 2005 to the other counties surrounding this initially defined urban area. These counties now represent the new urban area, identified as southwestern Ohio, southeastern Indiana and northern Kentucky (SOSINK). The area includes eight counties in Ohio (Adams, Brown, Butler, Clermont, Clinton, Hamilton, Highland and Warren); three in northern Kentucky (Boone, Campbell and Kenton); and one in southeastern Indiana (Dearborn).

Figure 6-19: Southwestern Ohio, Southeastern Indiana, Northern Kentucky Urban Area Security Initiative Region

Source: http://www.sosink.net/.Cincinnati and Dayton Regions.

The entire 120 member SOSINK committee meets on a quarterly basis. A SOSINK steering committee, representing the 12 counties and various disciplines responsible for the prevention, protection, response, and recovery from weapons of mass destruction and natural incidents was formed to oversee all committee efforts and guide the process for the region. The SOSINK steering committee meets monthly at a minimum and more frequently as needed to address regional planning needs or issues.

The SOSINK steering committee includes the core city and core county point of contacts and representative membership as follows. Each county is guaranteed one representative on SOSINK to be chosen from their respective County Terrorism Preparedness Advisory Committee which comprises the initial 12 members. Each 100,000 of population in the individual county is given one additional representative for that county, which adds approximately 18 additional members to the SOSINK steering committee. Finally, regional memberships were included from Ohio Emergency Management Agency (EMA) Region 6 Coordinator, the American Red Cross, Northern Kentucky Regional EMA Coordinator, Southeastern Indiana Regional EMA Coordinator, and The Greater Cincinnati/Northern Kentucky Hospital Council.

Additional collaboration includes being one of the first regions to form a successful regional terrorism early warning group. There is a regional health council, representing all the hospitals in the tri-state area, a regional Red Cross Chapter, and Regional Medical Response System. The continuation of these regional efforts through the formation of the SOSINK will enhance all these efforts, as well as assist in the planning and response capabilities for the entire tri-state.

Greater Cincinnati GIS Users Group

The Greater Cincinnati Geographic Information Systems (GIS) Users Group convenes across state, county and city boundaries to learn from one another and consider opportunities for collaboration to benefit the region. The group advocates for a coordinated regional approach to the design and development of GIS databases, a unified data dictionary and data standards which promote the flow of information and data sharing across the region. This regional GIS database could also be utilized in response to any number of security issues facing the region by local emergency agencies, all working from the same base of updated geographic information.

Emergency Preparedness Collaborative

The Emergency Preparedness Collaborative (EPC) is a grassroots network of agencies and professionals working together to foster the development of best practices such as plans, systems and resources that will assist vulnerable populations in preparing and responding to emergencies in the greater Cincinnati area. As an active member in the EPC, OKI also participates in the EPC's transportation work group. One of OKI's roles in the collaborative is to assist in the identification of areas with high concentrations of vulnerable populations. To accomplish this task, OKI uses many of the same census data variables that it uses in the identification of its environmental justice populations. With a regional street network and routing capabilities, OKI is also prepared to assist with the development of evacuation plans in the event that members of a particular population group need to be evacuated.

Regional Emergency Mapping System

OKI, in cooperation with regional partners and SOSINK, successfully developed and utilizes a cutting-edge emergency management system known as RAVEN911 (Regional Asset Verification & Emergency Network). This system incorporates critical infrastructure layers, live data feeds, and analytic capabilities into an Internet-based common operating picture, allowing emergency responders from across the Greater Cincinnati region to identify significant infrastructure and key resources.

Figure 6-20: Regional Asset Verification & Emergency Network Logo

RAVEN911 provides a common operating picture to achieve situational awareness and a series of tools to prepare for, respond to, or recover from a large-scale emergency. RAVEN911 can help identify local resources such as the closest fire stations and urgent care centers. It can gather intelligence about a particular emergency via an integrated Twitter search function. Also, RAVEN911 can view live feeds around emergency scenes, which are helpful in determining evacuation capacities and routes.

This system is utilized by first responder disciplines defined by the Department of Homeland Security including Fire, EMS, Hazardous Materials, Law Enforcement, Public Health, Government, Hospitals, Public Works, Emergency Management, Communications, Volunteers/Public (such as Red Cross or Salvation Army) and Private Industry Partners.

RAVEN911incorporates the aforementioned emergency response tools and technologies into a single Web-based interface, which ensures that all stakeholders are "reading from the same script" and facilitates a common operating picture for all users. RAVEN911 provides a progressive solution to traditional pen and paper systems, which allows emergency personnel to define incidents spatially and visualize response assets.

The system covers a 12-county, three-state region, encompassing southwest Ohio, southeast Indiana, and northern Kentucky. OKI's project partner, the Hamilton County Emergency Management Agency (HCEMA) worked on behalf of emergency management agencies from across the region.

REGIONAL TRANSIT SECURITY STRATEGY

A regional transit security strategy is an overarching strategy for the region with mode specific goals and objectives as they relate to prevention, detection, response and recovery as a sustainable effort to protect regional transit systems' critical infrastructure from terrorism. Emphasis is placed on explosives and non-conventional threats that would cause major loss of life and severe disruption, as required by the Department of Homeland Security.

Butler County Regional Transit Authority

The Butler County Regional Transit Authority (BCRTA) is currently developing an Emergency Preparedness Plan to addressing the organization's changing needs. Current security measures taken by BCRTA include emergency call buttons and global positioning system (GPS) automated locator devices included with onboard vehicle computers capable of two-way text messaging. BCRTA plans to install on-board cameras in the near future. BCRTA's facilities were recently secured with a new card controlled access system and are monitored electronically.

City of Middletown Transit System

The Middletown Transit System is operated as a division of the city's Department of Community Revitalization. As part of the city, the transit system is incorporated in the Emergency Preparedness Plan created in 2000 and the plan is updated as needed. Transit system security also includes electronically monitored facilities and random on-board police checks.

Clermont Transportation Connection

The Clermont Transportation Connection (CTC) is the public transit service for Clermont County. CTC has an approved System Security and Emergency Preparedness Plan. Current security measures taken by CTC include on-board video cameras, emergency call buttons, and electronically secured and monitored facilities.

Southwest Ohio Regional Transit Authority

The Southwest Ohio Regional Transit Authority (SORTA) operates Metro, the public transit service for the greater Cincinnati area. Metro has an approved System Security and Emergency Preparedness Plan with functioning components for continuous updating.

Current security measures taken by Metro include on-board video cameras with real time monitoring capabilities, emergency call buttons and a global positioning system. Security measures also include random police rides, police checks while buses are in service and periodic canine inspections of the coaches at the garage. Metro's facilities are secured with proximity employee ID badge readers and monitored via a closed circuit camera monitoring system.

Figure 6-21: Metro Bus Driver
Source: http://www.go-metro.com/.

In addition to working closely with local law enforcement, Metro has developed an operational relationship with the Department of Homeland Security and the regional Emergency Management Agency in establishing a unified system of security for the prevention of intentional harm to their employees and the ability to maintain service in the event of an emergency.

Warren County Transit Service

The Warren County Transit Service (WCTS) has a System Security and Emergency Preparedness Plan. Also, WCTS has on-board cameras and each vehicle has a radio that is connected to the county's public safety communication system.

Transit Authority of Northern Kentucky

The Transit Authority of Northern Kentucky (TANK) has an EPP that was completed in 2003. The EPP established by TANK includes a communications checklist, media process, alternative vehicle and fuel storage locations, and finance and administrative procedures. The EPP is updated periodically with contact information and any changes necessitated by TANK's involvement with other regional emergency planning partners. The next scheduled update of the EPP is in 2008.

In addition, TANK works closely with local law enforcement, SORTA, the Ohio Department of Transportation (ODOT), the Kentucky Transportation Cabinet (KYTC) and the Northern Kentucky Emergency Planning Committee to play a significant role in protecting against, responding to, and recovering from major events. Most of TANK's fleet is equipped with multiple on board security cameras and every TANK vehicle is tracked by a GPS based vehicle location system. TANK is also in the process of securing the TANK administrative and dispatch facility with a controlled access security system.

REGIONAL SECURITY PLANNING ELEMENTS

OKI has completed a number of regional and sub-regional plans or studies. Many of these documents include security related recommendations for future implementation. Although the initial intent of these recommendations may have been to address congestion or travel time, taken in a broader context, these elements could also assist in increasing the region's security through improved transportation networks. The text that follows provides a sampling of such recommendations and references the plan or study from which it was drawn. This information is presented for consideration and further application to benefit the security of the entire OKI region.

Intelligent Transportation System

OKI's Regional Intelligent Transportation System Plan (ITS Plan) and ITS Architecture was adopted in March 2008. The purpose is to guide OKI, its member transportation agencies and local governments in the planning, programming, and implementation of integrated multimodal ITS elements over a 10 year period. The most extensive system of advanced ITS technologies in the OKI region is ARTIMIS. Through the teamwork of OKI, KYTC, ODOT, and local governments, ARTIMIS was designed to provide consolidated traffic management without regard to state and political boundaries. The system covers more than 100 miles of the region's freeway system with the heaviest traffic. More extensive project recommendations involving ITS can be found in Chapter 11 of this document.

Traffic Camera System

Discussion of a traffic camera system was well documented in OKI's 2005 Dixie Highway Corridor Study. The addition of a camera system to a closed loop system can assist the security of the region in a number of ways. Such a system can reduce vehicular delays by enabling traffic signals to be adjusted from a secure, remote location should an evacuation or mass volume of traffic be necessary. Cameras could enable traffic problems and system malfunctions to be identified or tampering detected and managed from a centralized signal management center. The location of the management center would not be limited geographically due to the ability of the camera feed to be viewed from any location. Images from the camera have the ability to be broadcast over the internet to reach and inform thousands of citizens. With real time video, information could be viewed and shared immediately, thereby keeping communication clear and accurate.

ARTIMIS Interconnection

This type of camera setup would be useful for the ARTIMIS interconnection as well. If tied into the ARTIMIS system, traffic operators could respond quickly and efficiently once a problem is verified. In turn, operators would be able to identify accidents and alert drivers via radio (530 AM), phone (511), the internet (www.artimis.org) or the Dynamic Message Signs. Once a problem is resolved, any timing changes and signal systems can be returned to normal operation.

Emergency Preemption

Emergency preemption is being discussed throughout the OKI region and has been documented in such projects as the Western Hamilton County Transportation Study and the Dixie Highway Corridor Study. The Manual of Uniform Traffic Control Devices 2003 Edition, issued by the Federal Highway Administration, defines preemption control as "The transfer of normal operation of a traffic control signal to a special control mode of operation." Preemption devices can be provided for any type of vehicle that requires the immediate right of way at an intersection. Some types of vehicles supersede others when a traffic control signal responds to more than one type or class. In general, a vehicle that is more difficult to control supersedes a vehicle that is easier to control. This order is typically as follows: trains, boats, heavy vehicles (fire vehicles, emergency medical service), light vehicles (law enforcement), light rail transit and rubber-tired transit. Therefore, based on this definition, emergency preemption is the transfer of normal operation of a traffic control signal to provide right of way to emergency vehicles. Currently, two types of emergency vehicle detection technologies are available. One type uses sonic sensors to detect standard emergency vehicle sirens. The second detects light from a special emitter mounted on authorized emergency vehicles. The sonic sensors are often used by communities where outer suburban district emergency vehicles pass through.

In the OKI region, emergency preemption has been supported by local elected officials, staff and police, fire and emergency medical service (EMS) operators. Stakeholders view preemption as a means of improving response time of emergency personnel and safety at intersections. A Hamilton County study of Colerain Avenue showed that with the use of emergency preemption, EMS travel time could be reduced by as much as 22 percent. In emergency situations, this amount of time savings could literally mean the difference between life and death.

Hazardous and Risk Materials

In order to take a more proactive approach in terms of the transport of hazardous materials, several locations in the OKI region are restricted to such cargoes. Alternate routes are provided and must be used. Re-routing of hazardous rail and highway shipments from densely urban areas reduces the opportunity for chemical disaster risks whether accident or terrorism to occur.

SUMMARY

The risk of terrorist activities and other security hazards remain a consideration in the lives of all Americans. OKI has and will continue to collaborate with a variety of entities to utilize the most current technology and guiding principles in helping to minimize the possibility of these dangers.

Chapter 7

CONGESTION MANAGEMENT

INTRODUCTION

The OKI region's quality of life and economic competitiveness are closely related to the degree to which the transportation system is able to provide an acceptable level of mobility. The importance of congestion is reflected in federal transportation rules requiring a Congestion Management Process (CMP) in metropolitan areas. The CMP provides for safe and effective integrated management and operation of the multimodal transportation system and results in performance measures and strategies that can be reflected in this plan and the Transportation Improvement Program (TIP).

Congestion management is the application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods. OKI's CMP identifies appropriate performance measures to assess the extent of congestion. It establishes a coordinated program for data collection and system performance monitoring to define the extent and duration of congestion. The CMP also identifies and evaluates appropriate congestion management strategies for the improved safety of the existing and future transportation system.

Congestion is the level at which transportation system performance is no longer acceptable due to traffic interference. The level of acceptable system performance will vary by type of transportation facility, location within the region and time of day. The level of acceptable system performance depends upon transportation and development goals for the region and reflects public perception of traffic interference. This traffic interference may be recurring or non-recurring congestion. Recurring congestion is caused by consistently excessive travel demand as compared to available roadway capacity. Sometimes, poor signal timings, poor access management, and roadway geometric deficiencies contribute to reduced capacity. According to a 2005 FHWA report, "Traffic Congestion and Reliability," recurring congestion accounts for about 45 percent of all congestion. Non-recurring congestion occurs due to traffic incidents, adverse weather or road construction.

OKI VERSUS OTHER METROPOLITAN AREAS

Congestion in the OKI region can be viewed in a national context to see how it compares to other major metropolitan areas in the United States. The Texas Transportation Institute (TTI) has been documenting

the growth of congestion levels in 68 of the nation's urban areas since the 1980's. Their mission has been to document mobility trends and highlight numerous issues associated with roadway congestion.

In their most recent report, TTI used data from federal, state and local agencies to develop estimates of mobility levels in the urban areas. TTI primarily used the Federal Highway Administration's Performance Monitoring System (HPMS) database as a source with additional information from private sector speed data and guidance supplied by states and localities. The report contains several interesting mobility statistics through 2010 for the Cincinnati Urban Area:

- Cincinnati is the 45th most congested urban area in the U.S. using TTI's Travel Time Index.
- Forty-seven percent of peak travel occurs under congested conditions.
- A Cincinnatian peak period traveler is delayed 21 hours a year.
- On a per person basis, congestion wastes six gallons of fuel each year.
- The annual cost in delay and fuel in 2010 due to congestion was $486 million.

CONGESTION MANAGEMENT PROCESS

The goals of the CMP are to improve livability and economic vitality of the region by limiting congestion and increasing accessibility to jobs, improve safety of the transportation system through better planning, design and incident response, monitor and evaluate transportation system performance, develop strategies to facilitate the mobility of people and goods within the region, manage congestion thereby reducing its incidence in corridors where reduced travel time is deemed to be desirable, and contribute to the process of transportation decision-making and policy-making by providing information on the transportation system.

The CMP uses several performance measures to characterize current and future conditions on the multimodal transportation system in the region. Performance measures can identify the intensity and extent of congestion, measure accessibility and reliability of the system, evaluate freight movement, and address mobility via transit, bicycle, and pedestrians. This information can be used to track changes in mobility over time, identify subareas or corridors with mobility problems and identify causes of potential hindrances to mobility. It will also provide information to decision-makers and the public as part of the transportation project selection process. As transportation improvements and strategies are implemented over time, these measures serve to permit the evaluation of the effectiveness of mobility enhancement strategies for the movement of people and goods. The following performance measures appear in the CMP:

- **Observed Travel Time and Travel Speeds**
- **Travel Time Tax** is excess delay time. It is the percentage of extra time a trip takes as compared to the target travel time. Travel time tax can include waiting time at signals, as well as delay caused by high traffic volume to capacity.
- **Level-of-Service** is derived from OKI's Travel Demand. It expresses a traffic volume to capacity ratio as values A through F, with F representing volumes over capacity.
- **Observed Intersection Delay** is expressed as average delay per vehicle at selected major regional intersections.
- **Percent Trucks**
- **Total Vehicle Delay** measures the extent of congestion by multiplying the delay per vehicle by the traffic volume.

- **Peak Period Travel Times Between Major Destinations**
- **Share of Regional Jobs Near Public Transit**
- **Incident Clearance Time**
- **Crash Rates**
- **Miles of Recommended Bike Routes** as identified in OKI's Bike Route Guides.

The CMP lists several performance objectives that are tracked through the ongoing data collection process: 1) limit the change in miles of congested roads to no more than three percent per plan cycle, 2) limit the change in average peak travel time between major destinations to no more than 20 percent increase per plan cycle, 3) keep incident clearance time on routes served by ARTIMIS to no more than 60 minutes, 4) increase share of regional jobs served by transit by at least one percent per plan cycle, 5) for roads with high truck volume, limit the change in miles of congested roads to no more than three percent per plan cycle, and 6) increase the miles of preferred bike routes by at least one percent per plan cycle.

The CMP has been integrated into OKI's transportation planning process. OKI has developed a scoring system intended to assist selection of worthy capacity related highway and transit projects for the 2040 Regional Transportation Plan. The level of congestion is an important criterion in the roadway project scoring. Details of OKI's Project Scoring Process can be found in Appendix B.

STATE OF CONGESTION

Intensity of Congestion

The relative severity of travel congestion is measured by observed travel time, speed and the calculated measure called travel time tax. Sixty-three percent of the Congestion Management Network (CMN) sections and 23 percent of CMN miles have more than 20 percent travel time tax in at least one peak period. Major freeway AM bottlenecks in Kentucky include I-71/75 northbound from I-275 to Fifth Street and I-471 northbound from I-275 to the Ohio River. Ohio AM bottlenecks are I-75 northbound from Hopple Street to Paddock Road (SR 4), I-74 eastbound from Montana Avenue to I-75 and I-71 southbound from Fields Ertel Road to Kennedy Avenue. I-71/75 northbound from Buttermilk Pike to Dixie Highway has the most delay or travel time tax during the AM. I-75 northbound from Hopple Street to I-275, I-71 northbound from Smith Road to I-275 and I-71 southbound from Fields Ertel Road to Steward Road all experience a high percentage of extra travel time.

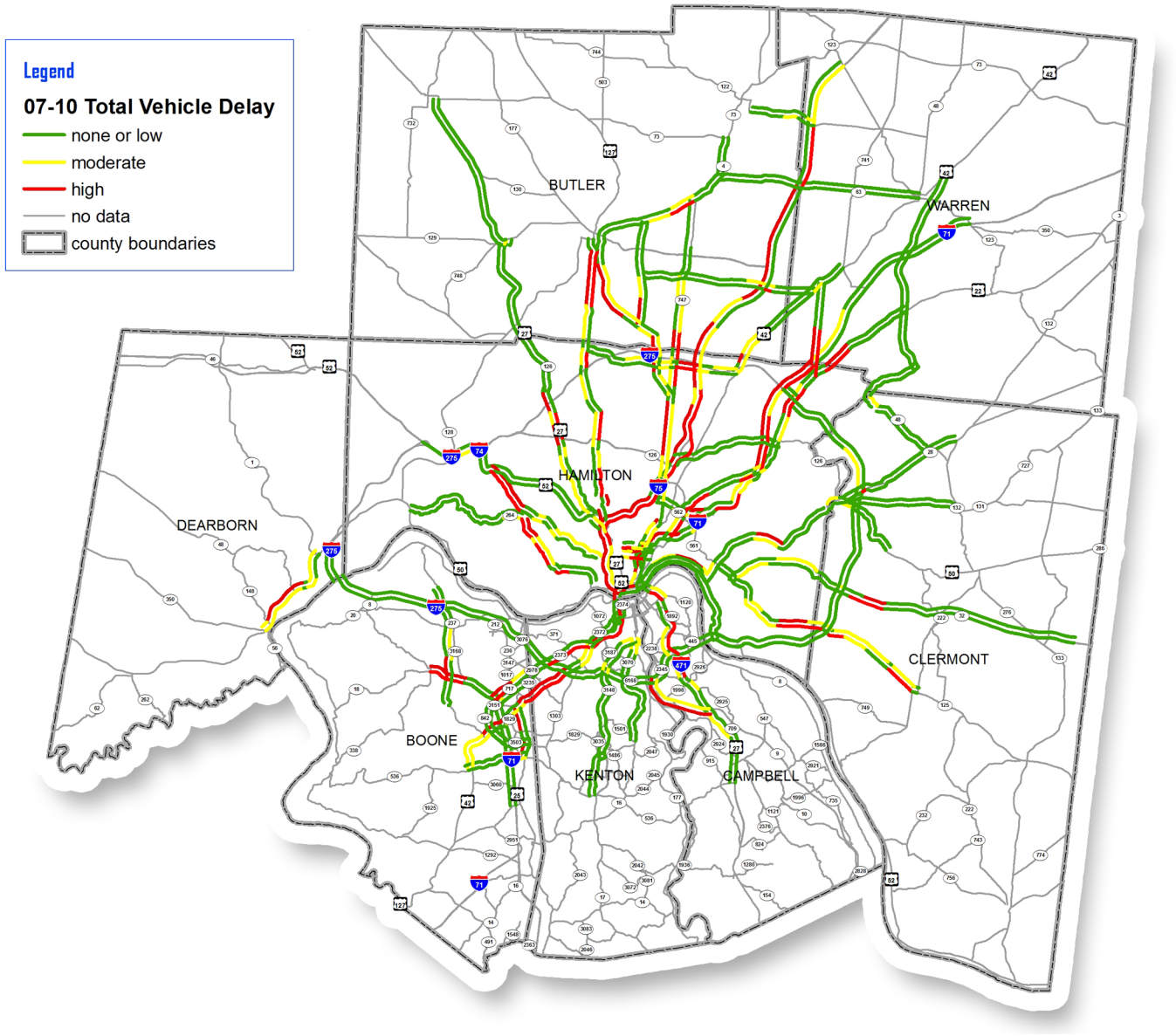
In order to evaluate the intensity of congestion at intersections, peak period turning movement counts were collected and used as input to intersection capacity software. Nearly all intersections surveyed received a level-of-service "F" as determined by the intersection capacity software. The criterion for level-of-service F is greater than 80 seconds of delay for the average vehicle. The intersection at KY 842 at US 42 showed the most delay, 796.3 seconds per vehicle during the AM peak and 1424 seconds per vehicle during the PM peak.

Extent of Congestion

The extent of congestion is measured by the number of transportation system users that are affected by congestion.

Figure 7-1 is a map of total vehicle delay by roadway section, both interstate and non-interstate, based on the observed travel time data collected from 2007 to 2010 as well as traffic counts. Roadway sections are categorized by low, medium and high total delay. Total daily vehicle hours of delay equaled 40,529.

Figure 7-1: Total Vehicle Delay by Roadway Section



Accessibility

Observed travel times between major destinations within the OKI region are shown in Figure 7-2. The major destinations selected include the Cincinnati/Northern Kentucky International Airport (CVG), downtown Cincinnati, the Eastgate shopping area, Northern Kentucky University (NKU), Kings Island and Sharonville. PM peak travel times are shown because PM is typically more congested. The observed travel times are the average of the multiple runs made on each section on the shortest path between destinations. The observed travel times only include travel on the CMN to the section ending nearest the destination, therefore a small amount of additional travel time, not reflected here, may be necessary to reach the destination. Average PM peak period travel time between major destinations was 22 minutes.

Figure 7-2: Average 2007-2010 PM Peak Period Observed Travel Times Between Major Destinations (minutes)

From > To v	CVG Airport	Downtown Cincinnati	Eastgate	NKU	Kings Island	Sharonville
CVG Airport	X	13	22	16	50	31
Downtown Cincinnati	11	X	15	8	32	21
Eastgate	22	17	X	15	19	22
NKU	16	8	13	X	40	28
Kings Island	39	29	18	33	X	14
Sharonville	29	19	19	33	12	X

Another measure of accessibility is the share of regional jobs within walking distance (one-quarter of a mile) of fixed route transit. It is estimated that 570,609 jobs are within walking distance of fixed route transit service. This represents 59 percent of regional employment.

Reliability

The variability or change in congestion on a day-to-day basis provides a measure of reliability. Recurring congestion is generally predictable, regularly occurring, and typically caused by excess demand compared to the capacity of the system. On the other hand, non-recurring congestion causes unreliable travel times and is caused by transient events such as traffic incidents, weather conditions, work zones, or special events. This form of congestion is often the most frustrating for travelers. National estimates indicate that nearly 55 percent of all congestion is non-recurring. ARTIMIS plays a vital role in incident management on 88 miles of region's busiest highways. Incident management consists of a planned and coordinated multi-disciplinary process to detect, respond to and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective incident management dramatically reduces the duration and impacts of traffic incidents. The ARTIMIS Operations Control Center monitors traffic with over 80 cameras and facilitates communication among law enforcement and emergency responders. In 2010, ARTIMIS logged more than 6000 traffic incidents, approximately 3700 of these incidents involved were vehicle crashes. The average incident clearance time of vehicle crashes in 2010 was 56 minutes. The Regional Incident Management Task Force was created by OKI to expedite incident clearance on the region's freeways through collaboration between regional private and public agencies. Quarterly Task Force meetings regularly include a discussion of construction updates, after-action review of recent major incidents, and training initiatives.

Transit and Congestion

In the OKI region, nearly 70,000 person trips per day are accommodated by public transit vehicles. About 45,000 transit person trips occur during the AM and PM peak periods. The Southwest Ohio Regional Transit Authority (SORTA), Transit Authority of Northern Kentucky (TANK), Clermont Transportation Connection (CTC), Middletown Transit, Butler County Regional Transit Authority (BCRTA), and Catch-a-Ride (Dearborn County) operate fixed route and demand response transit service. Nearly all of the transit trips occur on the CMN therefore, highway congestion directly impacts transit travel. In the OKI region, there are no travel facilities exclusively for transit vehicles, with one exception. SORTA buses are allowed to use the shoulder along I-71 when encountering

congested speeds below 30 mph.

The CMP considers public transportation improvements as mitigation strategies to address roadway congestion. The expansion of bus transit service, the introduction of rail transit service, new or expanded Park and Ride facilities, adding transit signal priority, bus rapid transit and reserved bus travel lanes or expanded bus-on-shoulder are all possible strategies. The expansion of transit traveler information systems would also make transit more attractive for users.

EVALUATION OF PERFORMANCE MEASURES

Figure 7-3 provides a summary of data related to the established performance measures, a comparison to previous data, if available, and an indication of whether the related objective has been met.

- Total person hours of delay has been calculated as 54,309 hours per day and the cost of delay is $1.4 million. This equates to about $500 million per year.
- Twenty-three percent of the congestion management network is considered congested, defined as observed travel time twenty percent higher than the target speed. The performance objective has been met.
- The average afternoon peak period travel time between major destinations is almost the same (22 minutes) as the previous plan development cycle. The performance objective has been met.
- Average incident clearance time, as collected by ARTIMIS for 2010, is 56 minutes. This is the average time for clearing automobile disabled and crash incidents on the ARTIMIS system from the time the incident was first observed by ARTIMIS operators. The earliest comparable historical information available is for 2009. This performance objective has been met.
- Fifty-nine percent of regional employment is within walking distance of fixed-route bus service. The availability of sidewalks is not considered.
- Nearly 77 miles of the region's high truck volume roadways (primarily interstates) is congested during peak periods. This compares with 65 congested miles during the previous plan development cycle. This performance objective has not been met. According to the OKI Regional Freight Plan (August 2011), much of the region's truck traffic occurs during off-peak periods, dampening the negative impact of peak congestion.

Figure 7-3: Evaluation of Performance Measures

Performance Measure	2008-2011	2004-2007	Objective	Objective met?
Total Person Hours of Delay Per Day	54,309	50,629	none	--
Cost of Delay Per Day	$1,367,725	$1,203,402	none	--
Percent of CMN Miles With Over 20 Percent Travel Time Tax	23%	21%	Limit increase to no more than 3%	Yes
Average PM Peak Period Travel Time Between Major Destinations	22 minutes	22 minutes	Limit increase to no more than 20%	Yes
Average Incident Clearance Time	56 minutes	53 minutes (2009)	No more than 60 minutes	Yes
Share of Regional Jobs Within One-Quarter Mile of Transit	59%	Not measured	Increase by at least 1%	--
Miles of Congested High Truck Volume Roadways	64 miles	58 miles	Limit increase to no more than 3%	No
Miles of Preferred Bike Routes	3,184 miles	Not measured	Increase by at least 1%	--

SUMMARY OF PREDICTED 2040 DAILY HIGHWAY CONGESTION – OKI TRAVEL DEMAND MODEL RESULTS

The evaluation of existing and future traffic congestion is also based on the level-of-service performance measure derived from the application of OKI's Travel Demand Model. The model uses demographic and land use data as well as capacity and free-flow speed characteristics for each roadway segment in the network to produce a "loaded" highway network with forecasted traffic volumes with revised speeds based on specified speed/capacity relationships. The volume-to-capacity (V/C) ratio is divided into six ranges and assigned a level of service category A through F with level-of-service F being indicative of the most congestion. The OKI Regional Travel Demand Model provides an output report of daily highway congestion for an average weekday. The 2040 highway network, as used for this analysis, contains only those transportation improvements that have received a funding commitment and are part of OKI's 2012-2015 Transportation Improvement Program. For 2040, 14 percent of the region's vehicle miles traveled (VMT) is operating under congested conditions and total recurring delay is over 189,980 hours per day (Figure 7-4). Congested conditions are defined as level of service D or worse. Urban freeways show the highest percentage of congestion. The freeway functional class consists primarily of interstate highways.

Figure 7-4: 2040 Daily Highway Congestion Report

Functional Class	Congested VMT	Delay
(vehicle hours)	24%	27,485
Urban Non-Freeway	4%	135,404
Rural Freeway	11%	1,090
Rural Non-Freeway	4%	25,899
Total	**14%**	**189,880**

Potential Congestion Management Strategies

OKI's CMP has identified many congestion strategies and these strategies can be broadly divided into four categories: travel demand management, traffic operational improvements, public transportation improvements, and highway capacity expansion.

- **Travel Demand Management (TDM) Strategies** can help to provide travelers with more options and reduce the number of vehicles or trips during the peak periods.
  - ◊ Congestion Pricing - Under congestion pricing, motorists pay for the use of certain roads and bridges. Motorists may face usage fee schedules ranging from peak-only fees to fees that vary by time of day, facility or level of use. Congestion pricing includes the use of high-occupancy toll (HOT) lanes where SOV motorists may pay a variable fee to use a high occupancy vehicle (HOV) lane.
  - ◊ Carpools and Vanpools – Ridesharing in carpools or vanpools reduce SOV travel. A carpool generally involves two to five people sharing a ride in their personal cars. Vans are typically leased through a van pool provider and can accommodate up to 12 people. Public and private parking operators can provide preferred or discounted parking for SOV alternatives.
  - ◊ Livability Measures – Development policies that support increased accessibility to bicycle, pedestrian and transit can reduce demand for travel by automobile. This is sometimes achieved through policies that encourage new transit-oriented designs or reinvestment in existing urban centers.
  - ◊ Incorporate Bicycle Facilities – Another means of optimizing existing streets is to incorporate bicycle facilities in the form of wide right travel lanes or striped bike lanes to facilitate road-sharing and encourage bicycle use.
  - ◊ Employer Programs – Work schedules influence commuter travel patterns. In designing work schedules, employers influence peak period travel volumes and employee inclination to use transit, carpools, and other SOV alternatives. Other employer strategies such as allowing flexible scheduling or telecommuting encourage employees to reduce peak period travel or the amount of travel to and from the work site.

- **Traffic Operational Improvements**
  - ◊ Access Management – Access management controls the design and operation of driveway and street connections onto a highway. Control is achieved by public plans or policies aimed at preserving the functional integrity of the existing roadway system.
  - ◊ Improved Signalization – Since computerized traffic signal systems have become available, options have increased for reducing congestion by applying and coordinating progressive signal systems, as exemplified by closed loop systems. The benefits of improved signal systems are commonly measured by reductions in travel time, vehicle stops, delay, fuel consumption and emissions as well as increases in travel speed.
  - ◊ Improve Intersection Geometry – This category may involve increasing the radius of corners to facilitate the movement of trucks and buses through an intersection. High volume locations may require a complete rebuilding of the intersection or interchange with new geometric solutions such as a continuous flow intersection (CFI) or a single-point urban interchange (SPUI).
  - ◊ Incident Management – Incident management consists of a planned and coordinated multi-disciplinary process to detect, respond to and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective incident management reduces the duration and impacts of traffic incidents and

improves the safety of motorists, crash victims and emergency responders. ARTIMIS currently provides incident management for a large portion of the region's interstate highway system.

- ◊ Intersection Turn Lanes – The addition of new turn lanes can provide greater capacity for the intersection without modifying the basic geometry of the intersection.
- ◊ Center Turn Lanes – Center turn lanes provide an area where vehicles can move out of the thru lanes and pause while making a left-hand turn.
- ◊ Eliminate At-Grade Railroad Crossings – In a few areas of the region, at-grade rail crossings reduce traffic flow on major arterials. The separation of rail and roadway travel improves congestion and safety.
- ◊ Ramp Metering - Metering is an effective way to improve traffic flow on freeways without adding additional lanes. The meter allows traffic to enter the freeway at a rate dependent on the conditions of freeway traffic. Motorists may be delayed at the meter, but freeway speeds and overall travel times are improved.
- ◊ Active Traffic Management – An approach for dynamically managing and controlling traffic demand and available capacity of transportation facilities, based on prevailing conditions, using one or a combination of real-time and predictive operational strategies. When implemented together and alongside traditional travel demand management strategies, these operational strategies help to maximize the effectiveness and efficiency of the transportation facility and result in improved safety, trip reliability, and throughput. Components of active traffic management may include speed harmonization, temporary shoulder use, queue warning, dynamic merge control, construction zone management, dynamic truck restrictions, dynamic rerouting and traveler information, dynamic lane markings or automated speed enforcement.
- ◊ Expansion of Traveler Information Systems – Information on travel times and incidents provided in real-time to the traveler via dynamic message signs, a personal electronic device or telephone 511 system. ARTIMIS currently operates dynamic message signs and a 511 system for a large portion of the region's interstate highway system.

- **Public transportation improvements**
  - ◊ Expansion of Bus Transit Service – Congestion on a particular facility or corridor may be alleviated with the addition of new fixed-route bus service or expansion of existing service.
  - ◊ New Rail Transit Service – OKI's 2040 Regional Transportation Plan identifies several corridors where the potential for passenger rail service exists. New rail service would improve mobility options throughout the corridor and reduce automobile travel.
  - ◊ New or Expanded Park & Ride Facilities or Transit Centers – Park & Ride facilities allow for transfers between SOVs to carpools, vanpools or transit service. Transit centers are facilities where transfers can be made between automobiles and buses, between bus routes, between bus routes and/or rail transit lines, or between different rail transit lines.
  - ◊ Bus Rapid Transit (BRT) – BRT is an integrated system of transit measures that work together to significantly improve bus service. These measures include frequent service, simple route structure, limited stops, exclusive bus lanes, branding of vehicles and stop facilities, enhanced stops or stations, special vehicles, transit signal priority, off-vehicle fare collection and real time passenger information.
  - ◊ Reserved Bus Travel Lanes Including Bus-on-Shoulder – Travel lanes where only public transit buses are permitted provide the opportunity to avoid known traffic bottlenecks and increase the attractiveness of bus

travel. Bus-on-shoulder refers to locations where public transit buses are permitted to use the shoulder of expressways when traffic slows.

- **Highway Capacity Expansion**
  - ◊ Additional Travel Lanes – Deficient roadway capacity is a major contributor to congestion. Additional roadway capacity is needed in many areas to keep-up with increased travel demand.
  - ◊ Elimination of Bottlenecks – Bottlenecks occur where short sections of the roadway are of an insufficient width or number of lanes to accommodate the travel demand. Freeway interchange design deficiencies can also be considered a bottleneck.
  - ◊ Express Truck Lanes – Travel lanes where only large trucks are permitted.

Many of the recommended projects in this Plan contain congestion management strategies. Figure 7-5 lists recommended transportation projects for the region's most congested locations.

Figure 7-5: Transportation Projects Recommended for Most Congested Locations

Identification Number	County	Facility	Description
103	Butler	South Hamilton Crossing	Replace with railroad grade separation connecting SR 4 with University Blvd
109	Butler, Clermont, Hamilton, Warren	Ohio ITS Projects	Implement OKI Intelligent Transportation Systems Plan recommendations
202	Clermont	Eastern Corridor Segment IV Phase 1	Reconstruct with signalized ramp terminations at SR 32 and improved Aicholtz Rd connection
203	Clermont	Eastern Corridor Segment IV Phase 2	Construct southbound I-275 to eastbound SR 32 flyover ramp and northbound I-275 to eastbound SR 32 flyunder ramp
204	Clermont	Eastern Corridor Segment IV Phase 3	Construct braided ramp connections between Eastgate Blvd and I-275
205	Clermont	Eastern Corridor Segment IV(a)	Construct new overpass at Glen Este-Withamsville/SR 32 and new SR 32 westbound exit and eastbound entrance ramps
301	Hamilton	Brent Spence Bridge Ohio Portion	Reconstruct existing and add new I-71/75 bridge over Ohio River
303-307	Hamilton	I-75 Mill Creek Expressway Projects	Improvements, rehabilitation and widening
312-316	Hamilton	I-75 Thru the Valley Projects	Improvements, rehabilitation and widening
321	Hamilton	Eastern Corridor Oasis Line Segments 1, 2, 3 & 4	New rail transit plus feeder bus with facility from Riverfront Transit Center to city of Milford

Identification Number	County	Facility	Description
324	Hamilton	SORTA Reading Rd Corridor BRT	Bus Rapid Transit service from city of Reading to Cincinnati Central Business District
325	Hamilton	SORTA Downtown-Hamilton Ave Corridor BRT	Bus Rapid Transit service from Northgate area to Cincinnati Central Business District
326	Hamilton	SORTA Montgomery Ave Corridor BRT	Bus Rapid Transit service from city of Blue Ash to Cincinnati Central Business District
406	Warren	Mason Montgomery Rd	Widen to six lanes from Fields Ertel Rd to Socialville-Fosters Rd
407	Warren	I-71/Fields Ertel Interchange	Construct new northbound off ramp and other intersection improvements
514	Boone	US 42	Provide walkway on northside of US 42 through I-75 interchange
515	Boone	US 42	Widen to three lanes each direction from I-71/75 to KY 842
522	Boone, Campbell, Kenton	Kentucky Regional ITS Projects	Implement OKI Intelligent Transportation Systems Plan recommendations
601	Campbell	I-471	Widen to four lanes from I-275 to Ohio state line
605	Campbell	KY 9 (AA Hwy)	Widen to six lanes with access control from I-275 to US 27
608	Campbell	TANK I-471 Transit Way	Implement TANK bus-on-shoulder project
610	Campbell	TANK Suburban Crosstown Transit Service	Add new TANK bus route from Florence Transit Hub to NKU Transit Hub with Ft. Wright stop
701	Kenton	Brent Spence Bridge Kentucky Portion	Reconstruct existing and add new I-71/75 bridge over Ohio River
705	Kenton	Buttermilk Pike/I-71/75 Interchange	Auxiliary lane extension and interchange improvements
706	Kenton	I-75	Widen to six northbound lanes from I-275 to US 25
723	Kenton	TANK Dixie Hwy Corridor BRT	Bus Rapid Transit service along TANK bus Route 1
726	Kenton	TANK I-75/71 Transit Way	Implement TANK bus-on-shoulder project
809	Dearborn	Indiana ITS Projects	Implement OKI Intelligent Transportation Systems Plan recommendations

Congestion management will continue to be a critical component of long range transportation solutions. OKI's CMP will further the understanding of congestion throughout the region. CMP findings and strategies have been fully integrated into this plan. The specific use of current strategies is further discussed in other chapters according to their travel mode.

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i. *The 2011 Urban Mobility Report, Texas Transportation Institute, Texas A&M University, September, 2011. Available: http://mobility.tamu.edu/ums*

INTRODUCTION

Corridor and planning studies provide the opportunity for a focused and comprehensive examination of transportation issues in the OKI region. These studies, by design, consider every feasible alternative to addressing transportation issues. Concepts new to the region can be explored for their applicability and potential benefit for addressing regional transportation goals.

By applying planning to regional transportation issues, a conceptual "step back" can be taken to examine the actions required to create a desired transportation future for the OKI region. Planning is essential to the creation and refinement of long-term transportation solutions. The region is influenced by many factors and is in constant flux. By drafting forecasts using the best data and principles known to exist at the given time, multiple factors can be comprehensively examined and an array of scenarios considered.

COMPLETED CORRIDOR STUDIES AND PLANS

The study of a corridor provides a level playing field among all modes of transportation because it was conceived jointly by the Federal Highway Administration and the Federal Transit Administration (FTA). The metropolitan planning regulations of October 1993 require a corridor study where there are high cost and high impact transportation alternatives being considered.

In large measure, the corridor study process focuses on how to do a better job of connecting the planning process with project development in a way that provides a stronger rationale and basis for sustaining those investments. The corridor study is a unique problem solving tool that adds value to the planning process and leads to better decisions. It focuses on defining problems to be solved within a corridor or sub-area and then builds a process to reach a consensus on appropriate solutions. The process focuses on building consensus by involving local communities and interests early and often. Local involvement includes identifying a broad range of alternatives and a comprehensive evaluation of those alternatives so decisions address problems, needs and objectives. This evaluation includes consideration of multimodal alternatives such as transit as well as bicycle and pedestrian travel. It adds value by ensuring that a broad range of alternatives is considered and by offering an opportunity to streamline the overall planning and project development process. For the corridor study process to work as intended there must be strong working relationships among all interested agencies and a proactive public involvement program.

This plan includes many projects that were identified as priority projects in completed corridor studies. Other projects outside corridor study areas will require further analysis, especially those that may impact the primary system which consists of interstates. The plan leaves a modest amount of the projected available funds to projects not yet identified. This is intended to permit flexibility and the ability to amend the plan relatively easily as future corridor studies are conducted or if the scope of existing recommendations changes significantly.

In addition to corridor studies, OKI has been active in countywide transportation planning efforts in Kentucky and Indiana. Plans or assessments for Boone (completed in 2005), Campbell (2003), Kenton (2003), and Dearborn (2004) counties include recommended priorities for federal, state, and county roadways and transit improvements; an evaluation and inventory of the complete listing of roads the county is responsible to maintain; and, a vision for a multimodal system that touches upon the full spectrum of transport modes compatible with and supportive of each county's land use plan.

The following documents are listed in chronological order from most recently completed.

Household Travel Survey, March 2012

The household travel survey was the first large-scale GPS travel survey undertaken in the United States. In this project, 1,352 households were surveyed with each survey participant (13 years and older) carrying a personal global positioning system (GPS) device that tracked all travel via all transportation modes. This data is used in conjunction with the transit on-board survey data to assist in OKI's Traffic Demand Model calibration.

OKI Regional Freight Plan, August 2011

There are a total of 58 recommendations in the OKI Regional Freight Plan to address regional freight deficiencies. Each recommendation contains a cost estimate and priority ranking. The Freight Plan also makes 12 high priority recommendations for the region for which the total estimated cost in current year dollars is $3,085,053,000. Seventy-four percent of this total is from the cost of the Brent Spence Bridge replacement project.

Transit On-Board Survey, June 2011

The transit on-board survey was a survey of transit riders on the Southwest Ohio Regional Transit Authority's (SORTA) Metro, Transit Authority of Northern Kentucky (TANK), and Clermont Transportation Connection (CTC) systems. This survey used both paper survey forms and personal interviews documented with personal digital assistants (PDA) or handheld mobile devices. Combined survey methods resulted in responses from 6,623 transit riders in the region. This data is used in conjunction with the household travel survey data to assist in OKI's Traffic Demand Model calibration.

American Recovery and Reinvestment Act, March 2009

In response to funding made available through the American Recovery and Reinvestment Act (federal economic recovery program bill), OKI received more than 600 infrastructure project requests totaling more than $1.8 billion. Out of those requests, OKI was able to fund 30 projects. The state departments of transportation allocated $30

million in Ohio, $8.8 million in Kentucky and $147,500 in Indiana. On March 12, 2009, the OKI Board of Directors approved an amendment to the OKI 2030 Regional Transportation Plan and TIP to incorporate these projects.

Fiscal Impact Model, Fall 2009

OKI developed a Fiscal Impact Analysis Model to give decision makers a better understanding of the budgetary implications of land use proposals. The need for a fiscal impact analysis tool was identified as part of OKI's Strategic Regional Policy Plan, adopted in 2005. Transportation investments stimulate land use change and economic development. The Model assists local governments to capitalize on the potential land use changes related to these transportation investments by analyzing the impact of alternative land use scenarios on their jurisdiction's budget. As communities better understand the associated costs and revenues of development through fiscal impact analyses, they will be better able to plan for investments to serve new development or to fix existing deficiencies. This can impact the regional transportation funding process and make more efficient use of tax dollars at the local and federal levels.

I-471 Corridor, October 2008

The I-471 corridor spans from the Ohio River to the US 27 intersection with the AA Highway (KY 9). This nine mile corridor in Campbell County, encompassing I-471, US 27, I-275, KY 8 and KY 9, accommodates close to a million vehicle miles of travel every day. Since the opening of I-471 more than 25 years ago, daily Ohio River crossings have quadrupled. Likewise, travel demand throughout the corridor has experienced dramatic growth, a trend that is expected to continue. The I-471 Study focused on gaining a clear understanding of the land use and transportation dynamic, as well as determining strategies to enhance the quality of life and economic potential of Campbell County. The study identified multimodal options to address areas with safety and traffic flow problems. As part of the study, an access management plan and traffic signalization optimization plan were completed for sections of US 27 also known as Alexandria Pike.

Southeastern Indiana Gateway: US 50 Transportation and Land Use Plan, September 2007

Dearborn County is the 10th fastest growing county in the state of Indiana, yet economic development opportunities in southeastern Indiana are limited by the inability of US 50 to handle current traffic volumes effectively and safely. The 18 mile long corridor has more than 400 existing access points, a number of ill-defined or ill-placed commercial driveways, and numerous conflict points that are exacerbated by two stretches of a continuous center left turn lane. A committed new bridge over Tanners Creek as well as ongoing commercial development and redevelopment throughout the corridor also dictate the need to improve mobility and safety in the corridor, to eliminate congestion, and to create more functional land development.

In March 2004, the Indiana Department of Transportation (INDOT) lead a corridor planning/assessment study conducted as a joint Environmental Assessment (EA) /Corridor Study under the INDOT Environmental Streamlining Process. To supplement INDOT's EA study, the Dearborn County Commissioners and Dearborn County Council funded The Southeastern Indiana Gateway: US 50 Transportation and Land Use Plan (US 50 Gateway Study). This study supplemented the INDOT study by looking at the land use opportunities in the corridor, by better defining access management and transportation operation improvements and by assisting a public discussion that resulted in an appropriate vision for the corridor. The goals of the study were to improve

safety and mobility and to create functional development patterns.

The study was completed in September 2007 and included several overall corridor recommendations. First, the study recommended the creation of a US 50 corridor collaborative of government officials from Dearborn County, Greendale, Lawrenceburg, Aurora, and Dillsboro to assure consistency and sustainability along the US 50 Corridor. Second, the study recommended that each community should independently adopt the conceptual zoning recommendations of the US 50 Gateway Study and access management regulations developed by INDOT. In addition, the US 50 Gateway Study made several corridor section-by-section recommendations.

Western Hamilton County Transportation Study, February 2007

The Western Hamilton County Transportation Study provided a strategic plan to improve mobility and safety throughout western Hamilton County. The study area, home to about one-third of Hamilton County's population, encompassed approximately 178 square miles. Completed in February 2007, major recommendations from the study included: continued improvements on Colerain Avenue from Kirby Road to Raeann Drive; upgrades to Cheviot Road to enhance its viability and safety as an alternative route to Colerain Avenue; intersection improvements, signal timing adjustments, lane additions and road widenings along a one mile section of Bridgetown Road; numerous improvements on Glenway Avenue between Cleves Warsaw and Crookshank including access management, turn restrictions and operational improvements; numerous improvements on a two mile stretch of Anderson Ferry Road including access management techniques, sidewalks and turn lanes; and, numerous improvements along an eight mile stretch of River Road including turn lanes, roadway widenings, parking restrictions, signage, access management techniques and sidewalks.

Uptown Transportation Study, January 2007

Completed in January 2007, the Uptown Transportation Study was a two part study undertaken to develop a comprehensive transportation plan for the Uptown area in Cincinnati. Uptown is the second largest economic engine in the OKI region behind downtown Cincinnati. Part A of the study was a comprehensive review of all elements of the transportation system within a broad area encompassing the Cincinnati neighborhoods of Avondale, Clifton, Corryville, East Walnut Hills, Evanston, Mt. Auburn, North Avondale, Walnut Hills, and Clifton Heights, University Heights, and Fairview (CUF). Major recommendations resulting from the Part A study included: upgrade of ML King, Burnet Avenue and Vine Street; signal system coordination; development of additional parking structures; development of a comprehensive package of new directional signage; development of a Travel Management Association to facilitate transportation improvements; improvements to pedestrian and bicycle facilities; and, improvements to transit service, wayfinding signage, and facilities.

Part B of the study focused on developing a set of feasible alternatives to improve access between I-71 and the Uptown area that would reduce travel times, reduce complexity of wayfinding and promote economic vitality. After completing the first four steps of ODOT's Major Project Development Process (PDP), six build alternatives were recommended to be advanced through PDP Steps 5 through 7 to arrive at a preferred alternative and to produce the associated environmental documentation. Additional Part B recommendations included: reconstruction of the southbound entrance ramp from Montgomery Road to I-71 southbound; study of the I-71 Reading Road

interchange to evaluate the feasibility of eliminating the weaving movement from I-471 to the Reading Road exit; and, evaluation of the need for an additional lane on I-71 between the Taft/McMillan and the Dana Avenue interchange.

The Dixie Fix: Envisioning the Future of Dixie Highway, June 2006

In response to a recommendation made by the Dixie Highway Corridor Study, the Dixie Fix: Envisioning the Future of Dixie Highway resulted in an access management redevelopment plan intended to provide a long-range planning approach to relieve congestion problems and provide better access to Dixie Highway. OKI partnered with the Northern Kentucky Area Planning Commission to complete the study in June 2006. The Dixie Fix was conducted to identify specific transportation planning and design solutions along the major arterial from Covington to Florence which would result in increased safety, travel efficiency and quality of life. Results from this study included a list of 36 prioritized projects involving operational improvements and/or access management, and guidelines that serve as implementation standards such as future right of way widths, transit stop improvements, expanded bicycle and pedestrian accommodations, and increased streetscape design measures.

Southwest Warren County Transportation Study, August 2005

OKI undertook a study to identify the most effective alternatives for improving mobility in Warren County. The study area was bordered by I-75 to the west, SR 63 to the north, SR 48 to the east, and along US 22/SR 3 to the county line in the south. The study addressed the need for maintaining accessibility along major transportation corridors on the basis of the existing and future conditions. OKI's effort included responsibilities for coordination of both the technical and public involvement aspects of the study process. Completed in 2005, eight high priority projects were identified: connect Bethany Road to Mason-Morrow-Millgrove Roads and widen to three lanes between Butler Warren Road and SR 48 with right of way for five lanes; extend Waterstone Drive across I-71 to connect with Duke Drive; widen Columbia Road one lane in each direction between Kings Mill and Mason-Morrow-Millgrove Roads; widen Butler Warren Road one lane in each direction between Barrett/Western Row and Bethany Roads; conduct a feasibility study to identify a comprehensive solution for the I-71 interchange at Fields Ertel and Mason Montgomery Roads; expand the I-71 interchange at Western Row Road to a full interchange; and, improve the I-71 interchange at SR 741 and Kings Mills Road.

Dixie Highway Corridor Study, June 2005

Completed in 2005, The Dixie Highway Corridor Study provided an analysis for improving traffic flow and safety along Dixie Highway, a major, heavily traveled urban arterial in northern Kentucky between the Ohio River and the city of Florence. The study focused on the application of a coordinated, adaptive signal system, incident management coordination with I-75/I-71 linkages with ARTIMIS, and deployment of signal pre-emption by emergency vehicles. The study also included conceptual design of intersections in need of improvements and segments requiring access management. These operational improvements were expected to enhance efficient and safe traffic movement on this arterial.

North/South Transportation Initiative, October 2003

In 1999, the North/South Transportation Initiative (NSTI), Phase II of the I-75 Corridor Study, was initiated

by OKI in partnership with the Miami Valley Regional Planning Commission. This phase of the study included the I-75 corridor from northern Kentucky through Dayton to the Miami County line. The recommendations from Phase I served as the base scenario for Phase II. Completed in 2003, the study's oversight committee made recommendations for a preferred program of projects that were classified into three separate categories. The first category included system modification alternatives or those projects that would improve the overall flow of the interstate mainline, as well as improvements to parallel roadways. The second category included access modification alternatives or those projects that address new or modified interchanges on the interstate. The third recommendation category included corridor capacity alternatives or those projects, both roadway and transit, which are designed to increase the overall capacity of the interstate. These specific corridor capacity alternatives included: four continuous lanes on I-75 throughout the Ohio portion of the OKI region with an auxiliary lane to be added in areas of congestion, high frequency light rail and enhanced bus service, and study of multimodal freight movement.

The NSTI has now entered the PE/EIS phase. The PE/EIS is being conducted by ODOT in two separate segments entitled Through the Valley, I-75 Mill Creek Expressway. Replacement of the Brent Spence Bridge was also a product of the NSTI and is in the planning phases. As the I-75 connection across the Ohio River between Ohio and Kentucky, this bridge project is a joint effort of ODOT and the Kentucky Transportation Cabinet.

Northwest Butler Transportation Study, October 2003

The Northwest Butler Transportation Study (NBTS) was an in-depth study of the transportation needs and possible solutions to transportation related problems in a 125 square mile area centered on US 27 and SR 73, spanning eight townships in northwest Butler County, Ohio. The purpose of this study was to determine a recommended long-range strategic plan of implementable improvements for future transportation in the NBTS area. The recommendations resulting from the NBTS study included: upgrading key intersections and lane and shoulder widths of several roadway sections; re-aligning US 27 and SR 129 in Millville; widening US 27 to four lanes from SR 128 to Millville; expanding US 27 to a three lane segment between Minton Road and McGonigle and between Stillwell Beckett and Chestnut Roads; adding a two lane connector between US 27 and SR 73 and between US 27 and SR 732 south of Oxford; and, considering the re-routing of US 27 over local roads. The study was completed by OKI in 2003.

Central Area Loop Study, November 2001

The Central Area Loop Study examined the need for a loop circulator system to connect the downtown areas of Cincinnati, Covington, and Newport; the traffic flow on Fourth and Fifth Streets in Covington and Newport; and possible alignments for a light rail link from the proposed I-71 light rail line to the city of Newport. The boundaries of the Central Area Loop Study were I-75 on the west, the city of Newport's eastern boundary line on the east at I-471, Central Parkway in Cincinnati on the north, and 12th Street in Covington and 11th Street in Newport on the south. Following 18 months of analysis, the study's advisory committee developed recommendations designed to decrease traffic congestion and improve mobility to downtown Cincinnati, Covington and Newport. Recommendations were made regarding loop circulator service, streetcar, personal rapid transit, Fourth and Fifth Streets in Covington and Newport, the Veteran's Memorial Bridge, and a possible Newport light rail spur. The

study was completed by OKI in 2001.

Northeast Boone County, September 1999

The Northeast Boone County MIS was initiated to explore possible transportation solutions in the vicinity of the Cincinnati/Northern Kentucky International Airport, a rapidly growing area experiencing high rates of traffic growth. The Northeast Boone County MIS was completed in September 1999. The top three recommendations were roadway projects designed to improve mobility in the corridor and included: widening North Bend Road; improving the interchanges of KY 212 and Donaldson Road with I-275; and, constructing New South Airfield Road which would skirt the eastern and southern airport property and connect Mineola Pike and KY 18.

Eastern Corridor, December 1998

Like the I-71 corridor study, the Eastern Corridor Study was an outgrowth of the OKI 1993 Regional Transportation Plan. The MIS phase of the study was completed in 1998 and the plan has now entered the PE/EIS phase. The PE/EIS is being conducted by the Hamilton County Transportation Improvement District. The Eastern Corridor study area covers nearly 200 square miles in parts of Hamilton and Clermont counties in Ohio and also part of Campbell County in Kentucky. The study area extends east from downtown Cincinnati to Milford, Batavia and Amelia before dipping into northern Kentucky along I-275 and I-471.

The MIS culminated in a plan that was recommended by the Eastern Corridor Task Force and was adopted on December 10, 1998 by OKI's board. Following consideration of public comments and group discussion, the task force, comprised of nearly 60 members representing 18 local governments in the corridor, recommended a multimodal plan with four categories of improvements including: highway improvements to preserve and expand the capacity of the roadway network; Transportation System Management to optimize the performance of existing roadway and bus transit investments and to expand pedestrian and bicycle facilities; bus service expansion to extend new routes in developed areas; rail transit on existing infrastructure to establish new east-west transit service and connect major employment centers; and, right of way preservation along the existing Wasson rail line from Xavier University to Fairfax for potential connection to the I-71 light rail transit.

I-71 Corridor Phase II, April 1998

An MIS for the I-71 corridor was completed in order to improve mobility along the northeast corridor near I-71 and its neighboring areas. The Phase II I-71 corridor extends from Florence, Kentucky and the Cincinnati/Northern Kentucky International Airport; north through Boone and Kenton counties; along I-71/I-75 into downtown Covington; through downtown Cincinnati, the University of Cincinnati/Medical Center area, the cities of Norwood, Silverton, Blue Ash, and several other Hamilton County cities; and finally terminating in southern Warren County at Kings Mills Road. Light rail transit was identified as the preferred alternative to address the transportation goals established for the corridor including improving mobility, accessibility, the physical and social environment, economic development and air quality. The preferred alternative was approved by the I-71 Oversight Committee by majority decision in March 1998 and adopted by the OKI Board of Trustees in April 1998. The Minimal Operable Segment was identified as the area between 12th Street in Covington, Kentucky and approximately Cornell Road in Blue Ash, Ohio. The Preliminary Engineering and Draft Environmental Impact

Statement (PE/DEIS) Report was submitted to FTA in July 2003. During the PE/DEIS portion of the study, the exact alignment, station locations and environmental impacts were evaluated. In 2003, a Hamilton County tax levy failed to pass public vote which would have provided the local funding necessary to initiate implementation of the preferred light rail transit alternative. This recommendation remains on hold until local funding and support can be obtained.

Fort Washington Way, January 1997

The Fort Washington Way section of I-71, along the central riverfront area of Cincinnati, was studied as a sub-corridor within the I-71 Phase II corridor study. The study of Ft. Washington Way, conducted separately but concurrently with the I-71 corridor study, was completed in January 1997. At the request of the city of Cincinnati, the OKI Board of Trustees agreed in September 1995 to conduct an analysis of Fort Washington Way to determine whether to rebuild, modify, or eliminate it altogether. The decision was made to redesign the facility. It became apparent that this major roadway project would prove to be the keystone for redevelopment of the Cincinnati riverfront. The redesign of the facility not only improved the performance of the roadway system but also did so on a smaller amount of right of way and freed up valuable real estate. Paul Brown Stadium, Great American Ballpark and the National Underground Railroad Freedom Center benefited from the additional land made available by the smaller Fort Washington Way roadway. A major storm water retention basin was also built into the project at the foot of the new Third Street. Staging areas for buses and other travel modes were included below the new Second Street. The main line of the new facility was fully opened by the end of 2000. This project was remarkable in terms of the amount of interagency coordination and communication required to make it possible. This major project went from concept to completion in an astounding five years.

I-275 East Corridor, 1997

As with the I-75 and I-71 corridor studies, the I-275 East Corridor MIS was conducted by ODOT in 1997 when current and projected traffic volumes resulted in unacceptable levels of congestion and delay. ODOT realized the need for alternatives to alleviate congestion problems by the year 2010. The boundaries of the study area included Five Mile Road to the south and US 50 to the north. Additional routes such as Eight Mile Road, Mt. Carmel-Tobasco Road, Glen Este-Withamsville Road, Beechwood Road, Summerside Road and Tealtown Road, were also included in the analysis to provide evaluation on a corridor scale. The preferred alternative for the I-275 East Corridor was a combination of improvements and strategies at an estimated cost of $91,568,300. The major recommendation was to add one lane in each direction on I-275 between US 50 and Five Mile Road. This roadway widening, at an estimated cost of $40,500,000, has been completed.

I-71 Corridor Phase I, 1996

The I-71 corridor study began in 1994 as an effort to evaluate the operations of the interstate and options to improve mobility in the corridor. The corridor is defined as the area within approximately one mile east and west of the interstate facility. The north and south boundaries of the study area were defined as SR 48 in Warren County to I-275 in northern Hamilton County. The study recommended that I-71 in Warren County be widened to four lanes in each direction between I-275 and SR 48. The study was completed by ODOT in 1996.

I-75 Corridor Phase I, 1996

The I-75 study area extended from I-275 north to SR 63. Conducted by ODOT, Phase I of this study was embarked upon due to the additional traffic expected to be generated from the construction of the SR 129 (Butler County Veterans Highway) and the Allen Road Interchange. The study was completed by ODOT in late 1996. The preferred alternative for Phase I of the I-75 corridor was estimated to cost $54,268,500 with a combination of improvements and strategies including: the construction of an auxiliary lane in each direction of I-75 between I-275 and Cincinnati-Dayton Road and between SR 129 and Tylersville Road; expansion of bus service within the corridor; implementation of an expanded RideShare program; expansion of the Advanced Regional Traffic Interactive Management and Information System (ARTIMIS) to SR 63; implementation of an incident management program; coordination of SR 747 and US 42 signal systems; and, improvement of access management along SR 4, SR 747, and US 42.

RECOMMENDED FUTURE TRANSPORTATION RELATED ACTIONS AND PLANNING STUDIES

Policy Action/Partnership-Building Recommendations

• Activate the "Port" in the Port of Greater Cincinnati Development Authority.

The OKI Regional Freight Plan lists the deficiencies of current port or river facility development and identifies existing organizations that could serve as the implementing agencies for each initiative. One of the top 12 Freight Plan priority recommendations identified the Port of Greater Cincinnati Development Authority to serve as the lead implementing agency to address current river freight related deficiencies. This assignment was due to the agency's port authority status and jurisdiction, which encompasses the majority of current barge terminal operations in the OKI region. Port authorities can exercise significant powers to develop transportation, such as planning and promotional activities, and the authority to tax and issue debt to finance capital improvements. An annual cost estimate of $300,000 is intended to cover only administrative costs for the Port of Greater Cincinnati Development Authority to assume this role. Land acquisition, remediation or construction costs are not included in the estimate. The Port Authority can enhance the profile of regional waterway assets as a lever for economic development.

• Regional Public-Private Freight Rail Partnership.

The OKI region suffers from major rail bottlenecks affecting both Class 1 railroad operators: Norfolk Southern (NS) and CSX. These operators share trackage rights in the Mill Creek Valley and must carefully coordinate daily operations to minimize delays. Congested railroad operations in the region also raise significant public policy concerns. Blocked grade crossings are frequently cited as an issue in every OKI county and one that could be exacerbated given the forecasted growth in rail traffic over the next 30 years. Also, coordination between the freight railroads and local communities needs to improve on critical matters such as closing grade crossings for maintenance activities.

The status quo of communication between railroads and local public officials is not acceptable. The two sectors must engage to resolve public-private conflicts, develop projects that will improve freight transportation in the region and take action to see immediate results. Every railroad recommendation that follows in this section will depend on communication, cooperation and partnership between railroads and the public sector. An example of such a partnership comes from Chicago, where the Chicago Region Environmental and Transportation Efficiency (CREATE) program was formed to address and resolve regional railroad issues. CREATE partners include six freight railroads, Amtrak, commuter rail agencies and local and state elected officials. CREATE has developed a comprehensive program of freight infrastructure projects that will improve safety, reduce congestion for rail passenger and freight trains and provide environmental benefits. CREATE has also been successful at applying for federal grants and leveraging private dollars to fund infrastructure improvements that have public and private benefits.

A similar collaboration between the public sector and railroads is critical to implementing a number of the recommendations in the OKI Regional Freight Plan. One of the top 12 Freight Plan priority recommendations stated that that a modest investment for administrative costs be directed to advance the public/private partnerships required to implement railroad improvements throughout the region.

- **Regional Truck Size and Weight Regulation**

Truck weight regulation is a top policy concern of the transportation community. Heavy trucks cause severe pavement damage, especially on the local road system which often does not have sufficient pavement thickness to handle heavy loads. The adequacy of local bridges to handle heavy trucks is also a critical safety concern. Not surprisingly, there are some roads and bridges that are deteriorating under heavy trucks accessing the the Gest Street Yard including Spring Grove Avenue, Winton Road, North Bend Road, and Hamilton Avenue.

In spite of these legitimate policy concerns, there is industry and political pressure to increase truck weight limits. The reason for increasing weight limits lies with productivity: with driver shortages, increased fuel costs, and more strict insurance and safety regulations, trucking productivity is in decline. One way to increase truck productivity is to allow

higher weight limits per truck which brings into play all of the public policy concerns indicated above.

While interstate size and weight regulations are determined at the federal level, there is latitude at the state level for issuing oversize/overweight truck permits. A state, region or local jurisdiction can rely on federal officials to manage truck size and weight regulations or work constructively with the trucking industry and state regulators to shape the parameters of overweight permits and regulations. It is recommended that regional leaders take the latter approach and actively engage with the trucking industry and state regulators to address, at a minimum, the following critical policy issues:

- Identify appropriate truck routes for overweight trucks based on sufficiency in terms of geometric design, pavement thickness and bridge condition.
- Modify existing ODOT permit language, as appropriate, to define the routes that are most adequate for heavy trucks.
- In establishing permit routes with state government, extract state maintenance or improvement funding for roads if the routes are currently inadequate from a structural standpoint.
- Map and communicate eligible heavy truck routes and terminals to freight stakeholders (e.g., specific terminals and commodities, like agricultural exports from NS Gest Street and CSX Queensgate Yards, or general permit conditions like Ohio three steel coil permit).
- Include law enforcement officials to ensure strict enforcement of routes and permits. If appropriate, consider a necessary fee structure to finance heavy truck enforcement.
- Identify other businesses in the tri-state area that would benefit from heavy truck routes and develop a regional permit as appropriate.

An overarching objective of this recommendation is to provide local governments with a voice in determining oversize/overweight permit routes, so that the state regulatory agencies will select routes with the least public impacts in terms of maintenance cost, safety, and congestion.

To carry out this recommendation, regional leaders should meet with trucking industry representatives and state transportation officials from Ohio, Kentucky, and Indiana to investigate the parameters of existing overweight permits, modify the route specifications if necessary, and explore options for regional permitting of heavy trucks where there is evidence of economic benefit.

Corridor Study Recommendations

This plan also identifies corridors, sub-areas and special transportation related topics requiring study of potential major improvements. The recommendations resulting from these corridor studies may then be incorporated as a future update to this plan however, this plan must remain fiscally constrained and meet air quality conformity requirements.

• East Sharon Road Study

Figure 8-1: East Sharon Road Entrance to Norfolk Southern Railroad's Sharon Intermodal Yard

One of the top 12 OKI Regional Freight Plan priority recommendations calls for further study of East Sharon Road due to its regional significance for freight flow and direct impact on local communities. This recommendation is to analyze the segment of East Sharon Road, including both the intersection of Medallion Drive and entrance/exit to Sharon Yard, to determine a comprehensive strategy for improving multi-modal transportation movements that benefit both the Sharonville and Evendale communities, as well as facilitate potential growth of NS intermodal freight activities. In February 2012, the double stack clearance project was completed between Rickenbacker Intermodal Facility in Columbus and the Sharon Yard. The full impact of this improvement on rail to truck freight volumes and roadways in the OKI region will be driven by market demand. This study should account for future such growth. The estimated cost for this study, in 2011 dollars, is $250,000.

• Accessibility Between the Licking River and I-275 in Kenton County

Figure 8-2: Grand Avenue in Taylor Mill, Kentucky

During the development of the Regional Freight Plan in 2011, OKI learned from Kenton County of the redevelopment potential that exists on the western banks of the Licking River, near the I-275 crossing. Much of this stretch of riverfront was formerly occupied by CSX and its Decoursey Yard rail operations. The former L&N classification yard at Decoursey closed when CSX initiated operations at Queensgate in 1981. Over the last several years, the use of this property for yard service has diminished. As a result, CSX has removed large amounts of yard rail track from this area, leaving prime undeveloped parcels with good rail and water access available for brownfield redevelopment. Efficient truck access between I-275 and the Decoursey Yard area along KY 177/Decoursey Pike is lacking. A recommended solution included in the Regional Freight Plan involves the improvement of Grand Avenue between KY 177/Decoursey Pike and KY 16/Taylor Mill Road, so that it can better handle truck traffic. Improvement of mobility from the river to I-275 would also assist in reducing the amount of freight traffic traveling through Ritte's Corner in Latonia and other local roadways to the north.

A second Regional Freight Plan recommendation spoke to the lack of truck access south of I-275 as well. Locust Pike is a north/south route that runs parallel on the west side of the Licking River. This roadway cannot handle large volumes of heavy trucks because of its narrowness and geometric limitations. Improving connections to KY

177 and KY 16 via Porter and Wolf roads was another possible solution to these I-275 truck access problems offered in the OKI Regional Freight Plan.

Figure 8-3: Truck Access South of I-275

During the update of this plan, this accessibility was heard once again from Kenton County and Taylor Mill representatives. However, it was unclear whether Grand Avenue was the chosen corridor on which improvements should be invested and truck traffic directed. OKI recommends that this area of Kenton County be studied so that the appropriate corridors can be identified for responsible, future public investments.

• I-275 South Between I-75 and the Ohio River

There is local interest supporting a future corridor study of the I-275 corridor between I-75 and the Ohio River in Kenton and Campbell counties. The study will evaluate options for improving traffic flow and improving safety.

• Route 8 in Bellevue and Dayton, Kentucky

KY 8 is a key east-west route in Northern Kentucky which suffers from inadequate level of service and poor operational capabilities. The I-471 Corridor Study completed in 2008 identified the need to initiate a detailed analysis of the section through Bellevue and Dayton.

Congestion Management, Safety and Multi-Modal Enhancement Study Recommendations

To reduce congestion along the region's arterials, improve reliability and safety, and expand affordable travel modal options for all transportation users, new and creative efforts or studies are recommended to identify and analyze alternatives for potential implementation beyond those which have been applied in the OKI region up to the present time.

• At-Grade Crossings Safety Study

At-grade railroad or highway crossings are a large safety concern of local governments in the OKI region. As train volumes increase, the potential for collisions at these crossings grows as well. The rail freight growth forecasted for the region adds to the concern of local agencies. This recommendation originated in the Regional Freight Plan and suggests that OKI coordinate efforts with rail grade crossing safety programs administered by Ohio, Kentucky and Indiana, and where appropriate, to assist in funding grade crossing safety improvements. The intent of this recommendation is for OKI to coordinate with existing rail grade crossing safety programs so that the region can maximize public funds.

• Alternative Routing System

The regional freeways are heavily traveled and major incidents such as spilled loads and crashes can tie up traffic for several hours. Although ARTIMIS is a valuable tool for providing traffic information to motorists, an alternative routing system should be identified to reduce delays and enhance safety, economic, and environmental implications. In addition, an alternative routing system could maximize the overall system efficiency by encouraging the use of nearby parallel arterial highways, especially for shorter local trips, when freeways are congested. By collaborating with state and local governments, OKI could develop a system of alternate routes generally parallel to freeways.

• Regional Express Truck Lanes Feasibility Study

Traffic forecasts for the regional highway network suggest that most roadways will experience severe peak-hour congestion by 2030. This includes all sections of I-71, I-74, I-75 and most of I-275. These forecasts include the improvements underway on I-75 (Mill Creek Expressway and Thru the Valley projects) and the most recent investment study for I-71 from downtown Cincinnati to Kings Mill which, by OKI policy, sets capacity at three lanes in each direction.

Larger urban areas, with more acute highway and freight congestion, are considering new programs to accommodate current and future truck growth—including dedicated truck lanes, which can be self-financed by tolls. Looking forward, such truck toll policies may become the norm for regional freight mobility, but are currently only considered or implemented in the most-congested parts of the country (e.g., Los Angeles, Atlanta, New Jersey).

In light of the OKI region's freight growth and regional traffic congestion, there are two provocative questions for area transportation policy makers to consider:

- If the OKI region implemented truck toll lanes, what competitive advantage would the region have in 30 years, compared to regions that did not implement truck lanes?
- Conversely, what logistical disadvantages would the OKI region have if competitive regions such as Columbus and Indianapolis developed truck toll lanes and the OKI region did not?

The OKI region could take the offensive and move forward in terms of freight mobility by evaluating and implementing toll truck lanes on a regional basis or on specific freeway corridors. The Regional Freight Plan recommends that OKI sponsor a study of truck lane potential and feasibility for the region at an estimated cost of $250,000. Truck lanes could offer a competitive advantage for the region and an opportunity for the OKI region to advance ahead of the status quo in most Midwest urban areas.

• Congestion Pricing

Under congestion pricing, motorists pay for the use of certain roads and bridges or for entering a congested area. Motorists may face usage fee schedules ranging from peak only fees to fees that vary by time of day, facility or level

of use. Congestion pricing provides incentives for travelers to take congestion costs into account when making trip decisions, thus leading to more efficient use of facilities and potentially avoiding construction of expensive new capacity.

A future OKI study investigating congestion pricing will evaluate the potential this technique has in alleviating congestion in the OKI region.

• High Occupancy Vehicle Lanes

High occupancy vehicle (HOV) lanes are intended to encourage the use of buses, carpools and vanpools. On facilities dedicated to their exclusive use, transit and rideshare vehicles can travel at faster speeds than they would in mixed traffic.

An HOV lane may be constructed as a separate roadway or it may be added to or removed from an existing roadway. On an existing facility, the HOV lane may be physically separated from adjacent lanes by barriers or it may be designated by signs, pavement markers, or other means. In some cases, the same HOV lane accommodates both inbound and outbound traffic by having its direction reversed for morning and afternoon peak hours. These types of lanes require investments for enforcement and, in the case of reversible HOV, significant investments in operations and safety. In addition to lanes, other facilities that support HOV use include metered ramps or bypass lanes that give buses and rideshare vehicles priority access onto interstate highways.

A future OKI study is recommended to evaluate the potential for HOV lanes to alleviate congestion in the OKI region.

• Electronic Roadway Tolling

Governments are increasingly unable to raise the funds for new transportation facilities or to adequately maintain existing ones. Electronic tolling is an innovative tool for easing congestion and funding major transportation projects. Advancements in tolling technology can also help add capacity to the roadway system. A toll that varies by time of day is one way to manage the existing roadway system. Higher toll rates during peak commute times promote trips outside the peak traffic times and encourage drivers to choose alternative commuting options.

A future OKI study investigating electronic roadway tolling will research techniques and opportunities for tolling and other "pay as you go" options for the OKI region.

• Scenario Planning

A technique known as scenario planning can identify alternatives for growth and related transportation needs and future trade-offs. Understanding the impacts of various possibilities or scenarios for the future can assist local governments identify cost effective strategies to adapt to changing circumstances.

Scenario planning involves the identification of growth trends and community needs. Typically, trends in transportation and congestion, land use, safety, demographics, health, economic development, and the environment

are assessed. Transportation impacts and outcomes based on these trends are then visualized and illustrated. This process facilitates enhanced decision making that can help to manage limited resources for public facilities such as transportation. The scenario planning process can help people understand forces of change and their collective choices.

The consideration of how implementing new transportation services and facilities based on scenario growth trends and community needs deserves consideration, as appropriate, in future corridor or special studies.

SUMMARY

Corridor, special studies and plans represent a subset of this regional transportation plan and an opportunity for more detailed study and enhanced public involvement opportunities. OKI recognizes the importance of corridor and special studies and has devoted significant resources to them in the past and will continue to do so in the future. The transportation issues facing the OKI region require new and creative approaches. Future corridor, special studies and planning efforts will examine potential opportunities and offer fiscally-responsible and efficient transportation solutions for the OKI region.

Chapter 9 ROADWAYS

INTRODUCTION

The region's roadway system carries the vast majority of person trips and is an important part of the freight movement system. Roads also provide the right of way for buses, making the roadway network an integral part of the public transportation system. In addition, roadways are used for most bicycle travel in the region. Despite the need to reduce vehicle travel to improve air quality and reduce congestion, roadways remain a primary component in addressing the region's transportation needs.

ROADWAY NETWORK

The backbone of the region's transportation system is the roadway network. The roadway network in the OKI region is typical of most metropolitan areas in the United States. A circle freeway surrounds the Cincinnati metropolitan area and interstate freeways pass through the region. A web of arterials, collectors and local streets provide access to homes, businesses, and other facilities.

National Highway System

More than 3,000 miles of major roadways and an additional 6,000 miles of other roadways are used to transport both passengers and goods via private automobile, taxi, bus, bicycle and truck, traveling approximately 45 million vehicle miles a day, based on 2002 data. The core of the roadway network is this region's components of the National Highway System (NHS). The NHS is a 160,000 mile interconnected system of interstate and principal arterial routes which serve major population centers, international border crossings, ports, airports, public transportation facilities and other intermodal transportation facilities and travel destinations as well as meet national defense requirements.

The 398 miles of NHS within the OKI region include I-71, I-74, I-75, I-275, I-471, US 27 (in Ohio, north of I-74; in Kentucky, between the Ohio state line and I-471 in Southgate and between I-471 in Highland Heights and SR 9), KY 8 (between I-71/75 and I-471) and KY 9 (the AA Highway) in Kentucky, and SR 4 (north of I-75), SR 32 (east of I-275), SR 125, SR 126 (Ronald Reagan Highway) SR 129 (Butler County Veterans Highway), and SR 562 (Norwood Lateral) in Ohio. This region's NHS components carry over 50 percent of the daily traffic.

Scenic Byways

At the other end of the roadway network spectrum are scenic byways. These distinct and diverse roadways strengthen the tourist industry's contribution to the region's economy. Under programs established by Transportation Equity Act for the 21st Century (TEA-21), funds have been used to improve access to tourist attractions and recreation sites. Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Transportation Enhancement (TE) program, in particular, has made

funds available to preserve and develop scenic and historic byways, connect greenways and trails, preserve historic and archaeological areas, and facilitate biking and walking.

Throughout the country, there are many examples of routes valued and even designated for driving pleasure. In addition to serving transportation needs, these routes help preserve communities and the surrounding countryside, and many are perceived as resources that encourage economic development.

Under SAFETEA-LU, federal funds have been available to support state scenic byway programs and projects. In Ohio, the Scenic Byway program is recognized as part of a larger mission to foster economic growth and preserve natural resources as constituted by the intrinsic qualities associated with designated scenic routes.

The potential benefits of developing regional scenic byways include, but are not limited to, improving the quality of life for residents, increasing opportunities to preserve irreplaceable resources for future generations, and providing an asset that attracts visitors to the region and supports economic development. Five scenic byways exist within the OKI region.

The Ohio River Scenic Byway in Indiana
The Ohio River Scenic Byway includes roads along the entire Indiana riverfront from the Illinois to Ohio borders. Included in this byway are 358 miles of roadway designated as a national scenic byway. Within Dearborn County, this includes SR 56 from the Ohio County line to Aurora, and US 50 from Aurora to the Ohio state line.

The Ohio River Scenic Route in Ohio
As in Indiana, the Ohio section of the Ohio River Scenic Byway includes roads along the entire Ohio riverfront from Indiana to Pennsylvania. Along the Ohio riverfront, 452 miles of roadway have been designated as a national scenic byway. Within OKI, the scenic byway follows US 50 and 52 in Hamilton and Clermont counties.

The Accommodation Line Scenic Byway
Named after the Accommodation stage coach line, this scenic byway received designation by the State of Ohio in 1999 and runs seven miles in Ohio from Waynesville in Warren County to Spring Valley in Greene County. The route is primarily on US 42 except where it follows the old highway through the communities of Waynesville, Mt. Holly and Spring Valley.

Big Bone Lick - Middle Creek Scenic Byway
This scenic byway connects the Middle Creek County Park and Dinsmore Homestead on KY 18 with Big Bone Lick State Park on KY 338 in southern Boone County. The route covers 20 miles and also follows the Ohio River through the community of Belleview, Kentucky.

Riverboat Row Scenic Byway
Riverboat Row follows the Newport waterfront on the Ohio River in Campbell County, Kentucky. The route is approximately one mile and provides views of the Ohio River, Cincinnati skyline and access to several waterfront restaurants.

STRATEGIES TO ADDRESS ROADWAY NEEDS
A number of strategies are available to address the needs of the roadways in the OKI region and advance the goals of this plan. High priority is given to preservation and optimization of the existing system as these approaches can yield relatively high benefits when compared to costs. New capacity will also be needed to address existing and projected needs. All of these strategies play an essential role in providing a safe and efficient roadway system.

Roadway preservation, maintenance, operation and optimization projects are not specifically identified in this

plan. However, they are consistent with the goals of the plan. These project types are discussed in the following text. Capacity improvement projects and the process for identifying them are specifically identified in later sections of this chapter.

ROADWAY PRESERVATION AND REHABILITATION

More than 9,000 miles of roadway course through the OKI region, providing surface transportation to two million residents as well as those passing through to destinations beyond the region's borders. All of these roads are expected to continue to provide service throughout the planning period. Reconstruction projects, which are part of operation and maintenance, are needed to preserve and maintain the highway system. Sufficient resources must be allocated to protect the public investment as well as provide a safe and high quality travel experience. This plan gives funding priority to system preservation and allocates a sizeable portion of available revenues to this purpose.

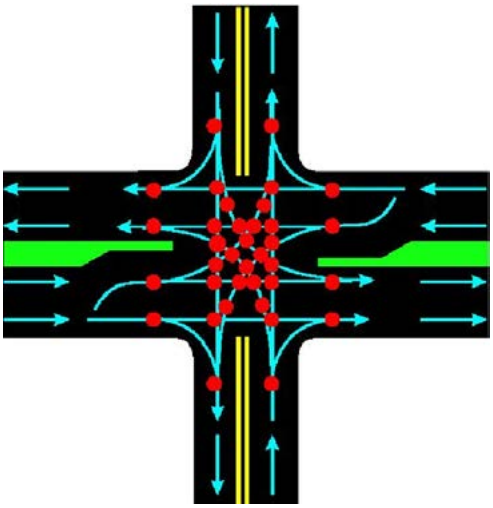
OPERATIONAL IMPROVEMENTS

In spite of the multitude of different types of roadway facilities, operational improvements can enhance the mobility and safety of travelers in the OKI region. Most operational improvements can be implemented relatively quickly and at lower costs than capacity projects. This plan recommends operational improvements to help achieve regional transportation goals. Implementation of operational improvements depends on local government initiative. Many of the recommended roadway projects in this plan incorporate operational improvements as a means of addressing mobility, congestion and safety needs. This includes complete streets measures such as restriping for bike lanes, crosswalks near transit stops and filling in existing sidewalk gaps.

Although congestion is an area wide phenomenon, operational improvements are especially effective on arterials. Before the interstate highways were constructed, arterials, which are comprised of mostly federal and state highways, determined the locations of major travel origins and destinations. Arterial roadway facilities continue to shape current travel patterns. The region's arterial system accounts for about 35 percent of daily vehicle miles of travel and is critical to regional mobility.

As development and single-occupant vehicle (SOV) travel have increased, the region's arterials have become more congested and less efficient. Proliferation of curb cuts or driveways, frequent and improperly spaced traffic signals, inadequate turn lanes and other factors have reduced arterials' ability to move traffic. As curb cuts and cross streets have multiplied on arterials, they have also reduced safety. Every accelerating, decelerating or turning vehicle increases crash risk. Typically, more than half of all crashes occur at intersections or are access-related (Figure 9-1). As traffic volume increases, so does the potential for crashes from conflicting maneuvers.

Figure 9-1: High Number of Conflict Points at a Typical Four Way Intersection



Source: Federal Highway Administration, Access Management CD Library, January 2000.

Another consequence of development that impairs arterial performance is the use of traffic signals to move vehicles safely through intersections. Every signalized intersection reduces arterial capacity. Frequent and poorly spaced traffic signals can reduce roadway capacity by more than 50 percent. Where curb cuts cross streets and traffic signals are already in place, the adverse impacts can be mitigated by a variety of operational improvements. The text that follows details several operational improvements already implemented throughout the OKI region.

Access Management

Operational improvements such as access management have proven to be very effective in reducing congestion. By facilitating traffic turns, merging and other traffic movements, operational improvements enhance both mobility and safety. By enabling roadways to perform more efficiently, operational improvements increase roadway capacity which may reduce the need for expansion projects and help preserve and maintain the existing infrastructure all of which are high regional and national priorities.

Access management controls the design, operation and location of driveway and street connections onto a roadway. Control is achieved by public plans or policies aimed at preserving the functional integrity of the existing roadway system. Access management is fundamental to preventing the mobility and safety problems caused by multiple curb cuts and traffic signals. According to the Ohio Department of Transportation (ODOT), access management can increase both travel speeds and crashes by as much as 50 percent.

In managing vehicular access between the public roadway system and adjacent private property, access management may address the number, location and design of private access points, the frequency and spacing of cross streets and signalized intersections, the addition of turn lanes or the prohibition of turns, land planning and development activities, and, safety and operational issues such as sight distances and corner clearances. Access management is also appropriate for urban, already developed areas and newly developing areas.

In developed areas, there are a number of means by which local governments can implement access management. Local governments can conduct case-by-case negotiations with developers and landowners to agree to incorporation of access management principles. Appropriate local governmental units can formally adopt and enforce corridor access management plans, regulations or ordinances. They can also create planned unit development and/or subdivision regulations which incorporate language ranging from specific and detailed requirements to simply recognizing access management as a legitimate governmental function for which authority is vested in an appropriate official or agency, such as the city public works director or the county engineer.

For implementation to be consistent, predictable and equitable for all private development within a jurisdiction, local governments should officially adopt access management as a policy, plan, or regulation. Access management can be incorporated into local laws by modifying county or municipal subdivision regulations, amending local zoning laws, or including access management as part of a comprehensive plan, master plan, or thoroughfare plan. Under Chapter 5552 of the Ohio Revised Code enacted in 2002, counties and townships in Ohio are specifically authorized to develop and adopt access management regulations for their jurisdictions. OKI's four Ohio counties (Butler, Clermont, Hamilton and Warren) have developed such regulations.

Instead of access management regulation, Kentucky has an access permitting regulation that distinguishes between facilities designated as "Partial Control of Access" and those (the vast majority) designated "Access By Permit." The Access Management Partnership Memorandum of Understanding (MOU) is a tool that has been applied a number of times. As part of the completion of OKI's Dixie Fix Plan, communities along the Dixie Highway corridor from Covington to Florence signed the MOU as an indication of their shared commitment to applying access management improvements to address safety and congestion concerns.

Revised in 2009, the Indiana Access Management Guide includes updates to the Indiana Department of Transportation (INDOT) Driveway Permit Manual and sample zoning language. It also contains two Model Access Management Ordinances from the states of Kentucky and Michigan that can be used by local governmental entities in developing their own Access Management Codes tailored to their unique situations. Overall, the Indiana Access Management Guide is intended to be the document that governs all access management decisions for INDOT. The concepts can also be used by community/county entities to manage access decisions at the local level as well.

Signalization

In addition to access management, improvements to signalization are often effective means of improving traffic flow in developed corridors. Since computerized traffic signal systems were first introduced in the late 1970s, options have increased for reducing congestion by applying and coordinating progressive signal systems as exemplified by closed loop systems.

In the late 1990s, a national standardization effort known as the Advanced Transportation Controller (ATC) was undertaken in the United States by the Institute of Transportation Engineers. The project attempts to create a single national standard for traffic light controllers. The standardization effort is part of the National Intelligent Transportation System program funded by various highway bills, starting with ISTEA in 1991 and subsequent bills.

Figure 9-2: Computerized Signal Controller Cabinet at Intersection of Dixie Highway and Commonwealth in Kenton County

On a corridor, area-wide or multi-jurisdictional basis, centralized networks may involve hundreds of signalized intersections. The benefits of improved signal systems are commonly measured by reductions in travel time, vehicle stops, delay, fuel consumption and emissions, and increases in travel speed. Studies of implemented projects show reductions in travel time ranging from eight percent to 15 percent and increases in travel speed ranging from 14 percent to 22 percent, as well as virtual elimination of certain types of vehicular crashes.

Continuous Flow Intersections

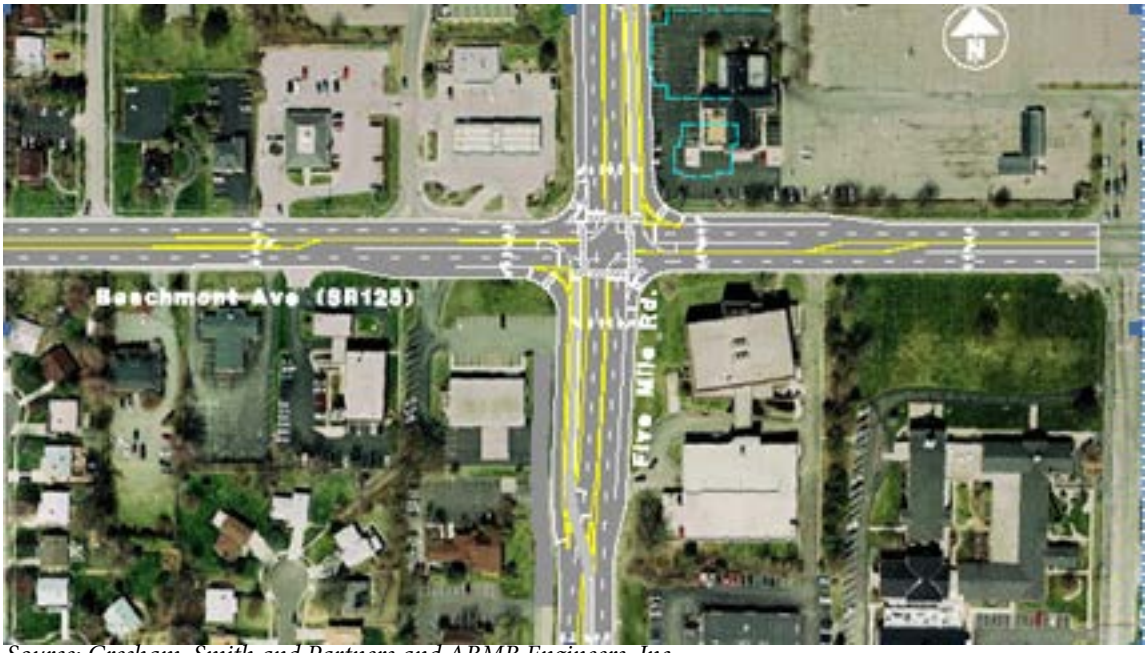
On a somewhat larger scale, engineers have developed new and rather unique solutions to the problems of inadequate capacity and safety at busy intersections and interchanges. For at-grade intersections, one solution is referred to as continuous flow intersections (CFIs). While not truly continuous flow, CFIs can drastically increase the vehicular stream of traffic through the intersection. This is done by shifting left-turning vehicles approaching the intersection to the left of the oncoming traffic lanes through the use of a signal-controlled cross-over lane placed several hundred feet in advance of the intersection. By removing all potential conflict points with the oncoming through traffic, left-turning vehicles from both approaches can move on the same green signal as the associated through traffic. At normal intersections, paired left-turn movements must be given their own share of green time which reduces the green time left for through traffic and right-turning vehicles. The reduction of signal phases from four to two drastically increases efficiency and speed while also reducing air pollution and fuel consumption.

Continuous flow intersections are relatively untested in the United States, but their use is expected to increase rapidly in the future. In the OKI region, Anderson Township has secured funding from ODOT for the design of a partial CFI on Five Mile Road at Beechmont Avenue (Figure 9-3). The Hamilton County Engineer's Office is also involved in this project which is programmed for right of way phase in fiscal year 2012 and construction in fiscal year 2013.

Roundabouts

Another traffic control innovation which has been receiving considerable attention in recent years is the modern roundabout. This is a smaller, modified version of traffic circles or rotaries which have been used in Europe for decades and to a lesser extent, in the New England states. Roundabouts require drivers to yield on entry to vehicles already in the roundabout. Modern roundabouts are specifically designed to induce speed reductions as vehicles approach and enter. They require clear signage and pavement markings. Roundabouts are proving to be safe, effective and efficient alternatives to signalized or stop sign controlled intersections and their use is expanding rapidly throughout the United States. The Kentucky Transportation Cabinet (KYTC) has several roundabouts in the design phase. Several other jurisdictions are considering them as a cost-effective alternative to signalized intersections.

Figure 9-3: Five Mile Road Partial Continuous Flow Intersection



Source: Gresham, Smith and Partners and ABMB Engineers, Inc.

Figure 9-4: Elements of a Modern Roundabout

Single-Point Urban Interchanges

For freeway interchanges, single-point urban interchanges (SPUIs) are being constructed or are in place in numerous locations throughout the United States. A variant of the conventional diamond interchange, SPUIs result in two signalized intersections at the points where entrance and exit ramps meet with the cross street. Due to the relative close spacing of such intersections, efficient signal timing is often difficult to achieve. This problem is eliminated by SPUIs through the creation of one large intersection, either directly above or below the freeway. This intersection design creates a situation where drivers are only faced with cross-street traffic and either exiting roadway or entering left-turning vehicles. The exiting right-turning vehicles are accommodated on separate free-flowing ramp segments (Figure 9-6). Efficiencies are achieved because paired left-turn movements can be accommodated simultaneously and the signal phasing can be reduced from four to three phases allowing more green time for each phase.

Figure 9-5: Roundabout at Lakota Drive West and Eagleridge Intersection in Butler County

Current Applications of Traffic Operations Improvements

By enabling roadways to perform more efficiently, operational improvements increase roadway capacity, may reduce the need for expansion projects, and help preserve and maintain the existing infrastructure, which is a high priority at national and regional levels. Operational improvements, such as improved signalization and access management, can be very effective in reducing congestion. By facilitating traffic turns, merging and other movements, operational improvements enhance both mobility and safety.

Figure 9-6: Single Point Urban Interchange
Source: HNTB Corporation.

In the OKI region, a number of jurisdictions have made major efforts to improve traffic operations along major corridors. Specifically, a joint safety project between Warren and Hamilton counties and ODOT is currently underway on Fields Ertel Road. The project is installing a Centracs system at more than 20 signals in the vicinity of the I-71/Fields Ertel Road interchange to optimize signal timing. The city of Fairfield has also recently installed Centracs on many of its signals. ODOT District 8 has utilized a Safety Task Order Consultant to improve signal timing on several corridors in the area including US 22, US 27, SR 32 and various routes in the city of Hamilton. Studies are also currently underway for SR 125, SR 747 and SR 48. These studies have generally consisted in the optimization of signal timing and coordination using the existing equipment.

Furthermore, as a result of a corridor study completed several years ago, Colerain Avenue in Hamilton County has been substantially rebuilt to incorporate access management principles. ODOT and the University of Cincinnati

have conducted a joint research study that has quantified the benefits of this project. Benefits include the following: low vacancy rates, development of new businesses, existing businesses are flourishing, better pedestrian facilities, crash reductions, lower congestion, savings in road-user costs and reductions in air pollution. Colerain Avenue serves as a prime example to other corridors across the region.

In Kentucky, as part of the OKI I-471 Corridor Study, both an access management study and signal optimization study of US 27 (Alexandria Pike) in Campbell County were completed. Traffic operations staff from both KYTC Central Office and District 6 continue to work together to implement the study recommendations. For arterials in developed corridors, such as US 27, access management is one of several measures that have been applied to improve traffic flow. Other operational improvements made to US 27 include improvements to signalization and spot or localized improvements such as traffic channelization, improved lighting and signage, and intersection improvements (left or right turn lanes, or increasing the radius of corners to facilitate the movement of trucks and buses through the intersection).

The projects implemented as a result of these studies will work to improve traffic flow. Furthermore, OKI travel time studies will provide more information on the combined effectiveness of implementation strategies.

TRANSPORTATION DEMAND MANAGEMENT ROADWAY STRATEGIES

Preserving, rehabilitating, maintaining and improving operations of the roadway have all been discussed. There is another method that can be used in relation to the roadway network to enhance the mobility and safety of travelers in the OKI region. Transportation Demand Management (TDM) focuses on changing travel behavior to mitigate traffic congestion in lieu of building infrastructure to accommodate travel needs. More specifically, TDM strategies encourage using alternatives to SOV travel and shifting trips out of peak travel periods or even eliminating some trips all together. Two travel demand strategies which are in use in other parts of the United States but have yet to be implemented in the OKI region are congestion pricing and high occupancy vehicle (HOV) lanes.

Congestion Pricing

Under congestion pricing, motorists pay for the use of certain roads and bridges. Motorists may face usage fee schedules ranging from peak-only fees to fees that vary by time of day, facility or level of use. Congestion pricing provides incentives for travelers to take congestion costs into account when making trip decisions, thus leading to more efficient use of facilities and avoiding construction of expensive infrastructure to provide new capacity. Typically, pricing mechanisms involve a toll for using a specific road or bridge or a fee for entering a congested area. Electronic toll collection systems can make use of pre-paid accounts or periodic billing.

By inducing even small reductions in a facility's peak traffic volumes, congestion pricing can reduce delays, increase travel speeds, and contribute to the other benefits associated with reduced congestion, such as lowered vehicle emissions and fuel consumption. In addition, congestion pricing enhances the appeal of using SOV alternatives, can be used to generate revenues and can help maintain traffic flows over time and thus sustain the benefits of capacity improvements or eliminate the need for new construction.

High Occupancy Vehicle Lanes

HOV lanes are intended to encourage the use of buses, carpools and vanpools. On facilities dedicated to their exclusive use, transit and rideshare vehicles can travel at faster speeds than they would in mixed traffic. The HOV facilities induce commuters with long work trips, of 15 to 30 miles or more with a minimum time savings of 10 minutes, to switch from SOV to HOV modes.

An HOV lane may be constructed as a separate roadway or it may be added to or removed from an existing roadway. On an existing facility, the HOV lane may be physically separated from adjacent lanes by barriers or it may be designated by signs, pavement markers or other means. In some cases, the same HOV lane accommodates

both inbound and outbound traffic by having its direction reversed for morning and afternoon peak hours. Investments for enforcement are required for HOV lanes and, in the case of reversible HOV, significant investments in operations and safety. In addition to lanes, other facilities that support HOV use include metered ramps or bypass lanes that give buses and rideshare vehicles priority access onto interstate highways.

For individuals, the HOV lane provides shorter and more predictable travel times than those experienced under congested conditions. In addition to actual time savings, the perception of time savings is also important. This is true for both HOV users who often overstate their time savings and for SOV users, some of whom will be pressured to shift modes.

CAPACITY IMPROVEMENTS

The plan also identifies the need for roadway capacity improvements based on forecasted capacity deficiencies in the year 2040. These projects are classified in two ways; committed projects, for which funding has been allocated due to inclusion in the fiscal years 2012 to 2015 Transportation Improvement Program (TIP); and, recommended long range roadway capacity improvement projects that have been identified during the update process of this plan.

Many of the region's most heavily traveled roadways are congested during the peak hours. Roadway improvements to mitigate congestion have traditionally been aimed at achieving a level of service (LOS) score of C during peak commuting hours, but several factors have made this goal increasingly unrealistic. Several studies have shown that once an additional lane is constructed, the drop in congestion encourages additional drivers to use the roadway so that it again approaches capacity. In addition, the construction needed to expand facilities to attain LOS C is becoming increasingly unacceptable for financial, environmental, and social reasons. The policy set by ODOT for LOS, which was developed in 1997, allows for flexibility. This policy enables metropolitan areas to use LOS D as a basis for design. About 70 percent of the region's trips, however, are made during off peak hours when most roadway service achieves or exceeds LOS C.

Programmed Roadway Projects

Programmed roadway projects are scheduled in OKI's TIP. These are projects for which funding is allocated and thus they are considered "programmed" and ready for implementation. A total of 79 programmed projects are listed in Figures 9-8 through 9-15 and mapped in Figures 9-16 to 9-24. All currently scheduled operational improvements, bridge work and safety improvements will be completed as provided for in the TIP. The TIP contains project programming details on scope, timing and budget. The TIP committed projects include a total of 24 miles of new roadway and 77 additional lane miles provided by widening projects scattered throughout the region.

Recommended Roadway Projects

Beyond the value of the TIP, this plan includes 85 roadway projects with a cost of $8,220.34 million. The cost of these roadway project recommendations accounts for approximately 71 percent of the plan's total number of 119 fiscally constrained projects. This cost includes the Brent Spence Bridge project divided by Ohio and Kentucky's portions respectfully. The replacement of the Brent Spence Bridge which carries I-71 and I-75 traffic is vital to the region and is highly recommended. The list of recommended roadway projects is fiscally constrained, meaning the expected available funding is sufficient to construct or implement them. Fiscal constraint is discussed in more detail in Chapter 15. The plan's fiscally constrained roadway projects include a total of 5 miles of new roadway and 48 additional lane miles throughout the region. A breakdown of recommended roadway improvements by project type is included in Figure 9-7.

Figure 9-7: Recommended 2040 Plan Roadway Projects by Type

Project Type	Number of Projects	Cost Estimate (in year of construction dollars)
New Roadway	6	$684,550,000
Lanes Added to Existing Roadway	52	$5,304,320,000
Major Reconstruction of Existing Roadway	12	$1,076,240,000
New Interchange	1	$128,840,000
Improved Existing Interchange	14	$1,026,390,000
Total	**85**	**$8,220,340,000**

The Figures 9-8 through 9-23 include maps and tables by county of both the TIP or programmed projects and the 2040 recommended roadway projects. The figures only include projects that are considered as new facilities, an existing roadway widening with additional lanes, an existing roadway's major reconstruction with a cost estimate of $10 million or more, introduction of a new interchange or an improvement to an existing interchange. Other projects that improve travel such as intersection improvements, operational enhancements and maintenance items are not specifically listed but are consistent with the goals of this plan.

At the time that non-interstate roadway improvement projects are identified, provisions for bicycle and pedestrian facilities should be considered to maintain or improve the ability for bicyclists and motorists to safely share the road and ensure that these roads can be safe for pedestrian travel as well.

Appendix E lists an additional 291 muliti-tmodal roadway projects identified as needed but not fiscally constrained, meaning funding for these projects is not expected to be available. These are considered to be projects with merit and will remain available for future consideration, but should not be considered as part of the plan.

Figure 9-8: Butler County Recommended and Programmed Roadway Projects Map

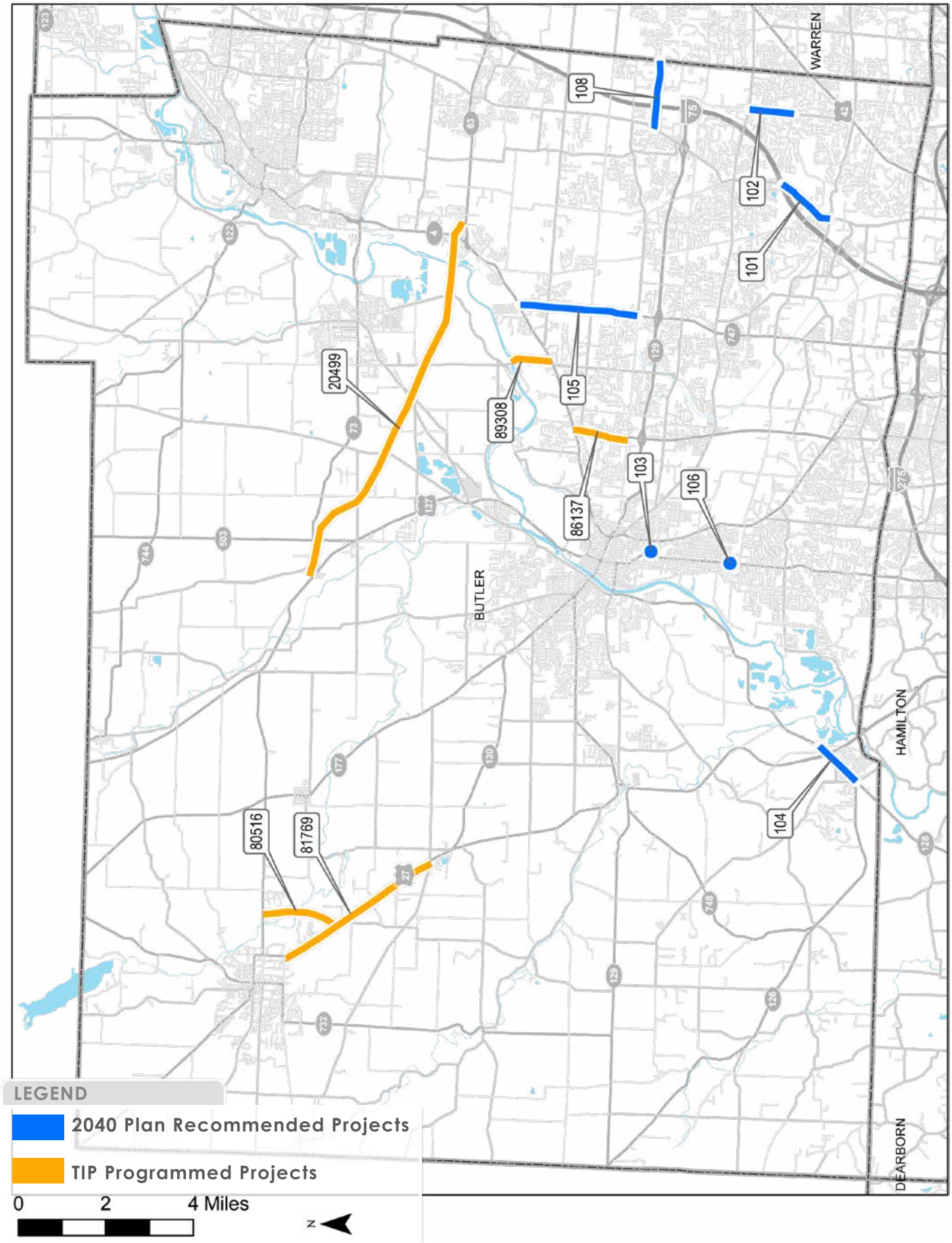


Figure 9-9: Butler County Recommended and Programmed Roadway Projects Table

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Programmed TIP Projects			
20499	SR 63 Extension	Construct new two lane facility from US 127 eastward to existing SR 63 at SR 4	$40,661,000
80516	Oxford Connector	Construct new two lane connector from US 27 to SR 73	$9,015,000
81769	US 27	Widen to design standards and upgrade signalized intersections from Stillwell-Beckett Rd to Chestnut St in city of Oxford	$16,485,789
86137	SR 4 Bypass Phase 5b	Widen to four lanes and improve intersection from Princeton Rd to the SR 4/SR 4 Bypass northern intersection	0
89308	CR 113 (Liberty Fairfield Rd)	Widen to five lanes from SR 4 to Great Miami River	$3,169,200
Recommended 2040 Plan Projects			
101	Cincinnati-Dayton Rd	Widen to three lanes West Chester Rd to I-75	$15,639,600
102	Cox Rd	Widen to three lanes from Barrett Rd to Tylersville Rd	$4,691,900
103	South Hamilton Crossing	Replace with railroad grade separation connecting SR 4 with University Blvd	$19,003,000
104	SR 128	Widen to three lanes from Rossgate to Cincinnati-Brookville	$23,459,300
105	SR 747	Widen to five lanes with landscaped median and 10 foot wide hike/bike path from Princeton Rd to SR 4	$31,435,500
106	US 127 (Pleasant Ave)	Add one lane with safety upgrades from Symmes Rd to St. Clair Ave	$2,345,900
108	Bethany Rd	Widen to three lanes and add bike/path from Cincinnati-Dayton Rd to Butler-Warren Rd	$6,255,800

Figure 9-10: Clermont County Recommended and Programmed Roadway Projects Map

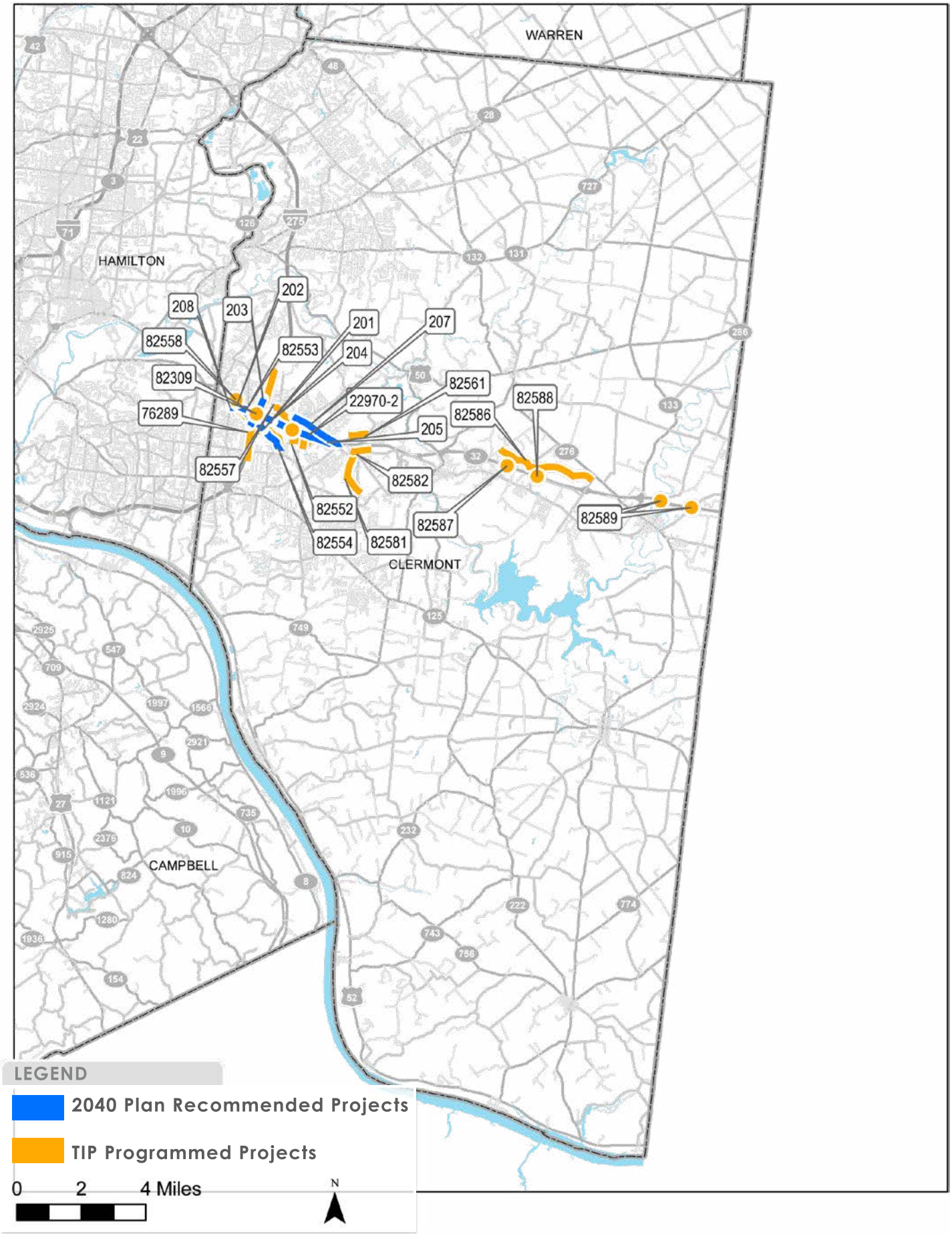


Figure 9-11: Clermont County Recommended and Programmed Roadway Projects Table

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Programmed TIP Projects			
22970-2	SR 32/Bach-Buxton Interchange	Extend with five lanes from Elick Ln to Old SR 74	$2,000,000
22970-2	SR 32/Glen Este-Withamsville Overpass	Construct new overpass at Glen Este-Withamsville Rd	$500,000
76289	I-275/SR 32 Interchange	Phase 1 interchange improvement from approximately 1.5 mile north to one mile south	$54,212,500
82309	I-275/SR 32 Interchange	Phase 2 interchange improvements from 1.5 mile south to one mile north and .15 mile west to one mile east	$50,430,000
82552	Aicholtz Rd Extension	Construct new five lane roadway from Glen Este-Withamsville Rd to Bach-Buxton Rd	$0
82553	Aicholtz Rd Connector (CR 3)	Construct new network connection from Mt. Carmel-Tobasco to Eastgate Blvd	$899,846
82554	Aicholtz Rd Widening	Widen to five lanes from Eastgate Blvd to Glen Este-Withamsville	$0
82557	Old SR 74 - Phase 1	Add one lane from Eastgate Rd to Bach-Buxton North	$500,000
82558	Tina Dr Extension	Construct new two lane connector with turn lanes at Old SR 74 to Tina Dr	$2,070,000
82561	Heitman Lane Extension	Widen to three lanes from Olive Branch-Stonelick to east terminus of Heitman Ln	$0
82581	Amelia-Olive Branch Relocation	Construct new three lane connector and ramp improvements from Clough Pike to Olive Branch-Stonelick Rd at SR 32	$500,000
82582	CR 171 (Old SR 74)	Widen to three lanes with four foot page shoulders, curb and gutter from Olive Branch-Stonelick Rd to Armstrong Blvd	$3,950,000
82586	SR 32 Frontage Road	Construct new three lane frontage road with additional turn lanes at major intersections from Bauer Rd to Half Acre Rd	$1,000,000
82587	SR 32/Herold Rd Interchange	Construct new interchange 1000 feet west of existing intersection	$750,000
82588	SR 32 Batavia Interchange	Convert existing half interchange to full at SR 32 in Village of Batavia	$500,000
82589	SR 32-DeLaPalma/McKeever	Access management improvements with potential grade separations at McKeever and DeLa Palma Intersections with SR 32	$1,000,000

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Recommended 2040 Plan Projects			
201	Aicholtz Rd Widening	Widen to five lanes with sidewalks from Eastgate Blvd to Glen Este-Withamsville Rd	$18,767,500
202	Eastern Corridor Segment IV Phase 1	Reconstruct with signalized ramp terminations at SR 32 and improved Aicholtz Rd connection	$114,800,200
203	Eastern Corridor Segment IV Phase 2	Construct southbound I-275 to eastbound SR 32 flyover ramp and northbound I-275 to eastbound SR 32 fly-under ramp	$117,365,300
204	Eastern Corridor Segment IV Phase 3	Construct braided ramp connections between Eastgate Blvd and I-275	$93,318,600
205	Eastern Corridor SR 32 Segment IV(a)	Construct new overpass at Glen Este-Withamsville/SR 32 and new SR 32 westbound exit and eastbound entrance ramps	$106,996,600
207	Old SR 74 - Phase 1	Add center turn lane and sidewalks from Glen Este-Withamsville Rd to Old SR 74/SR 32 Intersection	$13,684,600
208	NEW Aicholtz Rd Connector	New two lane connection with center turn lane from Aicholtz Rd/Rust Ln to Mt Carmel-Tobasco Rd	$15,639,600

Figure 9-12: Hamilton County Recommended and Programmed Roadway Projects Map

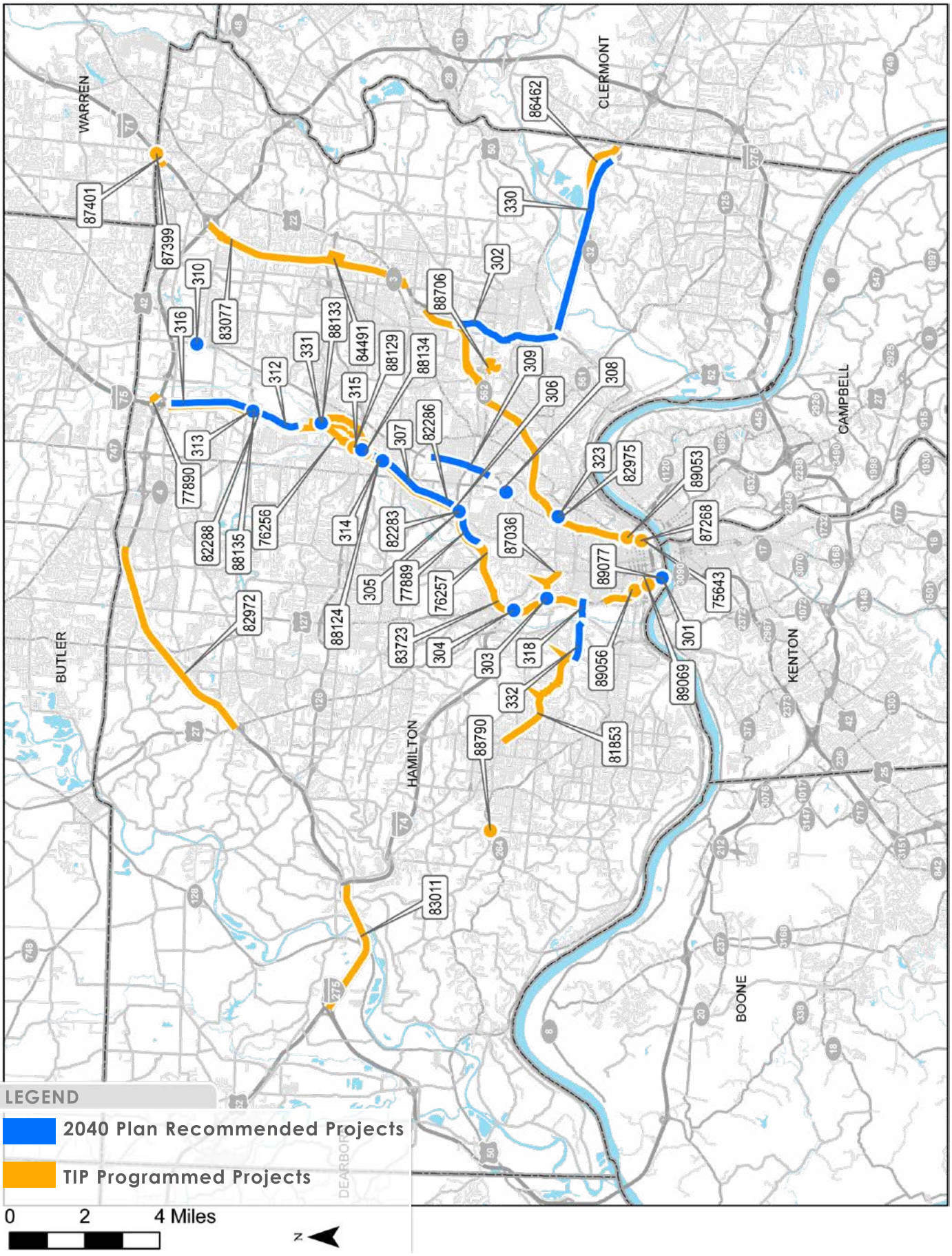


Figure 9-13: Hamilton County Recommended and Programmed Roadway Projects Table

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Programmed TIP Projects			
75643	I-71	Part 1: General rehab and repair of Lytle Tunnel	$10,580,820
76256	I-75	Phase 8: Pavement rehab from Glendale Milford Rd to I-275	$74,208,000
76257	I-75	Phase 4: Pavement rehab from 0.1 mile north of Harrison Ave to 0.1 mile south of Paddock Rd	$145,789,500
77889	I-75	Phase 8: Widen for additional through lanes and reconstruct interchanges as needed from south of SR 562 to north of SR 4	$9,094,000
77890	I-75	Relocate two ramps, create flyovers from south of I-275 to north of I-275	$10,900,000
81853	Harrison Ave	Repave, install raised pavement markers and concrete bus pads, upgrade traffic control system, and improve curve from Queen City Ave to Cincinnati north corporate line	$12,621,000
82283	I-75	Phase 6: Replace railroad bridge located at 0.21 miles south of SR 562	$26,272,250
82286	I-75	Phase 7: Reconstruct from north of Mitchell Ave Interchange through SR 562 Interchange	$42,791,500
82288	I-75	Phase 8: Reconstruct between Shepherd Ln and Glendale-Milford Rd	$93,835,353
82972	I-275	Plane, repair and repave from Colerain Ave to Springdale corporate line	$13,557,000
82975	I-71	Plan/pave and install highway signs from Lytle Tunnel to Madeira corporate line	$23,240,200
83011	I-74	Plane and pave overlap section of I-74/I-275	$16,711,389
83077	I-71	Add one northbound auxiliary lane from Pfeiffer Rd to I-275	$4,879,200
83723	I-75	Phase 5: Add one lane from Monmouth overpass to just south of Clifton and reconfigure I-74/I-75 Interchange	$136,331,000
84491	I-71	Resurface/repair and install highway signs from Kenwood Rd to north of Pfeiffer Rd	$11,084,990
86462	SR 32	Preliminary engineering and environmental analyses to consolidate/manage access for relocated SR 32, west of I-275	$10,100,987
87036	West Martin Luther King Dr (CR 612)	Widen to five lanes with two-way left turn lanes from Central Pkwy to Clifton, eight lanes from Clifton to Reading	$11,332,405

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
87268	I-71	Part 2: General rehab and repair of Lytle Tunnel	$15,430,000
87399	I-71	Extend gore at Fields Ertel Interchange	$3,575,000
87401	I-71	Construct new northbound exit ramp at Fields-Ertel/Mason-Montgomery Rd	$4,150,000
88124	I-75	Phase 3: Add fourth lane in each direction from bridge at milepost 10.10 (over Mill Creek) to SR 126	$83,380,000
88129	I-75	Replace railroad bridge on southbound I-75 in the split	$24,480,000
88133	I-75	Add fourth lane and auxiliary lane for northbound traffic between Galbraith Rd and Shepherd Rd	$100,930,000
88134	I-75	Construct new ramps from westbound SR 126 to northbound I-75 and southbound I-75 to southbound SR 126	$66,820,000
88135	GE Parkway	Add local roadway connection on eastside of I-75 from Shepherd Ln to Glendale Milford Rd	$500,000
88706	Kennedy Connector	Construct new 0.53 mile parallel route to Ridge Ave	$20,834,000
88790	SR 264/Taylor/ Bridgetown Rd Intersection	Improve to four leg intersection, relocate Taylor Rd Intersection	$5,233,963
89053	I-71	Temporary maintenance of traffic for routing I-71 traffic onto I-471	$760,000
89056	I-75	Replace Linn St overpass and reconstruct Gest St from Freeman Ave to US 50	$16,705,000
89069	I-75	Widen from north of bridge over Findlay St to northern terminus of Brent Spence Bridge	$8,076,000
89077	I-71 (Brent Spence Bridge)	Ohio's share of design and construction of the new Ohio River Bridge	$61,800,000
Recommended 2040 Plan Projects			
301	Brent Spence Bridge	Ohio portion to reconstruct existing and add new I-71/75 bridge over Ohio River	$1,280,000,000
302	Eastern Corridor Red Bank Rd Segment	Widen to four lanes plus center turn lane with Context Sensitive Design from US 50 to I-71	$452,253,500
303	Mill Creek Expressway Phase 4	Improve Hopple St, I-74 and Mitchell Ave Interchanges and rehab to Glendale-Milford Rd	$145,642,200
304	Mill Creek Expressway Phase 5	Add lane from Hopple northbound ramp to one mile south of Mitchell Ave, reconfigure I-74/75 interchange	$272,093,400
305	Mill Creek Expressway Phase 6	Replace Indiana & Ohio Railroad bridge	$34,287,900

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
306	Mill Creek Expressway Phase 7	Add one lane from Mitchell Ave to SR 562 Interchange and reconstruct southbound SR 562 ramps	$71,030,400
307	Mill Creek Expressway Phase 8	Add a lane SR 562 to SR 126/Galbraith Rd improve SR 562/Paddock interchange remove Towne Interchange	$241,481,300
308	US 42 (Reading Rd)	Add center turn lane with intersection improvements from Clinton Springs to Paddock Rd	$7,819,800
309	US 42 (Reading Rd)	Add center turn lane from Victory Pkwy to Langdon Farm Rd	$23,459,300
310	Reading Rd Grade Separation, Sharonville	Replace with railroad grade separation at Norfolk Southern Railroad crossing	$39,098,900
312	Thru the Valley Phase 1	Add lane between Shepherd Ln and Glendale-Milford Rd, redesign Shepherd Interchange, remove collector distributor system and improve Glendale-Milford Rd Interchange	$133,380,400
313	Thru the Valley Phase 2	Add local roadway connection along GE Pkwy and southbound I-75 ramp to GE Pkwy from Glendale Milford Rd	$33,532,900
314	Thru the Valley Phase 3	Add one lane and relocate exit/entrance ramps retaining northbound access to/from Galbraith Rd and SR 126	$179,136,500
315	Thru the Valley Phase 7	Construct new ramp for westbound SR 126 to northbound I-75 and southbound I-75 to westbound SR 126/remove ramp from Galbraith Rd to westbound SR 126	$132,146,300
316	Thru the Valley Phase 8	Major rehabilitation to pavement and bridges from Glendale Milford Rd to Kemper Rd	$137,882,200
318	Western Hills Viaduct	Replace or repair viaduct	$244,900,900
323	New Martin Luther King/I-71 Interchange	Construct new interchange	$128,837,100
330	NEW Eastern Corridor Relocated SR 32	New four lane, controlled access multimodal roadway from US 50 to Eight Mile Rd	$559,100,000
331	I-75 Thru the Valley Railroad Bridge	Replace or reconstruct Norfolk Southern Railroad bridge	$14,311,600
332	Lick Run Project Improvements (Queen City/Westwood Ave Corridor)	Roadway improvements in conjunction with watershed planning. Widen Westwood Ave and convert it and Queen City Ave to two-way streets from Western Hills Viaduct to White St	$7,500,000

Figure 9-14: Warren County Recommended and Programmed Roadway Projects Map

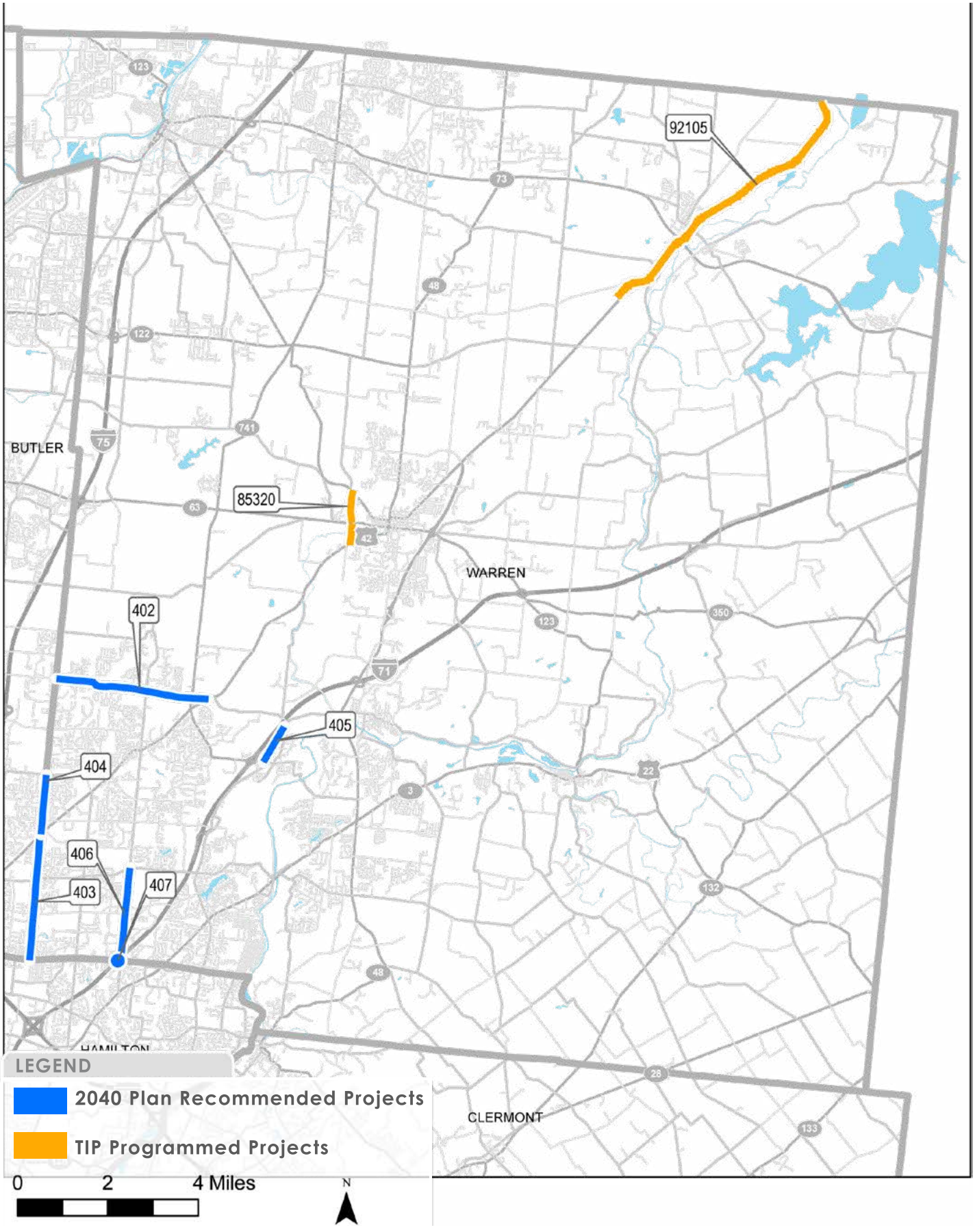


Figure 9-15: Warren County Recommended and Programmed Roadway Projects Table

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Programmed TIP Projects			
85320	SR 123/SR 63 Connector	Construct new connector road from SR 123 to SR 63 west of Lebanon	$6,856,667
92105	US 42	Rehab four lane section of in Warren and Greene counties	$14,710,000
Recommended 2040 Plan Projects			
402	NEW Bethany Rd	Widen to five lanes and connect Bethany Rd and Mason-Morrow-Millgrove Rd	$14,075,600
403	Butler-Warren Rd	Add center turn lane from Fields-Ertel Rd to US 42	$31,279,100
404	Butler-Warren Rd	Add center turn lane from US 42 to Tylersville Rd	$25,023,300
405	Kings Island Dr Extension	Add additional north-south capacity in corridor	$17,203,500
406	Mason Montgomery Rd	Widen to six lanes from Fields Ertel Rd to Socialville Fosters Rd	$9,383,700
407	I-71 Fields Ertel Interchange	Construct new northbound off ramp and other intersection improvements	$33,017,700

Figure 9-16: Boone County Recommended and Programmed Roadway Projects Map

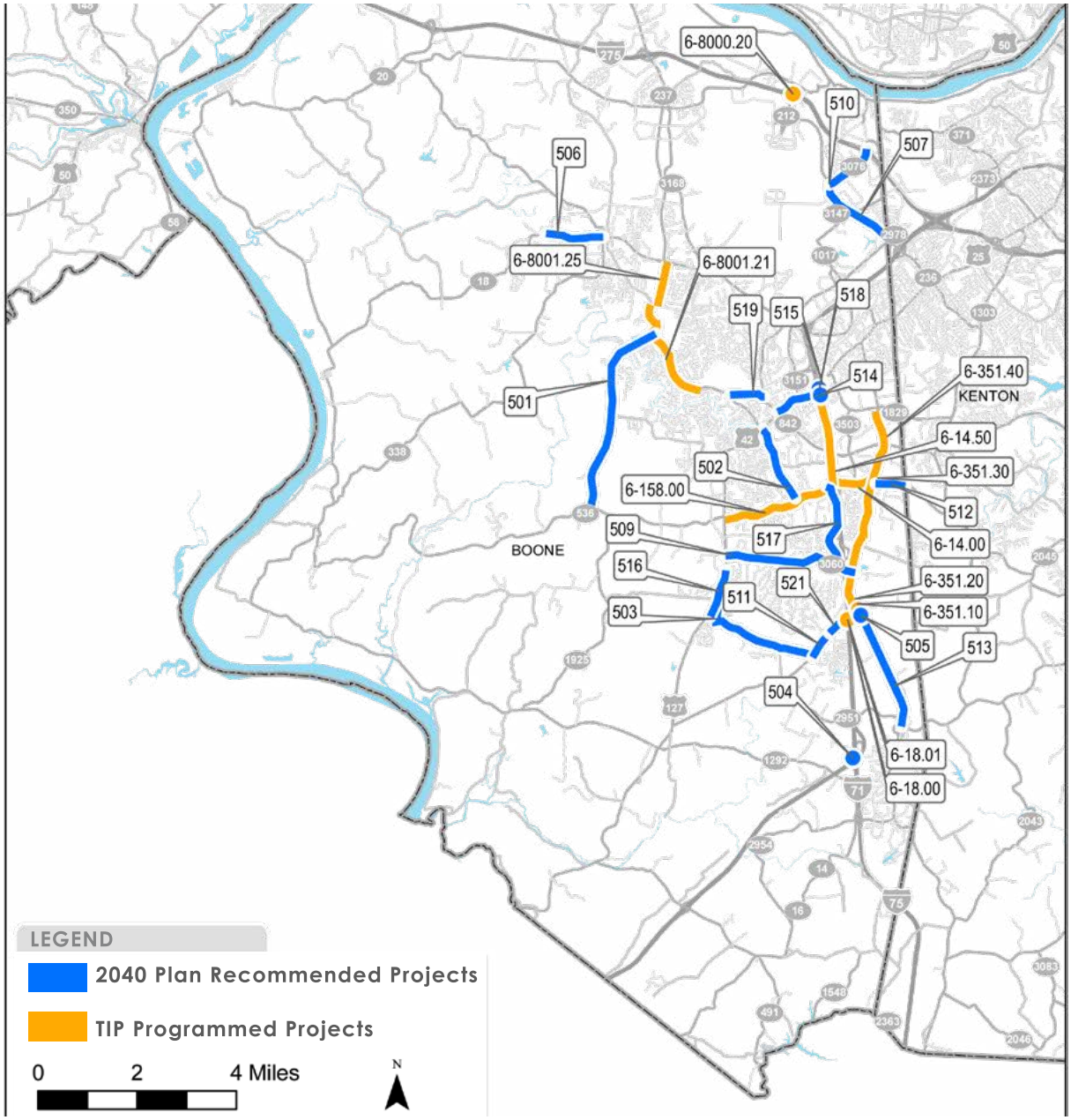


Figure 9-17: Boone County Recommended and Programmed Roadway Projects Table

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Programmed TIP Projects			
6-158.00	KY 536	Widen to five lanes from US 42 to I-75	$52,101,220
6-14.00	I-75/KY 536 (Mt. Zion Rd) Interchange	Reconstruct from milepost 177.659 to 178.345	$30,130,000
6-14.50	I-75	Add auxiliary lane from KY 536 to US 42	$26,200,000
6-18.00	I-75/KY 338 (Richwood Rd) Interchange	Reconstruct from milepost 175.217 to 175.622	$26,980,000

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
6-18.01	I-75/KY 338 (Richwood Rd) Interchange	Reconstruct from milepost 175.314 to 175.414	$10,530,000
6-351.10	US 25	Widen to five lanes from Richwood Rd to Winning Colors Dr with grade separation at railroad overpass	$2,010,000
6-351.20	US 25	Widen to five lanes from Winning Colors Dr to Beesom Dr	$1,710,000
6-351.30	US 25	Widen to five lanes from Beesom Dr to Aristocrat Dr with grade separation at KY 536	$900,000
Recommended 2040 Plan Projects			
501	CR 1001 (Camp Ernst Rd)	Reconstruct and widen to four lanes from KY 237 to KY 536	$66,468,100
502	KY 237 (Gunpowder Rd)	Widen to five lanes from KY 536 to US 42	$46,328,400
503	Hicks Pike	Improve from US 42 to KY 338	$4,379,100
504	I-71/75 South Interchange	Add one lane to ramp from I-71/75 southbound to I-71 southbound	$10,947,700
505	US 25/KY 338 Grade Separation	Widen to five lanes and construct grade separated interchange	$23,753,700
506	KY 18 (Burlington Pike)	Reconstruct from Caroline Williams Way to KY 338	$28,679,500
507	KY 236 (Donaldson Rd)	Widen to five lanes from Cherry Tree Ln to KY 3076	$21,895,400
508	KY 237 (North Bend Rd)	Pave and stripe existing shoulders to provide bike lanes from KY 18 to I-275	$356,300
509	KY 3060 (Frogtown Rd)	Reconstruct from US 42 to US 25	$80,523,200
510	KY 3076 (Mineola Pike)	Widen to five lanes from I-275 to KY 236	$21,504,400
511	KY 338 (Richwood Rd)	Widen to three lanes from Triple Crown Blvd to Hicks Pike	$10,556,700
512	KY 536 (Mt. Zion Rd)	Widen to five lanes from US 25 to Kenton County line	$5,317,500
513	US 25 (Dixie Hwy)	Widen to five lanes from KY 16 to KY 338	$86,038,500
514	US 42	Provide walkway on northside of US 42 through I-75 Interchange	$11,573,300
515	US 42	Widen to three lanes each direction from I-71/75 to KY 842	$70,595,700
516	US 42	Reconstruct and widen to five lanes	$28,933,200
517	NEW KY 3060 Frogtown Rd Connector Extension-North	Construct new two lane extension from KY 3060 to KY 536	$5,943,000
518	NEW Mall Rd/ I-71/75 Interchange	Construct new ramp from Mall Rd to I-75 southbound	$2,137,800
519	NEW Connector	Construct new two lane connector from KY 237 to KY 842	$15,639,600
521	KY 338 (Richwood Rd)	Widen to five lanes US 25 to Triple Crown Blvd	$6,057,200

Figure 9-18: Campbell County Recommended and Programmed Roadway Projects Map

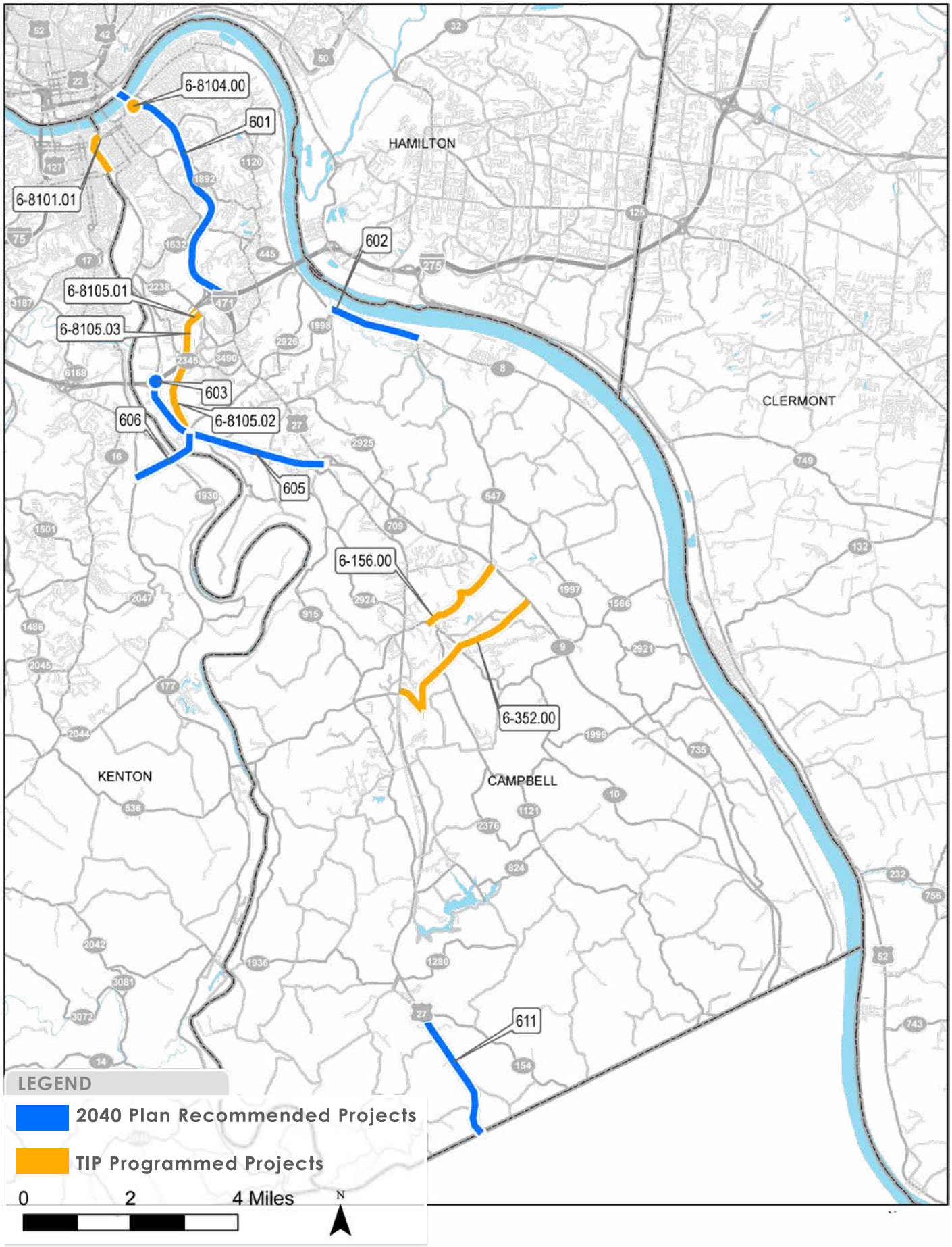


Figure 9-19: Campbell County Recommended and Programmed Roadway Projects Table

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Programmed TIP Projects			
6-352.00	KY 536	Extension from US 27 to KY 9 (AA Hwy)	$12,550,000
6-156.00	KY 547	Reconstruct with climbing lane from KY 9 (AA Hwy) to KY 10	$920,000
6-8101.01	KY 9	Reconstruct along new route with four through lanes from milepost 21.643 to KY 8 near Fourth Street Bridge	$21,454,000
6-8104.00	NEW I-471/KY 8 Interchange	Construct a new southbound off-ramp from I-471 to KY 8	$5,020,000
6-8105.01	NEW Route	Construct new connector road from I-275 to KY 9 (AA Hwy)	$10,638,000
6-8105.02	NEW Route	Construct new connector road from I-275 to KY 9 (AA Hwy)	$11,270,000
6-8105.03	NEW Route	Construct new Technology Triangle Access Road near Northern Kentucky University	$1,740,000
Recommended 2040 Plan Projects			
601	I-471	Widen to four lanes from I-275 to Ohio State Line	$233,000,000
602	KY 8	Reconstruct with sidewalks and bikepaths and add center turn lane from KY 1998 to KY 547	$35,297,800
603	KY 9/I-275 Interchange	Convert to full interchange	$57,866,400
605	KY 9 (AA Hwy)	Widen to six lanes with access control from I-275 to US 27	$59,565,100
606	NEW KY 1998	Construct new two lane connection and bridge from KY 9 near KY 1998 to KY 177	$33,625,100
611	US 27	Widen to four lanes, divided from Pendleton County to KY 154	$55,631,200

Figure 9-20: Kenton County Recommended and Programmed Roadway Projects Map

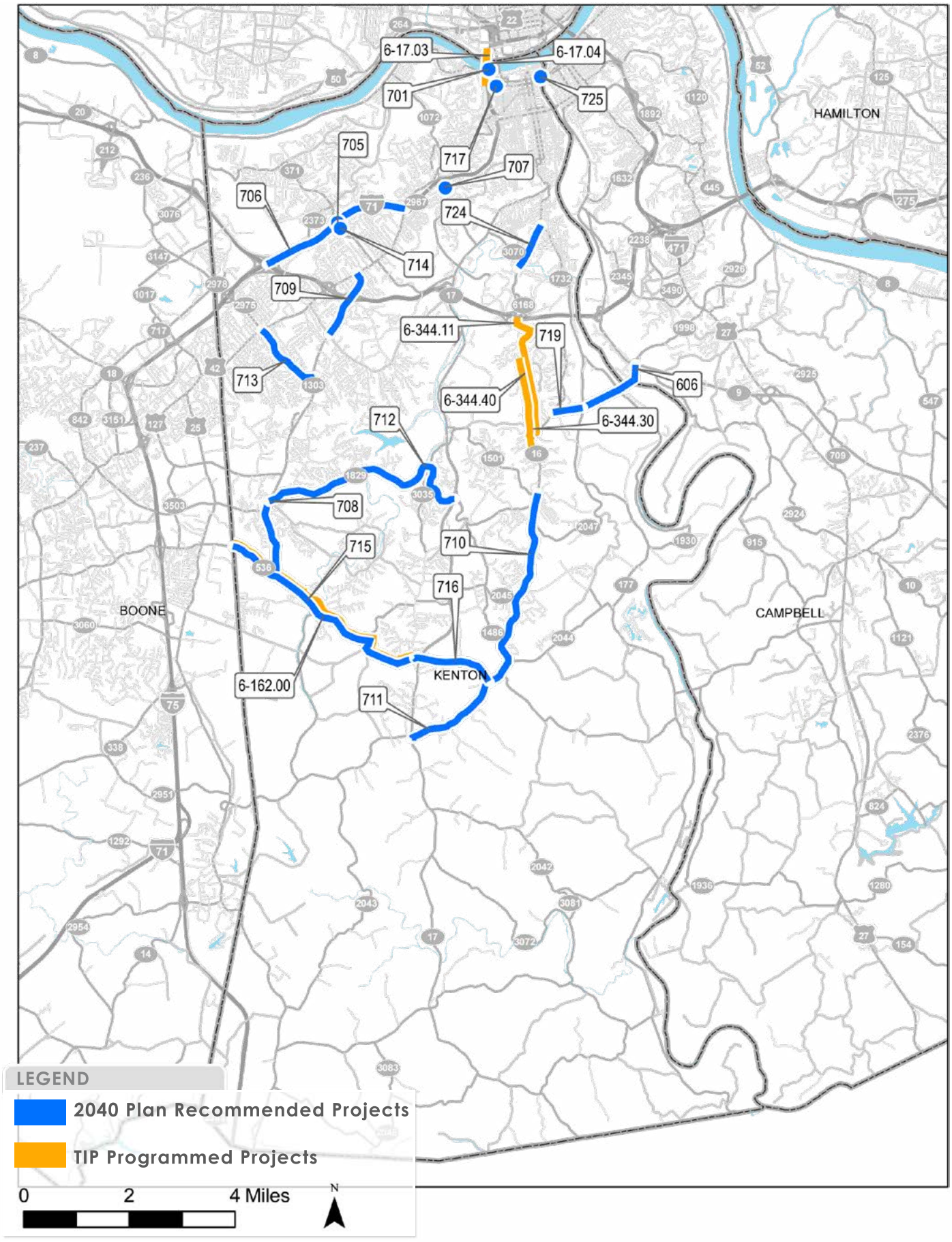


Figure 9-21: Kenton County Recommended and Programmed Roadway Projects Table

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Programmed TIP Projects			
6-344.11	KY 16	Reconstruct from I-275 to Old Taylor Mill Rd south intersection	$17,858,000
6-162.00	KY 536	Widen to five lane urban typical with raised median from Boone County Line to KY 17	$31,410,000
6-17.03	I-75 (Brent Spence Bridge)	Transportation improvements milepost 191.277 to 191.777	$3,958,787
6-17.04	I-75 (Brent Spence Bridge)	Transportation improvements milepost 191.277 to 191.777	$33,177,213
6-344.30	KY 16	Sunbright Dr to Old Taylor Mill Connector	$10,300,000
6-344.40	KY 16	Old Taylor Mill Connector to Blackstone	$11,760,000
Recommended 2040 Plan Projects			
701	Brent Spence Bridge	Kentucky portion to reconstruct existing and add new I-71/75 bridge over Ohio River	$1,485,322,220
705	Buttermilk Pike/I-71/75 Interchange	Auxiliary lane extension and interchange improvements	$10,221,000
706	I-75	Widen to six northbound lanes from I-275 to US 25	$225,209,700
707	KY 1072	Widen to three lanes from I-75 to Henry Clay Ave	$2,345,900
708	KY 1303 (Turkeyfoot Rd)	Reconstruct and widen to five lanes from KY 536 to Richardson Rd West	$40,662,900
709	KY 1303 (Turkeyfoot Rd)	Reconstruct with bike lane from Dudley Rd to I-275 and widen to four lanes north from I-275 to US 25	$49,264,600
710	KY 16	Widen to five lanes from KY 1501 (Hands Pike) to KY 536	$25,023,300
711	KY 16	Widen to five lanes KY 536 to KY 17	$17,203,500
712	KY 1829/KY 1486	Widen to three lanes on partial new alignment from KY 1303 (Turkeyfoot Rd) to KY 3035 and KY 3035 to KY 17	$84,453,600
713	KY 236 (Stevenson Rd)	Reconstruct from railroad crossing to KY 1303 (Turkeyfoot Rd)	$34,798,000
714	KY 371	Add two lanes with sidewalk from Avon Drive to I-71/75	$35,297,800
715	KY 536	Widen to five lanes from Boone County line to KY 17	$81,605,900

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
716	KY 536	Reconstruct and widen to five lanes from KY 17 to KY 16	$30,888,100
717	KY 8	Reconstruct existing lane widths from I-75 to Main St	$36,180,300
719	NEW KY 177/KY 16 Connection	Construct new two lane connection between KY 177 and KY 16	$25,370,300
724	KY 16	Reconstruct from KY 177 to KY 1732 (Grand Ave)	$25,811,500
725	KY 8	Replace the Fourth Street Bridge and improve for bike/pedestrian	$24,267,300

Figure 9-22: Dearborn County Recommended and Programmed Roadway Projects Map

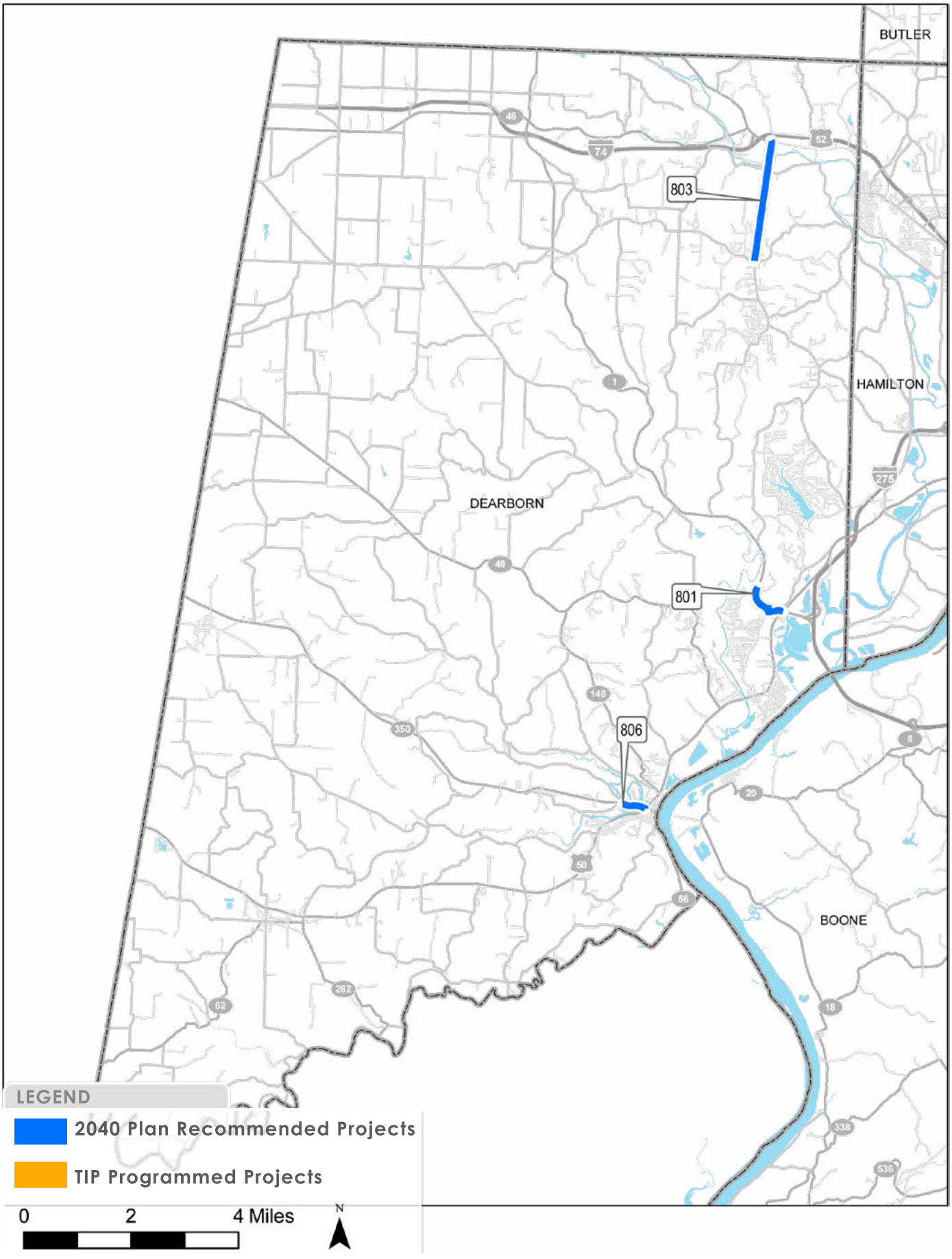


Figure 9-23: Dearborn County, Indiana Plan and TIP Roadway Projects

TIP or 2040 Plan Identification Number	Facility	Description	Cost (in year of construction dollars)
Recommended 2040 Plan Projects			
801*	SR 1	Realign and add one lane from US 50 to Nowlin Ave	$43,681,100
803	NEW Bright to I-74 Connector	Construct new two lane roadway from North Dearborn Rd to I-74	$54,601,300
806*	SR 350	Widen to four lanes including new bridge over creek from North Hogan Rd to US 50	$7,819,800

** Project has no financial commitment from State of Indiana at this time.*

SUMMARY

All options for improving mobility, connectivity, congestion and safety should be explored before recommending new or expanded highway facilities due to financial, environmental, and social impacts. The OKI Congestion Management Program offers options most suitable for locations identified as congested. However, an unacceptable level of congestion will remain in some areas due to deficiencies in roadway capacity. These are areas where new or expanded roadway capacity is needed.

This chapter has identified a number of roadway proposals for addressing mobility through and within the region. Operation and maintenance projects are not specifically identified but are consistent with the goals of this plan. Projects that add capacity are required to be specifically identified and subject to air quality conformity analysis. More detailed analysis will be necessary for projects to advance through the development process. Projects with community and financial support will be able to advance to the TIP and into implementation. The recommended roadway projects presented in this chapter are part of a fiscally constrained multimodal transportation plan.

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i. http://en.wikipedia.org/wiki/Traffic_light_control_and_coordination signal

Chapter 10

PUBLIC TRANSPORTATION

INTRODUCTION

Transit is desirable for reducing congestion, which in turn reduces the need for roadway expansion projects and decreases vehicle emissions. These are critical components in this plan's strategy for meeting mobility and air quality needs. Furthermore, transit provides travel opportunities to those for whom auto use is not a possible or preferred option. A fully loaded full size bus replaces approximately 44 automobiles that would otherwise be on the roadway in the form of single-occupant vehicles (SOV). It is in the region's interest to make public transportation widely available as an alternative to SOV travel. Recommended improvements for expanded bus passenger service and facilities, preservation of right of way for transit facilities and future passenger rail transit are intended to provide viable alternatives to automobile travel.

BUS TRANSIT

There are seven major public transit systems that currently provide bus service in the OKI region. Each of the eight OKI counties is served by at least one public transit agency. Since 2006, public bus transport in the OKI region has experienced an overall decrease in ridership of over 3.6 million people (Figure 10-1). Bus transit providers are faced with many challenges in their goal to provide safe and efficient transit service. Funding for staff and vehicles is often the critical factor which impacts ridership. The increases and decreases in bus ridership between 2006 and 2010 are explained by agency as follows:

- Increase in ridership for Butler County Regional Transit Authority (BCRTA) was due to the expansion of shuttle service through the receipt of Job Access/Reverse Commute (JARC) and New Freedom funding.
- Increase in ridership for Dearborn County's Catch-A-Ride was due to their expansion into two additional southeast Indiana counties.
- The increase in ridership for Clermont Transportation Connection (CTC) was due to the introduction of new fixed route services to the cities of Amelia and New Richmond.
- A decrease in ridership for Middletown Transit System (MTS) was attributed to a fare increase and fewer employment opportunities.
- Decrease in ridership for both Southwest Ohio Regional Transit Authority (SORTA) Metro and Transit Authority of Northern Kentucky (TANK) was due to an increase in fares and restructuring of routes.
- Decrease in ridership for Warren County Transit System (WCTS) was due to fare increases.

Figure 10-1: Change in Bus Ridership, 2006 to 2010*

YEAR	BCRTA	Catch-A-Ride	CTC	MTS	SORTA Metro (Fixed Route Only)	TANK	WCTS
2006	8,377	131,608	89,102	253,552	25,294,117	3,662,257	64,369
2010	36,802	144,466	105,268	210,397	18,821,828	3,563,533	51,000

*Source: Bus transit providers. *Numbers include counts from all modes unless otherwise noted.*

Existing Public Bus Systems

CTC, MTS, SORTA and TANK provide fixed-route service. Fixed-route service operates with a predetermined schedule along prescribed routes with designated bus stops along each route. Catch-A-Ride utilizes a combination of point deviation, rural route and extra services. These services are specifically designed to serve small towns and rural areas. BCRTA, CTC (along with their fixed route services) and WCTS provide demand responsive service throughout their respective counties. More detailed information and statistics on each agency is presented in the text that follows.

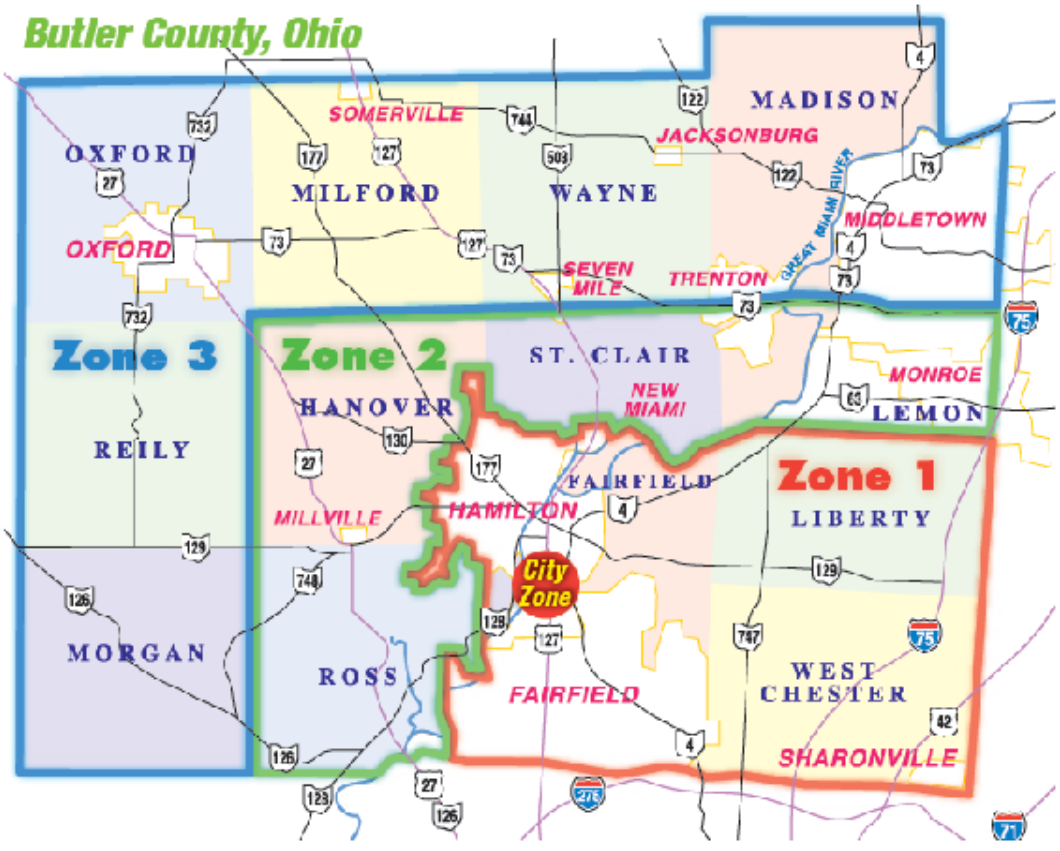
Butler County Regional Transit Authority

The Butler County Regional Transit Authority (BCRTA) was formed by the Butler County Commissioners in 1994 and remains the designated grantee for federal and state transportation funds within the Cincinnati Urbanized Area of Butler County. The agency is governed by a nine-member Board of Trustees appointed by the Butler County Commissioners. The agency intends to:

- Provide access to health and human and services program
- Foster the economic development and vitality of the county by providing better access to jobs, education, shopping and government services
- Conserve energy and reduce pollution
- Serve as a broker of transportation services for various county boards and agencies that wish to contract with BCRTA to manage their transportation needs

BCRTA maintains an administrative and maintenance facility and a fleet of transit vehicles. BCRTA serves as a lead partner in the Transit Alliance of Butler County. The Transit Alliance is a countywide transportation coordination project in Butler County that has a mission to create an effective, efficient and coordinated approach to meet the current and future local and regional transportation needs for Butler County citizens, agencies and businesses.

Figure 10-2: BCRTA Service Areas



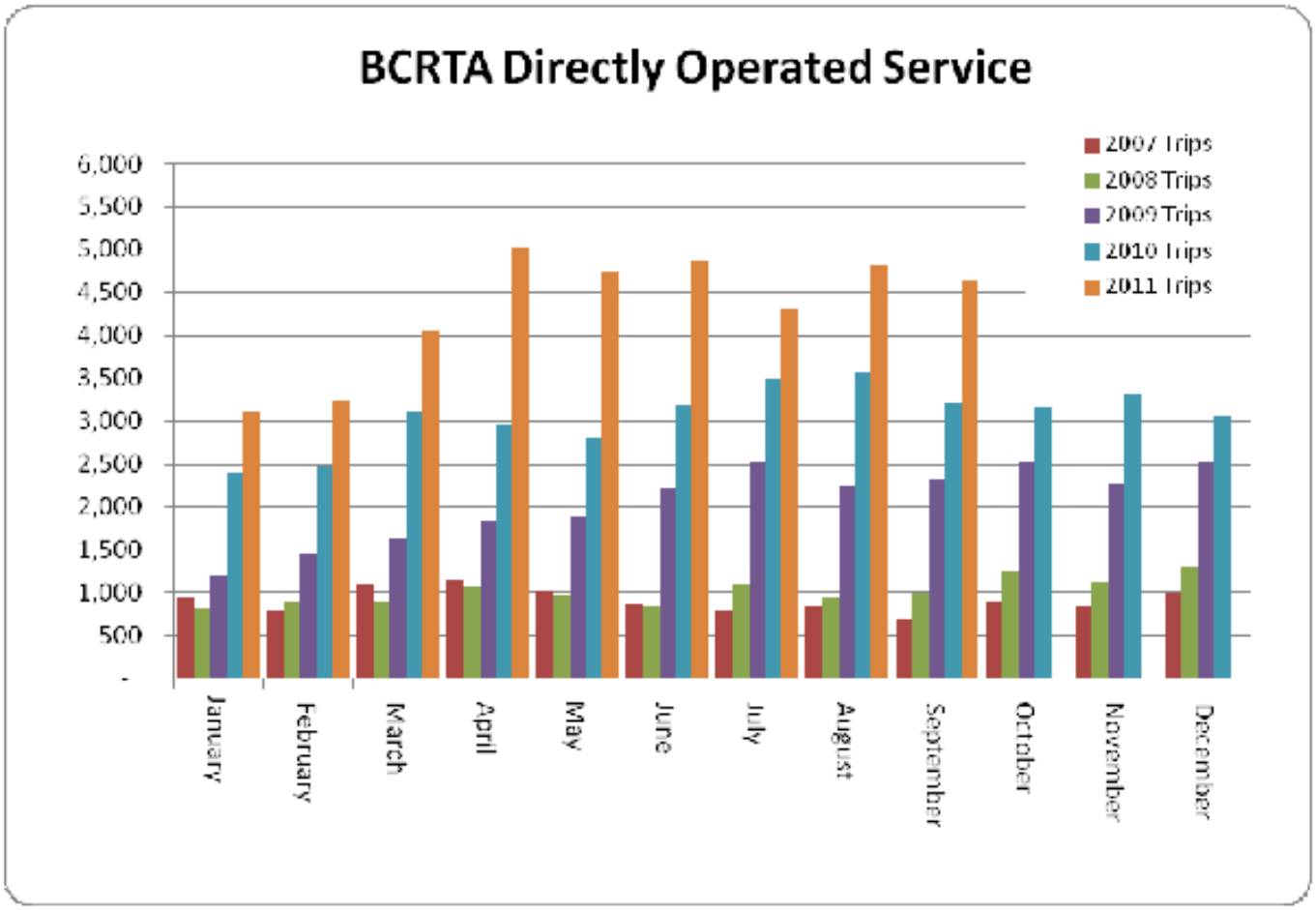
Source: BCRTA

BCRTA provided affordable, countywide general public transportation services from 1999 until 2002 when services were cut due to a loss of the local funding support. At the request of the city of Hamilton and through the financial support of the city of Hamilton, the Hamilton Community Foundation and the Butler County Job and Family Services, BCRTA operated affordable public transportation services in the city of Hamilton from October 2003 through October 2005. Since May 2005, BCRTA has operated countywide, general public, demand responsive door-to-door services (Figure 10-2). Without local financial support, fares must support most of the direct costs. As a result, fares have become unaffordable to many ranging from $15 to $30 per one-way trip depending on zones traveled. BCRTA continues to serve riders who use wheelchairs and does not charge any premiums or surcharges for the use of a wheelchair. In addition, BCRTA offers significant discounts for group trips and is providing flexible fixed-route shopping shuttles in the cities of Hamilton and Fairfield where citizens and visitors can schedule pick-ups for weekday rides that connect neighborhoods to designated shopping areas for a $4.00 per round trip fare.

BCRTA recently received Job Access and Reverse Commute (JARC) and New Freedom federal funds to operate a job shuttle and medical shuttle for residents of Butler County. These programs offer reduced fare programs to eligible residents to get to employment, medical appointments and other related destinations.

BCRTA also offers a point deviation fixed route service in cooperation with the Middletown Transit System. Two routes operate a regular weekday schedule between Fairfield, Hamilton, Middletown, Trenton, and Oxford for $2.00 per ride.

Figure 10-3: BCRTA Directly Operated Service Trips, 2007-2011



Source: BCRTA

Catch-A-Ride

The Catch-A-Ride transit system began operations in Dearborn County in June 1997 under the name SEIT (Southeast Indiana Transit) and is a public passenger transportation system provided by the Southeastern Indiana Regional Planning Commission. The system is operated by LifeTime Resources, Inc., a not-for-profit agency. In January 2000, the system expanded its Indiana service area to include Jefferson, Ohio, Ripley and Switzerland counties. In 2006, Decatur County was added to the service area. Catch-A-Ride expanded further to include Jennings County in 2007.

Catch-A-Ride is available to individuals of all ages and incomes with scheduled pickup and arrival times and is a shared ride service. Catch-A-Ride provides more personalized transportation because it picks up customers and delivers them to their destinations with curb-to-curb, door-to-door or door-through-door type service.

Catch-A-Ride operates three types of services: Point Deviation, Rural Route and Catch-A-Ride Extra Service. The system of regular routes combined with individually scheduled service is specifically designed to serve small towns and rural counties in the service area.

Point Deviation vehicles operate in higher populated areas in an established directional route pattern with limited check point stops. Customers are picked up at their requested locations along the route and delivered to their desired destination within the corporate limits of the established route. Point Deviation routes offer curb-to-curb service and operate from 7:00 a.m. to 6:00 p.m. Monday through Friday in Greendale, Lawrenceburg and Aurora in Dearborn County.

Rural Route Service is available for persons traveling outside the established Point Deviation routes with transportation scheduled on individual request. Rural Route service allows for travel throughout the county and into other counties served by Catch-A-Ride. Service must be scheduled by noon on the day prior to the requested ride but may be scheduled up to seven days in advance. Rural Route service is available in Dearborn County Monday through Friday from 6:00 a.m. to 6:00 p.m.

Catch-A-Ride Extra is designed to meet the needs of the frail older adult and individuals with disabilities who require additional assistance. This service is not available through Point Deviation Service and, like Rural Route Service, must be scheduled by noon on the day prior to the requested ride. An eligibility screening is required prior to scheduling a ride for this service. Drivers provide minimal assistance such as carrying items to and from the vehicle, pushing wheelchairs through doors and escorting persons into their destination and announcing their arrival. This assistance is not meant to replace personal assistant or companion services while at the destination. All Catch-A-Rides Extra transportation services are provided on a shared ride basis.

Clermont Transportation Connection

Clermont Transportation Connection (CTC) is the primary provider of public transportation in Clermont County. The agency was founded in 1977 as CART (Clermont Area Rural Transit) and has continued to evolve and now offers 3 fixed routes in addition to its Dial-A-Ride services: Route 1 Eastgate-Felicity Shuttle operates Tuesdays and Thursdays and provides service between the town of Felicity, the Amelia area and the Eastgate Mall area; Route 2X provides non-stop express service from the Rivertown Market Park and Ride in New Richmond to downtown Cincinnati; Route 4X provides non-stop service between Amelia and downtown Cincinnati.

The transit agency was operated by an independent board until October 1997 and then became a direct department of the Clermont County Commissioners. Until 2000, Clermont County was classified as a rural county and as such the state provided operating funds to CTC. With the 2000 Census, Clermont County was re-categorized as an urban county which ended the state's provision of operating funds. Funding has been a challenge for CTC since that time.

The Clermont County Transportation Connection operates 34 vehicles and provides in-county Dial-A-Ride service in addition to two fixed routes. Dial-A-Ride service is available from 6:00 a.m. to 6:00 p.m. Monday through Saturday and fixed route service is available Monday through Friday. Standard dial-a-ride fares are $4.75 for adults, $3.75 for students and $2.35 for children, senior citizens and persons with disabilities. Fixed route fares are $3.75 for adults, $2.75 for students and $1.85 for children, senior citizens and persons with disabilities.

Middletown Transit System

The Middletown Transit System (MTS) is a publicly owned and operated system that began service in January 1973 servicing the city of Middletown. MTS currently operates six 28-passenger buses and two 9-passenger paratransit buses; all vehicles are wheelchair accessible. Operating hours are 6:30 a.m. to 6:30 p.m. Monday through Friday and 8:30 a.m. to 4:30 p.m. on Saturdays. Regular fares are $1.25 per ride or a 40 ride bus pass for $50.00. Elderly, physically disabled or Medicare card holder discount fares are 60 cents per ride or a 40 ride pass for $24.00.

Paratransit curb-to-curb service is also available for qualified residents of Middletown using two lift-equipped vans. The fare for this service is $2.50 each way.

MTS operates 4 fixed route lines: Gold Line, Green Line, Red Line and Blue Line. These routes provide approximately 220,000 trips annually and serve all major shopping centers and points of interest including the Atrium Medical Campus, the Veterans' Administration facility and Miami University, Middletown Campus.

Southwest Ohio Regional Transit Authority

The largest public transit operator in the OKI region is SORTA. SORTA's service area covers a majority of Hamilton County and includes portions of Butler, Clermont and Warren counties.

SORTA's fixed route service, called Metro, consists of 26 local routes and 20 express commuter services. The newest Metro route, 38X, is an express commuter service that provides a direct transit connection between the west side of Cincinnati and the very important University/Uptown area.

Historically, the Metro has operated a primarily radial network consisting of local and express routes focused on downtown Cincinnati. Local transit service mainly runs on local streets and makes frequent stops. Express routes operate on local streets and highways with fewer stops. To better serve changing travel patterns, Metro also operates three east-west crosstown routes. In 2010, Metro provided 16,553,696 one-way trips on the fixed-route system.

Metro provides 24 free Park & Ride lots (Figure 10-4). Metro also operates reverse commute service to portions of

Hamilton, Butler and Warren counties. In 2008, SORTA received Job Access and Reverse Commute federal funds to operate a reverse commute service between the Cincinnati CBD and the Kings Island area in southwest Warren County. The service aims to provide reduced fares to youth seeking employment at the Kings Island amusement park and surrounding businesses. In 2010, 12,673 one-way trips were provided with the service. All Metro buses are equipped with bicycle racks.

Metro's fare structure is zonal-based. Effective November 1, 2011, fares will range from $1.75 for Zone 1 local service to $2.65 for local service to, from or within Hamilton County (Zone 2). There is also a $0.50 fare for a riverfront parking shuttle. Fares for express trips range from $1.75-$4.25. Monthly bus passes are available and offer unlimited usage.

Currently, all of Metro's 342-bus fleet is accessible to persons with disabilities and feature wheelchair lifts or ramps. In addition to the lift-equipped service along its regular routes, SORTA instituted the Access program in 1977, which is a shared-ride transportation service using paratransit vehicles. The service is managed by SORTA and operated by a private contractor. In December 2010, Access modified its service area and currently provides service that is complimentary to fixed-route service as required by the ADA. The service now has a fleet of 44 vehicles that provided 185,792 one-way trips in 2010. More than 2,762 people are presently registered with the program. The fare for Access service is $3.50 for Zone 1 and $4.50 for Zone 2.

Metro's primary transit center is Government Square in downtown Cincinnati, which was renovated in 2005 and is now completely accessible to persons with disabilities. In addition, Metro just completed a new suburban transit center, Glenway Crossing, located in the west side of the city of Cincinnati. Additional transit centers in the Uptown/University and Northside areas are being studied. Park and ride facilities are being considered throughout the Metro service area.

In 1999, SORTA entered into an inter-local agreement with the Transit Authority of Northern Kentucky (TANK) to allow closer coordination of the two transit systems. SORTA continues to work cooperatively with other area transit systems to form a comprehensive transit network. The network encompasses four Ohio counties, three Northern Kentucky counties and Southeast Indiana.

The city of Cincinnati is in the process of developing a modern streetcar system. The city has requested that Metro operate the planned system, which will run between the riverfront area and Findlay Market in the Over-the-Rhine neighborhood and eventually to the Uptown Cincinnati area. Potential Bus Rapid Transit (BRT) corridors have been identified and are under long-term consideration based on the availability of capital and operating funds.

Figure 10-4: Existing SORTA Metro Park & Ride Locations

Location Name	Address	Number of Parking Spaces	Metro Routes Served
Anderson	7954 Beechmont	120	24, 30X, 75X
Parkside Christian Church	6986 Salem	50	81X
Anderson Center Station	7832 Five Mile Road	190	24,75X,81X
Regency Milford	Main and Baker	50	28,29X
Union Township Civic Center	4350 Aicholtz	400	82X
Madeira	Dawson & Miami	12	2X
Blue Ash	Blue Ash Road and Cooper Road	40	3,3X
Kenwood Baptist Church	8341 Kenwood	75	3X

Location Name	Address	Number of Parking Spaces	Metro Routes Served
Silverton	7000 Montgomery	60	2X, 3, 4
Symmes Township	Mason at Seven Gables	25	3X
Sycamore Presbyterian Church	Mason at Seven Gables	25	3X
Fields Ertel	at Mason-Montgomery Road	115	71X
Kings Island	Kings Island Drive at Brandt Connector	225	71X
Meijer West Chester	7390 Tylersville Road	150	42X
QC Racquet Club	11275 Chester Road	50	23X
Fairfield Crossing	4631 Dixie Highway	40	23X
Forest Park	1160 Kemper Meadow	120	14X, 23X
Greenhills Shopping Center	44 Eswin at Winton	25	14X, 20
Hilltop Plaza	8062-8084 Hamilton	30	15X, 16, 17
Mercy Mt. Airy	2446 Kipling Avenue	10	17
Sam's Club	5375 North Bend	160	74X
Kroger in Harrison	10553 Harrison Avenue	150	52X
Delhi Plaza	4940-4990 Delhi Pike	36	32, 77X
Glenway Crossing Transit Center and Park & Ride	5080 Glencrossing Way	70	38X, 39, 64, 77X

Source: www.go-metro.com 03/14/2012.

Transit Authority of Northern Kentucky

TANK provides public transit service in Boone, Campbell and Kenton counties as well as downtown Cincinnati. TANK's fixed route bus operation consists of 105 coaches, all lift and bicycle rack equipped, operating 26 routes of local and express service. In fiscal year 2011, TANK carried over 3.6 million passengers and operated over 3.6 million miles. TANK operates seven days a week with 82 vehicles in service during morning and afternoon rush hours alone. Fares for local service are currently $1.50 for adults, $1.00 for students and 75 cents for senior citizens and the physically disabled. The Southbank Shuttle, TANK's riverside circulator route in downtown Cincinnati, Covington and Newport, also has a fare of $1.00. TANK's express routes are routes that operate on the interstate highway system and have a fare of $1.75.

Figure 10-5: TANK Mt Zion Road Park & Ride

TANK also operates two specialized transportation services. RAMP provides door-to-door transportation to people who cannot use the regular fixed route service. Fare for RAMP service is $1.75 per trip and reservations for the service must be made two weeks in advance. DayTripper is a door-to-door transportation service available to senior citizens traveling within the same

service area in which regular TANK routes operate. A map of the service area for DayTripper is shown in the green shaded area of the map below. DayTripper operates Monday through Friday, 9:00 a.m. to 3:00 p.m. with fares of $3.25 each way. In 2010 TANK received federal JARC funding to complete a planning study and initiate reverse commute service in the Hebron region of Northern Kentucky.

Figure 10-6: Existing TANK Park & Ride Locations

Location Name	Bus Routes Served	Address	City	County
Alexandria	25, 25X	9000 Alexandria Pike	Alexandria	Campbell
Biggs	1X	4874 Houston Road	Florence	Boone
Burlington	32X	Burlington Pike (Kroger)	Burlington	Boone
Buttermilk	17X	2304 Buttermilk Crossing	Crescent Springs	Kenton
Cherokee Shopping Center	9	6459 Taylor Mill Road	Independence	Kenton
Cold Spring	25, 25X	4011 Alexandria Pike	Cold Spring	Campbell
Covington Transit Center	all routes with the exception of some express routes	220 Madison Avenue	Covington	Kenton
Hands Pike	30X	Madison Pike	Erlanger	Kenton
Hebron Lutheran Church	29X	3140 Limaburg Road	Hebron	Boone
Houston Road	1X	4400 Houston Road	Florence	Boone
Independence	30X	Madison Pike (Kroger)	Independence	Kenton
Mt. Zion Road	22X	377 Mt. Zion Road	Florence	Boone
Newport Shopping Center	16, 25	1727 Monmouth Street	Newport	Campbell
North Bend	29X	North Bend Road	Hebron	Boone
TANK Garage-Ft. Wright Hub	5, 25, 28X, 33, 30X	3375 Madison Pike	Fort Wright	Kenton
Village Green Shopping Center	25, 25X	7000 Alexandria Pike	Alexandria	Campbell
Walton First Baptist Church	22X	47 South Main Street	Walton	Boone

Source: www.tankbus.org 03/14/2012.

Warren County Transit System

The Warren County Transit System (WCTS) was established by Warren County in August 1980. In 2012, WCTS operates 19 vehicles, including five minivans, two converted vans and 12 light transit vehicles. All 19 vehicles are lift-equipped. WCTS provides demand response public transportation service to all of Warren County and to the Greater Dayton Regional Transit Authority's (GDRTA) South Hub. Fares for WCTS are $2.00 each way, anywhere within Warren County and to GDRTA's South Hub. One-way fares to Middletown are also $2.00. Fares for elderly and physically disabled passengers are $1.00 within Warren County. WCTS also provides service to three points within the City of Middletown in Butler County. Hours of operation are Monday through Friday from 6:00 a.m. to 6:30 p.m. excluding certain holidays. During 2010, WCTS served approximately 51,000 passengers.

PUBLIC TRANSPORTATION NEEDS

Bus service in the region began many years ago when the city of Cincinnati was the primary destination. As the region has grown in a more dispersed development pattern with significant residential and employment growth occurring outside the city and around the I-275 beltway, transit expansion has not kept pace. Gains and losses in bus transit ridership directly correlate to the expansion and reduction of services, respectively. Presently, it is impossible to travel between many parts of the region by transit. For instance, transit trips cannot be made between bus service areas in Newport, Kentucky and Lebanon, Ohio or between bus service areas in Batavia, Ohio and Lawrenceburg, Indiana. To attract more riders to transit, it is important that the separate transportation services in the region become fully connected, both in service routes and fare structure to accommodate transfers between providers.

Specialized Populations

A network of providers including both transit providers and social service agencies make specialized transportation available throughout the OKI region. Transit agencies serve the general public and specialized users in every county. Social service agencies expand the availability of specialized transportation by serving certain types of users in certain areas for certain kinds of trips, based on agency missions. Taxi services and other private providers further expand travel opportunity for specialized users. The result is a specialized transportation service area that covers the region but varies greatly within the region.

The passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU) on August 15, 2005 added programs and incorporated changes to existing programs initiated in its predecessor legislation. Among the changes is a requirement to develop a coordinated public transit-human services transportation plan (Coordinated Plan) for implementing the 49 U.S.C. 5310, 5316 and 5317 programs.

OKI completed a comprehensive update of the Coordinated Plan in May 2012. The following key elements are the goals for the Coordinated Plan:

- Goal 1: An assessment of transportation needs for individuals with disabilities, older adults and persons with limited incomes
- Goal 2: An inventory of available services that identifies areas of redundant service and gaps in service
- Goal 3: Strategies to address the identified gaps in service
- Goal 4: Identification of coordination actions to eliminate or reduce duplication in services and strategies for more efficient utilization of resources
- Goal 5: Prioritization of implementation strategies

For all data, analysis and findings, OKI refers readers directly to the Coordinated Plan. However, a few key findings are summarized in the following bulleted text:

- A large amount of geographic overlap among populations with special transportation needs exists
- Unlike the elderly concentrations, the concentrations of people with disabilities tend to be on the periphery of the region and further from the proximity of fixed transit services
- There are many geographic areas of the region, in every county of the region, with concentrations of people with specialized transportation needs beyond the proximity of fixed route transit (Figure 10-#)
- There are many limitations to the specialized transportation services provided in the region, most notably the limited amount of services available during evening and weekend time periods
- There is also a lack of specialized services available to low income individuals residing beyond the proximity of fixed route transit service. This data is especially relevant for considering the need for transportation improvements funded through JARC to improve access to transportation services to employment and employment-related activities.

Figure 10-7: Geographic Location of Specialized Transportation User's Residence Related to Nearest Fix Line Transit Location

	Percent of special population residing within proximity of fixed transit route		
Specialized Transportation User	¼ mile	½ mile	¾ mile
Elderly Population	45%	59%	26.2%
Disabled Population	46%	58%	18.7%
Low Income Population	59%	69%	25.1%

Source: OKI data based on 2000 US Census

Funding

A primary reason why a large part of the region is not connected by transit is because transit funding has not kept up with the need to expand transit services. In general, local tax revenues for transit operations have not kept pace with the cost and demand for service in the region. While TANK receives funding from the three Northern Kentucky counties, SORTA receives funding from the city of Cincinnati and is not funded by Hamilton County or surrounding counties except for small, contract-based, specific routes. As a result, SORTA has experienced major cuts in funding and has been forced to cut back service and service hours. The region's transit providers are continually investigating ways to make operations more efficient, looking for funding assistance from their respective state governments and discussing the long-term financial needs of the regional transit system with local and state elected officials.

Federal funding for JARC and Section 5317 New Freedom was expanded under federal transportation legislation--The Safe Accountable Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). These two programs aim at improving transportation services for specific populations. The JARC program provides funding for transportation services benefiting welfare recipients and eligible low income persons to travel between home, employment locations and related activities. The New Freedom program provides funding for transportation services that assist American's with disabilities seeking integration into the work force and full participation in society by overcoming physical barriers. Approximately $1.5 million in JARC funds and $1 million in New Freedom funds were awarded to eligible transportation providers in the region in 2011. OKI, as the designated recipient for these federal funds, solicits applications, reviews and ranks the applications, and awards funding to projects that meet federal requirements.

Replacement, Alternative-Fuel Vehicles

Bus replacement programs and the ability to switch to hybrid or alternatively fueled vehicles are important to all

the transit systems in the region. Funding to replace vehicles is very competitive and often providers are forced to use vehicles that are beyond age or mileage standards established by the Federal Transit Administration. OKI has provided federal funding for bus replacement projects sponsored by BCRTA, CTC, SORTA and TANK.

SORTA and TANK both have need for additional or replacement vehicles in order to provide expanded service. The use of alternative fuel and hybrid vehicles will allow for more environmentally friendly operations and may allow for fleet expansion by increasing the fuel efficiency of existing buses.

University Bus Transit Programs

Several unique funding programs have been developed by SORTA and TANK during the past few years that provide free transportation to qualified riders. SORTA introduced the UC*Metro program in 2007. Beginning in the fall of 2011, the program introduced the EZ Ride Card. The card is free and available to students, faculty and staff and can be used for unlimited rides anywhere Metro travels for only $1 with no additional zone charges. The traditional UC*Metro card is also available and is currently $40 per quarter for students and $120 per quarter for faculty and staff and allows for unlimited rides during the quarter. The program is funded by UC and its student government. A similar program is available to Cincinnati State students and allows students to ride Metro for $1. The program is subsidized by Cincinnati State.

TANK and Northern Kentucky University (NKU) have partnered to establish the U-Pass Program which initiated operations on July 1, 2007. U-Pass provides free transportation on all TANK routes for NKU students, faculty and staff and was expanded to also serve students at Gateway Community and Technical College. Unlimited rides are available on all TANK buses including the Southbank Shuttle. The programs are funded by NKU and Gateway Community and Technical College.

New and Expanded Service

Demand exists for the transit agencies in the region to provide additional local coverage, express/reverse commute, crosstown routes and neighborhood and employment shuttles. On August 15, 2011, Metro began a new express crosstown route (38X) that connects Cincinnati's westside neighborhoods with the Uptown area. The route operates morning and afternoon trips from the new Glenway Crossing Transit Center and Park & Ride in Western Hills (Figure 10-8) directly to the Uptown area; riders no longer need to ride all the way to downtown Cincinnati and transfer to a bus traveling north to the Uptown area.

Figure 10-8:
Glenway Crossing Transit Center

Efficient and Timely Service

Figure 10-9:
Metro Bus on Shoulders Project
Source: SORTA.

To attract additional transit ridership and spur more people to choose transit over SOV travel, transit professionals have shared that efficient and timely service is a key motivator.

In the summer of 2007, Metro buses began using the I-71 left shoulder lane for an express bus route between Kenwood and Kings Island. The 11.7 mile bus on shoulder corridor includes I-71 northbound and southbound between Kenwood Road and Western Row Road. The 12 foot wide shoulder lane is used when traffic slows below 30 mph. Buses are not permitted to go more than 15 mph faster than the speed of highway traffic and buses are never allowed to exceed 35 mph on the shoulder. The project partners include SORTA, the Ohio Department of Transportation, ARTIMIS and the Federal Highway Administration. By introducing such new service opportunities, bus transit may have an improved competitive advantage during morning and evening peak commutes in comparison to SOV drivers.

PUBLIC TRANSPORTATION RECOMMENDATIONS

Figures 10-10 and 10-11 present the public transportation recommendations included in this fiscally constrained plan update. Text that follows the figures provides a general overview to the benefits of these project recommendations to the OKI region.

Figure 10-10: Public Transportation Fiscally Constrained Project Recommendations

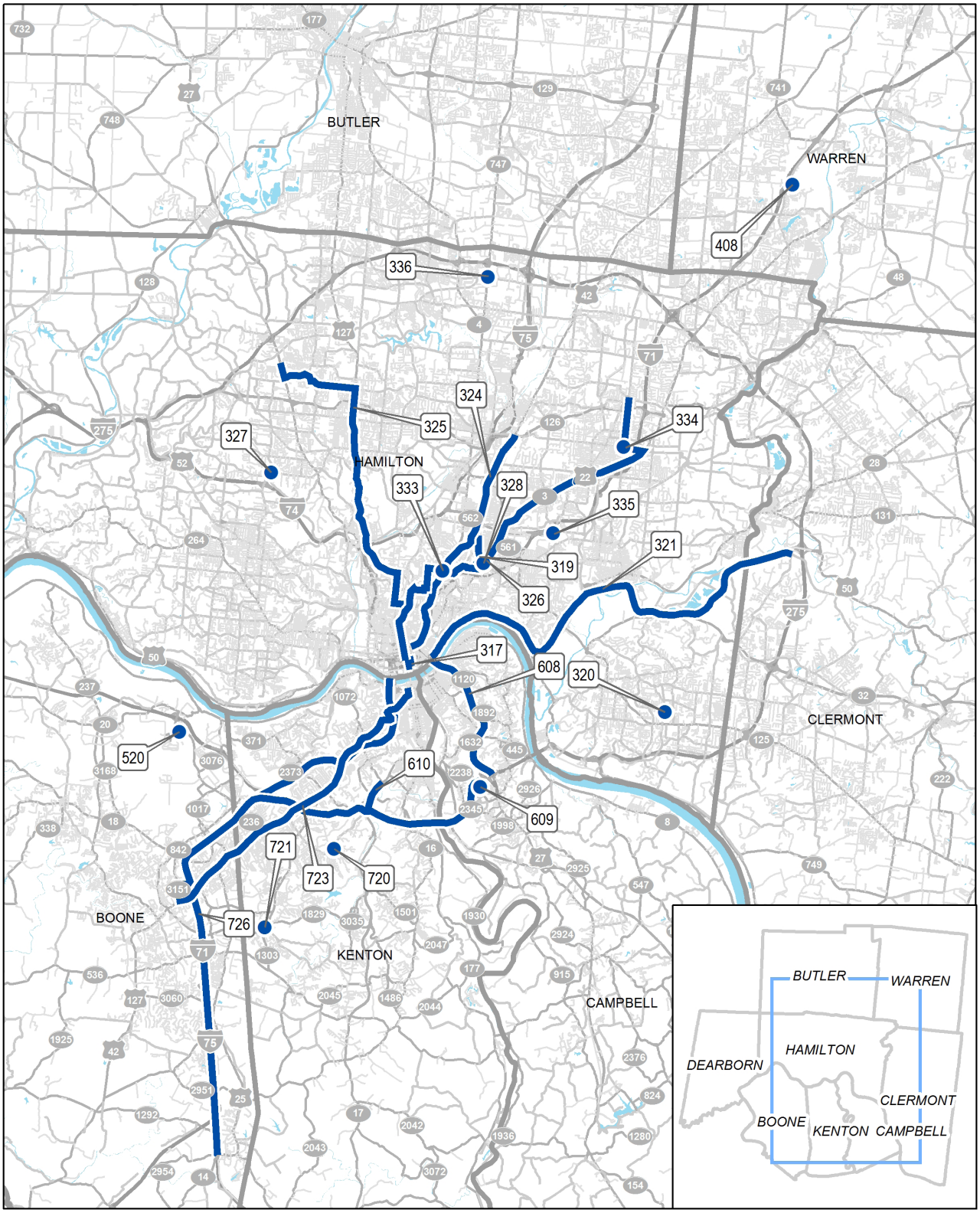


Figure 10-11: Public Transportation Fiscally Constrained Plan Recommendations

Identification Number	County	Project Name	Description	Timing*	Cost Estimate (in year of construction)
317	Hamilton	Cincinnati Streetcar Phase 1: Riverfront Loop	Route includes Fifth St south to Second St	Mid	$21,430,000
319	Hamilton	Acquisition of Abandoned Railroad Right of Way	Preserve segment of Norfolk Southern Railroad right of way from Bond Hill to Idlewild junction for future public transportation service	Short	$2,380,000
320	Hamilton	Anderson Center Station Park & Ride Phase 2	Expansion of Metro transit hub with minimum 100 additional Park & Ride spaces	Short	$3,560,000
321	Hamilton, Clermont	Eastern Corridor Oasis Line Segments 1, 2, 3 & 4	New rail transit plus feeder bus with facility and supporting infrastructure between Downtown Cincinnati Riverfront Transit Center and city of Milford	Long	$1,033,510,000
324	Hamilton	SORTA Reading Rd Corridor BRT	Bus rapid transit service from Reading to Cincinnati Central Business District	Short	$590,000
325	Hamilton	SORTA Downtown-Hamilton Ave Corridor BRT	Bus rapid transit service from Northgate to Cincinnati Central Business District	Short	$590,000
326	Hamilton	SORTA Montgomery Rd Corridor BRT	Bus rapid transit service from Blue Ash to Cincinnati Central Business District	Short	$590,000
327	Hamilton	SORTA North Bend/Cheviot Park & Ride	Replace nearby leased facility with new Metro Park & Ride	Short	$2,140,000
328	Hamilton	SORTA Evanston/ Xavier University Transit Hub	Mini Metro transit hub including pedestrian connections to adjacent area	Short	$3,710,000
333	Hamilton	SORTA Avondale Transit Hub	Mini Metro transit hub including pedestrian connections to adjacent area	Short	$1,500,000
334	Hamilton	SORTA Kenwood/ Galbraith Transit Hub	Mini Metro transit hub including pedestrian connections to adjacent area	Short	$1,990,000
335	Hamilton	SORTA Oakley Transit Hub	Mini Metro transit hub including pedestrian connection to adjacent area	Short	$1,500,000

Identification Number	County	Project Name	Description	Timing*	Cost Estimate (in year of construction)
336	Hamilton	SORTA Springdale/ Tri-County Transit Hub	Mini Metro transit hub including pedestrian connection to adjacent area	Short	$1,500,000
408	Warren, Hamilton	SORTA Kings Island Park & Ride	Replace nearby leased facility with new Metro Park & Ride	Short	$2,200,000
520	Boone	TANK CVG Airport Transit Hub	Construct transit hub at Cincinnati/Northern Kentucky International Airport	Mid	$3,130,000
608	Campbell	TANK I-471 Transit Way	Implement bus-on-shoulder project	Short	$1,260,000
609	Campbell	TANK NKU Transit Hub	Construct transit hub at Northern Kentucky University	Mid	$3,130,000
610	Campbell, Kenton	TANK Suburban Crosstown Transit Service	Add new bus route from Florence Hub to NKU transit hub with Ft. Wright TANK stop	Short	$680,000
720	Kenton	TANK Edgewood Park & Ride	Construct new 50 space Park & Ride facility along TANK route 18X	Mid	$780,000
721	Kenton	TANK Turkeyfoot Park & Ride	Construct new 50 space Park & Ride facility along TANK route 19X	Mid	$780,000
723	Kenton	TANK Dixie Highway Corridor BRT	Bus rapid transit service along TANK Route 1	Short	$590,000
726	Kenton, Boone	TANK I-75/71 Transit Way	Implement TANK bus-on-shoulder project	Short	$2,230,000
804	Dearborn	Catch-A-Ride: Security Cameras and RFI Driver Card Readers**	Install security cameras and RFI card access for drivers in all 48 buses	Short	$340,000
807	Dearborn	Catch-A-Ride: Fare Collection Boxes and RFI Customer Card Readers**	Install locking fare collection boxes and customer RFI card readers on all 48 buses	Short	$130,000
808	Dearborn	Indiana Rail Transit Right-of-Way Preservation**	Preserve rail right-of-way for future passenger rail transit	Long	$4,410,000
REGIONAL TOTAL					**$1,094,650,000**

**Timing: Short = 2013-2019 and Mid = 2020-2029.*
***Project does not have a specific location, so it is not included in Figure 10-10.*

Intelligent Transportation System (ITS)
Improvements in the quality of transit service can also increase bus ridership. Among the alternatives for improving bus service are adjusting routes, extending operating times and reducing the wait time between buses. Specific recommendations for passenger amenities are beyond the scope of this plan, but modifications to increase transit security, comfort and cleanliness should be considered for the potential impact on transit ridership. The expansion of ITS applications such as automatic vehicle locator (AVL) can give riders real-time information at passenger waiting areas or on the Internet, reducing wait time and improving transfer convenience. Currently, TANK and Metro have AVL in place and is using it for scheduling and dispatching.

Transit Hubs
SORTA, TANK and CTC have proposed the development of transit hubs to serve the region. Transit hubs would minimally act as transfer points between routes. Transit hubs locations are proposed where several bus routes or transit lines converge. Hubs are generally locations with the highest level of transit service.

Transit hubs provide a safe, welcoming place that may offer a wide range of amenities. Depending on the scale of each hub project, amenities could include covered or enclosed waiting areas, restroom facilities and ticketing information. Major bus hubs have the potential to incorporate retail stores, restaurants or other establishments that cater to transit riders. Incorporation of such amenities has the potential of enhancing surrounding commercial and residential areas and providing an economic development stimulus. The estimated cost of each of the recommended hubs ranges from $0.5 million to $5 million depending upon the amenities included at each site.
Transit hubs would also be equipped with facilities for parking bicycles to encourage bicycle use and ease automobile parking requirements. These parking facilities should include bike lockers and covered bike racks suitable for securing the frame of the bike. Streets accessing the transit hubs should be improved to include bicycle treatments that may include bike lanes or wide shoulders for increased road sharing safety and to encourage the use of bicycle access to transit.

A few transit hubs already exist in the region. The downtown Riverfront Transit Center, which opened in May 2003, is capable of handling conventional bus transit (both local and intercity) and light rail transit. Also in downtown Cincinnati is the Government Square transit hub which was completed in 2007 using $3.5 million in Transportation Review and Advisory Council (TRAC) funding towards the total $9.4 million cost. The square has been transformed into a modern transit facility that includes five new bus bays, an eastbound bus passing lane and 15 new curbside bus stops. The project tripled transit and passenger capacity of Government Square which serves over 20,000 passengers a day making it the second largest passenger transit facility in the state of Ohio. The Covington Transit Center provides a major hub in downtown Covington with connecting service to many TANK buses and service to downtown Cincinnati.

On December 4, 2011, the new Glenway Crossing Transit Center and Park and Ride opened in Western Hills. The development provides a new park and ride to area residents and a transfer connection for four major westside routes. Located at the intersection of Glencrossing Way and Anderson Ferry Road, the new transit center includes four bus boarding area, three passenger shelters, 70 park and ride spaces and other improvements such as new sidewalks, landscaping and signage.

SORTA is developing a major transit hub in the University of Cincinnati area. The new hub will connect five transit routes that currently operate in the area but do not converge to a single point transfer. SORTA estimates that ridership will increase by five to seven percent on these routes as a direct result of the transit hub development. The project has a proposed sale date in fiscal year 2013. In addition, SORTA is planning a hub in Northside that will connect six routes that operate in the area. Ridership on these routes is anticipated to increase by two to three percent as a result of the new hub.

Park & Rides

An integral part of bus transit services within the OKI region are Park & Ride facilities. A Park & Ride facility is defined as a location where people can change from one form of transportation to another. A Park & Ride lot may be located at a hub or it may be at an outlying area and used specifically for car to bus transfers. Park & Ride lots provide convenient parking areas for commuters who drive to the lots and transfer to buses. These lots are generally located in suburban areas and may have amenities such as benches, lighted waiting areas and newspaper racks for their riders. In 2012 there were 52 official, free Park & Ride facilities operating in the OKI region. Numerous benefits are associated with Park & Ride facilities. Cost savings may be one of the most important factors to the commuter, as related to gasoline, parking and other operating costs. The average cost to construct a Park & Ride is estimated to be $500,000.

Figure 10-12: Metro Anderson Center Station Park & Ride

Bus Rapid Transit

Bus rapid transit (BRT) is a term applied to a variety of public transportation systems using buses to provide faster, more efficient service than an ordinary bus line. Often this is achieved by making improvements to existing infrastructure, vehicles and scheduling. The goal of these systems is to approach the service quality of rail transit while still enjoying the cost savings and flexibility of bus transit.

There are three basic forms of BRT operating in the United States: exclusive right-of-way/guideway BRT, bus-only lanes and mixed-traffic/arterial BRT. Although no two systems across the country are alike, BRTs do share several key characteristics including convenient, all day service, few stops which provide for faster travel speeds, special stations with amenities such as ticket kiosks and electronic message signs reporting next arrival information, high capacity, clean and quiet buses, and a unique brand identity.

Figure 10-13: Kansas City Bus Rapid Transit System Source: Tim Reynolds, Parsons and Brinckerhoff, March 6, 2012 Microsoft Powerpoint presentation to OKI Intermodal Coordinating Committee.

Recent studies indicate that BRT has some applicability in the region. The city of Cincinnati and other stakeholders have identified the Montgomery Road corridor for an initial investigation of the details of how BRT could be implemented. Other roadway corridors are included in this fiscally constrained plan for implementation by 2040 (Figure 10-11) along with Transit-Way and Bus-On-Shoulder project recommendations.

Cincinnati Streetcar

The city of Cincinnati has initiated construction of the first phase of construction of a streetcar system that will eventually connect several neighborhoods. The streetcars will be electric rail vehicles that will operate on fixed rails on city streets. Streetcars operate with traffic and circulate within a certain area or district. Streetcars would travel at-grade within the existing right of way mixing with other traffic. Ground breaking for the Cincinnati Streetcar took place in February 2012.

The proposed route for a Phase 1 starter line that is included in this fiscally constrained plan would operate on Main, Twelfth, Henry, Race, Central Parkway, Walnut and Second Street. This route would connect the Banks, Government Square, Fountain Square, Aronoff Center, Contemporary Arts Center, Findlay Market, Washington Park and Music Hall. The Phase 1 starter line provides the base infrastructure for future connections to Uptown, the West End, the East End and Northern Kentucky. The city of Cincinnati is proposing to pay for this phase with a combination of local and federal funding.

Eastern Corridor Oasis Line

In the Eastern Corridor Study, rail transit was one component among a host of strategies recommended to improve mobility and connectivity in eastern Hamilton and western Clermont counties. The rail component of the Eastern Corridor Plan, which makes use of right of way already owned by SORTA (Oasis line), would provide connectivity from the eastern suburbs to downtown Cincinnati. The Eastern Corridor Oasis Line Segments 1, 2, 3, and 4 project, being advanced by the Hamilton County Transportation Improvement District (TID), is currently in the preliminary engineering/draft environmental impact statement (PE/DEIS) phase. Development of innovative funding strategies is underway and could serve as a regional model of how to fund major transit projects in the region.

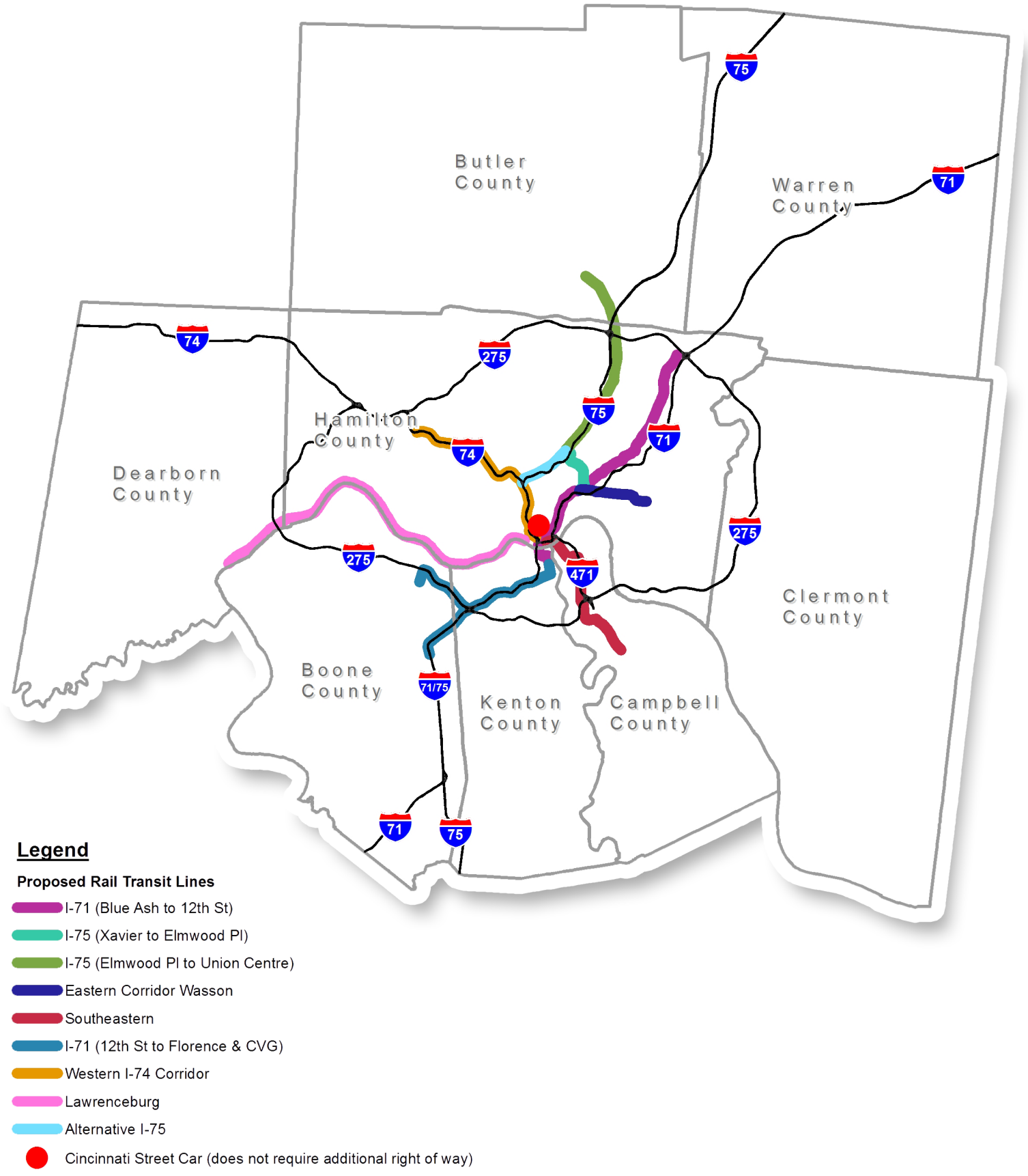
PUBLIC TRANSIT VISION PLAN

A Regional Rail Plan was developed by SORTA with participation by OKI in June 2002. It contains several recommendations for public rail passenger service in the region. This plan supports the recommendations developed in the Regional Rail Plan, however, due to the requirement that this plan be fiscally constrained, OKI cannot recommend the full Regional Rail Plan at this time. Being in the financially constrained portion of the plan means that there is evidence of sufficient funds to cover the cost of the included projects by the year 2040. The remaining rail transit recommendations serve as a vision plan for potential future projects and are not included as part of the fiscally constrained portion of this plan.

As described above, this plan does recommend Phase 1 of the Cincinnati Streetcar and Eastern Corridor Oasis Line Segments 1, 2, 3, and 4; however, no other fixed guideway public transportation facilities are recommended at this time due to the lack of funding. Therefore, other transit lines are included in this plan as part of a Public Transit Vision Plan (Figure 10-14).

By the year 2040, additional public transportation beyond the recommendations included in this plan may become a viable solution to transportation challenges in the OKI region. To maintain the ability to implement the Public Transit Vision Plan in the future, it is recommended that right of ways and infrastructure be preserved for these potential rail transit corridors (Figure 10-14). Some freight rail and roadway corridors are recommended to be preserved within the region. For example, working with the city of Cincinnati, ODOT developed plans to preserve rights of way along I-75 for possible future public transit in the Mill Creek Expressway, Thru-the-Valley and Brent Spence Bridge projects as part of the North/South Transportation Initiative which was completed in 2003. In addition, rights of way are being preserved along I-71, between Victory Parkway and the Central Business District (CBD) for public transit as part of the Uptown Access Project. Another piece of infrastructure that should be preserved is the Cincinnati subway tunnels. The tunnels should be preserved until a final decision is made as to where public transit alignments would occur.

Figure 10-14: Rail Transit Vision Plan and Right of Way Preservation



Each travel corridor varies in terms of traffic patterns, existing transportation facilities, land use, topographic constraints and development trends. The feasibility of developing premium transit must be determined through more intensive studies. Most of the alignments in the Regional Rail Plan have an end point in the CBD. The CBD could therefore serve as a hub for transferring from one rail transit line to another. Together, these alignments would link all eight counties and serve much of the region's most densely developed and heavily traveled corridors.

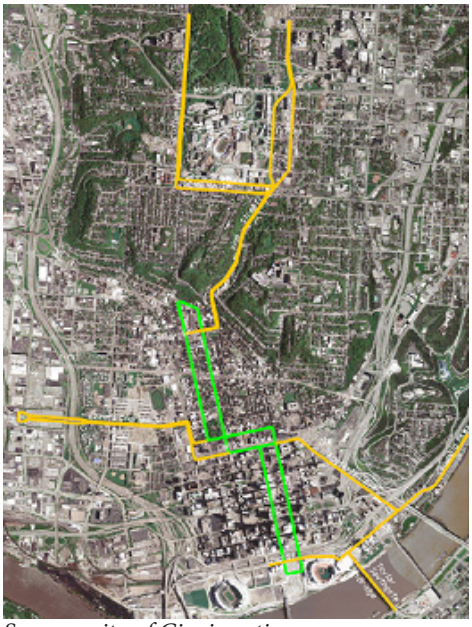
In the course of developing rail fixed guideway transit, bus transit would need to be modified as a supporting and integrated system. Bus routes would be designed to support rail transit. Feeder buses would operate on short length route segments to convey passengers using fixed guideway transit. Express buses would be limited so as not to compete with new fixed guideway transit service.

The text that follows provides a brief summary of each of the corridors included within the Public Transit Vision Plan and for which right of way preservation is recommended.

Bus Rapid Transit (BRT) Future Phases
Several BRT corridors are included in this fiscally constrained plan. It is recommended that regional partners continue this effort through a regional transit study to determine implementation of such a public transportation resource throughout the region.

Cincinnati Streetcar System Future Phases
Other phases of the Cincinnati Streetcar system beyond Phase 1, which is included in the financially constrained portion of this plan, are envisioned by the city of Cincinnati. Additional phases would connect the CBD with Uptown, the Union Terminal Museum Center and Broadway Commons. Like Phase 1, the streetcars of future phases are also intended to be electric rail vehicles that will operate on fixed rails on city streets. Thus, future phases will not require additional right of way for implementation. Figure 10-15 shows the conceptual planning alignments for all phases of the Streetcar System.

Figure 10-15: Proposed Cincinnati Streetcar Alignment



Source: city of Cincinnati

I-71 Public Transit Vision
The I-71 alignment extends between southwestern Warren County and the Cincinnati/Northern Kentucky International Airport in Boone County. The I-71 alignment would provide the foundation for creating a more multimodal regional transportation system. This line would provide a corridor for connecting light rail segments,

commuter rail lines and bus routes. Due to lack of local funding, the project is not on the recommended list of projects for Federal Transit Administration New Starts.

I-75 Public Transit Vision
The I-75 alignment runs parallel to I-75 for much of its length. This potential exclusive guideway extends from Cincinnati north to I-275 and the West Chester/Union Centre Boulevard area.

Lawrenceburg Public Transit Vision
The Lawrenceburg alignment proposes the use of an existing freight rail right of way along the US 50 corridor to connect downtown Cincinnati with Lawrenceburg, Indiana.

Southeastern Public Transit Vision
The Southeastern alignment connects downtown Cincinnati with Northern Kentucky University following the I-471 corridor.

Eastern Corridor Wasson Public Transit Vision
The Wasson alignment provides a connection between the I-71 and eastern alignment. This plan is consistent with the recommendations from the Eastern Corridor Study to preserve the right of way along the existing rail line between Xavier University and the city of Fairfax. This route would include connection to the I-71 transit alignment.

Western Public Transit Vision
The Western alignment proposes a public transit link from downtown Cincinnati to Green Township in western Hamilton County. Due to private development and the lack of remaining freight rail right of way, the alignment for transit is proposed to follow the I-74 corridor.

Ohio Hub Passenger Rail/Midwest Regional Rail
Rail service to Cincinnati and Hamilton, Ohio is currently provided three days per week by Amtrak's Cardinal route, operating between Chicago and Washington, D.C. Like many of its routes, Amtrak uses single level passenger equipment pulled by diesel locomotives for the Cardinal route. The Cincinnati station, located in the Union Terminal Museum Center, provides full service to passengers, including a ticket office and special considerations for the physically disabled. CSX Transportation trackage is used for most of the Cardinal's route between Chicago and Washington, D.C. Included in Amtrak's operating agreement with CSX are provisions for the Cardinal route to be given priority over freight trains. This priority treatment helps maintain an on-time schedule.

SUMMARY
The public transportation service improvements discussed in this chapter will have a dramatic impact on creating transit connections and fulfilling unmet needs. Just as with all transportation modes, funding will continue to be a challenge when implementing public transit improvements. To develop its potential, public transportation service requires the support of new investments. Continuing precedence set in the 2008 update, this plan's prioritization process has considered public transportation improvements on an individual project basis alongside roadway projects. Individual fiscally constrained public transportation project costs and descriptions were identified as a means of facilitating potential funding and implementation throughout the region.

In addition, it is recommended that incentives and policies be created to encourage people to travel by public transportation and foster "transit friendly" land use. The effectiveness of public transportation services is closely related to existing and future land use patterns. This plan continues to work to bring together the issues of land use and transportation planning for the OKI region.

Chapter 11

INTELLIGENT TRANSPORTATION SYSTEMS

INTRODUCTION

Intelligent Transportation Systems (ITS) is the application of electronics, communications or information processing, used singly or in combination, to improve the efficiency or safety of a surface transportation system. ITS can connect vehicles, travelers and highways, helping to improve the travel experience by providing information such as roadway congestion locations, accidents, construction delays, optimum routing, weather conditions, and traveler information. The application of ITS projects can often provide a more cost-effective impact on congestion and safety when compared with roadway expansion.

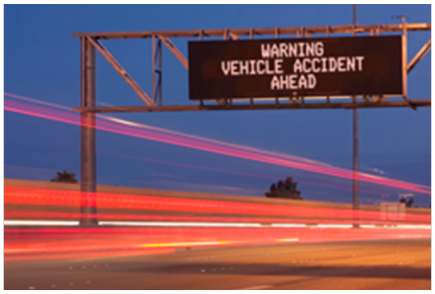
According to the Federal Highway Administration Final Rule (23CFR 940), all federally-funded ITS projects are required to conform to a Regional ITS Architecture that meets all requirements of the National ITS Architecture. ITS and transportation planning must be consistent. OKI's Regional ITS Architecture is contained in the 2012 report, OKI ITS Architecture Update and Strategic Plan (OKI ITS Plan). The ITS Architecture identifies stakeholders and existing ITS elements in the region. It represents a shared vision of how each agency's systems will work together in the future, sharing information and resources to provide a safer, more efficient, and more effective transportation system for travelers in the region. The Strategic Plan lists future ITS projects and estimates the timing of implementation and project cost. OKI's ITS Plan is updated every four years, concurrent with the update of this Regional Transportation Plan. The ITS Plan guides OKI and its member agencies in planning, programming and implementing integrated multi-modal ITS over the next 10 years.

ITS COMPONENTS

An ITS plan is comprised of one or more technology systems depending on a metropolitan area's needs. The OKI ITS Plan documents each stakeholder's current and future roles and responsibilities in the operation of the regional ITS systems across a range of transportation services. There are eight services covered as part of the architecture.

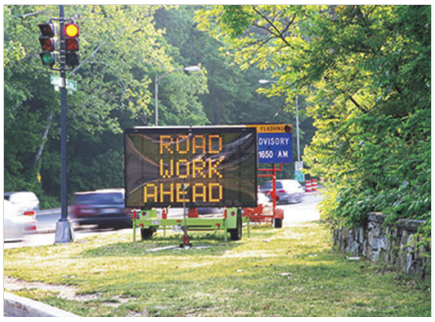
Traffic Management

Traffic management involves arterial and freeway traffic control, traffic monitoring, incident management and the coordination of the roadway system with railroad operations. Incident management is the operation of systems to provide rapid and effective response to traffic incidents including systems to detect and verify incidents, along with coordinated agency response to the incidents.



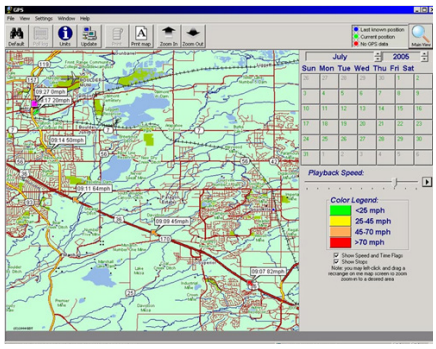
Traveler Information

Traveler information is the operation of systems to provide emergency call taking, public safety dispatch and emergency operations centers. It can also provide travel information to the public via television, radio, internet, mobile device or in-vehicle systems.



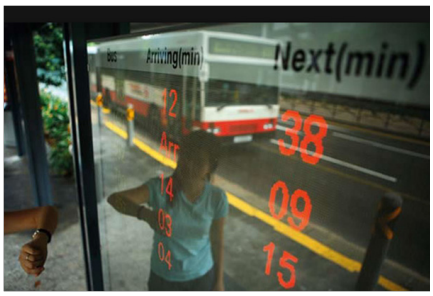
Maintenance and Construction Management

Maintenance and construction management is the operation of systems to manage the maintenance of roadways in the region, including snow and ice clearance. Maintenance and construction management includes the managing of construction operations.



Archived Data Management

Archived data management is the operation of systems to collect transportation data for use in non-operational purposes such as planning and research.



Public Transportation

The use of technology to improve public transportation operations includes electronic fare collection and fare management, as well as real-time transit information.

Emergency Management

Emergency management involves disaster response and recovery.

Archived Data management

Archived data management is utilized for transportation planning and can involve traffic counters as well as speed and travel time data collection.

Commercial Vehicle Operations

Commercial vehicle operations is the development of systems to administer permits, check credentials and safety information, and enforce commercial vehicle regulations throughout the state so as to make it safer to operate a private or commercial vehicle on the state roadways.

EXISTING ITS ELEMENTS

The most extensive system of ITS technologies in the OKI region is the Advanced Regional Traffic Interactive Management and Information System (ARTIMIS). ARTIMIS evolved from OKI's interest in reducing congestion from interstate reconstruction and its potential to optimize freeway system efficiency, improve safety and benefit air quality. ARTIMIS was initiated by OKI's completion of a feasibility study in 1988, followed by a preliminary engineering design in 1991. Through the teamwork of OKI, the Kentucky Transportation Cabinet (KYTC), the Ohio Department of Transportation (ODOT) and local governments, ARTIMIS was designed to provide consolidated traffic management without regard to state and local political boundaries. When it came fully on line in early 1998, ARTIMIS became one of the first ITS in the country to provide seamless freeway traffic management across state borders. Components of ARTIMIS include freeway control, incident management, traveler information and archive data management. ARTIMIS covers 98 miles of the region's freeway system with the heaviest traffic.

In 2012, the downtown Cincinnati ARTIMIS traffic control center is scheduled to close. The functions of ARTIMIS will be relocated to ODOT's "Buckeye Traffic" control center located in Columbus, Ohio. The control center is the point from which traveler information is disseminated and traffic is managed. Traffic controllers will continue to receive local traffic conditions from existing pavement sensors, monitoring stations and traffic cameras. KYTC will continue to partner with ODOT to fund operation of the control center and maintain all existing ARTIMIS services to Boone, Campbell and Kenton counties.

ARTIMIS expedites the relay of information on incident occurrence, cause and location to those involved in emergency response such as 911 dispatchers, police and fire departments, paramedics, towing services, and emergency management services. To further expedite incident response and removal, the incident response program includes a freeway service patrol that provides gas, minor repairs or other assistance to disabled vehicles.

ARTIMIS provides traveler information on up to the minute traffic problems through a combination of changeable message signs strategically located throughout the system, a highway advisory radio frequency, the Buckeye Traffic web site (www.buckeyetraffic.org) and a traveler advisory "511" telephone service that can be accessed anywhere in the region.

In addition to ARTIMIS, several other ITS technologies are already in place in the region. These include the city of Cincinnati's traffic control center, automated public transit vehicle location systems and advanced fare boxes, the city of Cincinnati/Hamilton County Regional Operations Center which coordinates special event monitoring and disaster response, and ramp metering on I-74 in Hamilton County. Clermont County's ITS and traffic operations center is scheduled to begin in 2014.

RECOMMENDATIONS FOR ITS

As freeway traffic continues to increase, ITS infrastructure will become increasingly important for reducing congestion and maximizing the efficiency of the transportation system. As part of OKI's ITS Plan, a list of needed ITS projects with estimated costs was compiled through several stakeholder interviews and workshops. Figure 11-1 lists several key projects. The estimated cost of these key ITS projects is nearly $16 million. Additional needed ITS projects can be found in the OKI ITS Plan.

Figure 11-1: Key ITS Projects

Project	Cost
Traveler information for Cincinnati parking facilities – Variable Message Sign, mobile or on-board notifications	$1,250,000
Transit Automated Vehicle Locator system	$450,000
Work zone safety improvements	$75,000
I-75 and I-471 ramp metering	$6,000,000
Bus signal priority along key transit corridors	$800,000
Emergency vehicle signal priority	$800,000
Increase service patrols	$1,600,000
Transit vehicle updates including electronic fare boxes and real-time passenger count	$3,000,000
Additional ARTIMIS message signs (I-74, I-275 and SR 32)	$1,650,000

Source: 2012 OKI ITS Architecture Update and Strategic Plan.

The total cost for all needed ITS projects in the region is about $102 million (Figure 11-2). Further study is needed to address such issues as specific infrastructure needs, phasing, deployment procedures and more refined cost estimates. Operating and maintenance costs for the needed ITS projects are estimated at $5 million per year. This 2040 Regional Transportation Plan recommends reserving nearly $64 million for ITS projects. Any ITS project that conforms to the OKI ITS Plan and meets fiscal and air quality constraint requirements of this 2040 Regional Transportation Plan may be eligible for federal funding.

Figure 11-2: Total Cost Estimates for ITS Projects (includes operation and maintenance)

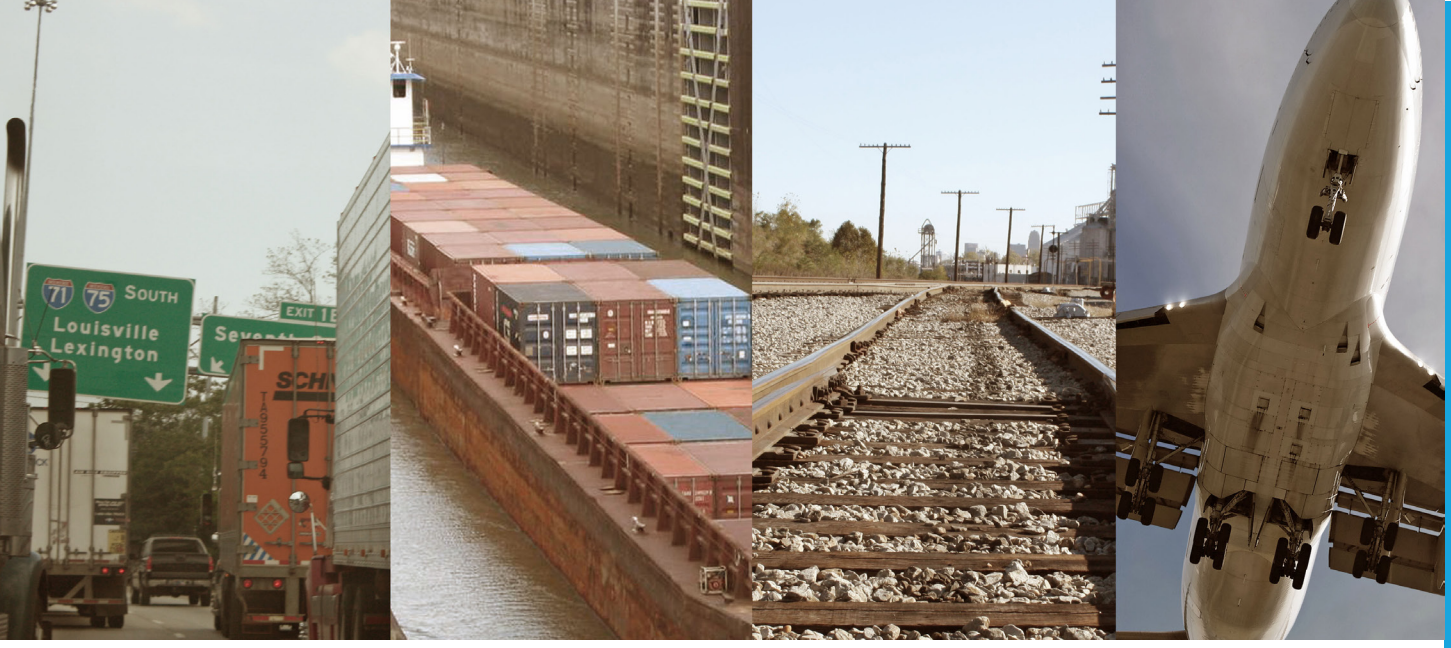
Identification Number	County	Project Name	Description	Recommended Cost Estimate	Needs Cost Estimate
109	Butler, Clermont, Hamilton, Warren	Ohio ITS Projects	Implement OKI ITS Plan recommendations in Ohio	$46,500,000	$79,610,000
522	Boone, Campbell, Kenton	Kentucky ITS Projects	Implement OKI ITS Plan recommendations in Kentucky	$15,640,000	$19,423,000
805	Dearborn	I-74 Eastbound ARTIMIS Message Sign	Construct large, dynamic, truss-mounted message sign to alert traffic approaching I-275 before the SR 1 interchange of congestion/safety emergencies and alternate routes	$550,000	n/a

Identification Number	County	Project Name	Description	Recommended Cost Estimate	Needs Cost Estimate
809	Dearborn	Indiana ITS Projects	Implement OKI ITS Plan recommendations in Indiana	$1,600,000	$3,000,000

Source: 2012 OKI ITS Architecture Update and Strategic Plan.

SUMMARY

The optimization and expansion of ITS is an important strategy for managing congestion, while improving safety and security of the region's transportation network. Rapid advances in technology will continue to alter the ITS tools available and the OKI region will realize more efficient transportation investments with the deployment of these technologies.



INTRODUCTION

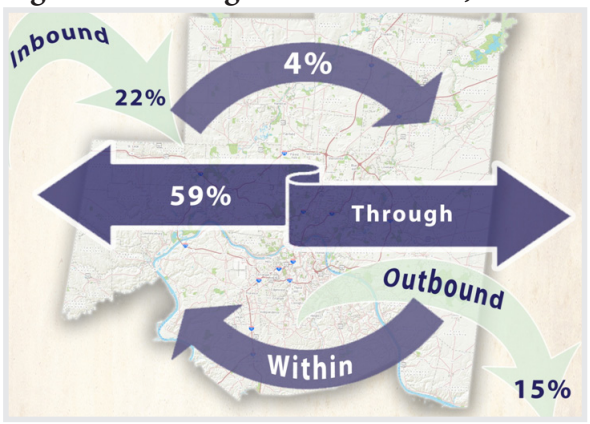
The OKI region is a major link in America's freight transportation network. More than 323 million tons of freight flow into, out of and through the region annually. About one-third of this freight is inbound, destined for major businesses in the region such as General Electric, AK Steel, Toyota, and Schwan Food Company. For these and hundreds of other businesses, transportation is their lifeblood. Fortunately from an economic development standpoint, the OKI region provides a powerful nexus for truck, rail, barge, and air transportation.

More than 80 percent of the region's freight moves by truck, so major highways and local roads are vital to regional commerce. Interstate 75, running north-south through the region, is one of the heaviest truck corridors in America.

The region is also home to major railroad facilities including three intermodal terminals, three train classification yards and numerous industrial sidings. Together, the region's three railroad companies handle almost 100 trains per day.

Barge terminals are critical to the region's heavy industries. While just 10 percent of the region's freight moves by barge, its low cost is essential to shipping bulk commodities such as chemical products for DuPont and scrap metal for AK Steel.

Figure 12-1: Freight Volume Flows, 2009



For time sensitive cargo, the Cincinnati/ Northern Kentucky International Airport (CVG) offers service from major parcel carriers such as FedEx and also serves as the North American hub for DHL. The DHL hub at CVG employs more than 1,800 people and total freight has increased 190 percent since 2009.

OKI Regional Freight Plan

For many years, transportation planning has focused on moving people by automobile or public transit. Now, attention is turning to freight transportation and the importance of freight mobility to economic activity. OKI, recognizing the link between freight mobility and economic development, completed the OKI Regional Freight Plan in August 2011 to understand industry trends, forecast freight demand, and identify projects that maintain freight mobility and spur business growth.

Figure 12-2 : OKI Regional Freight Plan Logo

The OKI Regional Freight Plan identifies public and private stakeholders, as well as existing freight elements in the region. It represents a shared vision of how each freight mode will need to work together in the future to provide a safer, more efficient, and more effective transportation system for moving goods into, out of and through region. The Freight Plan lists projects and estimates the timing of implementation and project cost. OKI's Freight Plan will be updated periodically to remain a valuable companion resource to this Regional Transportation Plan. The Freight Plan guides OKI and its member agencies in planning, programming and implementing integrated multi-modal freight improvements over the next 30 years.

Regional Freight Trends

Freight systems are global. In the past, connection to railroads or highways ensured the prosperity of a region. Today, regional economies depend on their connections with global supply chains. Shippers are concerned with their total distribution cost, from supplier to consumer. Even modest changes in the cost of distribution can have dramatic impacts on manufacturing sources and the modes of transportation used by businesses. As a result, transportation planners must consider how freight is moving through the system, and how freight carriers—ocean carriers, ports, railroads, and trucking companies—are adjusting their networks to serve global supply chain developments. The OKI Regional Freight Plan evaluated three significant supply chain dynamics of this decade:

Figure 12-3: Panama Canal

The expansion of the **Panama Canal** is set for completion in 2014, which will allow larger container vessels to transit the canal and its lock system. As a result, Asian imports to America can route around West Coast Ports, directly serving southern and eastern U.S. ports.

Figure 12-4: Norfolk Southern Railroad Heartland Corridor

The Norfolk Southern (NS) Railroad's Heartland Corridor, which has opened double stack container train service from Norfolk, Virginia, through Columbus, Ohio and on to Chicago, Illinois. The double stack service could be a boon to shippers in the Midwest and OKI has taken advantage of the opportunity by providing funding for double stack clearance on the NS line from Columbus to Sharonville.

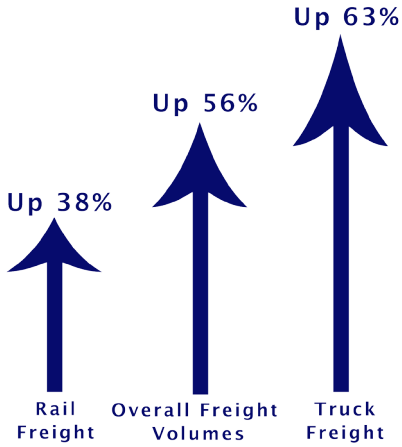
Figure 12-5: CSX National Gateway Program

The CSX National Gateway Program, which is building similar double stack clearance from East Coast ports into the Midwest. Significantly, CSX has included a major container hub-and-spoke operation in Northwest Ohio, which could improve rail service and shipping rates into the OKI market.

Due to changes in the global supply chain, brought on in part by these major transportation developments, overall freight volumes in the OKI region are forecasted to increase 56 percent by 2040—from 323 million tons in 2009 to 487 million tons in 2040. Truck traffic is forecasted to increase from 9.8 million loaded trucks in 2009 to 16 million loaded trucks by 2040—a 63 percent increase over 30 years. Rail traffic is estimated to increase from approximately 33,000 trains per year in 2009 to 45,000 trains per year in 2040. This will increase trains in the region from 90 to 130 per day by 2040.

In a region with highway and railroad congestion, this growth in freight volume will strain transportation capacity. The biggest concern for OKI is to maintain or improve freight mobility so that businesses can continue to benefit from an efficient transportation system.

Figure 12-6: Freight Volume Growth 2009 to 2040



REGIONAL FREIGHT TRANSPORTATION ASSETS

The OKI region has a number of geographic and transportation advantages, which make it attractive from a business logistics standpoint. Geographically, regional businesses are able to serve about 60 percent of the North American market by one day's truck drive.

Along with this geographical advantage that few other regions can match, the region adds the synergy of four transportation modes: air, water, rail and highway. Focusing on railroads, the region boasts two large carriers and one regional railroad, providing good service and competitive rates. In addition, there are relatively few air cargo hubs in the Midwest, which makes DHL a competitive advantage for the OKI region and an economic driver in and of itself.

REGIONAL FREIGHT TRANSPORTATION DEFICIENCIES

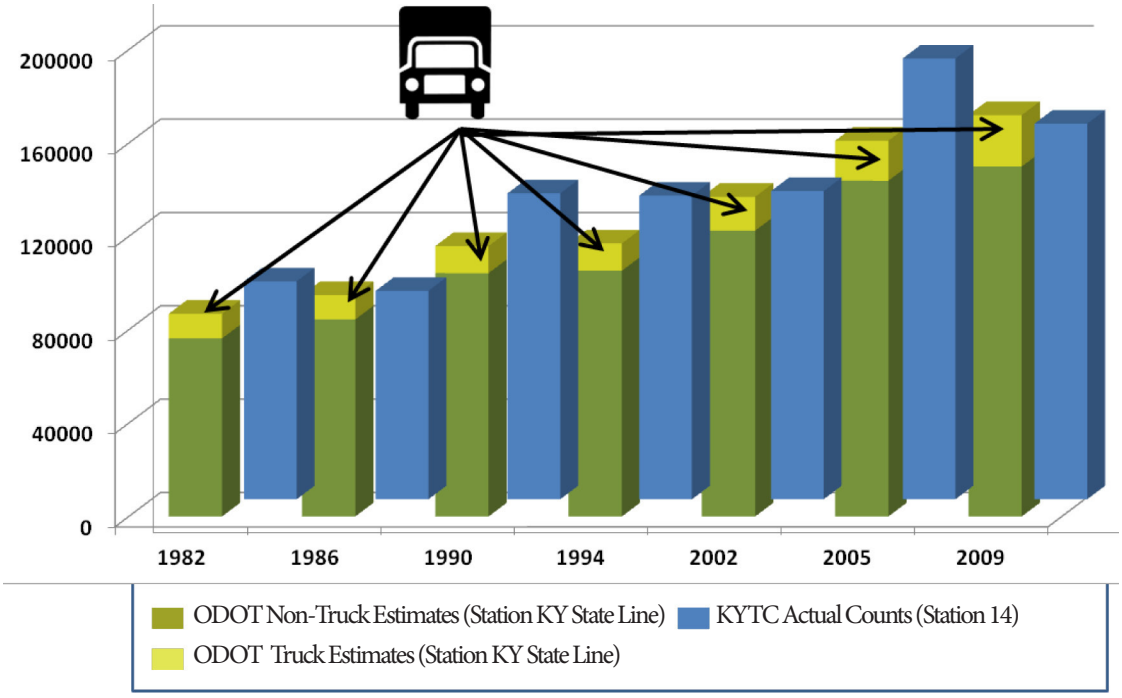
While the regional freight assets are strong, there are significant deficiencies that can impact freight mobility now and in the future.

Figure 12-7: Mill Creek Valley Railroad Congestion

Railroad Congestion

CSX, NS, and RailAmerica share three main lines through the Mill Creek Valley which are currently near capacity. With regional railroad traffic forecasted to increase 38 percent, bottlenecks in the rail corridor will further erode rail freight mobility. If rail service quality degrades, freight traffic could shift to the highway system, which would increase congestion and negatively impact safety and air quality. Even worse, a degradation of rail service could cause shippers—regional businesses—to move to areas with more reliable rail service.

Figure 12-8: Brent Spence Bridge Congestion



Highway Freight Capacity

While the OKI highway system is relatively good in terms of congestion, there are critical links in the system that dramatically impact freight mobility. Most notable is the Brent Spence Bridge, which carries I-71/75 across the Ohio River. From a freight standpoint, the OKI region would cease to function if the Brent Spence Bridge fails. While freight traffic can now back up many miles because of congestion on the bridge, a failure of the structure would be catastrophic, causing truck freight to gridlock, or to bypass the region altogether. Inability to serve freight traffic would have deleterious effects on business, employment, and regional income.

It is important to note the interplay between railroad and highway freight congestion in the region. Key rail freight corridors are nearly at capacity now and will certainly be overcapacity when rail volume increases 38 percent as forecasted. It is most likely that trucks would carry the burden of any rail freight overflow, which would make congestion on the Brent Spence Bridge and other regional freeways even worse.

This situation provides a perfect illustration of the interdependence among different modes of freight transportation and the need to think comprehensively in developing freight transportation strategies and projects.

While the Mill Creek Valley railroad bottlenecks and the Brent Spence Bridge are the greatest regional freight concerns, there are a number of other freight deficiencies that require attention to ensure mobility over the next 30 years. These include:

- Truck congestion on interstate routes, including I-75 (Thru the Valley and Mill Creek Expressway) and I-471
- Truck congestion on a number of local roads, which provide the "last mile" of freight mobility to and from customer locations
- Overweight trucks and the damage inflicted on the highway system
- NS Sharon Yard (Sharonville), where rail operations routinely block Reading Road
- Safety of at-grade highway-rail crossings
- Developing regional barge terminals to their full potential
- Capitalizing on the air freight assets of CVG for regional economic development

Regional freight deficiencies are addressed comprehensively in the OKI Regional Freight Plan with recommendations for policy actions and capital investments. Countless other freight improvements which address freight deficiencies referred to in the Freight Plan were not specifically listed in this Regional Transportation Plan due to their classification as projects of Operations and Maintenance (O&M) which tend to be lower in cost and are intended to improve or preserve the condition of existing freight infrastructure, including deficient railroad track, deficient bridges, or highway pavement heavily distressed by truck traffic.

MEETING THE REGION'S FUTURE FREIGHT NEEDS

The OKI Freight Plan recommendations will work to remedy freight deficiencies to keep the region competitive in the future and build on the region's freight transportation assets as a driver of economic development. In evaluating the potential freight project recommendations, OKI sought to establish a common link between freight goals and the regional transportation goals that were discussed in Chapter 1. All recommendations were evaluated to contribute to one or more of the following five freight-related goals:

- Mobility and Intermodal Connectivity – Projects that improve freight mobility by reducing congestion or developing better connections between modes of transportation in the region.
- Economic Vitality – Projects that promote economic development by providing freight connections for new and expanded businesses or lowering shipping costs for businesses in the region.
- Environment and Public Health – Projects that improve air quality or reduce energy consumption and consider existing and future land use.
- Safety and Security – Projects that improve safety (such as those that address high crash rates), projects that reduce hazards (such as a railroad grade separation), and projects that address freight system security, including hazardous material spills, and natural or human disasters.
- System Preservation and Condition – Projects that improve or preserve the condition of existing freight infrastructure, including deficient railroad track, deficient bridges, or highway pavement heavily distressed by truck traffic.

The OKI Regional Freight Plan contains a total of 58 recommendations to address regional freight deficiencies, now and in the future. Each recommendation contains a cost estimate and priority ranking. The Freight Plan also makes 12 high priority freight recommendations for the region for which the total estimated cost in current year dollars is $3,085,053,000. Of this total, 74 percent represents the cost of the Brent Spence Bridge replacement project.

Three of the top twelve Freight Plan priority recommendations are policy related and thus included in greater detail in Chapter 8's recommendations for further study.

- Activate the "Port" in the Port of Greater Cincinnati Development Authority.
- East Sharon Road Study and Improvement.
- Regional Public-Private Freight Rail Partnership.

Not all of the Regional Freight Plan recommendations are specifically listed in this 2012 update of the 2040 Regional Transportation Plan. Recommendations from the OKI Regional Freight Plan were evaluated alongside over 600 other multi-modal projects in the process of updating this plan. Because of limited resources, two freight-only specific projects are identified in this Plan (noted by blue shading in Figure 12-9). Several other recommendations from the Freight Plan are also included, however they are classified as roadway, public transportation or Intelligent Transportation Improvement (ITS) project types.

Figure 12-9: Fiscally-Constrained Freight and Freight-Related Roadway Improvements

Identification Number	County	Project Type*	Facility Name	Location	Description	Cost Estimate (year of construction)
103	Butler	Roadway	South Hamilton Crossing	Connect SR 4 with University Blvd	Replace with railroad grade separation	$19,00,0000
202, 203, 204, 205	Clermont	Roadway	Eastern Corridor projects	See Chapter 9	See Chapter 9	$420,480,000
301, 701	Hamilton, Kenton	Roadway	Brent Spence Bridge	I-71/75 over Ohio River	Reconstruct existing and add new bridge	$2,765,322,220
302, 330	Hamilton	Roadway	Eastern Corridor projects	See Chapter 9	See Chapter 9	$1,011,353,500
303, 304, 305, 306, 307	Hamilton	Roadway	I-75 Mill Creek Expressway projects	See Chapter 9	See Chapter 9	$764,530,000
310	Hamilton	Roadway	Reading Rd Grade Separation, Sharonville	Norfolk Southern Railroad (NS) Reading Rd Crossing	Replace with railroad grade separation	$39,100,000
312, 313, 314, 315, 316, 331	Hamilton	Roadway	I-75 Thru the Valley projects	See Chapter 9	Chapter 9	$630,390,000
319	Hamilton	Public Trans-portation	Acquisition of Abandoned Railroad Right of Way (ROW)	NS ROW from Bond Hill and Idlewild railroad junction	Purchase and preservation of rail ROW for future transit	$2,380,000
322	Hamilton	Freight	Hopple Street Passing Track and Crossovers	CSX Queensgate and NS Gest Street yards	Provide additional horizontal clearance, 1000' of track, and construct crossovers or connecting track	$15,640,000
601	Campbell	Roadway	I-471	I-275 to Ohio State Line	Widen to four lanes	$21,790,000
805	Dearborn	Intelligent Transportation Systems (ITS)	ARTIMIS Message Sign	Eastbound I-74	Construct large, dynamic, truss-mounted message sign	$550,000
810	Dearborn	Freight	Alternative Fuel Stations for Truck Fleets	Located on high truck-traffic roadways	Construct commercial compressed and/or liquid natural gas fueling stations	$590,000

**Project Type: Find Roadway projects listed in Chapter 9, Public Transportation in Chapter 10, and ITS in Chapter 11.*

THE ECONOMIC FUTURE

The OKI Regional Freight Plan is more than a list of projects. It provides a blueprint for improving freight mobility, including the formation of critical public-private partnerships to address railroad and barge transportation challenges. OKI has also identified actions to implement freight plan recommendations, and keep current on future freight trends in order to adjust strategies and address unforeseen changes in global supply chains.

Ultimately, the success of the regional freight plan will depend on the partnerships and collaboration of the public and private sectors. Railroads, trucking interests, barge terminals and air cargo carriers will need to collaborate to address the transportation challenges facing OKI over the next 30 years. While collaboration is the most important ingredient for successful implementation, progress can be measured by the economic vitality of regional businesses, which depend so greatly on the adequacy of the freight network.

Chapter 13

BICYCLE PEDESTRIAN & TRAILS

INTRODUCTION

Within the framework of regional multimodal transportation, bicycling and walking provide alternatives for single-occupant vehicle (SOV) travel and a means of connecting with transit. Whether they replace motor vehicle travel or support transit use, bicycle and pedestrian trips help reduce congestion, fuel consumption, and vehicle emissions. The use of non-motorized modes is especially valuable for replacing short distance auto trips, which have the highest rate of emissions. In addition to transportation and environmental benefits, these modes also contribute to personal health and quality of life. Due to the significance of these modes, OKI has developed the 2008 OKI Regional Bicycle Plan and the 2004 OKI Regional Pedestrian Plan.

At a national level, surveys consistently indicate that non-motorized modes would be used more frequently for commuting and other trip purposes, both by those who use these modes now and those who do not, if facilities were more widely available for safe travel. Nationally, bicycling and walking account for 11.4% of all trips (1.0% bike and 10.4% walk) according to the 2009 National Household Transportation Survey, compared with 83% motor vehicle (excluding transit). While this proportion is small, it should be noted that commuters walk to and from their autos and transit. The potential for greater use of these modes is indicated by the growth of both on road and off road cycling, and community support as expressed at the public information meetings for this plan and the public visioning forums for the Strategic Regional Policy Plan (SRPP). To increase the viability of biking and walking as travel modes, changes are needed in the way that transportation facilities are planned, funded and built, and in the way that communities are developed.

While bicycling and walking are addressed together as human powered or "active" modes of travel, they do not necessarily share facilities. Bicycles, as vehicles, are best accommodated in the street with other vehicular traffic and are subject to the same rules of the road as motorists. This optimizes their visibility, although cyclists may be accommodated with additional road space to reduce conflicts caused by the differences in speed. Bicyclists are often prohibited by law from using sidewalks and can be a hazard to pedestrians due to the speed differential. Pedestrians are best accommodated with sidewalks placed next to the roadway. As street widths and the percentage of elderly persons have increased, the need for special street crossing treatments has become more critical. Where bicycle and pedestrian travel is combined, as on shared use paths or trails, guidelines call for additional space, a minimum of 10 feet.

BICYCLING AND BICYCLE FACILITIES

Bicycling occurs year round in the tri-state. Bicycle trips for transportation purposes, including commuting to and from work, average four miles in length. The estimated bicycle commuter rate from the 2009 Census American Community Survey for the City of Cincinnati was 0.60% compared to 0.55% for the nation. Recreational or touring bicycle day trips can be 100 miles or more in length. Organized ride events may attract several hundred cyclists. OKI's bike route guides include roads and trails used and recommended by area bicyclists. These bike maps, developed with the active involvement of area bicyclists, are available for the city of Cincinnati; the four Ohio counties (Butler, Clermont, Hamilton and Warren); and three northern Kentucky counties (Boone, Campbell and Kenton).

There are two major categories of bicycle facilities: on road facilities and separate facilities. Since the existing roadway network can be used by bicyclists to travel to almost any destination in and out of the region, on road facilities are the primary facility for the purpose of bicycle transportation planning. Separate facilities, such as trails or shared use paths, are designed and designated exclusively for bicycles and other non-motorized uses. Trails and greenways typically serve both recreation and transportation purposes.

On Road Bicycle Facilities

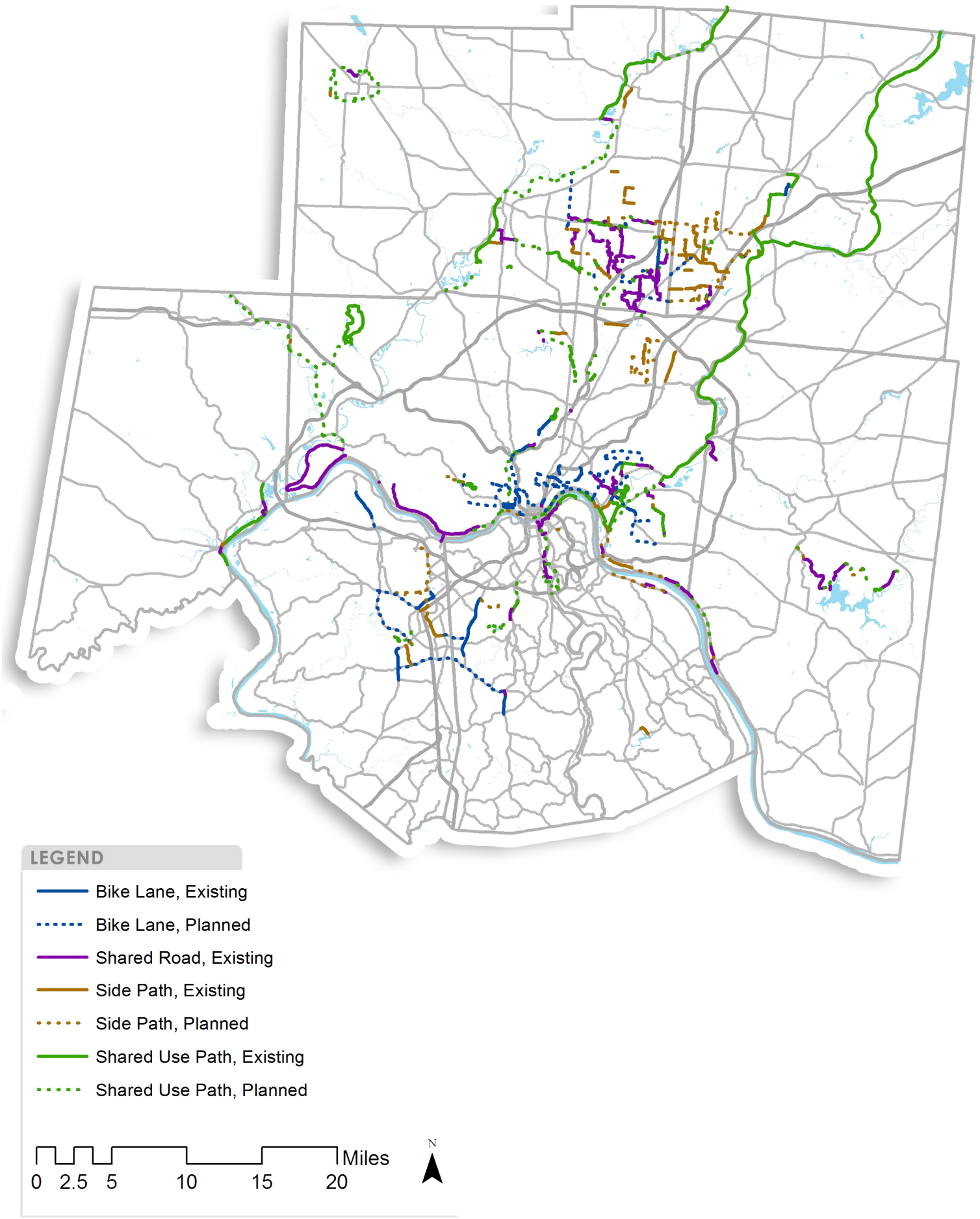
On road facilities include all roadways, bridges and viaducts in the region, except those that specifically prohibit bicycles such as interstates and freeways. On such roads, bicycles and motor vehicles share either a standard lane of 10 to 12 feet or a wide outside lane of 14 feet. These facilities require bicyclists and drivers of motor vehicles to interact together on the roadway including intersections and driveway locations. As bicycles are included in the definition of vehicles under state laws, cyclists are entitled to use the roads and must comply with appropriate traffic laws. On road facilities are critical to bicyclists because they provide access throughout the region (Figures 13-1 and 13-2).

Figure 13-1: Summary of Existing Regional On Street Bicycle Facilities*

	Striped Bike Lanes	Wide Curb Lanes	Side Paths	Signed Routes
Butler	2.1	8.9	10.0	1.5
Clermont	0.0	0.0	2.0	4.5
Hamilton	8.8	5.0	7.8	21.8
Warren	0.8	0.0	14.7	0.0
Boone	5.9	0.0	4.3	0.0
Campbell	0.0	0.0	0.8	0.0
Kenton	8.2	0.0	0.0	0.0
Dearborn	0.0	0.0	0.4	0.0
TOTAL	**25.8**	**13.9**	**39.2**	**27.8**

**Length in miles.*

Figure 13-2: Regional Bicycle Existing and Planned Facilities



For most local streets with speed limits of 35 mph or less and average daily traffic of 2,000 vehicles per day or less, shared 12 foot lanes for motorists and cyclists are sufficient. On road improvements for cyclists on collector or arterial streets may include wide outside lanes, striped bike lanes and paved shoulders. Wide outside lanes provide additional space to the standard 12 foot travel lane for a minimum of 14 feet or more if the posted speeds are higher than 35 mph. They are generally used where there is no on street parking. A standard striped bike lane is five feet wide not including curb and gutter or drainage grates and located on both sides of the road for the preferential use of bicycles. Bike lanes are generally found in urban areas. Paved shoulders, varying in width from four to 10 feet, are generally found in rural areas. The Kentucky Transportation Cabinet adopted new policies in 2002 for accommodating cyclists in future roadway construction projects. Two examples of new bike lanes are the KY 237 relocation at Hebron in Boone County (Figure 13-3) and Turkeyfoot Road (KY 1303) reconstruction at Edgewood and Erlanger in Kenton County. Paved shoulders have been included on the KY 20 relocation at the Cincinnati/Northern Kentucky International Airport and on New Haven Road at New Baltimore in Hamilton County.

Figure 13-3: Bike Lane KY 237 in Hebron, Kentucky

Bridges and Viaducts

Rivers, hills, railroads and interstate highways create potential barriers for bicyclists traveling in and through the OKI region. Bicycle access to bridges and viaducts is an important part of the on road system. Reconstruction or replacement of several bridges of importance to bicyclists have been completed or are underway. In most cases, replacement bridges have wide shoulders for bicycle travel as well as 4-foot-6-inch railings which are the minimum height for bicyclist safety. In some cases there are, or will be, sidewalks for pedestrians.

Ridership

Regional on road bicycle use data is extremely limited. If cycling participation rates from the 2002 National Survey of Pedestrian and Bicyclist Attitudes are applied to the regional population for persons over 16, there are an estimated 413,000 riders across the region. The 900 member Cincinnati Cycle Club holds over 100 scheduled group rides each month throughout the region which are 20 to 100 miles in length and primarily use public roads. As an indication of per rider bicycle potential, active club riders will average 3,000 to 4,000 recreational miles per year. Cycle club members also record a combined annual average of 50,000 miles of commuter cycling from

reporting members or an average of 1,200 miles for each person reporting. A survey of 180 cyclists for the May 2007 Cincinnati Bike to Work Week found that 76 percent reported biking for recreational purposes and 25 percent also commuted to work. Seventy percent of those surveyed cycle mainly on streets and 25 percent on separate trails. As part of the 2010 Cincinnati Bicycle Transportation Plan, a survey on perceived cycling conditions was taken with 600 responses. The greatest deterrents to cycling were "not enough bike lanes" at 61 percent, and "unsafe/unlawful motorist behavior" at 52 percent. Overall, in the report card format, 82 percent of the respondents graded the city as "C" or worse for cycling. Respondents classified themselves as 52 percent "skilled", 38 percent "intermediate" and 10 percent "novice".

Separate Facilities (Shared Use Paths)

Separate facilities refer to trails, or shared use paths, that are separate from the road on their own right of way and provided for the exclusive use of bicyclists, walkers, joggers, rollerbladers, wheelchair users, and other non-motorized modes. Shared use paths are 10 to 12 feet in width with two foot shoulders or clear space on each side. These facilities are most useful for travel demand on a localized basis, such as connecting with schools or shopping areas. Where linear right of ways exist, such as railroads, canals, utilities and stream conservancy easements, opportunities may exist for long distance shared use paths. While existing path facilities in the OKI region, such as the Little Miami Scenic Trail, are primarily used for recreation, their value for utilitarian trips may grow as they penetrate urban areas such as the Great Miami River Trail in Hamilton, Middletown, and Dayton (Figure 13-4).

Figure 13-4: Little Miami Scenic Trail

A multi-purpose, Regional Trails System is being developed in the OKI region (Figure 13-5). The proposed shared use path system is comprised of many projects that have been initiated by local or regional groups that are working toward their implementation.

Figure 13-5: Proposed Regional Trail System

County and Trail Name	Existing Miles	Planned Miles	Total Miles	Cost Estimate (in year of construction $Millions)
BUTLER	16	51	67	25.3
Great Miami Trail	11	17	28	7.2
Miami 2 Miami Connection	5	24	29	10.2
Oxford Perimeter Trail	0	10	10	7.9
CLERMONT	6	20	26	7.6
Little Miami Scenic Trail	6	0	6	---
Williamsburg-Batavia Trail	0	14	14	4.0
Ohio River Trail	0	6	6	3.6
HAMILTON	19	43	62	42.9
Little Miami Scenic Trail	12	4	16	10.8
Ohio River Trail	4	10	14	19.1
Mill Creek Greenway	2	15	17	7.1
West Fork Mill Creek Greenway	1	2	3	1.5
Whitewater Canal Trail	0	12	12	4.4
WARREN	47	13	60	5.9
Great Miami Trail	5	0	5	----
Miami 2 Miami Connection	1	13	14	5.9
Little Miami Scenic Trail	33	0	33	---
Lebanon Connection	8	0	8	---
BOONE	1	15	16	6.4
Northern Kentucky Rt 8 River Path	0	11	11	5.2
Gunpowder Creek Trail	1	4	5	1.2
CAMPBELL	0	26	26	12.4
Northern Kentucky Rt 8 River Path	0	26	26	12.4
KENTON	1	22	23	10.2
Northern Kentucky Rt 8 River Path	0	8	8	4.7
Banklick Creek Trail	1	7	8	2.1
Licking River Trail	0	7	7	3.4
DEARBORN	5	2	7	1.8
Aurora-Lawrenceburg Trail	5	2	7	1.8
OKI REGION	**95**	**192**	**287**	**112.5**

Trail development has progressed significantly in recent years. Connections have been made from Lebanon to the Little Miami Scenic Trail and Dayton's Great Miami River Trail has been extended through Franklin with separate sections in Middletown and Hamilton. Freestanding sections of Five Mile Trail and the Ohio River Trail have been built which will eventually connect to the regional network (Figure 13-6).

Figure 13-6: Five Mile Trail in Anderson Township

Sidepaths

A sidepath is a variation of the separate shared use path that is provided within the road's right of way, usually on one side. Sidepaths may work where intersections are infrequent and where children are being accommodated. As for paths constructed on their own right of way, guidelines for sidepaths call for a minimum of 10 foot pavement width to accommodate two way bicycle and pedestrian traffic. In addition, five feet of separation from the roadway or a barrier is required (Figure 13-7). Generally, in street facilities, striped lanes or wide curb lanes are preferred for cycling over sidepaths to improve visibility of the cyclists and reduce turning conflicts.

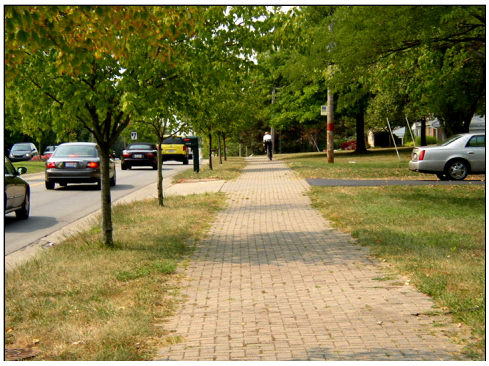


Figure 13-7: Sidepath Facility on Montgomery Road in Montgomery

Bicycles, Transit And Parking

Merging bicycle travel with transit services further enhances the potential of both modes of travel. Nationally, more than 500 transit companies have implemented bike racks on buses. Other forms of accommodation include bike parking facilities at transit stops and Park & Ride lots. In the OKI region, two Park & Ride locations have bike lockers for long-term parking. Anderson Township has four bike lockers at the transit center adjacent to the Anderson Town Center near the Five Mile and Beechmont Road intersection. The Park & Ride near the intersection of Winton and Kemper roads in Forest Park has four bike banks for

Figure 13-8: Bike Lane Facility on Madison Road in Cincinnati

long-term parking. A bike bank secures the frame and both wheels of the bike with the user's lock and has a compartment for a helmet. Cincinnati has added bike bank racks at two downtown parking garages and wall-mounted bike racks in the Fountain Square garage. In 2011, Cincinnati also replaced car parking spaces with bike corrals in two locations. During 2006, OKI carried out a bicycle parking program in which 88 bike racks and two bike lockers with a capacity for 92 bicycles were provided for public buildings, schools, and offices to encourage bicycle commuting to work and school. In 2002, the Southwest Ohio Regional Transit Authority installed front mounted bike racks on their entire fleet of Metro coaches using Congestion Mitigation and Air Quality funding through OKI. The Transit Authority of Northern Kentucky added bike racks to its fleet of 100 buses in 2005 and also provides for bicycle parking at its park and ride lots. Both transit services permit folding bikes on their buses.

PEDESTRIAN FACILITIES

The 2009 National Household Travel Survey reported walking as the second most used mode for all trips (10 percent), after privately operated vehicles which comprise 84 percent of travel. Forty-three percent of walking trips were made for the purposes of shopping, personal errands, visiting friends and recreation. While walking was the primary mode for only two percent of the OKI region's work trips, it is a component of nearly all trips as persons walk to and from cars, buses and bikes. Beginning with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and continuing with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU) of 2005, federal funding programs, the Clean Air Act Amendments and the Americans with Disabilities Act, increased attention is being given to pedestrian travel. Among the reasons for this are the need to eliminate injuries and fatalities caused by pedestrian and auto crashes and the need to reduce congestion and motor vehicle emissions for short trips.

ONGOING BICYCLE AND PEDESTRIAN PLANNING

Transportation planning under ISTEA and SAFETEA-LU has undertaken a broader multimodal scope to better accommodate bicycle and pedestrian travel that is vital to urban mobility in its reduction of congestion and positive impact on air quality. Since 1993, OKI has devoted resources towards the development of regional bicycle and pedestrian plans.

The 2008 OKI Regional Bicycle Plan update contains information about transportation needs for the region along with extensive recommendations for improving the safety and utilization of bicycle travel and for integrating bicycle facilities into the planning and development of the regional multimodal transportation network.

The updated 2004 Regional Pedestrian Plan distinguishes between the functional activities of OKI as a regional planning agency and those of the administrative functions of member local jurisdictions. In effect, the planning, programming, implementation, and maintenance of pedestrian facilities happen at the local level.

Both plans also address the connection of land use to effective bicycle and pedestrian travel. The work of the OKI Land Use Commission is acknowledged by reference to the public support for alternative modes to automobile travel. Specifically, bicycling and walking were identified as priorities in the series of public visioning workshops

and the completed SRPP document adopted in 2005.

The requirements for addressing bicycle and pedestrian travel are set forth in the federal SAFETEA-LU transportation regulations and related guidelines for metropolitan planning organizations. The text that follows includes recommendations for bicycle and pedestrian improvements that have been excerpted from the OKI regional bike and pedestrian plans and the SRPP.

Complete Streets

The initial multimodal transportation planning requirements of the ISTEA transportation bill of 1991 have been followed by subsequent federal and state guidelines that have emphasized the need to accommodate all modes in all new street construction and reconstruction. To work towards this goal, OKI developed a complete streets approach in the 2008 OKI bike plan and 2030 transportation plan. The term complete streets is used to describe streets that accommodate motorists, cyclists, pedestrians and transit riders of varying ages and abilities, while enabling all modes to safely share the existing street system with reduced conflict.

OKI's Transportation Improvement Program (TIP) prioritization process already encourages inclusion of bicycle and pedestrian facilities through awarding bonus points for intermodal connectivity and multimodal facilities. The TIP is OKI's collaborative program for prioritizing available federal project funds involving both local and state partners. Provisions for complete streets have been incorporated into the TIP process to consider appropriate facilities for accommodating bicyclists, pedestrians and transit riders of all abilities, in addition to motorists.

To facilitate implementation of these recommendations for on street facilities, counties and municipalities are encouraged to develop local review processes in which the appropriate bicycle and pedestrian improvements for the context of the street are included from the beginning of the project development process. In addition, OKI and state transportation agencies are encouraged to review the potential for bicycle and pedestrian facilities in non-freeway projects wherever practical.

Land Use and Local Development

The OKI Land Use Commission was initiated to specifically address the interrelationships of land use and transportation. Its work has validated the SAFETEA-LU guidelines supporting inclusion of a balanced and diverse multimodal transportation system. The SRPP has been developed and is anticipated to encourage higher densities, mixed use development, interconnected street systems and facilities to accommodate travel by transit, bicycling, and walking. This is to be carried out through a partnership with OKI and local planning agencies.

Bicycle and pedestrian improvements are most efficiently implemented as land is initially developed. The provision of sidewalks in developing areas eliminates the need to retrofit neighborhoods and arterial streets with sidewalks in the future. The application of access management principles during commercial development, such as minimizing curb cuts and building setbacks, reduces the number of driveway conflict points and the distance from street to building. The installation of traffic calming techniques in residential areas slows vehicular traffic and provides safer accommodations for pedestrians. Safety can also be increased by maintaining pedestrian facilities, removing

debris and encroaching plant material, and repairing deteriorated paving.

In order for bicycle and pedestrian planning recommendations to be implemented, local governments are encouraged to integrate them into their transportation and land use plans, local zoning and subdivision regulations, county thoroughfare plans, capital improvement plans, and reviews of major development proposals. Toward this end, guidance documents for planning and ordinances have been developed by OKI as a service to local governments. These are available on OKI's website and through technical services. Included in these guides are Bicycle and Pedestrian Facility Standards. Further guidance for improving local conditions for cyclists is available from the League of American Bicyclists program for Bicycle Friendly Communities.

Clean Air

While the OKI region has made progress in complying with national clean air standards, more stringent ozone and particulate matter standards will require dedicated application of available emission reduction practices to achieve compliance. OKI's Regional Clean Air Program partners with public planning and health agencies and private businesses dedicated to accomplishing this mission. Bicycle and pedestrian travel is encouraged by the Regional Clean Air Program both as a substitute mode for short trips and along with transit, as an alternative to auto use for reducing emissions, particularly during smog alerts.

Transit Improvements

While walking is a component of most trips, it is a more significant component of fixed route transit trips. Therefore, pedestrian considerations are needed while planning for transit service. Transit service providers are encouraged to ensure that all stops, hubs and park and rides be accessible by sidewalks. Improved connectivity of these facilities has the potential for increasing the use of transit and carpooling, as well as reducing SOV trips. Bicycle and pedestrian connections with other alternatives to driving alone can be further facilitated by shelters along transit routes, lockers at transit stations, bike racks at bus stops and park and ride lots, and bus mounted bike racks.

Education and Enforcement Programs

Local governments can undertake education and enforcement programs to encourage more, and safer, walking and cycling in the community. Communities are encouraged to participate in the state operated Safe Routes To School (SRTS) program created under SAFETEA-LU. The intent of the program is to have more school children walking to school instead of being driven in their family car. This program works to improve the health and physical condition of children and reduce traffic and vehicle emissions around schools. Education programs to encourage walking may be undertaken by local governments partnering with school districts and health departments for a variety of objectives such as reducing school vehicular traffic, improving air quality and personal fitness. An example is the Step Forward, Erlanger program featuring walking and biking routes and events in the community (Figure 13-9). A necessary component to encouragement is police enforcement of traffic laws related to speeding, yielding to pedestrians and safe road-sharing by bicyclists and motorists.

Technical Assistance

OKI's professional staff objectives are to address regional issues that transcend local government boundaries. While the result is primarily policy level plans and programs, staff is available to provide direct assistance on issues such as access management, SRTS, bicycle facilities, and Americans with Disabilities Act Standards for Accessible Design. OKI's technical assistance program will continue to work with member local jurisdictions towards making the region more inclusive of bicycle and pedestrian travel modes.

RECOMMENDATIONS

Bicycle and pedestrian transportation needs were identified during the development of this plan update process. Three improvement projects are recommended in this fiscally-constrained plan to directly address bicycle and pedestrian needs (Figure 13-10). In addition, there are a number of roadway projects (Chapter 9) which include bicycle and/or pedestrian facilities as elements of their project descriptions.

Many shared use paths are proposed as part of the future regional trail system and are not part of this fiscally constrained plan (see Figure 13-11). Right of ways are not available for many of these projects. Plans anticipate the temporary use of shared roads for an undetermined time or even as permanent components of the system until such time as separate corridors can be purchased or dedicated through development. Work on most of these trails is progressing as funds become available.

Figure 13-9: Walking Promotion
Source: City of Erlanger, Kentucky.

Figure 13-10: Fiscally-Constrained Bicycle, Pedestrian and Trail Improvements

Identification Number	County	Facility	Location	Description	Cost Estimate (in year of construction)
508	Boone	KY 237 (North Bend Road)	KY 18 to I-275	Pave and stripe existing shoulders to provide bike and pedestrian lanes	$360,000
605	Campbell	NEW Northern Kentucky River Path Bike Trail	Along KY 8 from Pendry Park through Melbourne and Silver Grove	Consruct paved shared use/bike trail	$1,430,000
802	Dearborn	Bicycle and Pedestrian Projects	Between County Farm Park and Bright	Add trails, sidewalks and bike paths to connect county parks	$780,000

Figure 13-11: Non-Fiscally Constrained Shared Use Path Projects

Great Miami River Trail (The Great Connection)	Currently planned from Fairfield to Franklin and continues beyond the OKI region from Franklin into Montgomery County and Dayton
Little Miami Scenic Trail	From the mouth of the Little Miami River to the Warren and Greene County line and continues north of OKI region to Springfield
Miami 2 Miami Connection	From the Great Miami River Trail in Hamilton to the Little Miami Scenic Trail at Kings Mill
Mill Creek Greenway	From the mouth of the Mill Creek in Cincinnati to the Miami–Erie Canal Trail in Butler County which is a portion of the Miami 2 Miami Trail
Ohio River Trail	From Salem Road to New Richmond and Downtown Cincinnati to Lunken Airport
Oxford Perimeter Path	Proposed to surround Oxford and Miami University in Butler County
West Fork Mill Creek Trail	From the mouth of West Fork Mill Creek in Arlington Heights to Winton Woods Lake Trail
Williamsburg – Batavia Hike / Bike Trail	From Williamsburg to Batavia in Clermont County via East Fork State Park
Kentucky River Path	Generally along the Ohio River and KY 8 corridor from Mentor in Campbell County to the end of Route 8 in Boone County
CVG Trail	Proposed to surround the CVG International Airport in Boone County

FUNDING FOR BICYCLE AND PEDESTRIAN IMPROVEMENTS

Most federal highway and transit funding sources may be used for bicycle and pedestrian projects. Many bicycle and pedestrian improvements are most effectively implemented as an integral part of roadway or transit project funding and construction. However, the construction of regional off road trails is highly dependent on local initiative and commitment due to restrictions prohibiting use of gasoline tax or license fee revenues for such facilities. As one state example, the Ohio Department of Transportation (ODOT) guidelines generally require local governments to provide funds for the planning and design plus the 20 percent local share of right of way acquisition and construction when using the various federal transportation programs.

Local governments use a variety of funding methods to construct or otherwise help implement bicycle and pedestrian facilities such as obtaining private funding or right of way from adjacent property owners and partnering with park districts.

Special projects to improve existing roadways or extend the off road trail system may be more appropriately funded with federal Transportation Enhancement (TE) funds which are sub-allocated by ODOT to OKI for allocation. A wide variety of projects are funded through TE including those that support non-motorized travel through OKI's

application process. The Recreational Trails Program is also part of SAFETEA-LU, but is administered by the Ohio Department of Natural Resources for off road facilities. These federal transportation funding sources are subject to change as the program is periodically reauthorized.

In addition, there are other federal, state and private sources available that may be suitable for specific local projects such as SRTS or the Clean Ohio Trails program. The Safe Routes To School program is unique among transportation programs as it permits 100 percent federal share in which no local match is required. It is also unusual because a portion of the funding, 10 to 30 percent, is required for safety education, promotion of biking and walking to school, and enforcement of traffic laws in the vicinity of schools. The balance may be used for typical infrastructure projects including sidewalks, traffic calming measures, shared use paths and bike parking. Administered through the state departments of transportation, local governments may partner with school districts and non-profit agencies to carry out the program. The Clean Ohio Trails program is funded with state bonds and administered by the Ohio Department of Natural Resources.

SUMMARY

OKI will continue to facilitate bicycle and pedestrian travel through a variety of efforts that include providing technical assistance and information, continuing its regional planning efforts, serving on advisory committees, conducting planning reviews, sponsoring training workshops, supporting the inclusion of commuter cyclists in RideShare's Guaranteed Ride Home program, and identifying other opportunities to support greater use of human powered modes. OKI's complete streets approach may provide more incentives for accommodating bicycle, pedestrian and transit use in projects funded through the TIP. The OKI Regional Bicycle Plan and Regional Pedestrian Plan contain many specific recommendations for promoting active transportation in the region that have been summarized in this chapter.

Chapter 14

TRAVEL MODE ALTERNATIVES

INTRODUCTION

It is in the region's public interest to plan for and foster alternatives to single-occupant vehicle (SOV) travel. Alternative modes that serve multiple occupants are desirable for reducing congestion, which in turn reduces the need for roadway expansion projects and decreases vehicle emissions. These are critical components in this plan's strategy for meeting mobility and air quality needs. Furthermore, alternative modes provide travel opportunities to those for whom auto use is not a possible or preferred option.

This chapter presents the non-SOV travel opportunities, beyond transit, that exist within the OKI region, the challenges or needs facing these different alternative modes, and makes recommendations for improvements. Alternatives discussed in this chapter are intended to provide viable alternatives to automobile travel.

RIDESHARING

Ridesharing refers to carpools and vanpools, both of which reduce SOV travel. A carpool generally involves two to five people sharing a ride in a person's automobile. A vanpool is a group of seven to 15 commuters who share a leased van for commuting.

OKI's regional RideShare program helps establish and sustain carpools and vanpools through marketing, technical and support programs. This program was instituted in 1979 in response to the region's status as an air quality non-attainment area and serves southwestern Ohio, northern Kentucky and southeastern Indiana. RideShare's free service matches commuters with potential carpool partners who live and work in the same area. Commuters are matched based on home address, work address and work hours. Commuters can process a carpool matchlist at www.rideshareonline.org or a representative is available to process applications by calling 241-RIDE.

Throughout the years, OKI has marketed the RideShare program using a variety of means including radio,

print advertisements, public and private employer campaigns, special events, coordination with OKI's Regional Clean Air program, and distribution of promotional materials. RideShare marketing not only promotes the awareness of services offered by the program, but also works to change the attitudes and behaviors of tri-state commuters.

Ridesharing benefits both the participants and the general public. Personal benefits are related to pick-up and drop-off convenience, reduced stress from driving or parking, and financial savings from reduced operating costs and extended vehicle life. The public benefits from fewer vehicles on the road which reduces congestion and related problems. During the summer ozone season, increased ridesharing can contribute to critical emission reductions. Public policy can influence ridesharing through fees that increase SOV travel costs, such as increased parking prices or gasoline taxes, or through preferential treatment for rideshare vehicles, such as high occupancy vehicle (HOV) lanes or reduced parking cost.

Vanpools

The vanpool program has two types of commuter vanpools: traditional and non-traditional. Traditional vanpools consist of a group of individuals voluntarily participating in a ridesharing arrangement utilizing a van. The van is leased by an individual in the group but that individual is not responsible for providing the insurance and maintenance of the vanpool. Non-traditional vanpools are leased by a third-party such as an employer. The third-party is responsible for providing the driver, insurance, maintenance and some administration.

Figure 14-1: Rideshare Vehicle

RideShare subsidizes each vanpool in the amount of $400 per month toward the capital cost. The incentive program is in place to reduce the cost of vanpooling and to make the program more attractive to commuters than driving in a single-occupant vehicle.

New vanpools are always beginning and old ones terminating depending on changes within the OKI region like company downsizing, early retirements, company buy-outs, schedule changes, new transit service, company relocations and expansions and company sponsored employee commute option plans.

Park and Pools

Park and Pool lots are the same as a Park and Ride in that they provide convenient parking areas for commuters. These lots are generally located in suburban areas and may have amenities such as benches, lighted waiting areas and newspaper racks available for riders. However, Park and Pools do not have transit service and therefore require a carpool or vanpool.

Guaranteed Ride Home Program

OKI's efforts also include a Guaranteed Ride Home (GRH) program. The GRH program is available for registered

RideShare, TANK and Metro users. Although the GRH program is used relatively infrequently, it is a significant part of the RideShare program. Commuters have indicated that one reason for not participating in a carpool or vanpool is fear of being stranded at work in case of an emergency. The GRH program enables RideShare to persuade commuters who currently travel in single-occupancy vehicles to try another form of transportation such as, carpools, vanpools or transit. RideShare will reimburse registered commuters 80 percent of a cab fare home in case of an emergency or unexpected overtime up to four times per year.

EMPLOYER PROGRAMS

In addition to OKI's efforts, ridesharing can also be encouraged through employer policies or programs. Employer policy, for example, can provide designated specialized carpooling services, tax benefits, parking arrangements, alternative work schedules, trip reduction programs, and teleworking.

Cluster Analysis Services

Cluster analysis service is provided upon request to companies through RideShare as a way to identify potential carpooling and vanpooling groups within a company's employee base. The company provides RideShare a database of employees' addresses and an identifying name or number. RideShare is then able to place a dot on a map at the exact home location of each employee. When all of the employees are plotted on the map, clusters of employees who live within close proximity of one another are identifiable. This information is then returned to the company and small group meetings are scheduled for each identified cluster to discuss the advantages of carpooling and vanpooling and the potential for implementing such programs.

Commuter Choice Tax Benefits Program

The Commuter Choice Tax Benefits Program was established by the Internal Revenue Service as a provision of the Qualified Transportation Benefits of the 1992 Energy Policy Act. It provides an incentive to companies that support vanpooling and transit use and to employees to use these services. Under SAFETEA-LU, employers may provide up to $125 per month in vanpooling or transit fares as a tax-free benefit.

Trip Reduction Programs

In a Trip Reduction Program (TRP), employers offer a variety of travel demand management strategies to encourage their employees to reduce travel to and from the work site. Generally, the employer designates a coordinator to initiate and administer the program, which may involve quantifying program results and documenting successful strategies. In general, the most effective TRPs offer time or financial incentives to encourage employees to shift from driving alone to using an alternative travel mode.

Compared to applying TRP strategies to a region, corridor, or activity center, employer-based TRP programs are often the most effective in reducing trips. Commuters are more responsive to TRP strategies presented at the worksite than presented through other types of programs. In addition, the strategies selected for a TRP can address specific worksite and commuter characteristics, as opposed to the diversity of factors that influence commuter choice on a regional basis. Information can be targeted to those employees most likely to use alternative modes.

A TRP's success is influenced by employer location, work force composition and employee commute patterns. Employers with effective TRPs are often located in high-density employment areas with transit service, HOV facilities and restricted parking and have a high proportion of service and skilled labor positions and a significant number of employees with long commutes (greater than 15 miles).

TRPs help reduce congestion and vehicle emissions but for employers to implement them voluntarily generally requires a strong interest in solving an on-site transportation problem (such as a parking shortage or employee tardiness from congestion), expanding employee benefits or reducing company expenses related to parking or tardiness.

Parking Incentives

The federal government also influences parking through Internal Revenue Service policy. Companies may offer tax-free incentives to promote change in the way their employees commute to work. Employers can provide $240 per month tax free to employees for qualified parking. Employers may offer a "cash-out" program where employers provide this subsidy in lieu of a company provided parking space.

Through a three-year experimental pilot program, OKI implemented a high occupancy vehicle parking subsidy to three or more person carpools or vanpools that park at the Cincinnati Banks Riverfront Garage. The subsidy amount is seventy-five percent of the county's monthly commuter contract parking rate.

Alternative Work Schedules

Work schedules influence commuter travel patterns. In designing work schedules, employers influence peak period travel volumes and employee inclination to use transit, carpools, and other SOV alternatives. Because of these impacts, work schedules provide a means of managing travel demand.

There are three types of work schedules with potential applicability for managing travel demand. First, a flextime program allows employees to set arrival and departure times within a specified span of time. This allows commuters to avoid travel during the most congested times. Flextime helps spread peak traffic and facilitates carpool participation and transit ridership. Second, a staggered work hours program allows groups of workers to arrive and leave at set intervals. This type of work schedule disperses congestion. Third, a compressed workweek allows employees to work more hours in fewer days than they would in a conventional schedule of eight hours per day. A common option is to work four 10-hour days followed by a day off. This arrangement can divert work trips from peak periods and also reduce the number of work trips.

In addition to those benefits related to transportation, studies show that these work schedules provide other benefits to participating employers and employees. Employers may benefit from reductions in tardiness, sick time and absenteeism and from increased employee productivity. Participating employees enjoy greater flexibility for conducting their non-work responsibilities. Benefits are relatively inexpensive with costs primarily related to program set-up and perhaps for extended office hours. OKI promotes alternative work schedules as part of the RideShare program.

Teleworking

Teleworking reduces congestion by reducing commuter travel. Under a telework arrangement, employees perform work at home, typically one to three days a week, thereby eliminating work trips on those days. Telecommuters use computers, telephones, modems and fax machines to link to clients and other employees at the work place.

Teleworking produces benefits for the region, the employer and the employee. The region benefits from reductions in congestion, fuel consumption and vehicle emissions. For businesses, teleworking is often reported as improving productivity and helping to recruit and retain valuable employees. It may also reduce office space needs. The teleworker's benefits include travel cost and time savings, greater flexibility in managing their work and personal lives, and less stress. Regular telecommuting grew by 61 percent between 2005-2009 .

Teleworking's growth is a response to market, technological and social forces. On the economic front, the shift from goods production to information and services supports the growth of teleworking and so does teleworking's use of relatively low cost equipment. Advances in computer and telecommunications technologies further boost teleworking, especially advances in data transmission and simultaneous voice and data transmissions. Teleworking is increasingly being recognized as a way of helping employees to better balance work and home life. Employers are realizing that the availability of teleworking is a recruiting and retention tool. It is evident that at least a portion of the demand for transportation infrastructure can be met by the increased capacity of the teleworking infrastructure.

While teleworking seems likely to grow, its rate of growth depends largely on its acceptance and popularity with employers and employees. The future of teleworking will be affected by individual responses to managerial, supervision, communication and social issues.

PARKING MANAGEMENT

Parking price and availability are factors in some people's choice of travel mode. To manage travel demand, the public and private sectors can design parking policies to discourage SOV use or encourage the use of SOV alternatives. In central business districts, parking can be managed to discourage long-term parking for commuting purposes at the same time that short-term parking is feasible for shopping and other errands. Parking management is most effective if it is applied in combination with other traffic demand management strategies.

Responsibility for managing parking supply and pricing is divided among different entities. Private developers and employers can remove, reduce or cash out employer provided parking subsidies. They can also reverse "early bird" or monthly discounts favoring long-term commuter parking. Private sector can also impose parking pricing and discount parking for carpoolers. In the public sector, local governments may implement many pricing approaches. These approaches could include: government entities imposing or increasing fees and surcharges for solo drivers or long term parkers in public parking facilities, giving preference to car and vanpoolers, taxing parking providers or revising zoning laws to reduce minimum parking supply requirements

Parking in Downtown Cincinnati

As the region's largest employment center, downtown Cincinnati's ability to provide affordable and ample parking during normal business hours can be quite challenging. There are more than 1,500 parking meters throughout downtown Cincinnati which offer the first 10 minutes free. In 2011, the city of Cincinnati installed approximately 1,400 meters that accept major credit cards, providing an additional payment option.

In 2008, Cincinnati established the two-wheeler program which provides parking locations throughout downtown for motorcycles, motor scooters, and mopeds. The program started with free parking at five designated locations throughout downtown Cincinnati. Due to rising gas prices, these vehicles have become increasingly popular throughout Cincinnati. During nice weather, these parking spots are often full and overcrowded requiring additional locations throughout the city.

There are more than 30,000 parking spaces in privately and city owned and operated off-street parking facilities throughout downtown Cincinnati and Northern Kentucky. The city of Cincinnati operates three parking facilities that provide a $1 parking rate per hour along with other privately and city owned facilities ranging from $1 to $7 per hour. These parking facilities will often raise prices during special events such as home sports games, concerts and festivals.

PRIVATE ROADWAY TRANSPORTATION PROVIDERS

In addition to publicly-operated bus systems, private businesses provide transportation services within the OKI region and trips to other major metropolitan areas.

Private Bus Companies

Figure 14-2: Megabus in Downtown Cincinnati
Source: www.yelp.com.

Greyhound Bus Line and Megabus provide intercity bus service and connect the region with other metropolitan areas around the United States. The Greyhound Bus Line station is located in downtown Cincinnati. Megabus does not have a station but uses on-street boarding locations in downtown Cincinnati and provides service to Chicago, Columbus, Indianapolis and Pittsburgh.

Zipcars

In 2011, the University of Cincinnati became the first institution in the region to provide zipcar services. Zipcar provides a reliable transportation option by renting out a vehicle per hour or by day. The rates range between $7 and $8 per hour and $66 per day. Rates include gas, insurance and 180 miles free per day. There are two locations on the University of Cincinnati campus, one off Jefferson Avenue with a Ford Focus and Honda Insight Hybrid, and the second location in front of McMicken Hall including another Ford Focus and a Mazda 3. Members are given a Zipcard which provides access to any Zipcar around the world. Most locations use a reservation system for Zipcar usage.

Taxicabs

Numerous taxicab companies serve the OKI region. In 2009, it was reported that 439 taxicab and limousine firms operated in the OKI region.

Figure 14-3: Taxi Pick-Up at Sawyer Point Building in Downtown Cincinnati

At the time of this plan's update, Cincinnati was proposing a number of changes to the city of Cincinnati's taxicab regulations. Changes proposed include amending the fare schedule, increasing the number of permanent and temporary/part-time taxi stands in the city, requiring more handicap accessible vehicles, accepting credit card/ electronic payments, and changing the city's administrative structure for increased insurance and inspection requirements. The city's goal is to put into place "a framework to improve taxicab service in Cincinnati [that will serve as] more than just a means [to get] from point A to point B, [but also make] taxicabs readily accessible for all who want to take advantage of them, including the increasing number of [people] with limited mobility."

Pedicab

Since 2010, pedicabs have been a resource for short distance travel in and around downtown Cincinnati, Newport and Bellevue. Pedicabs are bike taxis that have been popular in other major urban areas throughout the United States including Austin, New York City, Boston and San Francisco.

Figure 14-4: Pedicab in Downtown Cincinnati
Source: Draft Plan Cincinnati, April 2012.

Pedicabs travel on roadways just as any other vehicle and are inspected by each city in which they operate. They can carry two to three passengers and include seat belts and a canopy so that they are able to continue operating in rainy or colder weather conditions.

Currently, there is one pedicab operator in the OKI region: J-Rides. The bike taxis take revelers and residents alike between the different areas of the river basin for little or no charge. The drivers, who work mostly for tips, work under contract to operate a J-Rides pedicab and receive training and licensing. J-Rides can also be used for longer rides including tours of the area with rates starting at $25 for 30 minutes.

AIR TRAVEL

The OKI region has an extensive aviation system that includes a complex array of airspace, flight paths and multiple facilities that support air travel. Due to the fact that airports can be significant traffic generators, one aspect of

air travel's role in the transportation planning process is the consideration of airport impacts on the surface or roadway network.

This plan includes two such surface improvements that have direct impact on one of the region's air travel related locations. Transportation Improvement Program (TIP) project number 6-800.20 programs $25.31 million to improve the I-275/KY 212 Interchange and reconstruct KY 20 near the Cincinnati/Northern Kentucky International Airport (CVG). The other project is 2040 Plan identification number 520. This project recommends that $3.13 million be used to construct a Transit Hub near CVG as part of TANK's proposed suburban transit hub network. Although other project recommendations included in this plan may not directly address air travel, their end result may benefit commerce, freight shipments, and the general public.

Airport Facilities

The OKI airport system serves all forms of air travel. General aviation activities occurring throughout the OKI region include corporate flight departments, pleasure flying, medivac, gliding and skydiving. The bulk of these operations take place at 29 smaller, reliever private facilities and other general aviation airports across the region which are shown in Figure 14-5. Campbell County is the only OKI county which does not contain an airport of any size, public or private.

Figure 14-5: Privately-Owned Airports in the OKI Region

State	County	City	Facility Name
Ohio	Butler	Mc Gonigle	Hogan
Ohio	Butler	Okeana	King Knoll
Ohio	Butler	Oxford	Hillcrest
Ohio	Clermont	Amelia	Humphries Rotordrome
Ohio	Clermont	Bethel	Kelch
Ohio	Clermont	Felicity	Utter Field
Ohio	Clermont	Goshen	Antique Acres Airpark
Ohio	Clermont	Goshen	Hallelujah Field
Ohio	Clermont	Goshen	Obannon Creek Aerodrome
Ohio	Clermont	New Richmond	Boober
Ohio	Clermont	Owensville	Clearwater Airpark
Ohio	Clermont	Williamsburg	Creager
Ohio	Hamilton	Harrison	Raylene
Ohio	Hamilton	North Bend	Lost Bridge
Ohio	Warren	Loveland	Rohrer
Ohio	Warren	Mason	Collins-Flege Airpark
Ohio	Warren	Morrow	Buena Vista Farm
Ohio	Warren	Morrow	Frith
Ohio	Warren	Morrow	Maplewood Orchard
Ohio	Warren	Waynesville	Air Jordan
Ohio	Warren	Waynesville	Red Stewart Airfield

State	County	City	Facility Name
Kentucky	Boone	Florence	Estes
Kentucky	Boone	Petersburg	Sunrise Acres
Kentucky	Boone	Verona	Madi's Meadows
Kentucky	Boone	Verona	Mueller Farm
Kentucky	Boone	Verona	Ryan Field
Kentucky	Kenton	Independence	Caintuckee
Indiana	Dearborn	Farmers Retreat	Pruss
Indiana	Dearborn	Moores Hill	Josephs Field

Source: http://www.faa.gov/airports/airport_safety/airportdata_5010/

There are nine publicly owned airports in the OKI region. Figure 14-6 identifies these airports and shows their annual operations or number of flights and what type of flights originate from their facilities. The region has only two airports that contain an air traffic control tower – Cincinnati Municipal Lunken Field and CVG.

Figure 14-6: Major Regional Publicly-Owned Airports Annual Operations

Facility Name	Air Carriers	Air Taxis	Local*	Itinerant**	Military	TOTAL	Date^
Butler County Regional	0	12,600	16,537	32,550	0	61,687	7/23/2010
Middletown Regional / Hook Field	0	3,600	17,800	18,600	50	40,050	6/25/2010
Miami University	0	100	14,438	2,160	10	16,708	5/6/2010
Clermont County	0	550	20,000	10,000	100	30,650	4/28/2010
Cincinnati Municipal Lunken Field	49	12,417	10,668	41,870	507	65,511	12/31/2010
Cincinnati-Blue Ash	0	742	25,788	8,250	220	35,000	8/1/2011
Cincinnati West	0	4,175	23,652	2,360	10	30,197	7/28/2011
Lebanon-Warren County	0	500	25,000	6,000	25	31,525	7/22/2009
Cincinnati/Northern Kentucky International	71,741	93,485	0	4,883	89	170,198	6/30/2011
TOTAL	**71,790**	**128,169**	**153,883**	**126,673**	**1,011**	**481,526**	

**General aviation operating in the local traffic pattern or within a 20-mile radius of the airport.*
***General aviation operations (excluding commuter or air taxi) not qualifying as local.*
^Data provided for 12 months ending on this date.
Source: http://www.gcr1.com/5010web/.

Cincinnati/Northern Kentucky International Airport

CVG is the primary airport of the OKI region. However, the airport has been battered by a series of cutbacks by Delta Air Lines over the past seven years including a hub realignment by Delta in 2005 which has led to huge decreases in operations and passengers at CVG.

In 2005, 22.7 million annual passengers used the airport and there were more than 11.4 million enplanements at CVG, ranking it the 22nd busiest airport in the United States. In 2010, the airport's annual passenger load has

dropped to 7.9 million.

In June 2011, CVG offered nonstop service to 52 US cities, down from 130 cities in 2005. Since its peak year in 2005, CVG daily departures have decreased from 673 to 191 in 2011. In addition, CVG now offers nonstop service to just one destination in Europe – Paris – down from five European destinations in 2005.

As daily flights and international destinations have dwindled, local companies are becoming more concerned for their employees who do business around the globe. This has fueled concerns that flight reductions are impeding the region's economic development. The loss of passenger air service is a common phenomena amongst middle-tier and smaller airports.

In lieu of all this bad news related to CVG passenger service, air freight has been a positive growth opportunity for CVG. With the return of DHL's hub operation to CVG in 2009, total freight at CVG increased 190 percent (137,837 tons in 2009 to 400,278 tons in 2010). Additionally, DHL has recently expanded its warehouse/cargo handling facility at the airport.

In another positive action, CVG management is updating their airport master plan which will provide a 20-year recommended program of projects to meet airport demand under different market scenarios. The plan update is scheduled for completion in the fall of 2012. In the update, CVG is re-visioning itself as a regional airport servicing the needs of the Greater Cincinnati Northern Kentucky area versus the international hub it was in the not too distant past. CVG is making financial investments to maintain a state-of-the-art facility with amenities customers demand in today's air travel market such as IT work stations, restaurants and comfortable waiting areas. Terminals are being downsized so that only needed structures are being put to use. The target is to not only reduce overall maintenance and operation costs, but more importantly, simplify and facilitate more efficient visitor accessibility.

Heliport and Gliderport Facilities

Helicopter (rotocraft) operations, which are a small portion of the overall air traffic, have begun to increase in the OKI region. Currently, there are 32 heliports in the OKI region (Figure 14-7). This number represents a growth in heliports of 66 percent since 2008. A number of heliports are primarily associated with area hospitals. Eleven provide a landing facility used for medical purposes. There is only one reported heliport which is publicly owned and is located in Lebanon near the Ohio Department of Transportation's District 8 offices. The others are privately owned and for private use.

Figure 14-7: Heliports in the OKI Region

State	County	City	Facility Name*
Ohio	Butler	Fairfield	B & W Metals Company
Ohio	Butler	Hamilton	Fort Hamilton Hospital*
Ohio	Butler	Mason	University Pointe Medical Office Building
Ohio	Butler	Oxford	McCullough Hyde Hospital*
Ohio	Clermont	Amelia	Whalen
Ohio	Clermont	Loveland	C.C.A.
Ohio	Hamilton	Blue Ash	Belcan
Ohio	Hamilton	Blue Ash	Galenstein Park
Ohio	Hamilton	Cincinnati	9 Newport
Ohio	Hamilton	Cincinnati	Brown
Ohio	Hamilton	Cincinnati	Christ Hospital
Ohio	Hamilton	Cincinnati	Good Samaritan Hospital*
Ohio	Hamilton	Cincinnati	Good Samaritan Medical Center*
Ohio	Hamilton	Cincinnati	Green
Ohio	Hamilton	Cincinnati	Horizons
Ohio	Hamilton	Cincinnati	The Jewish Hospital
Ohio	Hamilton	Cincinnati	University Hospital/SICU*
Ohio	Hamilton	Forest Park	Hamilton County Sheriff's Patrol
Ohio	Hamilton	Indian Hill	C.C.A.
Ohio	Hamilton	Indian Hill	Gallenstein
Ohio	Hamilton	Montgomery	Bethesda North Hospital*
Ohio	Hamilton	Sharonville	Valley Asphalt
Ohio	Warren	Lebanon	Public Heliport near ODOT District 8
Ohio	Warren	Middletown	Atrium Medical Center*
Ohio	Warren	Morrow	Cow Chip Creek
Kentucky	Boone	Burlington	West
Kentucky	Campbell	Fort Thomas	St. Elizabeth-Ft. Thomas Hospital*
Kentucky	Campbell	Highland Heights	Midwest Communication
Kentucky	Kenton	Covington	Fidelity
Kentucky	Kenton	Edgewood	St. Elizabeth Medical Center South*
Kentucky	Kenton	Erlanger	Works
Indiana	Dearborn	Lawrenceburg	Dearborn County Hospital*

**Landing facility is used for medical purposes.*
Source: http://www.faa.gov/airports/airport_safety/airportdata_5010/.

There is only one reported gliderport in the OKI region. It is the Caesar Creek private gliderport located in the city of Waynesville in Warren County.

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RIVER FERRY SERVICE

Anderson Ferry Boat Inc. operates an automobile ferry service on the Ohio River between the foot of Anderson Ferry Road in Hamilton County and River Road (KY 8) in Boone County near the Kenton-Boone County line. The Anderson Ferry operates every 15 minutes Monday through Friday from 6:00 a.m. until 9:45 p.m., on Saturday and holidays from 7:00 a.m. until 9:30 p.m. and on Sunday from 9:00 a.m. until 9:45 p.m. The cost per automobile is $4.00 per river crossing. The ferry transports an average of 400 to 500 vehicles across the river per day. Due to the absence of river crossings in that area, the ferry is also important for transporting bicyclists for a charge of $1.00. The fare for pedestrians is 50 cents. The ferry is also on the route of the trans-continental American Discovery Trail.

Figure 14-8: Anderson Ferry

SUMMARY

Congestion is a problem for which both the cause and solution are influenced by the cumulative effect of individual choices. By taking initiatives to encourage employees to commute more frequently by rideshare or transit, employers in both the public and private sectors can help reduce congestion.

For Ridesharing to expand, incentives are needed to offset the flexibility, independence and overall appeal of SOV travel. As reported by the U.S. Census, carpools accounted for about 10 percent of regional work trips in 2000. To change travel behavior, the public sector must take the initiative to promote rideshare to the general public and employers. For the public sector, the cost of promotional efforts should be surpassed by the widespread benefits of reduced SOV travel.

In the wake of Delta Airline's downsizing of its hub operations, increasing flight activity at CVG is a vital economic development and transportation priority for the region and of the utmost importance.

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i. Telework Research Network, June 2011
ii. http://www.downtowncincinnati.com/PlanYourVisit/Parking/ParkingMeters.aspx
iii. http://www.cincinnati-oh.gov/twowheeler/
iv. http://www.downtowncincinnati.com/PlanYourVisit/Parking.aspx
v. http://www.zipcar.com/universities/
vi. U.S. Census County Business Patterns, 2009 and U.S. Census Non-Employer Statistics, 2009
vii. Quote provided to WVXU by Cincinnati City Council Member Wendell Young on May 3, 2012
viii. http://www.urbancincy.com, October 13, 2010 online article

Chapter 15

FINANCIAL PLAN

INTRODUCTION

As part of this regional transportation plan, the costs of implementing the recommendations for surface transportation projects are compared with the funding reasonably expected to be available. This cost comparison clarifies the financial issues that may need to be addressed in the process of building the region's future transportation system.

This plan's financial analysis was developed in response to the requirements for a "fiscally constrained plan" that was introduced in the Intermodal Surface Transportation Efficiency Act (ISTEA) and continued in subsequent federal transportation legislation.

This plan considers capital, operation and maintenance costs associated with the preservation and continued operation of the existing transportation system, as well as the costs associated with the recommended improvements presented in this plan. It also projects revenues (funds) from all sources that will be available to pay for the improvements. The process includes revenue estimation, cost analysis and a revenue/cost comparison to arrive at a fiscally constrained plan. Revenues and costs are tracked separately for Ohio, Kentucky and Indiana, respectively.

FEDERAL FUNDING SOURCES

A significant part of OKI's funding flows into the region from federal sources. Federal funding amounts are based on estimates of the region's share of funds from programs authorized and appropriated by Congress. The region's share of these federally funded programs is based on the assumption that current funding levels will rise by four percent per year through 2040. The current SAFETEA-LU programs that provide funding for the region's transportation system are described below.

Interstate Maintenance

The Interstate Maintenance (IM) program finances projects to rehabilitate, restore and resurface the interstate system. Reconstruction is eligible if it does not add capacity. However, high-occupancy vehicle

and auxiliary lanes can be added. The match rate for this program is 90 percent federal and 10 percent state or local. It is administered by the states.

National Highway System

The National Highway System (NHS) consists of 160,000 miles of the nation's major roads. It includes all interstate routes, a large percentage of urban and rural principal arterials, the defense strategic highway network and strategic highway connectors. The match rate is 80 percent federal and 20 percent state or local.

Surface Transportation Program

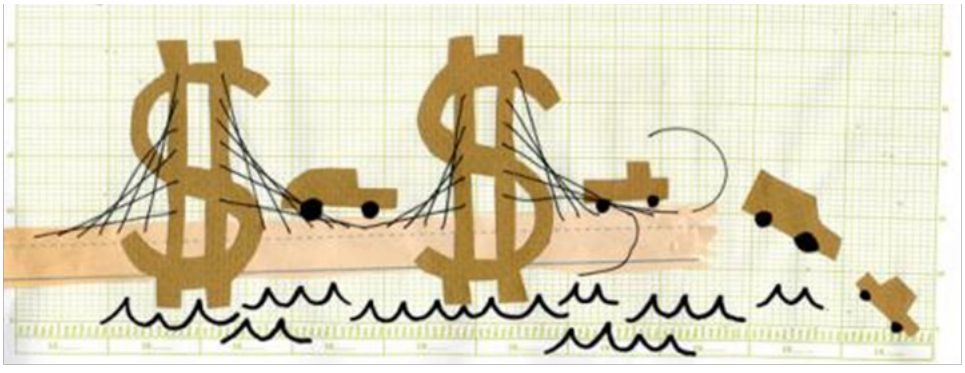
The Surface Transportation Program (STP) is the most versatile type of highway funds. Roadways that have a federal functional classification of urban collector or higher in urbanized areas or rural major collector or higher in non-urbanized areas are eligible for STP funds. These funds may also be used for capital projects for transit agencies, regional planning and bicycle and pedestrian facilities. Once the funds are distributed to the states, 10 percent is set aside for the Hazard Elimination and Safety Program (HSP) which promotes safety construction activities and railway crossing improvements. The Transportation Enhancement (TE) program also receives 10 percent of the STP funding levels.

Other modal projects eligible for STP funds include freight, capital transit projects, commuter rail, bus terminals and facilities, carpool projects, traffic monitoring, and bicycle and pedestrian facilities that are above and beyond the TE allocation.

In addition to OKI's STP allocation by formula (population of the urban area), the three state DOT's invest a significant portion of their state STP funding in the region on a variety of the above identified project types.

Congestion Mitigation Air Quality

The Congestion Mitigation Air Quality Improvement Program (CMAQ) provides funds for transportation projects in maintenance areas for ozone and carbon monoxide. These projects contribute to meeting the attainment of national ambient area air quality standards. The OKI region is eligible for these funds because of its designation as an ozone maintenance area. Transportation projects and programs are eligible for CMAQ program funds if they are associated with documented emissions reductions and do not add to the existing roadway capacity.



Bridge Replacement and Rehabilitation Program

This program enables the states to replace significant bridges that are unsafe because of structural deficiencies, physical deterioration or functional obsolescence. Forty percent of a state's bridge funds may be transferred to the NHS or the STP programs for purposes consistent with either program. The match rate is 80 percent federal and 20 percent state or local.

Federal Transit Administration Funding
The Section 5307 formula grant program makes funds available on the basis of a statutory formula to all urbanized areas in the country. Section 5307 funds may be used for highway projects in Transportation Management Areas (TMAs), all urbanized areas over 200,000, or any other area a governor requests if all needs related to the Americans with Disabilities Act are met, the MPO approves, and there is a balanced local approach to funding highways and transit.

For capital projects, the match rate is 80 percent federal and 20 percent state or local. Capital funds are used for transit maintenance, such as replacing buses, as well as other projects. For operating assistance, the match rate is 50 percent federal and 50 percent state or local. Operating assistance is capped at a percentage of the total Section 5307 apportionment for each urban area.

The Federal Transit Administration (FTA) Section 5309 discretionary program is a potential funding source for the recommended rail transit system. Funds are split 40 percent for new starts, 40 percent for rail modernization and 20 percent for bus and other. The match rate is 80 percent federal and 20 percent state or local.

The Ohio Department of Transportation (ODOT) also administers the FTA Section 5310 Program known as the Specialized Transportation Program. This program provides funds for projects where existing transportation services are unavailable, insufficient or inappropriate. The program provides an 80 percent federal share for capital projects.

During 2007, OKI was named the Designated Recipient for FTA Sections 5316 Job Access and Reverse Commute (JARC) and 5317 New Freedom programs. The JARC program focuses on providing transportation services to work and work related activities for welfare recipients and low income persons.. The New Freedom program focuses on projects that go beyond the requirements of the Americans with Disabilities Act. As the Designated Recipient, OKI is responsible for soliciting and awarding projects that are selected on a competitive basis and are based on the Coordinated Public Transit-Human Services Transportation Plan for the OKI region. The Cincinnati urbanized area received approximately $1.48 million in JARC funds and $987,000 in New Freedom funds for combined fiscal years 2010 and 2011.

Federal Emergency Relief Fund
This program provides emergency funds to the state and counties for the repair or reconstruction of federal-aid highways and roads on lands that have suffered serious damage by natural disasters or catastrophic failures from an external cause. This requires a Governor's Disaster Declaration. Congress provides $100 million nationwide annually.

Road damage must be a result of: natural disasters over a wide area such as by flood, hurricane, tornadoes, tidal wave, earthquake, severe storms, snow storms, droughts, fires, volcanic eruptions, explosion or landslide; or catastrophic failure which is a sudden failure of a major element or segment of the highway due to an external cause. Emergency repairs include temporary traffic operations undertaken during or immediately following the disaster occurrence for the purpose of: minimizing the extent of the damage, protecting remaining facilities or restoring essential travel. Those repairs made within 180 days after the occurrence of the disaster or failure are eligible for 100 percent of federal reimbursement. Any repairs after the 180 day period are eligible for the standard federal share reimbursement (80/20 percent).

STATE AND LOCAL FUNDING SOURCES
Some of the ODOT highway programs are listed below. A portion of the statewide allocation will be used for projects located in Butler, Clermont, Hamilton or Warren counties.

County Local Bridge Program

The County Local Bridge Program (approximately $32 million annually in Ohio) provides funds for bridge replacement and rehabilitation and is administered by the County Engineers Association of Ohio (CEAO). The standard federal participation rate was reduced to 90 percent in fiscal year 2006 after toll revenue credits were no longer available. Each county has a $5 million overall federal funding limit for projects within any four year program period. Funding is only provided for construction unless the program manager determines that preliminary engineering and right of way costs are warranted.

County Surface Transportation Program

The County Surface Transportation Program (CSTP) has two components. There is a regular construction funding program for eligible roadway improvements and is administered by the Ohio Department of Public Safety (ODPS) for safety studies. The CEAO serves as the program manager and is responsible for project selection, funding criteria and program priorities. ODOT provides federal CSTP funds to counties each year through the CEAO. The program is funded at approximately $20 million annually with $750,000 set aside for safety studies. A roadway must be functionally classified as an urban collector or rural major collector or higher to be eligible. Also eligible are local or rural minor collectors on the federal-aid Rural Secondary System as designated on January 1, 1992. Eligible activities include new construction, major reconstruction, resurfacing, restoration and rehabilitation (3-R projects), bridges not eligible for county bridge funding, guardrail construction and reconstruction, center line and edge line striping and raised pavement marker projects. The standard federal participation rate is 80 percent on roadway projects, 100 percent on safety projects and 100 percent on safety studies.

Local Major Bridge Program

The Local Major Bridge program provides federal funding to counties and municipalities for bridge replacement or major bridge rehabilitation projects. Funds are for construction only for local major bridges that carry vehicular traffic. These are defined as moveable bridges or bridges having a deck area greater than 35,000 square feet. Approximately $25 million annually is available in Ohio and ODOT will provide up to 80 percent of the eligible costs for the project.

Municipal Bridge Program

The Municipal Bridge Program (approximately $8 million annually in Ohio) provides funds for replacement and rehabilitation of bridges that carry vehicular traffic on a public roadway within municipalities. Bridges funded under this program must be at least 20 feet in length; be listed in the ODOT Bridge Management System with a sufficiency rating value of 80 or less for rehabilitation, or less than 50 for replacement; and be classified as structurally deficient or functionally obsolete. ODOT will provide up to 80 percent of the eligible costs for construction only. The municipality is responsible for the balance of the construction costs and all costs associated with preliminary engineering, environmental studies and documents, final design and right of way. The local match for construction is required to be cash.

Noise Walls Program

The Noise Wall Program provides funds for retrofitting existing highways with noise barriers. The annual statewide budget has been $5 million. Projects must meet federal and state eligibility criteria to be eligible for funding. Noise abatement measures will be authorized only for projects that were approved before November 28, 1995 or are proposed along areas where at least 90 percent of the land development or substantial construction predated the existence of any highway. The program is targeted for residential areas in existence prior to the

construction of a roadway.

Safety Program

The Safety Program provides funds to ODOT and local governments for highway safety treatments or corrective activity designed to alleviate a safety problem or a potentially hazardous situation. The program is funded at approximately $80 million annually in Ohio. ODOT will provide up to 90 percent of eligible costs for preliminary engineering, detailed design, right-of-way or construction. Projects may be on a city street or county or township road. Prioritization is based on the following criteria: crash frequency/density, crash rate, relative severity index, equivalent property damage only rate, percent truck traffic and rate of return. Typical projects include signalization, turn lanes, pavement markings, traffic signs, traffic lights, guardrails impact attenuators, concrete barrier end treatments and break away utility poles.

Urban Paving Program

The Urban Paving Program provides funds for eligible surface treatment and resurfacing projects on state and U.S. routes within municipal corporations. An annual allocation is set statewide and distributed to each of ODOT's 12 districts and added to each district's annual pavement allocation. The program is funded on an 80/20 basis with local governments providing the 20 percent match for project construction costs. Local governments are encouraged to provide a higher match rate to stretch the amount of available funds. ODOT may waive or reduce the local match for cities in fiscal distress.

State Capital Improvements Program

The State Capital Improvements Program (SCIP) provides low-interest loans and grants for infrastructure facilities. Eligible projects include improvements to roads, bridges, culverts, water supply systems, wastewater systems, storm water collection systems and solid waste disposal facilities. Funding is provided from the issuance of up to $120 million in bond sales annually. A set aside for the Small Government Program gives smaller subdivisions a second opportunity for assistance. A second set aside in Emergency Assistance Funds is awarded at the discretion of the commission's director for the immediate preservation of health, safety and welfare.

Local Transportation Improvements Program

The Local Transportation Improvements Program (LTIP) was created by the legislature in 1989 and provides an additional $60 million in gasoline tax receipts statewide each year. The program provides grants for local roads and bridge projects, which must have useful lives of at least seven years.

Both SCIP and LTIP funds are distributed for local government capital projects throughout Ohio on a competitive and population basis among 19 districts established by the Ohio Public Works Commission. Hamilton County is a district by itself (District 2). Butler, Clermont and Warren counties are in a district that includes Clinton County (District 10). Funding estimates from these two programs are based on the assumption that they will be renewed when they expire.

Through the two programs, the Ohio Public Works Commission provides grants, loans and financing for local debt support and credit enhancement. Eligible projects include improvements to roads, bridges, culverts, water supply systems, wastewater systems, storm water collection systems and solid waste disposal facilities.

In Kentucky, funds for both the State Projects and Rural Secondary Programs are derived from gasoline tax receipts, and are expended under the direction of the Department of Highways. These funds may be used for the construction, reconstruction, and maintenance of state and county roads and bridges.

Another source of state funds is from Unspecified Programs, which encompass all the state revenue that Kentucky allocates to the OKI counties that do not fall into any of the established state programs. These allocations usually finance 100 percent of these projects.

INNOVATIVE FINANCE

Innovative finance refers to a series of administrative and legislative initiatives undertaken in recent years which have removed barriers and added flexibility to federal participation in transportation finance. Policy makers recognized they could accelerate surface transportation project development and expand the base of available resources by removing barriers to private investment. This brings the time value of money into federal program decision making. Encouraging the use of new revenue streams, particularly to retire debt obligations and reducing financing and related costs, frees up savings for transportation system investment. These financing initiatives and techniques, which are commonly used in the private sector, are relatively new to federal aid transportation funding and are thus frequently referred to collectively as innovative finance.

Innovative finance is broadly defined as a combination of special funding initiatives. In the transportation industry, the term innovative finance has become synonymous with techniques that are specifically designed to supplement the traditional methods used to finance highways. The United States Department of Transportation's (USDOT) innovative finance initiatives are intended to augment rather than replace traditional financing techniques.

Over the past decade, innovative finance has undergone several transformations. Since its inception with the passage of ISTEA, innovative finance has laid foundations for several new concepts designed to fund transportation investment. TEA-21 and SAFETEA-LU continued the development of innovative finance concepts including credit assistance, innovative debt financing and public-private partnerships. The current status of these programs is described in more detail below.

Credit Assistance

Federal credit assistance for transportation projects takes various forms. Direct loans to project sponsors may provide the necessary capital to advance a project and/or reduce the amount of capital borrowed from other sources. Credit enhancement, including loan guarantees or lines of credit, make federal funds available on a contingency basis, thereby reducing the risk to investors and allowing project sponsors to borrow at lower interest rates. The projects themselves may often involve partnerships between the public and private sectors. Two of the most significant federal credit assistance programs introduced in recent years are the Transportation Infrastructure and Finance Innovation Act (TIFIA) and the State Infrastructure Bank (SIB) programs.

- **Transportation Infrastructure and Finance Innovation Act**

TIFIA was passed as part of TEA-21 and authorized the USDOT to establish a new credit program by offering eligible applicants the opportunity to compete for direct loans, loan guarantees, and lines of credit for up to one-third of the cost of large infrastructure construction projects of national significance. This is provided that the borrower has an associated revenue stream, such as tolls or local sales taxes, that can be used to repay the debt

issued for the project. An eligible project must be included in the applicable State Transportation Improvement Program (STIP). Major requirements include a capital cost of at least $50 million (or 33.3 percent of a state's annual apportionment of federal-aid funds, whichever is less) or $15 million in the case of Intelligent Transportation Systems (ITS). TIFIA credit assistance is limited to a maximum of 33 percent of the total eligible project costs. TIFIA projects include highway toll roads and bridges, transit systems, rail stations, ferry terminals and intermodal facilities.

- **State Infrastructure Banks**

State Infrastructure Banks (SIB) are revolving infrastructure investment funds for surface transportation that are established and administered by states. A SIB, much like a private bank, can offer a range of loans and credit assistance enhancement products to public and private sponsors of Title 23 highway construction projects or Title 49 transit capital projects. The requirements of Titles 23 and 49 apply to SIB repayments from federal and non-federal sources. All repayments are considered to be federal funds.

SIBs give states the capacity to make more efficient use of transportation funds and significantly leverage federal resources by attracting non-federal public and private investment. Alternatively, SIB capital can be used as collateral to borrow in the bond market or to establish a guaranteed reserve fund. Loan demand, timing of needs and debt financing considerations are factors to be weighed by states in evaluating a leveraged SIB approach.

SIBs are capitalized with federal-aid surface transportation funds and matching state funds. Several states have established SIBs or separate SIB accounts capitalized solely with state funds which are referred to as indirect SIBs. As loans or other credit assistance forms are repaid to the SIB, its initial capital is replenished and can be used to support a new cycle of projects.[i]

- **Section 129 Loans**

The process for funding a Section 129 loan is very similar to the process for committing funds to and obtaining reimbursement for any other federal-aid project. The first step is for the state to identify a candidate project and a project sponsor that could benefit from public credit assistance through a Section 129 loan, determine the approximate amount of the loan, and determine the amount and source of federal-aid highway funding to be committed to the loan. Apportionments from any program category may be committed to Section 129 loans as long as the project receiving the loan is eligible for funding from that program category.

After identifying the candidate project, the next step is for the state to discuss the project and loan structure with the Federal Highway Administration (FHWA) Division Office. After ensuring that the project meets all the requirements specific to Section 129(a)(7), the Division Office will authorize either the entire amount of the loan or an incremental amount, depending on project cash flow needs. At this point in the process, federal-aid funds are obligated for whatever portion of the loan was authorized. Federal reimbursements can be received after the state actually disburses loan funds to the project sponsor. The non-federal matching share for all Section 129 loan projects is 20 percent.

Use of Section 129 loans for project financing has been very limited. The principal reason is that SIBs, which serve the same purpose, have been authorized since 1995. SIBs have broader eligibility rules than Section 129 loans, and 32 states have existing SIBs capitalized with federal funds.[ii]

Tax Incremental Financing

Tax Incremental Financing (TIF) is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project such as a road, school or hazardous waste cleanup is carried out,

there is an increase in the value of surrounding real estate and often new investment such as construction of new or rehabilitated buildings. This increased site value and investment creates more taxable property, which increases tax revenues. The increased tax revenues are the tax increment. TIF dedicates that increased revenue to finance debt issued to pay for the project. TIF is designed to channel funding toward improvements in distressed or underdeveloped areas where development would not otherwise occur. TIF creates funding for public projects that may otherwise be unaffordable to localities.

Residential Improvement District

A Residential Improvement District (RID) is another name for an incentive district TIF. They work the same way as a standard TIF. Property within the incentive district is exempt from regular property taxes. The exempt property does not pay property taxes rather they make Payments In Lieu of Taxes (PILOT). These PILOTs are the same amount as property taxes but they do not get distributed the same way as property taxes. The Ohio authorizing legislation is ORC 5709.73(C).

Debt Financing and Cash Flow Management Tools

Because of their complexity, cost and lengthy design and construction periods, transportation projects are often financed by issuing bonds. Repayment of the bonds over several years has traditionally been covered by sources such as state and local taxes or revenue generated from highway user fees. More recently, highway and transit project sponsors have begun issuing debt instruments called Grant Anticipation Notes (GAN), backed by anticipated grant moneys. Grant Anticipation Revenue Vehicles (GARVEE) is a particular form of GAN being used for transportation projects.

- **Garvee Bonds**

In the broadest sense, a GARVEE is a type of anticipation vehicle, which are securities (debt instruments) issued when moneys are anticipated from a specific source to advance the upfront funding of a particular need. In the case of transportation finance the anticipation vehicles' revenue source is expected federal-aid grants.

Specific to highways, a GARVEE is used as a term for a debt instrument that has a pledge of future Title 23 federal-aid funding. Significantly, it is authorized for federal reimbursement of debt service and related financing costs. States can thus receive federal-aid reimbursements for a wide array of debt-related costs incurred in connection with an eligible debt financing instrument, such as a bond, note, certificate, mortgage, or lease; the proceeds of which are used to fund a project eligible for assistance under Title 23. Each of these instruments is considered a GARVEE when backed by future federal-aid highway funding, but most frequently, a bond is the debt instrument used. Specifically, as stated in Section 122 of Title 23, debt financing instrument-related costs eligible for federal-aid reimbursement include interest payments, retirement of principal, and any other cost incidental to the sale of an eligible debt issue. The issuer may be a state, political subdivision or a public authority.

GARVEEs enable a state to accelerate construction timelines and spread the cost of a transportation facility over its useful life rather than just the construction period. The use of GARVEEs expands access to capital markets as an alternative or in addition to potential general obligation or revenue bonding capabilities. The upfront monetization benefit of these techniques needs to be weighed against consuming a portion of future years' receivables to pay debt service. This approach is appropriate for large, long-lived, non-revenue generating assets.

- **Advance Construction**

The use of advance construction and partial conversion of advance construction, facilitates state issuances of GARVEEs. GARVEEs are used in conjunction with advance construction to enable using federal-aid funds for future debt service payments. Prior to the NHS Act in 1995 that introduced GARVEEs, it would have been necessary to obligate the federal share of debt service payments within the bounds of obligation authority available during the current authorization period. With the changes brought about by the NHS Act, it became possible to obligate federal funds for debt service expenses over a longer period bond to fund a federal-aid eligible project and annually

convert the federal share of the debt service payment as a reimbursable cost through the partial conversion of advance construction.[iii]

Public Private Partnerships

States are increasingly looking to the private sector as another potential source of highway and transit funding, either in addition to or in concert with new credit and financing tools. There is a long history of private sector involvement in providing highway transportation dating back to the late 1700s and early 1800s when numerous private toll roads were built to open interior areas of the country for commerce and settlement. In more recent times, private residential and commercial real estate developers have contributed directly to the growth of the transportation network by constructing local property access roads and upgrading adjacent collector or arterial routes, or by paying impact fees to local governments for use in improving the regional transportation system.

While private sector involvement in highway financing and construction slowed somewhat with the advent of dedicated public funding for highways, there has been renewed interest in private sector involvement in highway construction programs in recent years as highway budgets have been stretched. A variety of institutional models are being used including: concessions for the long-term operation and maintenance of individual facilities or entire highway systems; purely private sector highway design, construction, financing, and operation; and, public-private partnerships in designing, constructing, and operating major new highway systems. While a few states currently account for the majority of private sector financing, many more have expressed interest in the potential for greater private sector involvement.

A public-private partnership (P3) is a broad term that collectively refers to contractual agreements formed between public and private sector partners, where the private sector partner steps outside of its traditional role and becomes more active in making decisions as to how a project will be completed. P3s would allow for working with the private sector in new and innovative ways to develop, finance, maintain or operate a transportation facility. One of the strengths of a P3 is the number of ways to fund a project as compared to traditional methods through state gas tax and federal dollars. FHWA supports project funding using P3s. P3s include availability payments, tolling, and Private Activity Bonds.

- **Availability Payment**

Availability Payments (APs) are the best method for funding a large-scale, long-term transportation project worth hundreds of millions or over $1 billion in cost. A private firm pays the upfront cost of the entire project in exchange for annual payments from the state department of transportation (DOT) over a specified period of time. The private entity does not use tolling or any other user-based fee with AP. The AP financing allows for the delivery of a large-scale project much sooner than the traditional financing mechanism.

- **Private Activity Bonds**

States and municipalities have traditionally financed public transportation infrastructure using tax receipts (e.g., fuel taxes) and proceeds of tax-exempt municipal bonds. However, until recently, private participants in transportation P3s have not had the benefit of tax-exempt bond financing and have had to use taxable debt financing to support their bids for transportation concessions. Certain categories of infrastructure, such as airports, waste to energy facilities, and water and sewage facilities, historically benefited from special exemptions permitting tax-exempt treatment even if projects were developed by private participants. This type of financing, referred to as private

activity bonds, provides private developers and operators with access to tax-exempt interest rates which lowers the cost of capital. The result of increasing the involvement of private investors in highway projects generates new sources of money, ideas and efficiency.

- **Regional Infrastructure Improvement Zones**

OKI is advancing a new, innovative solution to encourage private-sector investment in infrastructure through a favorable tax treatment of funds known as Regional Infrastructure Improvement Zones (RIIZ). RIIZs would allow private corporations or individuals to contribute tax-deductible funds toward construction and maintenance of public infrastructure even if there is a direct benefit toward the private entity. A change to the federal tax code would allow for the establishment of a RIIZ and encourage new private sector funding for public infrastructure (road and water system) projects. These projects could provide improvements to associated infrastructure and business operations.

REVENUE (FUNDING) AND COST EXPECTATIONS

In today's economic environment, establishing a metropolitan planning organization's (MPO) regional transportation plan's fiscal forecasts over a 20+ year planning horizon is a challenging endeavor. Federal transportation funds are authorized through six year legislative cycles. The current six year federal transportation legislation, SAFETEA-LU, expired September 30, 2009. Federal funding authorizations have continued at SAFETEA-LU levels since then on continuing resolutions. Congress is debating new national transportation legislation at this time. The primary complication affecting adoption of new legislation is the uncertainty, and in some viewpoints unsustainable, funding mechanism of the federal transportation trust fund. Without infusion from the general budget, the trust fund would not be able to meet its obligations. The trust fund has historically provided the revenue to finance the authorized funds in the six year transportation legislative actions.

Funding for transportation improvements is based on data from federal, state and local sources. Future funding levels expected for the planning period covering 2012 through 2040 were estimated based on past trends and through consultation with ODOT, the Kentucky Transportation Cabinet (KYTC), and the Indiana Department of Transportation (INDOT). First, the base annual revenue is derived (averaged) from approximately 20 years of actual expenditure data. A detailed discussion of this derivation is provided in the following text.

ODOT and KYTC provided historical information on federal and state expenditures for highway projects. The state-based data is the basis for estimating an annual base year state and federal funding stream. To complete a future funding picture, OKI estimated local highway and transit funding using OKI Transportation Improvement Program (TIP) data from 2004 through 2011.

- The local portion of local-let funded projects in Ohio was not included in the historical data provided by ODOT. Likewise, construction engineering (CE) was not included. OKI estimates the local let projects to be 25 percent of all projects. The local share is assumed to be 20 percent which is typical of most projects. Construction engineering is assumed to be 10 percent of the total project cost.
- The local portion of Kentucky project costs was not included in the data provided to OKI. OKI estimates the portion of the total project cost to be five percent of total expenditures based on a review of the 2004-2011 TIP. Therefore the total revenue estimates from KYTC historical records (1993 to 2010) is increased by five percent.
- Indiana revenue estimates are estimated using programmed amounts in the OKI 2008-11 TIP.

The estimated annual base year revenue amount available from all sources is adjusted to account for revenue

growth. Based on secondary data discussed below, the revenues are adjusted upwards four percent per year. The relative proportion for expenditures, such as the proportion of operations and maintenance (O&M) funds versus capital, are assumed to remain the same through the planning period. The total revenue for the planning period (2012 to 2040) is equivalent to the future value of a series of annual payments at the growth rate stated.

An estimated $23.1 billion (B) ($16.73B in Ohio, $5.62B in Kentucky, and $0.79B in Indiana) is expected to be available over the 29 year planning period of 2012 to 2040. These revenues are a mix of formula and non-formula funds. Formula based funds are those that OKI or other local governments receive on an ongoing, annual basis and are therefore, repetitive and predictable. It is assumed that the non-formula based expenditures will continue at approximately the same levels plus some growth for inflation.

Once the revenues were identified for each state, the dollars available for new projects were determined by subtracting the funds equal to four years of base annual revenues to approximate the level required for currently programmed TIP projects and O&M and subtracting the funds attributable to transit formula funds. Figures 15-1 and 15-2 present the funds that can reasonably be expected to be available.

Figure 15-1: Regional Summary of Available Revenues

All Revenue	$23.1 billion
TIP	$2.0 billion
Transit Formula	$5.6 billion
Highway O&M	$5.4 billion
Amount Available for Multimodal Discretionary Projects	**$10.1 billion**

Figure 15-2: Estimated Revenues by State

State	Base Revenue Annual	TIP Period	Plan - TIP$	Total Plan
OHIO				
New Highway Capacity Total	$107,304,143	$429,216,574	$4,468,778,517	$4,897,995,091
Highway O&M Total	$106,085,363	$424,341,451	$4,418,021,286	$4,842,362,737
Non-Highway Total	$14,197,457	$56,789,829	$591,266,005	$648,055,834
Transit by Formula	$109,732,545	$438,930,179	$4,569,911,499	$5,008,841,678
Transit Non-Formula	$29,169,411	$116,677,643	$1,214,786,601	$1,331,464,244
State of Ohio Total	$366,488,919	$1,465,955,676	$15,262,763,908	$16,728,719,584
Net Ohio Capital (equals total minus O&M minus transit)			$5,060,044,522	

State	Base Revenue Annual	TIP Period	Plan - TIP$	Total Plan
KENTUCKY				
New Highway Capacity Total	$84,823,470	$339,293,879	$3,532,550,438	$3,871,844,317
Highway O&M Total	$12,680,087	$50,720,347	$528,073,735	$578,794,082
Non-Highway Total	$0	$0	$0	$0
Transit by Formula	$25,632,936	$102,531,742	$1,067,506,881	$1,170,038,623
Transit Non-Formula	$5,382,916	$21,531,666	$224,176,445	$245,708,111
State of Kentucky Total	$123,136,492	$492,545,968	$5,128,131,054	$5,620,677,022
Net Kentucky Capital (equals total minus O&M minus transit)			$3,532,550,438	
INDIANA				
New Highway Capacity Total	$5,894,348	$23,577,390	$245,475,455	$269,052,845
Highway O&M Total	$8,697,452	$34,789,808	$460,671,733	$495,461,541
Non-Highway Total	$568,375	$2,273,500	$23,670,493	$25,943,993
Transit by Formula	$0	$0	$0	$0
State of Indiana Total	$15,160,175	$60,640,698	$729,817,681	$790,458,379
State of Indiana Total	$15,160,175	$60,640,698	$729,817,681	$790,458,379
Net Indiana Capital (equals total minus O&M minus transit)			$269,145,949	

Notes:

- Revenue forecasts assume four percent annual growth. This is in-line with federal guidance.
- The PLAN – TIP$ column is calculated using the Excel FV function where:
  - ◊ FV equals (rate,nper,pmt)
  - ◊ rate (i) equals assumed rate of revenue growth (four percent)
  - ◊ nper equals number of years in the planning period (29 years)
  - ◊ pmt equals the annual revenue
- REAR equals Reasonably Expected Available Revenues
- Base Revenue Annual was provided by each of the states. The ratio of O&M has been held constant.
- TIP Period = Base Revenue Annual multiplied by four years

Assumptions on Revenue Forecasts

In the absence of local data to formulate an estimated annual rate of growth, OKI relies on approaches from the collective states in which OKI operates. The annualized estimated revenue growth is assumed to be four percent per year. This is consistent with MPOs in Kentucky and Ohio which range between one and five percent. Recent high level research indicates that one percent is low. MPOs in Louisville (Kentuckiana Regional Planning and Development Agency or KIPDA) and Lexington (Lexington Area Metropolitan Planning Organization) used five percent and four percent, respectively. KIPDA recently completed a plan update and their revised fiscal constraint estimates five percent annual growth which has been supported by KYTC, INDOT and accepted by FHWA. The Miami Valley Regional Planning Commission (MVRPC) in Dayton used 2.3 percent. The Mid-Ohio Regional Planning Commission (MORPC) in Columbus uses one to two percent for their larger fund sources. The Toledo Metropolitan Area Council of Governments (TMACOG) uses one percent. The Northeast Ohio Areawide

Coordinating Agency (NOACA) in Cleveland uses a range from three to six percent.

A review of the annual growth in guaranteed funding from SAFETEA-LU indicates that over the short five year time frame of the bill, four percent annual growth is a modest estimate (see Figure 15-3).[iv] This is a short time frame, however the four year cycle for metropolitan plan updates will require these assumptions to be revisited on a consistent and regular basis. All revenue estimates will be more clearly understood when a new transportation bill is signed by legislators.

Figure 15-3: SAFETEA-LU Guaranteed Funding*

	2005	2006	2007	2008	2009	Total
DISCRETIONARY SPENDING FIREWALLS						
Highway Category (Sec 8003(a))						
FAH Obligation Limitation	$34,423	$36,032	$38,244	$39,585	$41,200	$189,484
Motor Carrier Safety	$443	$495	$517	$528	$541	$2,524
National Highway Transportation Administration	$299	$693	$700	$711	$729	$3,132
Highway Category Subtotal	$35,165	$37,220	$39,461	$40,824	$42,470	$195,140
Transit Category (Sec 8003(b))	**$7,646**	**$8,623**	**$8,975**	**$9,731**	**$10,338**	**$45,313**
TOTAL Discretionary Firewalls	**$42,811**	**$45,843**	**$48,436**	**$50,555**	**$52,808**	**$240,453**
MANDATORY SPENDING						
Emergency Relief	$100	$100	$100	$100	$100	$500
Equity Bonus	$639	$639	$639	$639	$639	$3,195
Subtotal	$739	$739	$739	$739	$739	$3,695
TOTAL Guaranteed Funding	**$43,550**	**$46,582**	**$49,175**	**$51,294**	**$53,547**	**$244,148**
Annual growth** (average=5.3%)		7.0%	5.6%	4.3%	4.4%	

* *Amounts in millions of dollars*
** *Annual growth line (above) is added by OKI.*

Assumptions on Cost Estimation

- **Year of Expenditure Cost**

SAFETEA-LU requires that this plan's fiscal constraint demonstration include estimates of project costs in terms of dollars for the year of expenditure (YOE). In other words, a project that is built in a future year would include inflation in the cost estimate. For example, 2025 projects would have the cost in terms of 2025 dollars, 2035 projects would have the cost in terms of 2035 dollars. The YOE is assumed to be the mid-point of the construction period. Year of expenditure cost estimation requires a current or base year cost estimate, the implementation date (year) of the project and an inflation factor for the project to reflect the cost in terms of the implementation year.

- **Base Year Cost**

Base year project cost (BY) is developed in the documented planning process that generated the concept of the project. Some projects not originating in a documented study are estimated by staff as described below.

- **Year of Expenditure**

The year in which the project is constructed is estimated by staff. Staff considered information from various corridor studies, perceived complexity of the construction process, environmental challenges, availability of right of way and revenue flow to assign projects into implementation time frames. The time frames are consistent with air quality conformity analysis years for the region of 2017, 2025, 2030 and 2035.

- **Inflation Factor**

The OKI Plan is required to account for the time value of money (inflation). Therefore, project costs are inflated using generalized figures derived from industry cost information (material, labor, etc.) and guidance from the states' transportation agencies. This practice is known as developing estimated project costs in terms of their YOE. The YOE is estimated by OKI staff as the midpoint of the project's year of construction. The year of expenditure cost is the product of the base year cost and an inflation factor. The factor is dependent on the inflation rate and the number of years between the BY and the YOE. OKI has estimated a yearly inflation rate based on information from several sources. For this plan update the inflation rate (i) is 3.5 percent per year.

This rate is based on the recent trends in project construction cost moderation. Figures 15-4 and 15-5 demonstrate that highway construction cost trends have moderated. A review of cost growth trend (inflation) assumptions used in metropolitan areas across Ohio and Kentucky for metropolitan plans, indicates that 3.5 percent is in the range of what other plans are using. For example, KIPDA and the Lexington MPO both use four percent. MVRPC used 2.3 percent. MORPC used a range from three to six percent. TMACOG used three percent. The use of 3.5 percent has been supported by ODOT and KYTC in e-mail correspondence.

The formula for converting base year cost estimates to year of expenditure cost estimates is:

YOE Cost = BY Cost Estimate x Inflation Factor

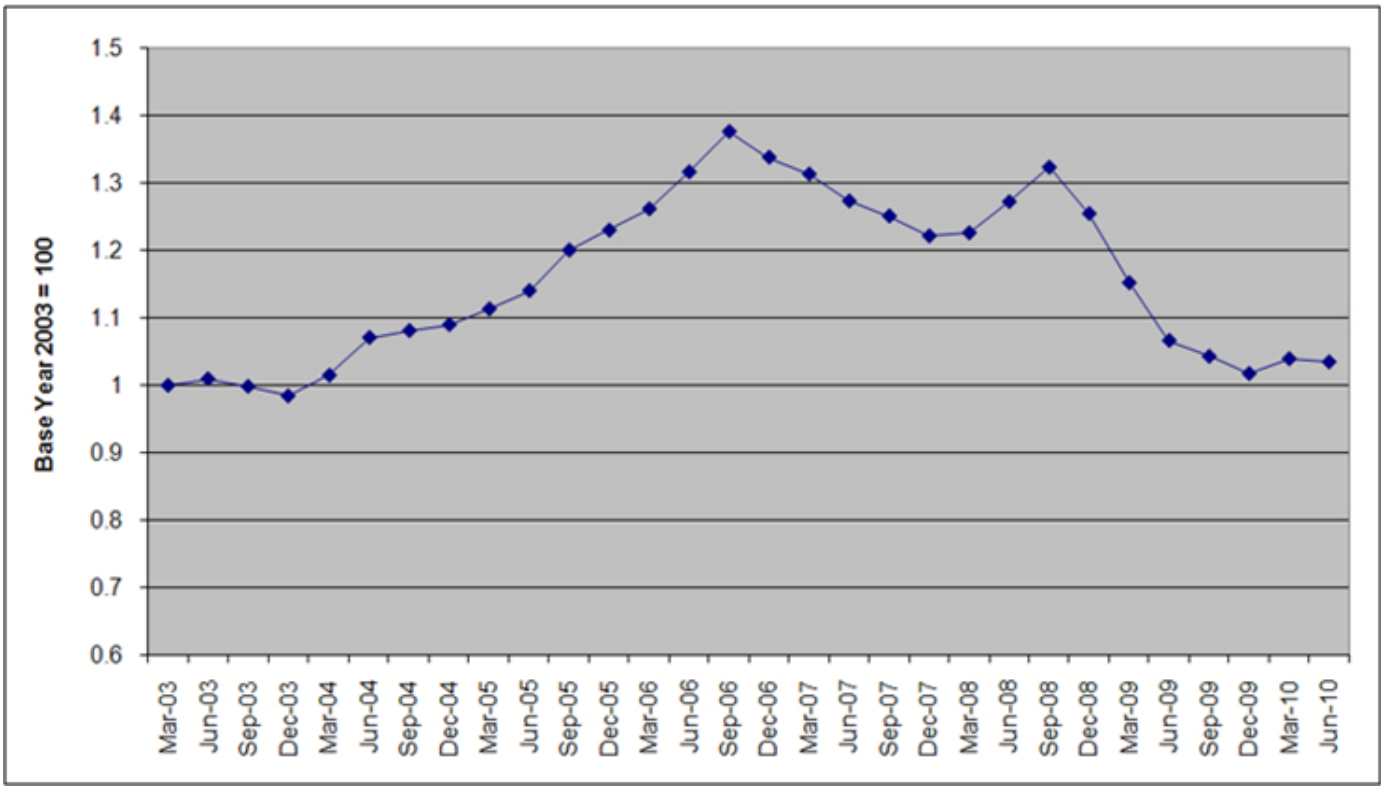
YOE Cost = BY Cost Estimate x [1+ (i / 100)](YOE – BY)

Figure 15-4: Construction Cost Trends For Highways, Table PT-1 [v]

Year	Quarter	NHCCI Index
2003	March	1.00
	June	1.01
	September	1.00
	December	0.98
2004	March	1.02
	June	1.07
	September	1.08
	December	1.09
2005	March	1.11
	June	1.14
	September	1.20
	December	1.23

Year	Quarter	NHCCI Index
2006	March	1.26
	June	1.32
	September	1.38
	December	1.34
2007	March	1.31
	June	1.27
	September	1.25
	December	1.22
2008	March	1.23
	June	1.27
	September	1.32
	December	1.25
2009	March	1.15
	June	1.07
	September	1.04
	December	1.02
2010	March	1.04
	June	1.03

Figure 15-5: Construction Cost Trends for Highways, Table PT-1 [vi]



Estimation of Individual Project Costs

OKI will use the cost estimate from published planning studies or those provided by the agency that sponsored the project. In the absence of a cost estimate from a primary source, an estimate is made using either a Kentucky Project Information Form (PIF) (if available for a Kentucky project) or the default value described below using secondary literature research.

- **Roadway**

Roadway project cost estimates include construction and right of way for projects which introduce a new facility on a new alignment and/or add additional through lanes. Default data is tabulated from FHWA Highway Economic Requirements System (HERS) 2008 data and factored to 2011 using the ODOT highway cost factor of 1.04.

Figure 15-6: Roadway Construction Cost Estimates by Project Type

	2011 Default Per Lane Miles Cost	
Urban	**Add Lane**	**New Alignment**
Freeway/Expressway	$8,400,000	$12,200,000
Other Principal Arterial	$5,000,000	$6,600,000
Minor Arterial/Collector	$3,400,000	$4,500,000
Rural		
Interstate	$2,400,000	$3,800,000
Other Principal Arterial	$1,900,000	$3,000,000
Minor Arterial	$1,800,000	$2,800,000
Major Collector	$1,800,000	$2,727,000

- **Interchange on interstate system**

Interchange cost estimates are based on recently completed interchanges in or near the OKI region and recent cost estimates from local area studies. OKI will use $50 million as the default interchange cost on interstate facilities.

- **Transit**

Cost estimates in Figure 15-7 were used estimating transit project costs based on input provided by the Transit Authority of Northern Kentucky (TANK) and the Southwest Ohio Regional Transit Authority (SORTA).

Figure 15-7: Transit Cost Estimates

Transit Vehicle Type	Unit Cost Estimate
On-street transit station	$3,000,000
Off-street transit station with amenities	$6,000,000
40 foot standard transit bus	$415,000
40 foot hybrid transit bus	$685,000
Compact transit vehicle	$75,000

- **Bike and Pedestrian**

Cost estimates in Figure 15-8 are for bicycle facility and sidewalk construction only and do not include design, engineering, property acquisition, utility relocation or operation and maintenance. Many pedestrian projects will be incorporated and included as elements of roadway improvement projects but as necessary, the costs for sidewalks will be estimated at $170,300 per mile as shown Figure 15-8.

Figure 15-8: OKI Bicycle and Pedestrian Facility Construction Cost Estimates[vii]

Facility	Component Cost Per Mile	Estimated Cost Per Mile
On-road [viii]		
Bike lanes (striping)	Six inch stripe - $4,200 Bike pavement marking - $2,300 Arrow pavement marking - $1,700	$8,200
Wide curb lane (14 or more feet)	Added pavement	$135,000
Shared lane markings	Pavement markings	$2,300
Off-road[ix]		
Shared use path	10 ft asphalt	$236,000
Sidewalk (5 feet wide, concrete)[x]	Both sides	$170,300

- **ITS**

Individual project costs were estimated during the development of the OKI ITS Architecture Update and Strategic Plan. The OKI ITS Plan is summarized in Chapter 11 and presents an overview of ITS project recommendations and default cost information considered in this plan update.

RECOMMENDED PLAN COST ESTIMATION

Recommended projects have been identified elsewhere in this document, primarily in Chapters 9 (Roadway) and 10 (Public Transportation). A summary and the associated costs are provided below in Figure 15-9 and Figure 15-10. These figures do not include the approximate two billion dollars programmed in the current 2012 to 2015 OKI TIP. Figures 15-11 and 15-12 provide more detail on the type of roadway and public transportation projects respectively included in this plan update.

Figure 15-9: Regional Summary of Recommended Plan Costs by Project Type [vii]

STATE	Project Type	Cost Estimate in Year of Expenditure
OHIO		
	Roadway Operations & Maintenance	$4,842,362,737
	Public Transportation Operations	$5,008,841,678
	Roadway (Chapter 9)	$4,848,290,000
	Public Transportation (Chapter 10)	$1,077,190,000
	Intelligent Transportation Systems (Chapter 11)	$46,090,000
	Freight (Chapter 12)	$15,640,000
	Bicycle, Pedestrian and Trails (Chapter 13)	$0
	TOTAL	**$15,838,414,415**
KENTUCKY		
	Roadway Operations & Maintenance	$578,794,082
	Public Transportation Operations	$1,170,038,623
	Roadway (Chapter 9)	$3,265,950,000
	Public Transportation (Chapter 10)	$12,570,000
	Intelligent Transportation Systems (Chapter 11)	$15,640,000
	Freight (Chapter 12)	$0
	Bicycle, Pedestrian and Trails (Chapter 13)	$1,790,000
	TOTAL	**$5,044,782,705**
INDIANA		
	Roadway Operations & Maintenance	$495,461,541
	Public Transportation Operations	$0
	Roadway (Chapter 9)	$106,100,000
	Public Transportation (Chapter 10)	$4,890,000
	Intelligent Transportation Systems (Chapter 11)	$2,110,000
	Freight (Chapter 12)	$590,000
	Bicycle, Pedestrian and Trails (Chapter 13)	$780,000
	TOTAL	**$609,931,541**
OKI REGIONAL TOTAL		
	Roadway Operations & Maintenance	$5,916,618,360
	Public Transportation Operations	$6,178,880,301
	Roadway (Chapter 9)	$8,220,340,000
	Public Transportation (Chapter 10)	$1,094,650,000
	Intelligent Transportation Systems (Chapter 11)	$63,840,000
	Freight (Chapter 12)	$16,230,000
	Bicycle, Pedestrian and Trails (Chapter 13)	$2,570,000
	TOTAL	**$21,493,128,661**

Figure 15-10: Distribution of Plan Cost Percentage by Mode

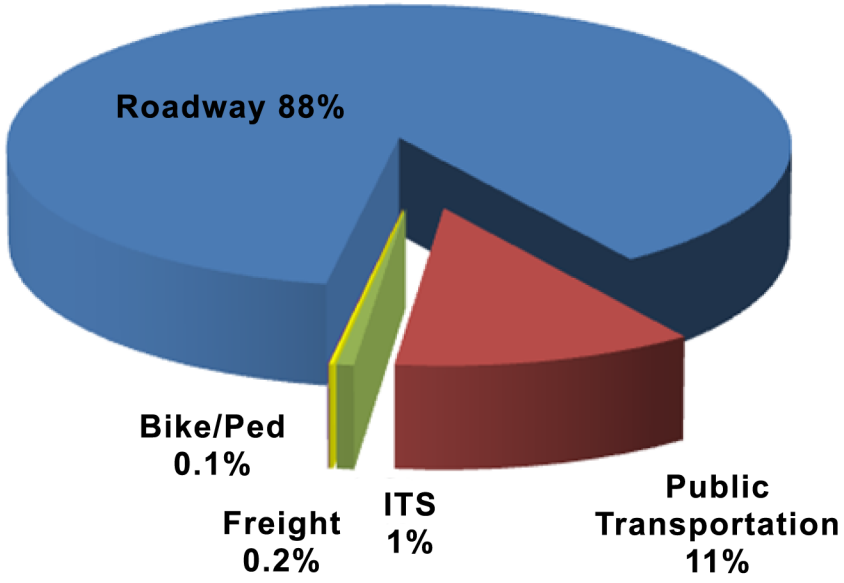
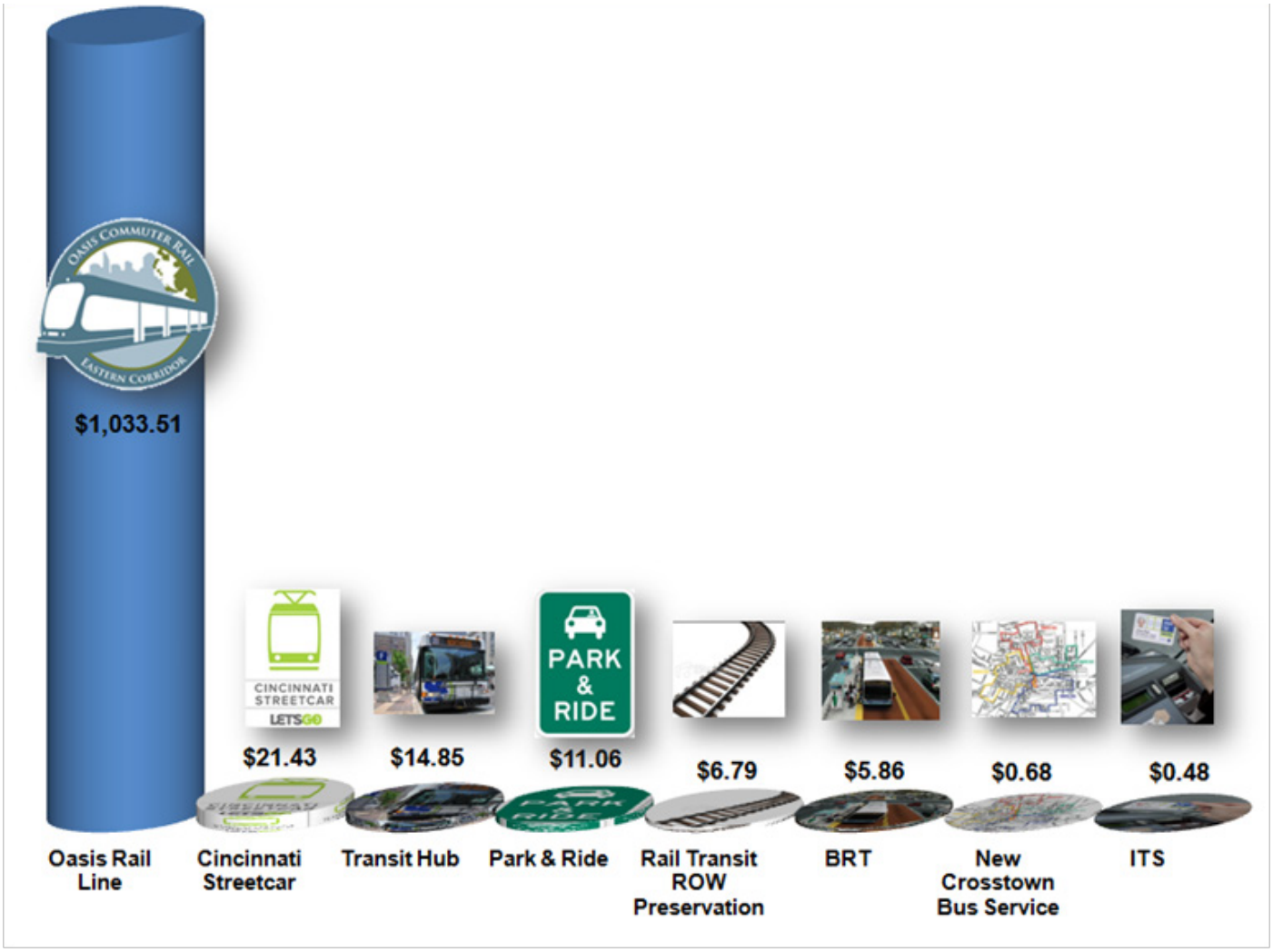


Figure 15-11: Distribution of Plan Cost for Roadway Project Types

Figure 15-12: Distribution of Plan Cost for Public Transportation Project Types



Major Projects

The region has one project that is expected to be a major project and that is the replacement and rehabilitation of the Brent Spence Bridge (BSB). A major project is defined by the Federal Highway Administration as one expected to cost over $500 million. The BSB is considered the most important project for the region and will be constructed.

To date, $35.4 million has been committed from sources at the state and federal level. These funds are listed in the OKI TIP and are committed to preliminary engineering, environmental and the purchase of right of way. Project development continues. A preferred alternative has been identified and will continue through the public evaluation process. A

Finding of No Significant Impact (FONSI) is expected in mid-2012. A financial plan is under development at this time but not complete. The BSB is included in this fiscally constrained plan update. The outcome of the financial plan for the bridge project may warrant future adjustments to the fiscal constraint analysis. The BSB cost is $2.27 billion and these costs are distributed between Kentucky and Ohio per the current bi-state agreement ($1,063,750,000 cost estimate for Ohio, $1,202,869,820 cost estimate for Kentucky). For the Kentucky section, the mid-range alternative (Alternative I) is used for cost estimating.

According to 23 CFR 450.322(f)(10), "The financial plan shall include recommendations on any additional financing strategies to fund projects and programs included in the metropolitan transportation plan. In the case of new funding sources, strategies for ensuring their availability shall be identified." Though construction funding has not been secured for this project, the regional effort to secure earmark funding has been unwavering. The significance of the Brent Spence Bridge project corridor is such that the likelihood of a successful procurement of the needed earmarks is strongly anticipated due to the project's impact on regional, national and international goods and passenger movement.

Figure 15-13: Fiscal Constraint Demonstration by State

STATE	Cost Estimate in Year of Expenditure
OHIO	
Total Revenues Available for Discretionary Projects [a]	$6,274,831,123
Total Cost for Discretionary Projects [b]	$5,987,210,000
Uncommitted	$287,621,123
KENTUCKY	
Total Revenues Available for Discretionary Projects [a]	$3,756,726,883
Total Cost for Discretionary Projects [b]	$3,295,950,000
Uncommitted	$460,776,883
INDIANA	
Total Revenues Available for Discretionary Projects [a]	$269,145,949
Total Cost for Discretionary Projects [b]	$114,470,000
Uncommitted	$154,675,949

Source: a Figure 15-2 and b Figures 15-9.

FISCAL CONSTRAINT

Federal legislation requires the OKI 2040 Regional Transportation Plan to demonstrate that its recommendations are fiscally constrained, that is, financial resources can be reasonably expected to be available to cover the costs of the plan. As outlined above in the Funding Revenue and Cost Expectations section, approximately $23.1 billion is estimated to be available for all transportation expenditures in the OKI region over the life of the plan. The estimated cost of the recommendations of this plan is an estimated $22.538 billion. Because the total value or cost of recommended projects in this plan (Figure 15-9) is less than the resources reasonably expected to be available, this plan demonstrates financial constraint.

i. http://www.fhwa.dot.gov/ipd/finance/tools_programs/federal_credit_assistance/sibs/index.htm
ii. http://www.fhwa.dot.gov/ipd/finance/tools_programs/federal_credit_assistance/
iii. http://www.fhwa.dot.gov/ipd/finance/tools_programs/federal_debt_financing/garvees/index.htm
iv. http://www.fhwa.dot.gov/reports/financingfederalaid/approp.htm
v. Federal Highway Administration, Office of Highway Policy Information, "National Highway Construction Cost Index (NHCCI)" Updated: 09/23/2010. http://www.fhwa.dot.gov/ohim/nhcci/pt1.cfm
vi. Federal Highway Administration, Office of Highway Policy Information, "National Highway Construction Cost Index (NHCCI)" Updated: 09/23/2010. http://www.fhwa.dot.gov/ohim/nhcci/pt1.cfm
vii. Bicycle and pedestrian facility costs update a previous estimate from April 2003 prepared for approximating bike components of projects included in the 2004 Update of the OKI 2030 Regional Transportation Plan. Some of the sources from that memo were used as a base for this 2012 update
viii. A principal source for this update is the Bicycle/Pedestrian Information Center Facility Cost http://www.bicyclinginfo.org/bikecost/howto.cfm. This source was used for the on-road estimates and includes estimates for most related facilities such as barriers, loop detectors, lighting, design and maintenance. The costs in Figure 15-8 are for 2002, however an adjustment factor of 1.29 is provided to obtain 2011 figures.
ix. The off-road shared use path (trail) cost is from a 2011 estimate by Columbus, Ohio Metroparks which considers material and labor costs and a list of seven other trail project costs from around the country. This resource was obtained through the ODOT Bike/Pedestrian office.
x. The construction estimate for five foot sidewalks on both sides of a street is based on figures from the 2003 OKI construction cost estimate by KZF consultants for one-side construction in 2003 and factored by the 1.29 Bicycling Info factor for 2011. Another available resource is a cost of living adjustment application which was not used but is available at: http://data.bls.gov/cgi-bin/cpicalc.pl

Chapter 16

ECONOMIC & SOCIAL & ENVIRONMENTAL IMPACT ASSESSMENT

INTRODUCTION

Impact assessment is a process to evaluate the effects a transportation project may have on those using the transportation system, as well as the greater community. The assessment process is an integral part of project planning and development that shapes the outcome of a project.[i] Impact assessments consist of both a quantitative and qualitative measures. They may be economic, social or environmental impacts, or even all three. Consideration of such impacts is not only required by law, but is simply good planning. This chapter will examine quantitative and qualitative impacts of the plan on the community as a whole and on particular population groups where appropriate.

ECONOMIC IMPACT

One measure of the economic impacts of transportation projects is through job creation. Although data is not available at the local level, measures at the national level show the substantial and growing impact of roadway investment on job creation. The total number of jobs supported by roadway investment including construction-related jobs, jobs in supplier industries, and jobs supported indirectly throughout the economy rose about 12.5 percent, from 1.65 million jobs in 1997 to 1.85 million jobs in 2007 as a result of increased roadway investment from all levels of government.

For many years the Federal Highway Administration (FHWA) has periodically estimated the employment impacts of highway capital expenditures. FHWA is in the process of updating the estimated impact of Federal-aid highway expenditure to reflect changes in economic climate relative to 2007, labor productivity, and changes in consumers' rate of saving. These changes will exert downward pressure on the highway construction employment relative to the 2007 estimate of 27,800 jobs per one billion dollars of Federal-Aid highway capital expenditure.[ii] For the purposes of assessing the economic impact on job creation of this plan update, the 2007 estimate of 27,800 per one billion dollars was applied. With a total cost of $20.396 billion dollars, a creation of 567,009 jobs is estimated to occur from the implementation of this plan.

SOCIAL IMPACT

Transportation plays an essential role in the social development of society and has various impacts on the human environment. OKI uses several factors to assess the impact of this plan's recommendations on the region's people.

Human Health

The health and well being of all people in the region is a vital interest for OKI. The text that follows

presents various perspectives on the impact of transportation on human health, both positive and negative. It will explore the aspects of air quality, noise pollution, water runoff and crashes. It also describes some of the activities undertaken by OKI to reduce negative impacts and raise awareness of how negative impacts can be reduced.

- **Mobile Source Emissions**

Impact on Health: A large proportion of the vehicle fleet in the OKI region is powered by gasoline and diesel powered internal combustion engines. Emissions are the primary by-product of burning fossil fuels. EPA has identified volatile organic compounds (VOCs), oxides of nitrogen (NOx), carbon monoxide (CO) and fine particulate matter (PM2.5) as the predominant hazards to human health. Air pollution can adversely affect human health, and has been shown to lead to increased mortality and morbidity. In particular, there is evidence of a direct effect of air pollutants on mortality and respiratory and cardiovascular diseases.

Status: OKI's three Kentucky counties, four Ohio counties and a portion of Dearborn County Indiana have previously been designated as a nonattainment area for ozone and fine particulates (PM2.5). In 2010, EPA approved requests to redesignate the region as a maintenance area for the 8-hour ozone standard. OKI is also designated as a maintenance area for the PM2.5 annual standard.

OKI Actions Underway: Transportation conformity is a mechanism to ensure that federal funding and approval are given to those transportation activities that are consistent with air quality goals as contained in the State Implementation Plans (SIP). Projects and programs that facilitate the reduction in single occupant vehicle travel (SOV) and the wider use of bike, pedestrian and transit are routinely funded. Educational outreach and funding assistance is on-going with OKI's RideShare, Vanpool and Do Your Share for Cleaner Air Program.

- **Noise Pollution**

Impact on Health: The movement of cars, buses and trucks on roadways is the primary source of transportation related noise pollution. Noise is generated by tires, engines and braking. Tire noise is the most significant component. A study published in Science Daily in February 2008 found that continual exposure to noise levels above 50 decibels can increase the risk of heart attacks by 40 percent. Traffic noise raises the risk of hypertension, particularly for the young and middle-aged. Elderly individuals have a comparatively smaller risk of experiencing health problems associated with loud road traffic noise. Noise caused by road, rail and air transport is a serious source of nuisance and health hazards. Noise nuisance causes sleep disturbances and cardiovascular and psychological effects, resulting in tiredness and low mood and thus reducing the working and studying performance and altering social behavior. At sufficiently high levels, it can impair hearing. The health effects of noise include stress, insomnia, high blood pressure and increased risk of heart attack. Children are particularly vulnerable to the effects of noise, for instance with respect to impairments of their reading acquisition, and attention and problem-solving abilities. [iii]

Figure 16-1: Noise Level Comparisons [iv]

Various Noise Sources	Decibel (dB) Level
Passenger car at 65 mph from distance of 25 feet	77dB
Roadway 50 feet from pavement edge 10:00 a.m.	76 dB
Living room music	76 dB
Radio, TV, or vacuum cleaner	70 dB
Library	40 dB
Breathing	10 dB

Status: Noise is not monitored by OKI but is a consideration under the National Environmental Protection Agency (NEPA). Federal requirements for noise barriers may be found in Title 23 of the U.S. Code of Federal Regulations, Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise." The Federal Highway Administration noise regulations apply only to projects where a state transportation department has requested federal funding for participation in the improvements. The state transportation department must determine if there will be traffic noise impacts, when a project is proposed for (1) the construction of a highway on new location or (2) the reconstruction of an existing highway to either significantly change the horizontal or vertical alignment or increase the number of through-traffic lanes. If the state transportation department identifies potential impacts, it must implement abatement measures, possibly including the construction of noise barriers, where reasonable and feasible. Options that can help mitigate the problem include installing noise barriers and enclosures along highways and near/in human settlements, improving the noise insulation of buildings and integrating special architectural features (fins and balconies) to reduce the impact from roadway noise on residential buildings.

OKI Actions Underway: As stated above all OKI federally funded projects consider the impacts of noise in design.

- **Stormwater Runoff**

Impact on Health: Runoff from transportation facilities (roads) can carry sediment and pollutants such as chemicals, oils, salt, etc. threatening public through contamination of water supplies.

Status: Stormwater is not monitored by OKI. However, the agency has worked with various agencies through the environmental consultation process during the 2040 Regional Transportation Plan development to identify high quality resources that might be impacted by the plan. Stormwater runoff has been identified as a threat to water quality.

OKI Actions Underway: OKI collaborates with watershed groups, sewer districts, local governments, conservation districts and others who are installing stormwater best management practices or creating plans to improve stormwater quality. Examples of this work includes:

- ◊ Partnering with the Mill Creek Watershed Council of Communities to help create a Lower Mill Creek Watershed Action Plan to address stormwater issues
- ◊ Collecting stream samples and performing laboratory analysis procedures for the Great Miami Water Quality Monitoring Project and Saturday Stream Snapshot, two volunteer monitoring programs that study the impacts of polluted stormwater runoff
- ◊ Helping the Metropolitan Sewer District of Greater Cincinnati (MSD) staff a series of watershed open houses to educate the public on MSD's efforts to reduced combined sewer overflows, which occur when excess stormwater flows to the combined sewer system
- ◊ Working with the City of Sharonville to finish installing a six and one half acre wetland that receives and naturally treats stormwater
- ◊ Collaborating with Butler Soil & Water Conservation District and corporate volunteers to maintain a stormwater management wetland that was installed 10 years ago with a federal grant awarded to OKI and project partners.

- **Crashes**

Impact on Health: Crashes can kill or injure motorists, pedestrian and cyclists.

Status: The regions roadways are becoming more safe but there is still a very large toll on health. 2010 crashes claimed 131 lives down from 166 in 2006. The number of injuries also decreased from 14,190 to 12,436. Total crashes declined from 68,600 to 61,700 (-6900).

OKI Actions Underway: Highway safety continues to an emphasis area. The Oki prioritization process awards points to projects that address safety needs.

Environmental Justice Populations

As described earlier in this plan, OKI has defined five social groups for which the impacts of transportation projects are being evaluated in accordance with federal and state Environmental Justice (EJ) guidelines. Concentrations of these groups – the elderly, minority population, people with disabilities, population in poverty and zero car households – within the OKI region have been identified and located (See Chapter 3).

Figures 16-2 through 16-6 highlight the concentrations of the target populations in the OKI region along with this plan's recommended transportation projects and programmed projects included in the Transportation Improvement Program (TIP). In addition, projects and impacted EJ populations are summarized in tabular form to more clearly identify which recommended plan projects fall within or are located adjacent to an EJ concentrated area (Figure 16-7).

Figure 16-2: Recommended and Programmed Projects Overlaid on Elderly Population Concentrations

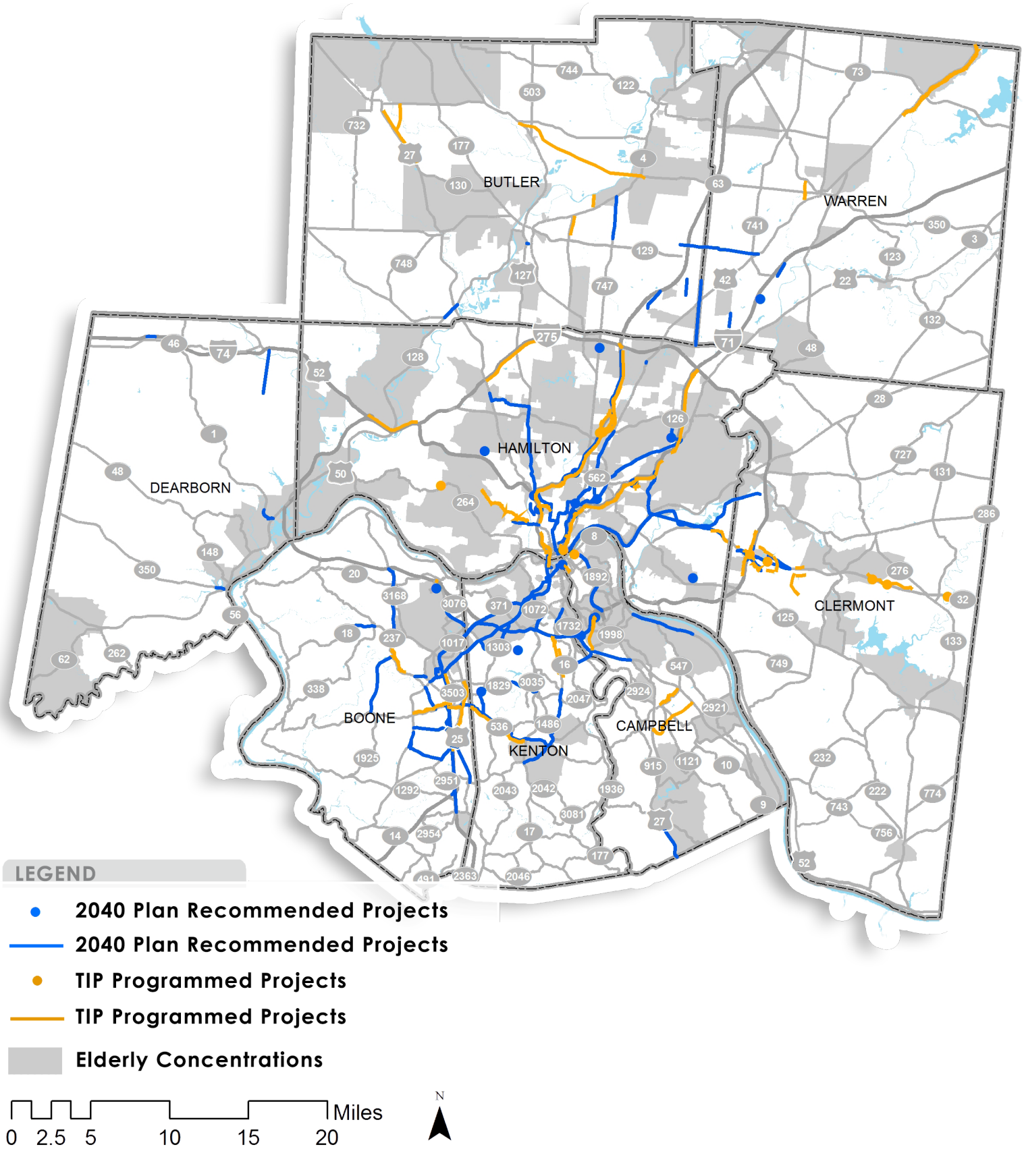


Figure 16-3: Recommended and Programmed Projects Overlaid on Minority Population Concentrations

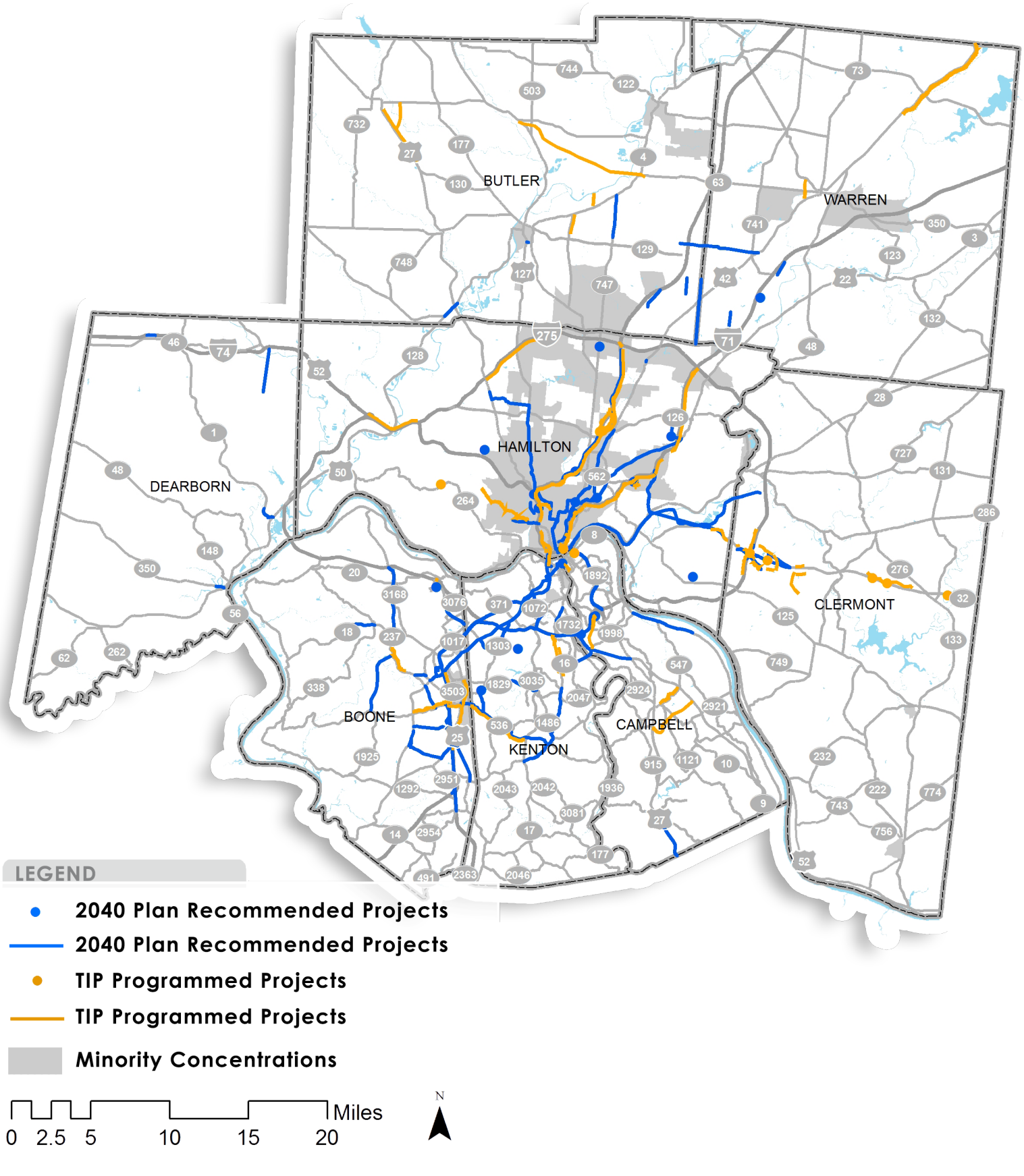


Figure 16-4: Recommended and Programmed Projects Overlaid on People with Disabilities Concentrations

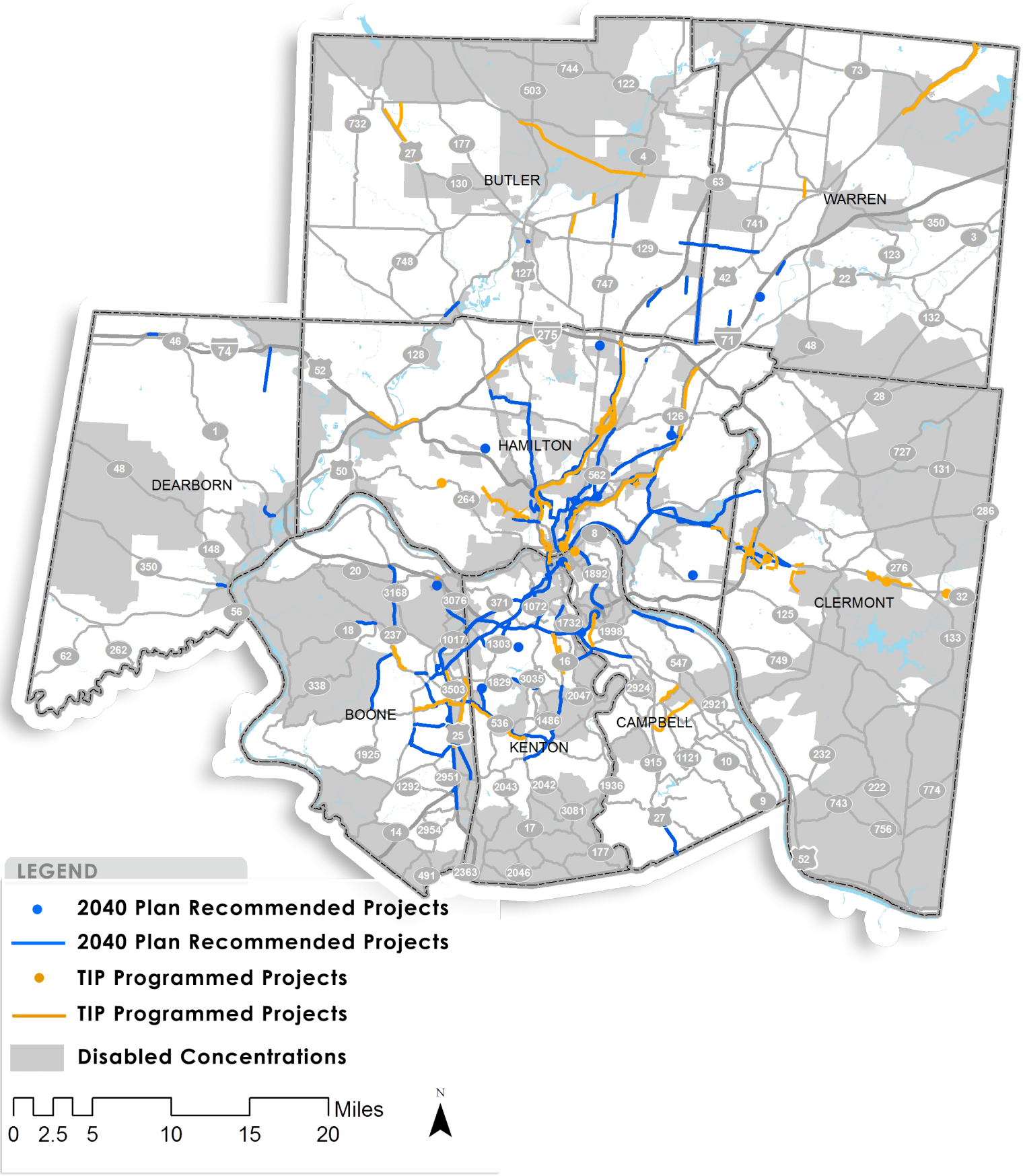


Figure 16-5: Recommended and Programmed Projects Overlaid on Population in Poverty Concentrations

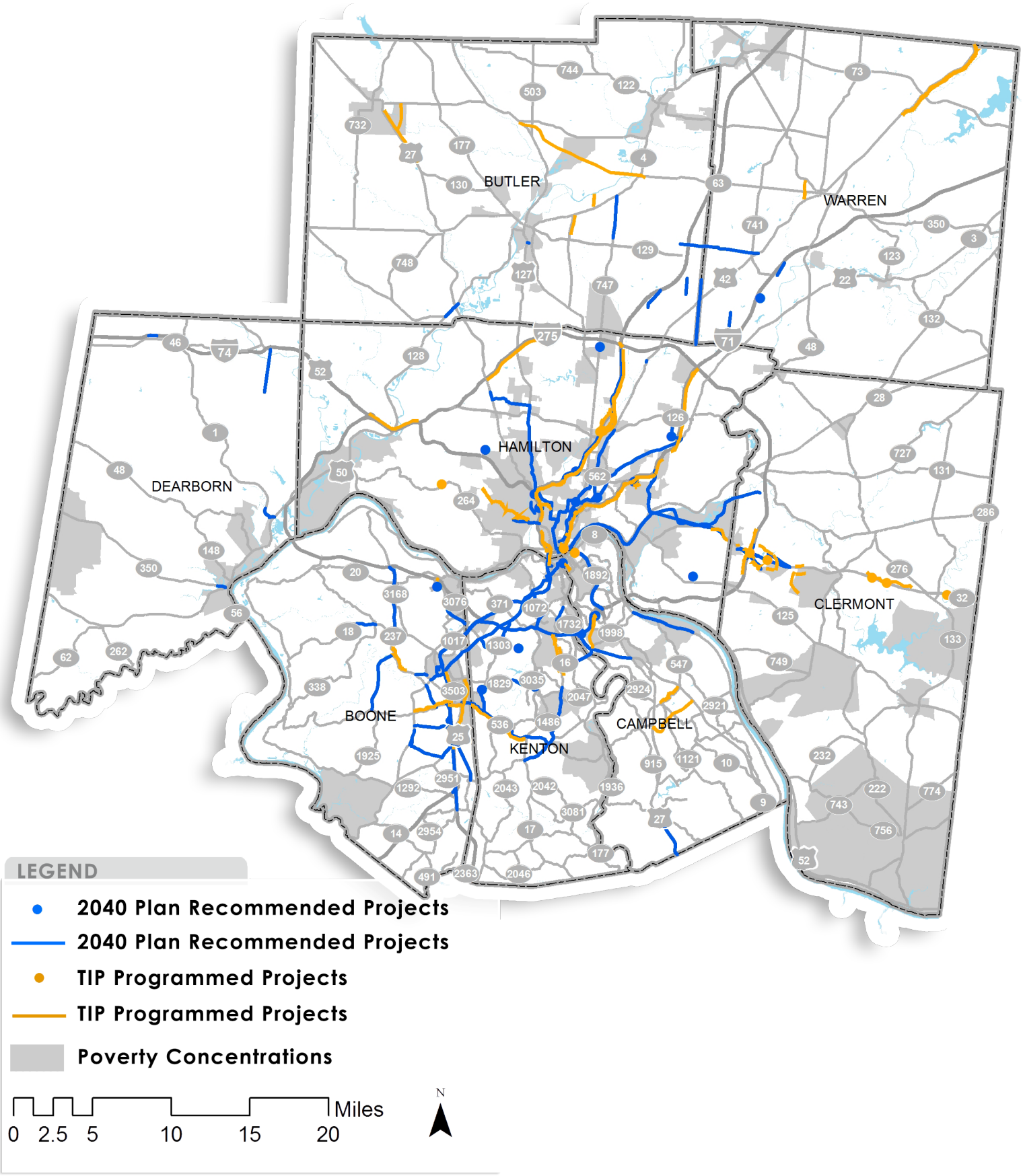


Figure 16-6: Recommended and Programmed Projects Overlaid on Zero Car Household Concentrations

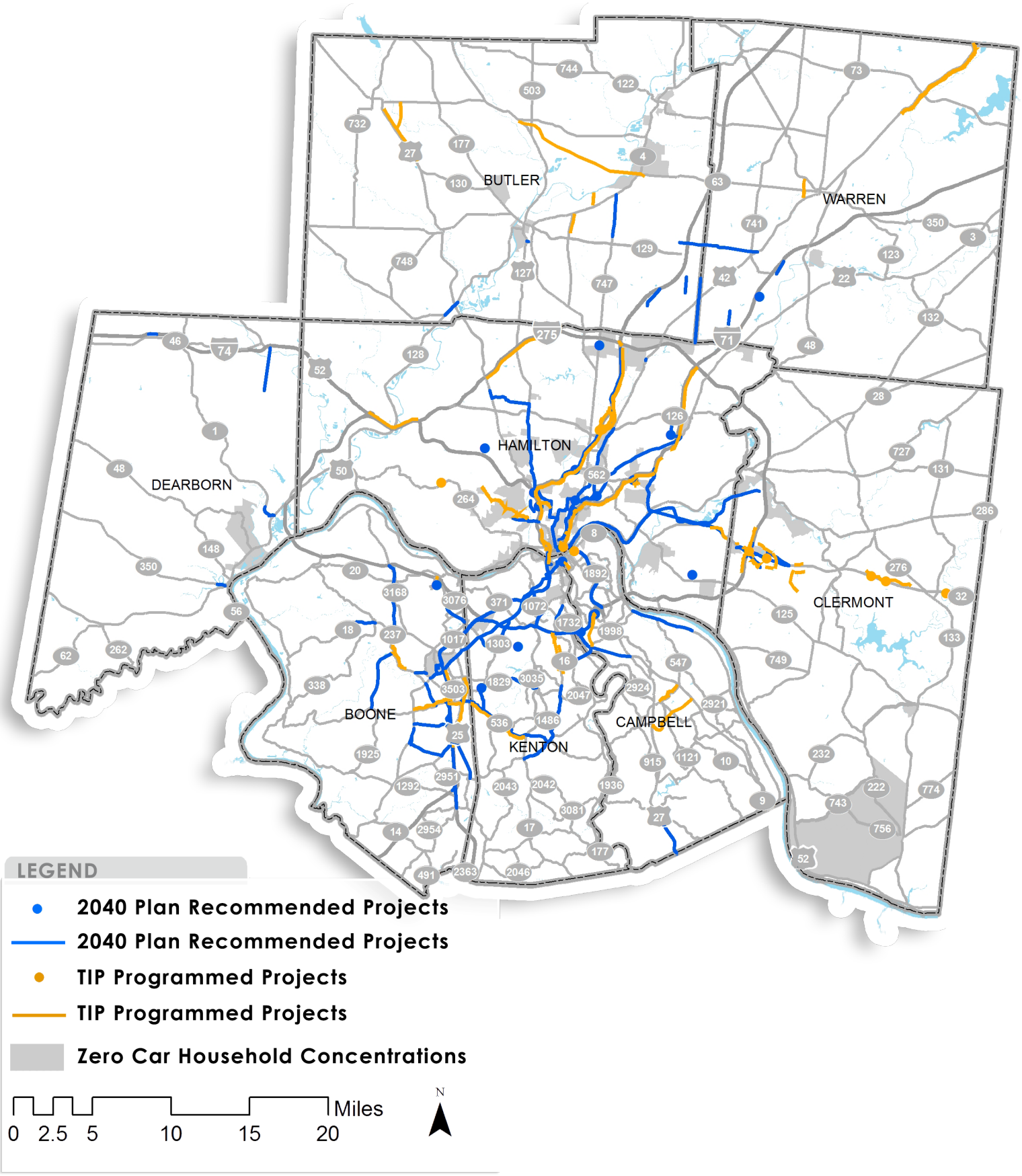


Figure 16-7: Recommended and Programmed Projects and Presence of Higher Than Regional Average Environmental Justice Households

County	2040 Plan or TIP Identification Number	Project Name	Environmental Population Categories				
			Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Butler	101	Cincinnati-Dayton Rd	X				
Butler	102	Cox Rd			X		
Butler	103	South Hamilton Crossing	X	X	X	X	X
Butler	104	SR 128			X		
Butler	105	SR 747	X		X		
Butler	106	US 127 (Pleasant Ave)	X	X	X	X	
Butler	108	Bethany Rd					
Butler	109	Ohio Intelligent Systems (ITS) Projects*					
Butler	80516	Oxford Connector	X		X	X	
Butler	81769	US 27	X		X	X	
Butler	86137	SR 4 Bypass Phase 5b					
Butler	89308	CR 113 (Liberty Fairfield Rd)	X		X		
Clermont	201	Aicholtz Rd Widening			X	X	
Clermont	202	Eastern Corridor Segment IV Phase 1	X		X	X	X
Clermont	203	Eastern Corridor Segment IV Phase 2	X		X		X
Clermont	204	Eastern Corridor Segment IV Phase 3	X		X		X
Clermont	205	Eastern Corridor Segment IV(a)	X		X	X	X
Clermont	207	Old SR 74 Phase 1	X		X	X	X
Clermont	208	NEW Aicholtz Rd Connector	X		X	X	X
Clermont	82552	Aicholtz Rd Extension			X	X	
Clermont	82554	Aicholtz Rd Widening			X	X	
Clermont	82553	Aicholtz Rd Connector (CR 3)	X		X	X	X
Clermont	76289	I-275	X		X		X
Clermont	82309	I-275	X		X		X
Clermont	82557	Old SR 74 Phase 1	X		X		X
Clermont	82558	Tina Dr Extension				X	
Clermont	82561	Heitman Ln Extension	X				

			Environmental Population Categories				
County	2040 Plan or TIP Identification Number	Project Name	Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Clermont	82581	Amelia-Olive Branch Relocation			X	X	
Clermont	82582	CR 171 (Old SR 74)			X	X	
Clermont	82586	SR 32 (Frontage Rd)	X		X		
Clermont	82587	SR 32 (Herold Rd)	X				
Clermont	82588	SR 32/Batavia Interchange			X		
Clermont	82589	SR 32/DeLaPalma/ McKeever					
Clermont	22970-2	SR 32/Bach-Buxton Interchange			X	X	
Clermont	22970-2	SR 32/Glen Este-Withamsville Overpass	X		X	X	X
Hamilton	301	Brent Spence Bridge Ohio Portion	X	X	X	X	X
Hamilton	302	Eastern Corridor Red Bank Rd Segment	X	X	X	X	X
Hamilton	303	Mill Creek Expressway Phase 4	X	X	X	X	X
Hamilton	304	Mill Creek Expressway Phase 5		X	X	X	X
Hamilton	305	Mill Creek Expressway Phase 6		X	X	X	X
Hamilton	306	Mill Creek Expressway Phase 7	X	X	X	X	X
Hamilton	307	Mill Creek Expressway Phase 8	X	X	X	X	X
Hamilton	308	US 42 (Reading Rd)	X	X	X	X	X
Hamilton	309	US 42 (Reading Rd)	X	X	X	X	X
Hamilton	310	Reading Rd Grade Separation, Sharonville	X	X			X
Hamilton	312	Thru the Valley Phase 1	X	X	X	X	
Hamilton	313	Thru the Valley Phase 2	X	X			
Hamilton	314	Thru the Valley Phase 3	X	X	X	X	X
Hamilton	315	Thru the Valley Phase 7	X	X	X	X	X
Hamilton	316	Thru the Valley Phase 8	X	X	X		X
Hamilton	317	Cincinnati Streetcar Phase 1		X		X	X
Hamilton	318	Western Hills Viaduct		X	X	X	X

			Environmental Population Categories				
County	2040 Plan or TIP Identification Number	Project Name	Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Hamilton	319	Acquisition of Abandoned Railroad Right of Way	X	X	X	X	X
Hamilton	320	Anderson Center Station Park and Ride Phase 2	X				
Hamilton	321	Eastern Corridor Oasis Line Segments 1, 2, 3 & 4	X	X	X	X	X
Hamilton	322	Hopple St Passing Track and Crossovers		X	X	X	
Hamilton	323	NEW Martin Luther King/I-71 Interchange	X	X	X	X	X
Hamilton	324	SORTA Reading Rd Corridor BRT	X	X	X	X	X
Hamilton	325	SORTA Downtown-Hamilton Ave Corridor BRT	X	X	X	X	X
Hamilton	326	SORTA Montgomery Ave Corridor BRT	X	X	X	X	X
Hamilton	327	SORTA North Bend/ Cheviot Park & Ride	X	X	X	X	
Hamilton	328	SORTA Evanston/ Xavier University Transit Hub			X	X	X
Hamilton	330	NEW Eastern Corridor Relocated SR 32	X		X	X	
Hamilton	331	I-75 Thru the Valley Railroad Bridge	X		X		
Hamilton	332	Lick Run Project Improvements (Queen City/Westwood Ave Corridor)		X	X	X	X
Hamilton	333	SORTA Avondale Transit Hub	x	x			
Hamilton	334	SORTA Kenwood/ Galbraith Transit Hub	x	x	x	x	x
Hamilton	335	SORTA Oakley Transit Hub		x	x	x	
Hamilton	336	SORTA Springdale/Tri-County Transit Hub	x	x	x	x	x

			Environmental Population Categories				
County	2040 Plan or TIP Identification Number	Project Name	Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Hamilton	87036	West Martin Luther King Dr (CR 612)	X	X	X	X	X
Hamilton	88790	SR 264 (Bridgetown Rd)	X				
Hamilton	88135	GE Parkway	X	X	X		
Hamilton	88706	Kennedy Connector	X	X	X	X	X
Hamilton	75643	I-71		X			X
Hamilton	76256	I-75	X	X	X	X	X
Hamilton	76257	I-75	X	X	X	X	X
Hamilton	77889	I-75	X	X	X	X	X
Hamilton	77890	I-75	X	X			X
Hamilton	81853	Harrison Ave	X	X	X	X	X
Hamilton	82283	I-75		X	X	X	X
Hamilton	82286	I-75	X	X	X	X	X
Hamilton	82288	I-75	X	X	X	X	
Hamilton	82972	I-275	X	X	X	X	
Hamilton	82975	I-71	X	X	X	X	X
Hamilton	83011	I-74	X		X	X	
Hamilton	83077	I-71	X	X	X	X	
Hamilton	83723	I-75	X	X	X	X	X
Hamilton	84491	I-71	X	X	X	X	X
Hamilton	86462	SR 32			X	X	
Hamilton	87268	I-71		X			X
Hamilton	87399	I-71		X			
Hamilton	87401	I-71		X			
Hamilton	88124	I-75	X	X	X	X	X
Hamilton	88129	I-75	X		X	X	
Hamilton	88133	I-75	X	X	X	X	
Hamilton	88134	I-75	X	X	X	X	X
Hamilton	89053	I-71		X		X	
Hamilton	89056	I-75	X	X	X	X	X
Hamilton	89069	I-75	X	X	X	X	X
Hamilton	89077	I-71	X	X	X	X	X
Warren	402	NEW Bethany Rd					
Warren	403	Butler-Warren Rd	X		X		X
Warren	404	Butler-Warren Rd	X		X		
Warren	405	Kings Island Dr Extension					
Warren	406	Mason Montgomery Rd	X	X			

			Environmental Population Categories				
County	2040 Plan or TIP Identification Number	Project Name	Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Warren	407	I-71/Fields Ertel Interchange		X			
Warren	408	SORTA Kings Island Park & Ride					
Warren	20499	SR 63 Extension	X		X	X	X
Warren	85320	SR 123/SR 63 Connector		X			
Warren	92105	US 42	X		X		
Boone	501	CR 1001 (Camp Ernst Rd)			X		
Boone	502	KY 237 (Gunpowder Rd)					
Boone	503	Hicks Pike					
Boone	504	I-71/75 South Interchange			X		
Boone	505	US 25/KY 338 Grade Separation			X		
Boone	506	KY 18 (Burlington Pike)			X		
Boone	507	KY 236 (Donaldson Rd)	X		X	X	
Boone	508	KY 237 (North Bend Rd)	X		X		
Boone	509	KY 3060 (Frogtown Rd)			X		
Boone	510	KY 3076 (Mineola Pike)	X		X	X	
Boone	511	KY 338 (Richwood Rd)					
Boone	512	KY 536 (Mt. Zion Rd)		X	X	X	
Boone	513	US 25 (Dixie Hwy)			X		
Boone	514	US 42	X	X		X	X
Boone	515	US 42	X	X	X	X	X
Boone	516	US 42					
Boone	517	NEW KY 3060 Frogtown Rd Connector Extension-North					
Boone	518	Mall Rd/I-71/75 Interchange	X	X	X	X	X
Boone	519	NEW Connector					
Boone	520	TANK CVG Airport Transit Hub			X	X	
Boone	521	KY 338 (Richwood Rd)			X		

County	2040 Plan or TIP Identification Number	Project Name	Environmental Population Categories				
			Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Boone, Camp-bell, Kenton	522	Kentucky Regional Intelligent Transportation Systems*					
Boone	6-18.00	I-75/KY 338 Interchange			X		
Boone	6-14.00	I-75/KY 536 Interchange		X	X	X	
Boone	6-14.50	I-75	X	X	X	X	X
Boone	6-158.00	KY 536		X	X	X	
Boone	6-18.01	I-75			X		
Boone	6-351.10	US 25			X		
Boone	6-351.20	US 25		X	X	X	
Boone	6-351.30	US 25		X	X	X	
Boone	6-351.40	US 25		X		X	
Boone	6-8000.20	I-275	X		X	X	
Boone	6-8001.21	KY 237			X		
Boone	6-8001.25	KY 237	X		X		
Campbell	601	I-471	X		X	X	X
Campbell	602	KY 8	X		X	X	
Campbell	603	KY 9/I-275 Interchange	X		X		
Campbell	605	KY 9 (AA Hwy)	X		X	X	
Campbell	606	NEW KY 1998	X		X	X	
Campbell	608	TANK I-471 Transit Way	X		X	X	X
Campbell	609	TANK NKU Transit Hub	X		X		
Campbell	610	TANK Suburban Crosstown Transit Service	X	X	X	X	X
Campbell	611	US 27	X				
Campbell	612	NEW Northern Kentucky River Path Bike Trail	X		X	X	
Campbell	6-8104.00	I-471					
Campbell	6-156.00	KY 547			X		
Campbell	6-352.00	KY 536			X		
Campbell	6-8101.01	KY 9	X	X	X	X	X
Campbell	6-8105.01	New Route	X		X	X	
Campbell	6-8105.02	New Route	X		X	X	
Campbell	6-8105.03	New Route	X		X	X	

County	2040 Plan or TIP Identification Number	Project Name	Environmental Population Categories				
			Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Kenton	701	Brent Spence Bridge Kentucky Portion	X	X	X	X	X
Kenton	705	Buttermilk Pike/I-71/75 Interchange	X		X	X	
Kenton	706	I-75	X		X	X	X
Kenton	707	KY 1072	X		X		
Kenton	708	KY 1303 (Turkeyfoot Rd)			X	X	
Kenton	709	KY 1303 (Turkeyfoot Rd)	X				
Kenton	710	KY 16	X		X	X	
Kenton	711	KY 16	X				
Kenton	712	KY 1829/KY 1486			X	X	
Kenton	713	KY 236 (Stevenson Rd)	X		X	X	
Kenton	714	KY 371	X				
Kenton	715	KY 536	X	X	X	X	
Kenton	716	KY 536	X		X		
Kenton	717	KY 8	X		X	X	X
Kenton	719	NEW KY 177/KY 16 Connection			X		
Kenton	720	TANK Edgewood Park & Ride					
Kenton	721	TANK Turkeyfoot Park & Ride			X	X	
Kenton	723	TANK Dixie Hwy Corridor BRT	X	X	X	X	X
Kenton	724	KY 16	X		X	X	
Kenton	725	KY 8	X		X	X	
Kenton	726	TANK I-75/71 Transit Way	X	X	X	X	X
Kenton	6-162.00	KY 536	X	X	X	X	
Kenton	6-17.03	I-75	X	X	X	X	X
Kenton	6-17.04	I-75	X	X	X	X	X
Kenton	6-344.11	KY 16			X	X	
Kenton	6-344.30	KY 16				X	
Kenton	6-344.40	KY 16				X	
Dearborn	801	SR 1	X		X	X	
Dearborn	802	Bicycle and Pedestrian Projects*					

County	2040 Plan or TIP Identification Number	Project Name	Environmental Population Categories				
			Elderly	Minority	People With Disabilities	Population in Poverty	Zero Car House-holds
Dearborn	803	NEW Bright to I-74 Connector			X		
Dearborn	804	Catch-A-Ride Security Cameras and RFI Driver Cards*					
Dearborn	805	I-74 ARTIMIS Message Sign					
Dearborn	806	SR 350			X	X	
Dearborn	807	Catch-A-Ride Fare Collection Boxes and RFI Customer Cards*					
Dearborn	808	Indiana Rail Transit Right of Way Preservation*					
Dearborn	809	Indiana Regional Intelligent Transportation Systems*					
Dearborn	810	Alternative Fuel Stations for Truck Fleets in Indiana*					

**These projects are not able to be mapped or pinpointed to a single geographic location.*

Impact of Plan Projects on EJ Communities

OKI used a variety of quantitative performance measures and qualitative evaluation to assess whether components had any adverse or disproportionate impacts on the target populations as well as to ascertain whether benefits were equitably distributed. The measurement methodology employed by OKI to evaluate the impact of transportation projects on the target populations was developed partly from OKI's travel demand forecasting model process and partly using non-modeling techniques. In certain cases, different techniques are required for evaluation of roadway and transit modes.

For the quantitative measures, three scenarios were prepared:

- 2010 Base Year
- 2040 Base - 2040 conditions in the absence of a plan with only projects in the current Fiscal Year 2012 to 2015 TIP and current transit service
- 2040 Future Plan – includes a fiscally constrained set of programs and projects.

Then, several measures compared the relative treatment of the EJ populations and non-EJ populations. Qualitative evaluation was used when quantitative measures were not available or applicable. Figure 16-8 contains the list of quantitative and qualitative performance measures used in the analysis.

Figure 16-8: Quantitative and Qualitative Performance Measures Used to Assess Social Impact

Mobility
Travel Time
Percentage of vehicle miles traveled in congestion
Accessibility
Job opportunities within 20 minutes auto travel time
Job opportunities within 40 minutes transit travel time
Percentage of population within 40 minutes transit travel time of a college or university
Reliability
Dependable transit service as measured by percent of on-time arrivals
Safety
Transit with minimal risk of accident or injury as measured by reduced accidents
Equity
Supply of transportation infrastructure and services
Displacement of residents and business
Social structure
Expenditures on highway projects
Expenditures on transit projects
Other Regional Performance Measures
Environmental impacts
Fiscal or financial impact
System performance indicators

- **Mobility**

Looking ahead to the year 2040, congestion is expected to increase significantly. Mobility for travelers is expected to decline even with large investments in both new and expanded highways and improved transit. However, the scenario will be worse if nothing is done. Proposed improvements will lessen the severity of mobility deficiencies. For example, the average travel time to work by car for the general population is expected to increase from about 23 minutes currently to over 29 minutes in 2040 if no improvements are made. This amounts to about a 26 percent increase. Implementation of the plan reduces the time to less than 29 minutes, which is a 24 percent increase (Figure 16-9).

Minority target zones will continue to experience lower travel times on average compared to all populations. The average travel time to work by car for minority target zones is expected to increase from about 16 minutes currently to 18 minutes in 2040 if no improvements occur. This amounts to about a 12 percent increase. On average, implementation of the plan results in slight positive impact on work trip travel time to and from minority target zones.

The average travel time to work by car for low income target zones is expected to increase from about 19 minutes currently to 23 minutes in 2040 if nothing is done. This amounts to about a 19 percent increase. On average, implementation of the plan has a slight positive impact on work trip travel time to and from low income target zones.

Figure 16-9: Comparative Travel Times to Work By Auto*

Population Group	2010	2040 Base	2040 Plan
All Populations	23.06	29.18	28.57
Minority Target Zones	16.06	17.97	17.64
Low Income Target Zones	19.23	22.96	22.58

**Average travel time in minutes.*

Figure 16-10: Comparative Non-Work Travel Times By Auto*

HOSPITAL

Population Group	2010	2040 Base	2040 Plan
All Populations	11.04	12.39	12.39
Minority Target Zones	6.59	6.98	6.97
Low Income Target Zones	7.46	8.08	8.06
Elderly Target Zones	8.39	9.15	9.13
Disabled Target Zones	10.02	11.43	11.43
Zero Car Household Zones	5.73	5.77	5.73

UNIVERSITY

Population Group	2010	2040 Base	2040 Plan
All Populations	13.00	14.16	14.15
Minority Target Zones	9.07	9.52	9.51
Low Income Target Zones	8.84	9.33	9.33
Elderly Target Zones	10.25	10.85	10.85
Disabled Target Zones	12.06	13.26	13.25
Zero Car Household Zones	7.17	7.32	7.31

SHOPPING

Population Group	2010	2040 Base	2040 Plan
All Populations	14.63	15.98	15.97
Minority Target Zones	9.37	9.79	9.76
Low Income Target Zones	14.61	15.60	15.59
Elderly Target Zones	12.45	13.78	13.77
Disabled Target Zones	15.49	16.96	16.95
Zero Car Household Zones	11.32	11.72	11.69

**Off peak period in minutes.*

Auto travel time to hospitals and universities is shorter for the EJ populations than the total population in the region. Travel times to the nearest shopping center are shorter for minority, low income, elderly and zero car household target zones than the population as a whole and almost equal to the total population for disabled target zone populations (Figure 16-10). All EJ groups have shorter travel times in 2040 under the Plan scenario as compared to the base scenario.

Congestion as measured by traffic volume to roadway capacity ratios exceeding 0.85 will increase between 2010 and 2040. In 2010, for the total population in the region, 39 percent of vehicle miles traveled (VMT) during peak travel times were under congested conditions. This is expected to increase to 62 percent in 2040 without plan implementation and to 60 percent with plan implementation. For populations residing in minority and low income target zones, the percentages of peak period trips under congestion were higher than the total population in 2010, but these communities will benefit as well from the congestion reducing facets of the plan (Figure 16-11).

Figure 16-11: Percentage of VMT Experiencing Congestion

PEAK PERIOD

Population Group	2010	2040 Base	2040 Plan
All Populations	38.55%	61.62%	59.64%
Minority Target Zones	46.02%	60.63%	60.21%
Low Income Target Zones	38.68%	53.40%	52.97%

DAILY

Population Group	2010	2040 Base	2040 Plan
All Populations	3.88%	14.45%	11.39%
Minority Target Zones	4.19%	13.45%	10.32%
Low Income Target Zones	4.43%	11.46%	6.80%

A similar situation exists with daily trip congestion, which is a measure of the average percentage of miles traveled in congestion over the course of an entire day. While the percent of VMT under congestion will increase between 2010 and 2040 for all groups, implementation of this plan will likewise temper those increases for all groups.

- **Accessibility**

Currently, Southwest Ohio Regional Transit Authority (SORTA) and Transit Authority of Northern Kentucky (TANK) provide good overall service from their respective service areas to the Cincinnati Central Business District (CBD). Figure 16-12 highlights the number of people and jobs served by fixed transit in the OKI region. Central city neighborhoods, served by many routes and a large number of buses running at relatively short headways, enjoy very good radial access to the CBD. Suburban locations are served primarily by commuter service comprised of more express service but fewer runs.

Figure 16-13 indicates that, between 2010 and 2040, employment within 20 minutes by auto will increase for all EJ groups and will be further improved by implementation of the plan. Employment with 40 minutes by transit will decrease between 2010 and 2040. Transit accessibility is improved by the plan.

Figure 16-12: Population and Employment Served By Transit*

	2005	2040 Base	2040 Plan
Population	713,379	641,586	647,178
Employment	570,623	675,047	681,220

**Within one-quarter mile of fixed transit route.*

Figure 16-13: Employment Accessible Within 20 Minutes

TRAVEL BY AUTO

Population Group	2010	2040 Base	2040 Plan
Minority Target Zones	690,123	740,957	764,625
Low Income Target Zones	785,070	893,185	903,416
Elderly Target Zones	798,357	944,168	947,904
Disabled Target Zones	799,776	956,662	958,457
Zero Car Household Zones	694,513	692,990	703,741

TRAVEL BY TRANSIT

Population Group	2010	2040 Base	2040 Plan
Minority Target Zones	313,374	294,587	296,780
Low Income Target Zones	348,308	340,801	348,195
Elderly Target Zones	402,301	396,193	399,458
Disabled Target Zones	367,160	367,447	370,975
Zero Car Household Zones	286,429	273,139	266,854

The major recommendations in this plan, which include improved bus service including bus rapid transit, creation of hubs, streetcar service, and the Oasis Line Rail transit service, enhance accessibility for both EJ and non-EJ communities to all areas served by existing transit companies. Improved bus service on existing routes and new routes are recommended to improve accessibility to areas not currently served well or at all. The new bus service proposed in this plan provides enhanced connectivity. New transit hubs will make transit use more convenient, efficient and safer. These public transportation options will be especially important to the region's increasing elderly population. Due to their wide dispersal throughout the region and as the elderly transition to a non-driving lifestyle, they will require new transportation options to prevent increased isolation from society.

The concept of aging in place refers to the ability to continue to live in one's home safely, independently, and comfortably, regardless of age, income, or ability level. The ability to age in place is supported by the public transit recommendations of this plan. Pedestrian recommendations in Chapter 13 are another resource for not only elderly populations as single occupant vehicle (SOV) driving is no longer a viable option for them, but also the disabled and zero car households. Finally, the combination of transportation and land use planning discussed in Chapter 3 is another critical element in serving populations throughout their entire life cycle, through more dense and mixed use development. The fact that one could walk to retail, medical, social and employment opportunities without the need of any vehicular transportation, supports a vibrant, diverse, and inclusive community.

The combination of the Cincinnati Streetcar and TANK's SouthBank Shuttle improves mobility for members of the EJ communities. The streetcar is envisioned to circulate not only around the CBD but also connect downtown Cincinnati with Uptown. The SouthBank Shuttle is a circulator route that connects the Cincinnati and northern Kentucky riverfront business, restaurant and entertainment areas for visitors and residents alike.

This plan successfully improves accessibility of residents of EJ communities to other parts of the region. Public transit improvements, though modest in terms of percent of new dollars spent, provide significant enhancements to the overall accessibility to jobs, retail shopping, and universities. Included in this plan's recommendations are 17 new transit hubs, four new park and ride facilities and 30 new bus routes including new fixed routes, employment and neighborhood shuttles, and recommendations for rail transit development.

- **Reliability**

The region's transit operators report providing reliable service. Fiscal year 2007 on-time arrivals for TANK were at 94 percent. A 93 percent on-time arrival rate for fiscal year 2000 was reported by SORTA.

- **Safety**

The transit operators in the region also report operating safe systems. In fiscal year 2011, TANK reported a crash rate of 3.37 crashes per 100,000 miles for demand responsive service and 4.95 crashes per 100,000 miles for fixed-route service. The most current crash rate for SORTA is 5.2 crashes per 100,000 miles for fixed route service.

- **Equity**

Evaluation of the supply of roadway infrastructure is difficult. Urbanized areas of the region have a dense network of streets and roadways, as well as high density development, while some of the outlying areas have roadway systems which are essentially the same as they have been for many years. There is no evidence that any one group of citizens is over or under served. Transit supply and service clearly favor the urbanized areas where density of employment and population make bus service more efficient. Throughout the region, EJ communities appear to be well served.

Another measure of equity may be the number of families and businesses displaced during the implementation of transportation projects. OKI supports projects that minimize the impacts on all segments of the population and encourages appropriate mitigation measures when such impacts are unavoidable.

Care must also be taken to avoid not only displacement, but also the damage to neighborhood social fabric which can be caused when implementing transportation projects. Erecting physical and psychological barriers, whether intended or not, can destroy the cohesiveness of communities. OKI supports projects that minimize the impacts on a neighborhood's quality of life. Appropriate mitigation measures should be part of the project when such impacts are unavoidable.

The dollar value of roadway projects by area type is another measure of equality. Capacity expansion projects in this plan show combined expenditures of $5.96 billion for projects related to EJ target zones and $120.38 million for non-EJ target zones (Figure 16-14). Analysis of the current TIP reveals that expenditures benefiting EJ target zones for capacity expansion type projects is about $1.34 billion versus $6.02 million for non-EJ target zones (Figure 16-15). Both the TIP and plan scenarios show a large proportion of the dollars spent where congestion is most severe.

Figure 16-14: Plan Capacity Expansion Expenditures

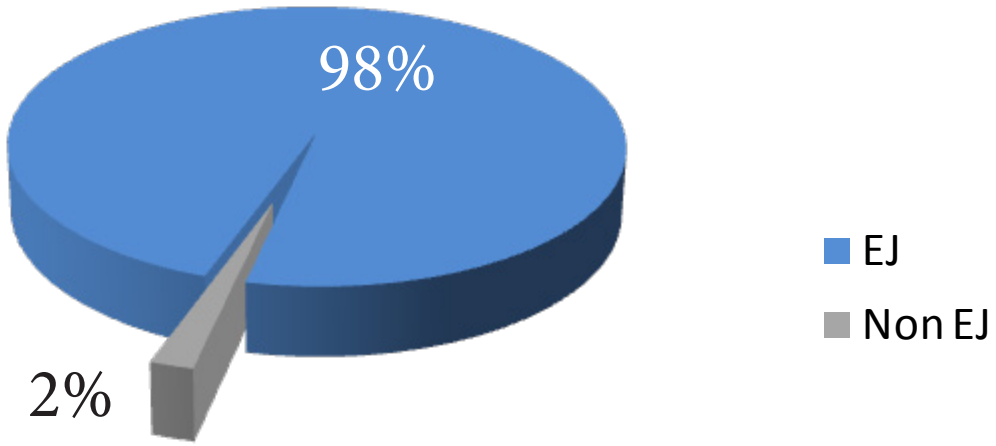
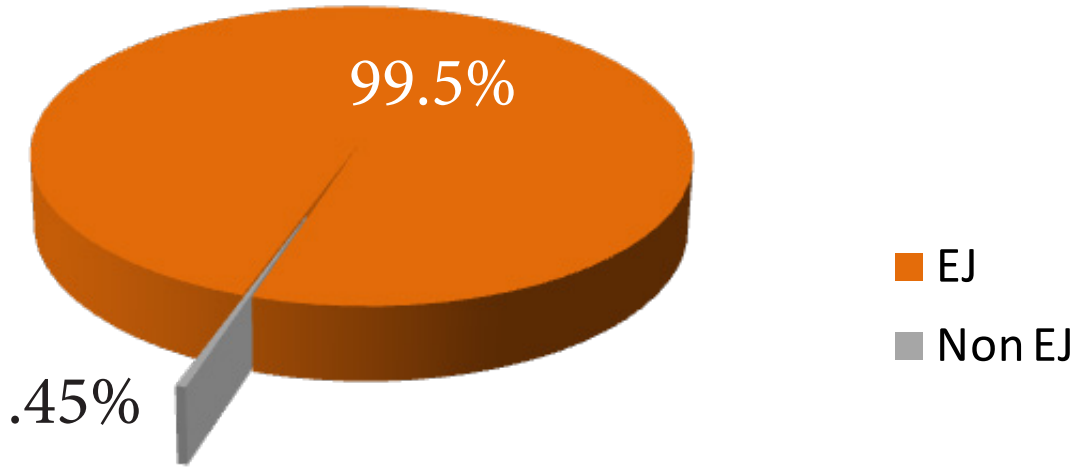


Figure 16-15: TIP Capacity Expansion Expenditures



Another measure of equity is the share of expenditures dedicated to transit projects. This plan proposes an increase in the share of dollars spent on transit project in comparison to the 2008 plan update. It is a plan that benefits the entire region and the EJ populations as well. The proposed bus service increases with new bus routes and better connectivity along with proposed rail service in the Eastern Corridor Oasis and Cincinnati Streetcar provide an equitable solution to improving the mobility to citizens of the region.

ENVIRONMENTAL IMPACT

OKI Environmental Consultations

As presented in Chapter 4, OKI has conducted two rounds of environmental consultations. The first round -- which focused on the 2030 Regional Transportation Plan Update prepared in 2008 -- helped OKI to prepare for the second round of consultations. The second round, which focused on a draft version of this 2040 Regional Long Range Transportation Plan, was used to identify concerns about recommendations proposed for inclusion in the transportation plan and present information on those concerns for consideration at public meetings and by the OKI Board prior to the plan's adoption.

OKI's first round of consultations was conducted separately with state agencies in 2009 and local agencies late in 2010 and early in 2011. Consultations with state agencies were conducted in five sessions and involved 10 state agency divisions. Each session involved three sets of questions to provide for:

- Discussion of environmental resource categories, data and data sources
- Comparison of environmental resources and the transportation plan to consider both project/site level and regional scale/cumulative effects, and how effects may potentially occur, be avoided, or be reduced
- Beginning of a "discussion of environmental mitigation" at a regional scale

The process and results of these state agency consultations was reported in the document: Results of State-Agency Consultations Conducted by the Ohio-Kentucky-Indiana Regional Council of Governments in 2009 (November 2009).

The first round of consultations with local agencies was conducted in seven sessions and involved 34 local agencies with conservation, land use planning, parks, storm water management or water resource management responsibilities. Each session began with an explanation of the environmental resource information used for comparison with the transportation plan. The remainder of the session provided for the comparison, which was a discussion guided by three sets of questions for considering where and how environmental resources may be

affected by the transportation plan and related development – and how adverse environmental impacts might be avoided. The results of these sessions were reported in Environmental Consultations in Regional Transportation Planning: OKI's Consultations Process and Discussion with Local Agencies in 2010-2011 (June 2011), which was posted on OKI's website.

The second round of consultations was conducted in three state-based sessions with combined participation by state and local agencies in the spring of 2012. It involved 19 state agency divisions and 28 local agencies and a total of 60 individuals. The combined state-local participation optimized the time available for consultation sessions, which needed to occur after the list of proposed transportation projects was prepared for review by OKI committees but also allow time to prepare consultation comments for public open houses.

The second round of consultations involved participants in 1) review of the updated "regionally significant environmental resources", 2) discussion of potential strategies for avoiding five impacts of major concern previously identified by state agencies, and 3) a comparison of the transportation plan with "regionally significant environmental resources," for the purpose of identifying participants' concerns.

Each session followed the same format which included the following:

- A review of environmental resources identified for conservation or protection by the states and relevant for comparison with the transportation plan
- Information on streams identified as "Regionally Significant" and a featured presentation on the status of selected streams
- State agency briefings on programs that help protect "regionally significant" environmental resources and discussion on their local applicability or opportunity for local involvement
- Discussion of strategies for avoiding environmental impacts
- Comparison of environmental resources and the transportation plan

Regionally Significant Environmental Resources

The environmental resources compared with the transportation plan in the environmental consultations are called "Regionally Significant Environmental Resources." These are mostly high quality or rare resources – or help to sustain other high-quality or rare resources – that are identified in state conservation plans, maps or inventories. They warrant conservation or protection because of state investments, regulations or policies and because impacts to these resources may require mitigation and increase costs. Additional resource categories will be added, including local sites in state historic resource inventories and statewide forest assessments. The environmental and economic value of these resources and their functions is not discussed here but is the basis for their selection as resources that the states conserve or protect.

OKI defined five categories of Regionally Significant Environmental Resources:

- State Conserved Areas
- Regionally Significant Streams (Figure 16-16)
- Wetlands
- Endangered, Threatened and Rare Species (Figures 16-17 and 16-18)
- Prime and Important Farmland and Agricultural Districts

Figure 16-16: Little Miami River: A Regionally Significant Stream in the OKI Region

Figure 16-17: Eastern Box Turtle: An Ohio Species of Concern for Hamilton and Warren Counties

Figure 16-18: Redback Salamander: A Kentucky Species of Special Concern in Boone and Kenton Counties

Local areas in these categories were mapped for review with the transportation plan or were listed in tabular format or described at the beginning of the consultation sessions to provide a common understanding for use in the comparison. Figure 16-19 maps Regionally Significant Environmental Resources and overlays recommendations from this plan and programmed projects for impact analysis. Figure 16-20 maps Prime and Important Farmland and Agricultural Districts also with an overlay of recommendations from this plan and programmed projects for impact analysis. In addition, Appendix F includes tables that list 1) Regionally Significant Environmental Resources, 2) State-Conserved Areas, 3) Regionally Significant Streams, and 4) Endangered, Threatened and Rare Species by county.

Figure 16-19: TIP Programmed and 2040 Plan Recommended Projects Overlaid on Regionally Significant Environmental Resources

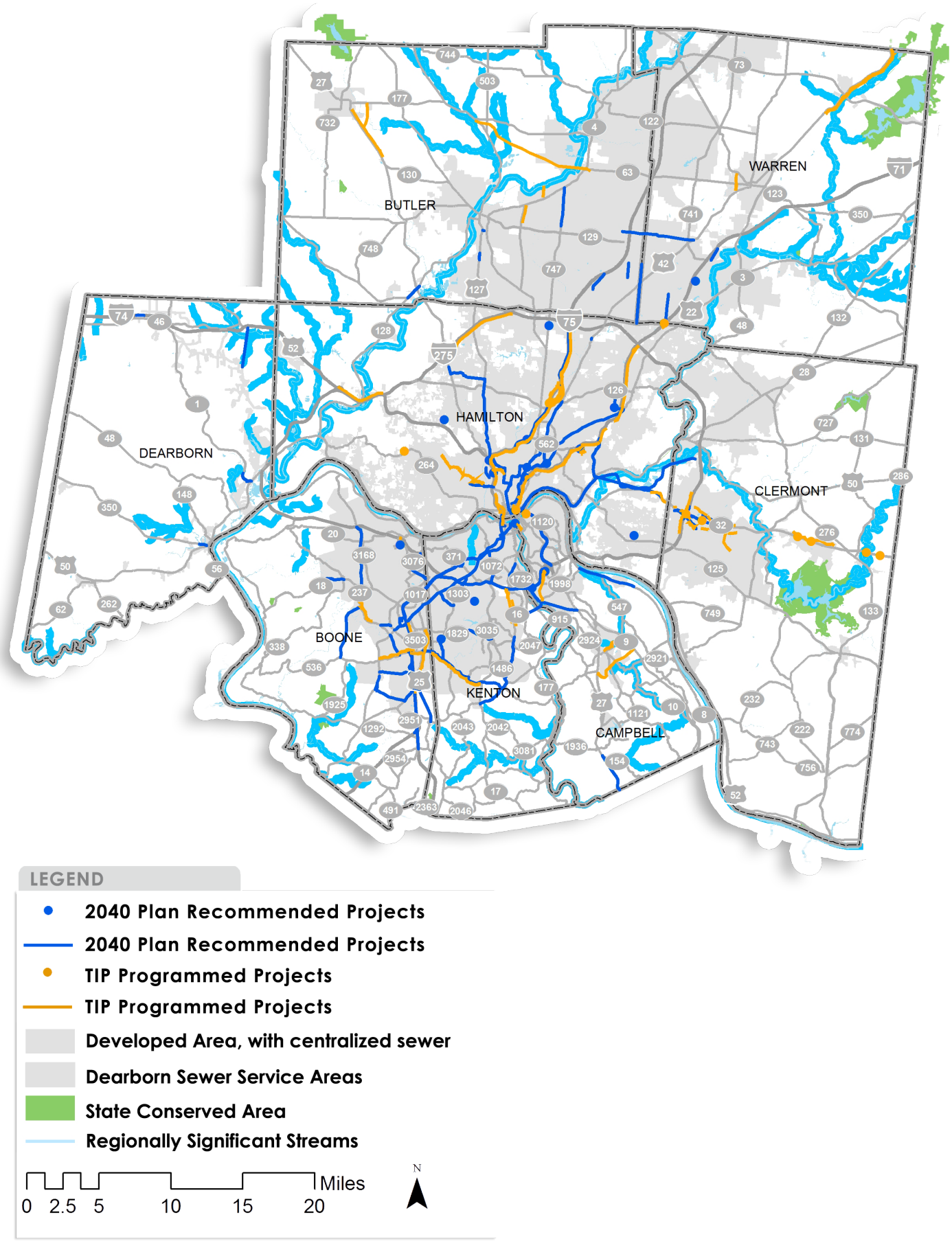
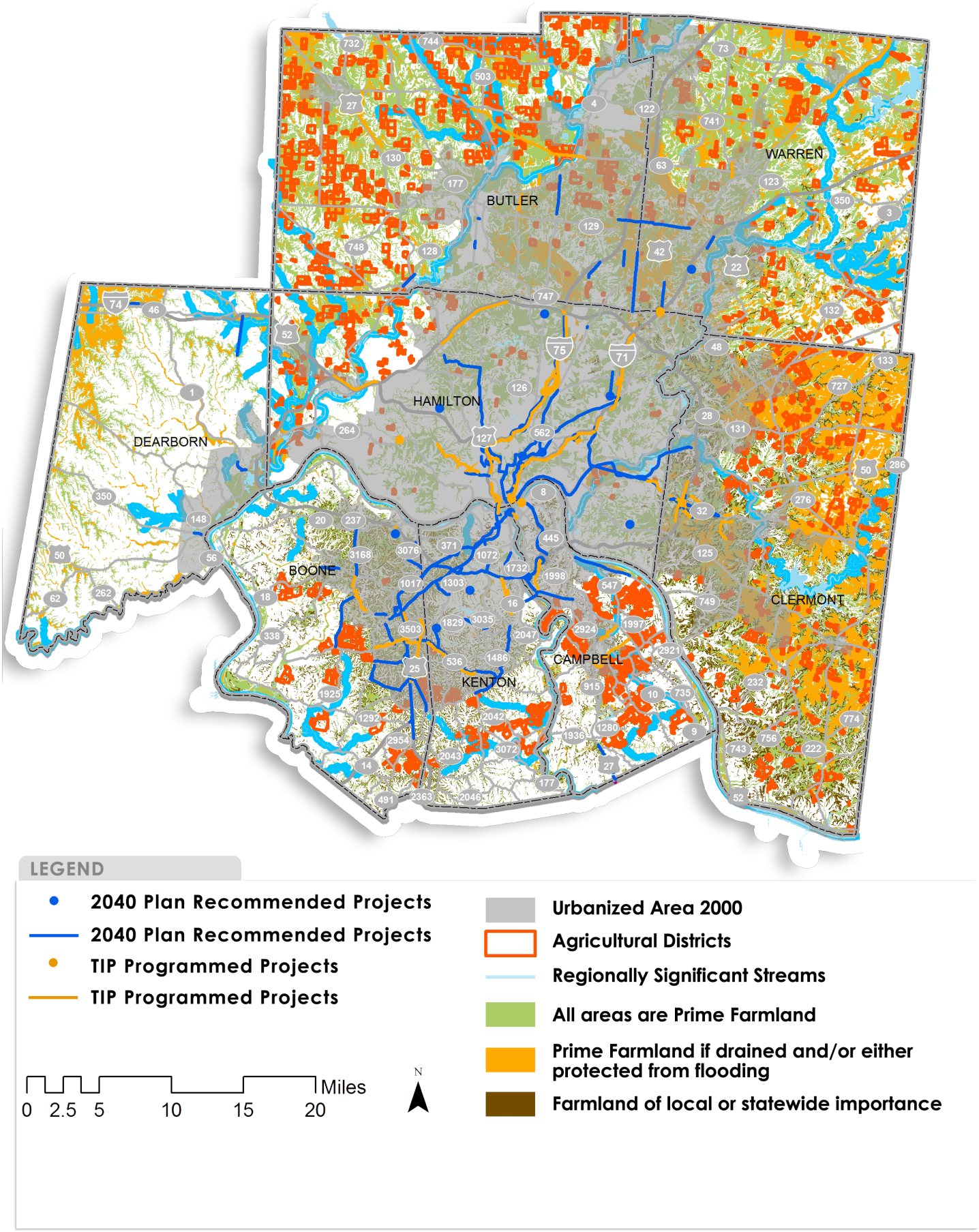


Figure 16-20: TIP Programmed and 2040 Plan Recommended Projects Overlaid on Prime and Important Farmland and Agricultural Districts



Consultation Results: Environmental Effects of Major Concern

A major outcome of the first round of consultations was clarification of how transportation projects and related development can adversely affect environmental resources. State agencies expressed concern for both primary impacts – from roadway runoff and project construction – and secondary impacts – from development and impervious surface facilitated by improved roadways. The major concerns about environmental impacts that emerged from discussion were that:

- Forested tracts remain intact
- Stream corridors remain functional for wildlife movement
- Roadway runoff be diverted from direct entry into streams (and highway projects avoid infringement on riparian zones)
- Streams not already impaired be protected
- The growth of impervious surface be constrained

State agency concerns were discussed in the first round of consultations with local agencies sharing how these impacts are addressed in their counties. As part of the discussion, local agencies identified protective practices in place and expectations for improved practices for stormwater management or local initiatives. They clarified how local development, stormwater management and conservation strategies do and do not work to protect local environmental resources and the potential for more effective strategies. Discussion is included in the report, Environmental Consultations in Regional Transportation Planning: OKI's Consultations Process and Discussion with Local Agencies in 2010-2011 (June 2011), summarizing the local consultations.

While local agencies are working to improve environmental protection, it is a challenge. The conclusion drawn from local agency sessions was that the major state concerns for environmental impacts are not effectively addressed at the local level. Discussion indicated that, in general, local processes for guiding development and managing stormwater are not used to conserve forested area. They also commonly allow streams to be infilled or piped and use curb-and-gutter systems that discharge roadway runoff directly to streams. In addition, discussion noted that local stormwater processes do not differentiate for stream conditions and are not effective for reducing roadway width, parking lot size and other impervious surfaces.

The major state concerns about environmental impacts were also discussed in the second round of consultations. State and local agencies were asked which of the five concerns would be most feasible to address, what strategies would be most effective, how existing practices that contribute to these concerns could be reduced, what state initiatives could facilitate change in local strategies or improve their effectiveness, how OKI could better support local efforts to conserve or protect environmental resources and what additional concerns should be listed.

Consultation Results: Discussion of Strategies for Reducing Adverse Effects on Environmental Resources

Consultations included discussion about how adverse effects on environmental resources (from transportation projects and related development) could be avoided or reduced. State agencies made broad suggestions for more emphasis on improving the existing transportation system rather than building new facilities and for better planning that would put protective provisions in place before development occurs. State agencies made more specific suggestions for local strategies that could strengthen resource protection. State agency suggestions included greater local use of the following five strategies:

- Low-impact development (LID) and green infrastructure for reducing stormwater impacts
- Integration of best practices into development codes
- Conservation elements in local comprehensive plans
- Conservation easements
- Watershed planning

Local agencies are major determinants of how transportation improvements and related development affect environmental resources through requirements and incentives that influence the development process and

practices, stormwater management, and conservation. In the first round of consultations, local agencies were asked about the potential for their county to conserve environmental resources and reduce adverse impacts through the strategies suggested by state agencies.

Discussion with local agencies indicated that suggested strategies could protect environmental resources more effectively, but local agencies have a limited ability to implement these strategies. Their discussion clarified progress and obstacles in their efforts to expand the use of the suggested strategies. Discussion indicated the following:

- Low-impact development/LID and green infrastructure can reduce stormwater's adverse environmental impacts and may lower certain costs, but greater implementation at the local level depends on more incentives and local performance data
- Integration of alternative best management practices (alternative BMPs) into development codes would increase their use, but code changes of any kind are often difficult to implement
- Comprehensive plans could protect environmental resources more effectively if they had stronger conservation elements, but the effectiveness of such plans is limited by their role as guidance documents
- Conservation easements may be used more widely if they were better publicized and facilitated, but property tax reductions or larger financial incentives to property owners would be more effective in promoting greater use
- Watersheds are viewed as impractical for land use planning and zoning because of the need for cooperation among multiple jurisdictions, but they are being used increasingly for stormwater management and other types of planning

The second round of consultations involved consideration of local strategies for avoiding environmental impacts as part of the discussion of options for addressing the major concerns about environmental impacts, as noted in the previous section. The consultations included presentations on some state programs for protecting Regionally Significant Environmental Resources and inter-agency discussion on how those programs could be used in local efforts to protect environmental resources and how local agencies could influence a state's development or use of these programs.

Consultation Results: A Basis for Moving Forward

The benefit of the environmental consultations extends beyond what has been previously discussed. Benefits include review of the proposed transportation plan for the potential to avoid environmental impacts, increased awareness and understanding of resources identified for conservation or protection by the states, and enhanced understanding of how environmental resources can be impaired or protected. As a result, environmental consultations have worked to improve the level of understanding of state data and programs for protecting local resources, clarify local perceptions of environmental resources, expand criteria for recommending projects in the regional transportation plan, and provide a base for moving forward to better conserve and protect local environmental resources.

The results and value of the consultations will be determined by the initiatives taken by state and local initiatives to address the new understandings and the needs discussed.

- **State Data and Programs for Environmental Protection**

Discussion outcomes from the state agency consultations improved OKI's understanding of sources of state conservation data and their implications and potential for protecting local environmental resources. These data sources include:

◊ Integrated Reports, which are biennial reports prepared by the states for assessing progress in attaining water quality standards and for ranking the need to address polluted water bodies

◊ Anti-degradation policy, which defines state processes for keeping clean streams clean in connection with permit applications

◊ Natural Heritage Database, which maintains information in each state on the status and locations of rare plants and animals

◊ Comprehensive Wildlife Conservation Strategy, which are state plans for conserving wildlife

- **Local Perceptions of Environmental Resources**

Surveys conducted during the consultations revealed that local agencies that could play a role to help protect environmental resources identified for state protection or conservation are not necessarily familiar with the environmental value, quality or scarcity of those resources. For example, the Little Miami River's designation as a Scenic River is widely recognized, but the Whitewater River and the Oxbow of the Great Miami River are, in general, resources with relatively low local profiles for their environmental functions and their roles in sustaining other significant resources. The consultations process has enabled opportunities to further inform OKI and local agencies on the regionally significant environmental resources and has served, at a minimum, to increase awareness.

- **Criteria for Recommending Transportation Projects**

A significant outcome of the local consultation process was the implementation of a suggestion to account for the impact of regionally significant resources in project scoring during the transportation project ranking process. OKI responded to that suggestion as part of the preparation of this plan by integrating a scoring factor into the project selection process. The current scoring provides up to five points for projects avoiding impact to regionally significant resources and three points for those that impact but provide for mitigation.

This scoring system is intended to help local jurisdictions plan better so that projects involving federal funds are not confronted with delays or increased costs to address regulatory requirements related to mitigation of environmental impacts.

- **Basis for Moving Forward / New Direction**

For consultations now and in the future, the underlying issue considered is how to enable development to occur while maintaining environmental resources. The same issue is addressed in policies for sustainable development and environmental stewardship and in the Strategic Regional Policy Plan as the need for development to occur differently to reduce the costs of unintended consequences.

State and local governments help determine how the transportation system grows and how its development impacts are managed. Outlying areas with most of the region's least degraded environmental resources have the opportunity to put measures in place to avoid or reduce the environmental and financial consequences associated with traditional development. Developed areas with impaired environmental resources can identify opportunities to use transportation improvements, re-development projects and stormwater management to restore environmental resources and revitalize communities – to remove streams from pipes, replace gray infrastructure with green infrastructure for infiltrating runoff, restore trees and native vegetation, and set development back from the stream edge. The economic angle of environmental protection was summed up by one participant as, "Protection is in the interest of the pocketbook -- the cost of replacing or restoring natural resources should make it a no-brainer to see the need to protect them."

Based on discussion in the consultations, state and local agency actions that can reduce public sector costs include transportation improvements that do not require mitigation, development that avoids impacts to Regionally Significant Environmental Resources, development and stormwater management practices that reduce environmental impacts, initiatives to more effectively conserve high-quality and scarce resources, and public policies and development processes that better account for environmental resource values.

Consultations clarified needs and opportunities for reducing negative and costly environmental impacts, but the outcomes will largely depend on the response and initiatives of public agencies.

Air Quality Impact

At the metropolitan level, the effect of vehicle emissions on air quality is a major consideration in transportation planning. Individual vehicle trips may seem insignificant, but their cumulative effect is a major determinant of an area's air quality. The air quality impacts of the 2040 Plan have been forecasted using OKI's Travel Demand Model and EPA's Emissions Model. As shown in Figure 16-21, the Plan will result in fewer vehicle emissions of volatile organic compounds (VOC), oxides of nitrogen (NOx), fine particulates (PM2.5) and greenhouse gases (expressed as carbon dioxide equivalent).

Figure 16-21: Environmental, Financial and System Performance Comparisons

Measure	2010	2040 Base	2040 Plan
ENVIRONMENTAL – TRANSPORTATION SOURCES			
VOC emissions (tons per day)	98.78	28.89	28.79
NOx emissions (tons per day)	170.52	32.93	32.62
PM2.5 emissions (tons per day)	2.92	1.15	1.14
CO2 Equivalent (tons per day)	49,026.55	35,174.85	34,607.36
FINANCIAL			
System cost per person per year	$190	$155	$165
System Performance		28812	29064
LANE MILES			
Daily vehicle miles of travel	54,608,044	77,599,000	76,440,176
Daily vehicle hours of travel	1,377,716	2,165,756	2,089,682
Daily transit ridership	95,937	112,002	114,951
Average peak highway speed (mph)	40.47	36.72	37.90

- **Transportation's Contribution**

Ozone is formed through chemical reactions induced when sunlight reacts with VOCs, principally hydrocarbons, and NOx. Transportation related sources are a major contributor of these pollutants. In the OKI region, transportation sources account for about one half of the total regional emissions of VOCs and about one half of NOx emissions. Industry sources, such as power plants, account for one fourth of all VOC emissions and NOx emissions. The remaining contribution comes from area sources which include individually insignificant sources that when added together, have a significant impact. Area sources include gas powered lawn equipment, oil-based paints, boats and dry cleaners.

The Clean Air Act's ability to meet its objectives and to ensure that improvements in air quality will not be reversed by growth in travel is strengthened by SAFETEA-LU. Many of the programs continued in SAFETEA-LU, which began under its predecessor TEA-21, gives state and local officials tools for adapting the transportation system to meet the Clean Air Act requirements. These tools include increased funding, flexibility to mix project types, such as transit and bicycle, and metropolitan and statewide planning requirements. This plan defines local commitments to promote alternatives to automobile travel and to enhance mobility while minimizing roadway construction. Air quality is a key criterion for OKI in making decisions for transportation plans, programs and projects.

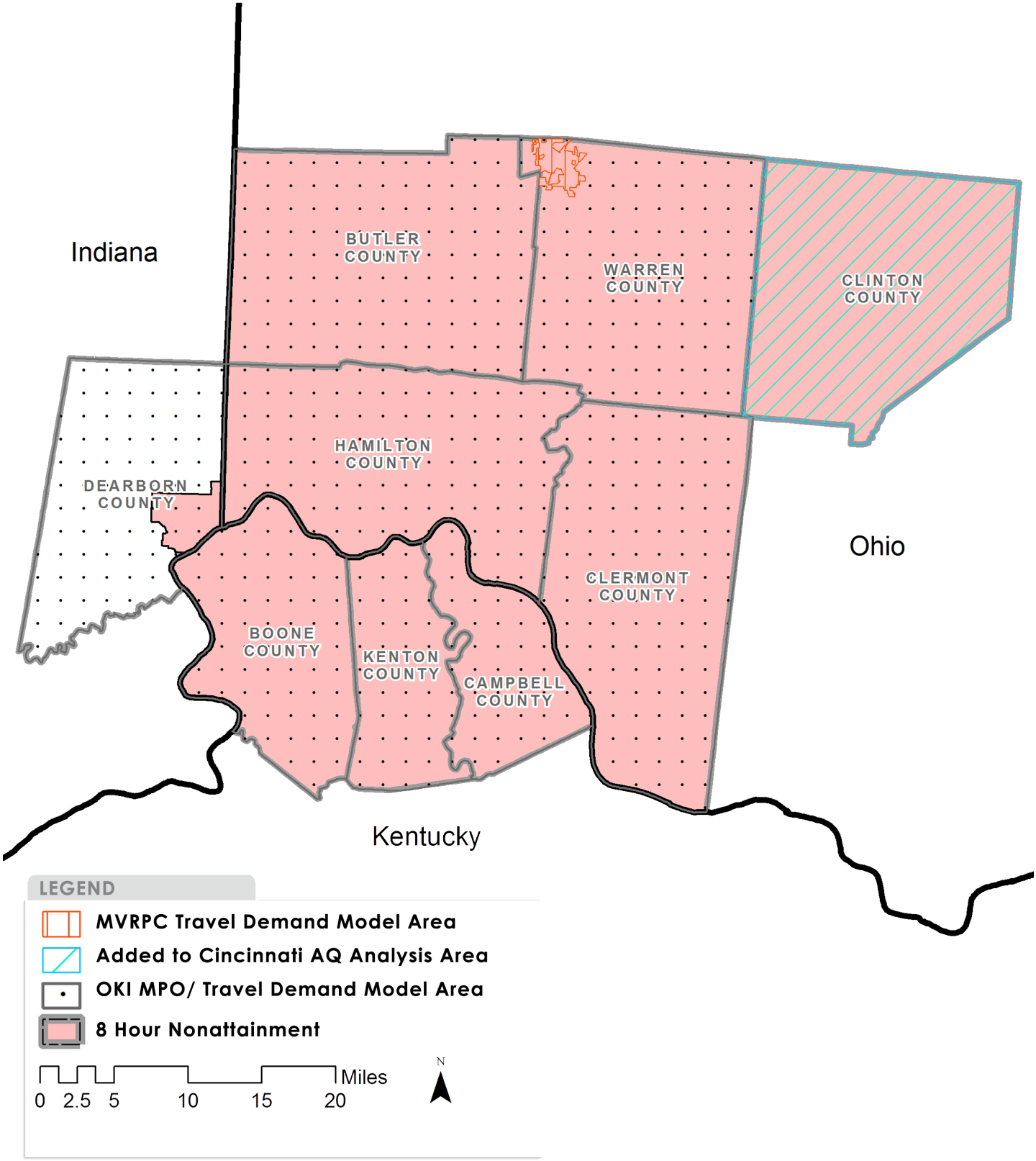
The pollutant impact of transportation sources has been significantly reduced through federal legislation requiring vehicles to meet stricter emissions standards and rules implemented in the OKI region by the State of Ohio and the Commonwealth of Kentucky for cleaner fuels and vapor recovery systems at the fuel pumps. These actions have resulted in lower emission rates per motor vehicle. These technology based air quality benefits will be the primary contributor to lower total emissions from vehicles. From a 2010 base year to 2040, ozone forming emissions from vehicles in the OKI region are forecasted to decrease by over200 tons per day.

- **Transportation Conformity**

This plan meets all federal requirements for transportation air quality conformity. In May 2012, pursuant to provisions of the Clean Air Act Amendments of 1990, the U.S. EPA designated nine counties in the Cincinnati area as nonattainment for the current federal ozone standard. Eight counties in the Cincinnati area were previously designated as nonattainment under the fine particulate matter standard and must continue to demonstrate compliance with that standard. The Cincinnati ozone nonattainment area includes the Ohio counties of Butler, Clermont, Clinton, Hamilton and Warren, the Kentucky counties of Boone, Campbell and Kenton, and Lawrenceburg Township in Dearborn County Indiana (Figure 16-22). The PM2.5 maintenance area is identical except for the exclusion of Clinton County. Transportation conformity is a mechanism to ensure that federal funding and approval are given to those transportation activities that are consistent with the air quality goals of the State Implementation Plans (SIP) for Indiana, Kentucky and Ohio. OKI has determined, through a quantitative analysis that the implementation of this OKI 2040 Regional Transportation Plan will result in motor vehicle emissions that are consistent with the air quality goals of SIPs. The quantitative findings demonstrate that the region's ozone forming vehicle emissions do not exceed the established motor vehicle emissions budgets for 2015 through 2040. The findings further demonstrate that the region's motor vehicle emissions of fine particulate matter will not cause or exacerbate exceedances of the fine particulate matter standard. OKI qualitatively finds that no goals, directives, recommendations or projects identified in the plan contradict, in a negative manner, any specific requirements or commitments of the applicable SIP.

This Plan includes many projects seeking to reduce traffic congestion and vehicle miles traveled. Projects that reduce demand for vehicle travel include a regional carpool and vanpool program and the inclusion of bicycle, pedestrian and public transit projects. Traffic operational improvements, such as new intersection turn lanes, eliminating at-grade railroad crossings, and the expansion of traveler information systems help improve congestion and reduce vehicle delay. Projects that add roadway capacity in order to alleviate severe congestion may also contribute to improved air quality. Air quality is a key criterion for OKI in making decisions for transportation plans and programs. Details on how air quality was incorporated into the project scoring process can be found in Appendix B.

Figure 16-22: Ozone Non-Attainment Area Map



- **Regional Commitment To Clean Air**

Through this plan, OKI has recommended behavior based strategies to reduce vehicle miles traveled. These travel demand management (TDM) strategies encourage using alternatives to SOV travel and shifting trips out of peak travel period, or even eliminating some trips all together. The TDM strategies identified in this plan include increased telecommuting and flexible work schedules through employers, expanded rideshare programs, additional opportunities for safe bicycle and pedestrian travel, parking management and growth management planning as an alternative to roadway expansion.

This plan also identifies improved transit as a critical component in improving air quality. Expanded bus service, development of rail transit and improved access to the transit system through park and ride lots and transit centers, would attract additional transit ridership thereby reducing vehicle miles traveled. As compared to the 2040 base condition, this 2040 Plan results in a forecasted increase of 3000 transit passengers each day and a decrease of over one million daily vehicle miles traveled. The plan also identifies measures aimed at easing congestion through improved traffic operations. These measures, such as access management, traffic signal coordination, incident management programs, and intersection turn lanes, generally have a positive impact on emissions because of a decrease in stop and go travel and reduced delay due to accidents or construction. Roadway improvements that reduce traffic bottlenecks can also have a positive impact on regional air quality. Daily vehicle hours traveled are forecasted to decrease nearly 80,000 hours per day, with an increase in peak period roadway speeds, as compared to the base condition. Projects demonstrating measurable reductions in vehicle emissions are eligible for federal funding through the Congestion Mitigation and Air Quality (CMAQ) program.

OKI's Regional Clean Air Program continues to market its successful "Do Your Share For Cleaner Air" campaign that provides valuable information to the community, businesses and the media on air quality topics. Ozone and particulate matter pollution are critical issues in the tri state region and OKI's commitment to bringing these issues to the forefront is evident through this program. Improved air quality leads to better quality of life and enhanced economic vitality. In 2011, an aggressive advertising campaign was placed on radio and television as well as in print and on the Internet. Through partnerships with the various radio and television stations, the clean air program was able to secure a significant amount of value added support. This included mentions during traffic and weather reports. In addition, clean air materials were distributed at various events, helping to further spread the word about air quality issues throughout the region.

- **Land Use Development Patterns**

Another environmental effect relevant to metropolitan level planning is the transportation and land use connection. This connection is reciprocal in that new development may necessitate transportation improvements for reducing development related congestion or carrying more traffic, or transportation improvements may lead to new development spurred by better access or mobility. In metropolitan areas across the country, the dominant outcome of the transportation and land use connection is an expanding pattern of relatively low density development.

One effect of low density development patterns can be degradation or loss of natural resources, or an impairment of natural system functions. The incremental effects that occur at project level can create local, regional or state level impacts. Where development encroaches on a stream corridor, for example, or where impervious surfaces cover 10 to 25 percent or more of a watershed, the results of impaired stream functions are typically visible as eroded streambanks, polluted or lifeless streams, and frequent overflows and low flows. As a consequence, additional public funds must often be spent to remedy problems by constructing stormwater facilities, repairing flood damage, stabilizing streambanks, and otherwise compensating for malfunctions and damage to natural systems.

It was the growing consequences of ecosystem damage and multiple public outlays that prompted stronger federal legislation to integrate environmental considerations into transportation planning at the metropolitan level. As part of its effort to implement the SRPP, OKI is encouraging the development of complete and up to date local

comprehensive plans to strengthen the connection between land use and transportation planning and to help conserve natural resources and ecosystem functions. One of six subject areas in the SRPP is "Natural Systems" in which goals, objectives and policies address protecting natural resources and ecosystem functions.

SUMMARY

This chapter addresses the transportation needs of the regional population, including target EJ populations. The improvements recommended directly provide increased transit opportunities to all of the target areas. Projects in OKI's TIP and in this plan provide positive impacts for all segments of the population in terms of travel time savings, emissions reductions, congestion relief and accessibility. Care must continually be taken to minimize the impacts of projects to neighborhoods.

SAFETEA-LU's environmental requirements enable regional scale transportation planning to provide more meaningful consideration of transportation's environmental effects and advance efforts to protect the environment. OKI will further implement this plan, the SRPP and SAFETEA-LU by engaging appropriate federal, state, and local environment based agencies in discussions to compare the plan with environmental information and identify potential environmental mitigation that is regional in scope. At the same time, this new process will advance comprehensive planning at regional and local levels to produce better transportation investments and contribute to success in maintaining and restoring environmental resources and functions for future generations.

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i. U.S. Department of Transportation, FHWA. Community Impact Assessment, September 1996
ii. http://www.fhwa.dot.gov/policy/otps/pubs/impacts/index.htm
iii. http://www.thepep.org/chwebsite/chviewer.aspx?cat=d19
iv. What Is the Definition of Road Traffic Noise? http://www.soyouwanna.com/definition-road-traffic-noise-39244.html#ixzz1tiPtYM00
v. National Aging in Place Council's website, www.naipc.org

Appendix A: Summary of Progress Made Since 2008 Plan Update

INTRODUCTION

This appendix provides a list of transportation related projects that have been completed by OKI since the last plan update in 2008. Some of these projects may have been referenced previously in this plan. It is important to identify these projects to illustrate the variety and number of transportation plans and projects that affect residents, businesses and workers in the region. This list is separated into six categories by type of project and include: Land Use Commission recommendations; bicycle and pedestrian projects; Transportation Enhancements (TE) funded projects; corridor studies, special studies, and county transportation plans; Transportation Improvement Program (TIP) highway projects; and TIP transit projects.

LAND USE COMMISSION

In April 2005, the OKI Board of Trustees adopted the Strategic Regional Policy Plan (SRPP) for regional growth and development. Implementation of the policy plan commenced immediately pursuant to an action plan and timeline and has continued through 2011.

In 2011, the Land Use Commission initiated the Regional Planning Forum as a vehicle for implementing many of the policy recommendations of the SRPP including policies requiring multijurisdictional and multidiscipline collaboration and coordination. The Forum is a regional outlet for sharing information, experience and expertise among planners and those in related disciplines so that OKI? can provide the best possible quality of life for those who live and work in the region.

The Forum includes representatives from throughout the tri-state region who are working to affect the future, whether through local planning commissions or community foundations or by planning for community development, business, workforce development, public housing, environmental issues, efficient food systems, public transportation, energy, social services, or public health. In short, the Forum addresses any issues that affect either the region's built environment or natural environment.

Significant accomplishments since 2008 also include the development and continued technical assistance of the OKI Fiscal Impact Analysis Model (FIAM). The FIAM provides decision makers with a better understanding of the budgetary implications of land use proposals. Federal transportation investments stimulate land use change and economic development. The FIAM helps local governments capitalize on potential land use changes related to these transportation investments by analyzing the impact of alternative land use scenarios on their jurisdiction's budget. As communities better understand the associated costs and revenues of development through fiscal impact analyses, they are better able to plan for investments to serve new development or to fix existing deficiencies. The FIAM estimates the costs and revenues associated with land use change. It can be used to compare alternative development scenarios within a jurisdiction to analyze effects of specific development projects. The FIAM uses local, regional and

national data sources to estimate revenue and the demand for broad categories of services that are likely to result from the proposed development or redevelopment. The FIAM bases revenue and cost estimates on the statistical relationship between types of land uses and the intensity of their revenue and cost generating factors.

One of the primary recommendations repeated throughout the SRPP is for local governments to maintain effective comprehensive plans. Since 2008, OKI has provided guidance documents and technical assistance to several local governments in the region as part of the SRPP implementation efforts. These jurisdictions include the city of Cincinnati, Anderson Township, St. Clair Township and the city of Monroe.

OKI's greenspace program was refocused to help implement the SRPP and the new Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) environmental regulations. OKI staff has consulted with both state and local agencies on regionally significant environmental resources, recommended transportation improvements, local strategies for addressing major environmental concerns, and five strategies suggested by the state agencies for reducing environmental impacts. This consultations process is described in Chapter 4 of this plan and in more detail in a June 2011 report entitled Environmental Consultations in Regional Transportation Planning which includes tables with information on local strategies or practices for protecting forestland and stream corridors, reducing impervious cover and stormwater runoff, and managing roadway runoff.

BICYCLE AND PEDESTRIAN PROJECTS

Significant progress on the regional trails system since the last plan includes:

- Great Miami Trail – In 2009, Middletown extended their section of the trail north to one mile from the end of the trail in Franklin. Butler County is constructing a two mile segment from Rentschler Preserve toward Hamilton in 2012. Hamilton has applied for funding to continue the trail from there to the river. A future section of ¼ mile will then connect to the existing trail at the High Street bridge and on to Fairfield.
- Funding was allocated by OKI in 2008 to extend the Little Miami Scenic Trail from its current terminous at the golf center to Clough Pike along SR 32. Construction is scheduled for 2013. A plan for connecting the trail to the Lunken Bike Path with a bridge over the Little Miami River was announced by the Hamilton County Park District in 2011 although funding has not been identified.
- Sections of the Ohio River Trail were completed in Anderson Township from Sutton to Five Mile Road, and Cincinnati from Delta Avenue to Lunken Airport in 2011.
- The Dearborn Trail has been completed from Aurora to Lawrenceburg, and the coast to coast American Discovery Trail was rerouted onto the trail from US 50 in 2008.
- Segments of the Mill Creek Greenway Trail have been built in the Cumminsville and Winton Place areas of Cincinnati in 2010 and 2011. Wyoming completed a ¼ mile trail along the West Fork of the Mill Creek to their recreation center in 2009 and has applied for funding to extend it ¼ mile south to Oak Park. Funding has been approved in 2010 for Woodlawn to connect it from the recreation center to the Woodlawn trail.
- The Licking River Greenway is being advanced in Kenton County by Southbank Partners. Funding was secured in 2011 for a paved section atop the levee in Covington.
- Two miles of the Williamsburg to Batavia hike and Bike trail are available including a new ¼ mile trail

connecting Williamsburg to the Williamsburg-Bantam Road, the road itself, a bridge over Cain Run and a trail to the lake overlook. These were completed in 2010.

- The Murray Rd Trail (Fairfax) has been extended by Cincinnati, along Red Bank Rd to a connection with Ault Park in 2010. Alternatives to extend it eastward to connect with the Little Miami Scenic Trail are being considered.

Since the 2008 plan, on-street bicycle improvements including bike lanes, sidepaths and shared lane markings (sharrows) have been added in Cincinnati, Mason, West Chester, Liberty Township and on several Kentucky Transportation Cabinet highway reconstruction projects. Sidewalk additions have been built in Anderson Township.

Complete streets guidelines were incorporated into OKI's Transportation Improvement Program prioritization process in 2010 giving points for the different modes accommodated.

OKI updated its popular Cincinnati Bike Route Guide in 2009 and distributed 10,000 copies within a year. Another 5,000 copies of a second printing in 2010 have been handed out.

OKI's Northern Kentucky Bike Route Guide was updated and printed in 2010.

OKI's Regional Clean Air program printed new safety yellow T-shirts with the message "Pass With Care" on the back simulating the official R4-2 regulatory sign.

OKI is a resource for local assistance with the Safe Routes To School (SRTS) program. Staff is participating in a research study by the Ohio Department of Transportation and Cincinnati Public Schools on how to apply the Safe Routes To School program to large urban school districts. OKI was also a member of the Kentucky National SRTS Partnership committee.

The OKI Bicycle E-Info News electronic newsletter is distributed monthly to a list of over 200 people and posted on OKI's Website. It contains information about relevant meetings, national and local news items and links to cycling related websites.

OKI has been hosting monthly webinars during 2010 and 2011 produced by the Association of Pedestrian and Bicycle Professionals and attended by local officials and planning staff. The webinars address bicycle and pedestrian planning issues and practice and offer continuing education credits. OKI accesses the webinars at the discounted member rate.

OKI participates in several bicycling and walking promotions including National Bike Month in May with presentations on bicycle commuting and distribution of the Bike Route Guides.

TRANSPORTATION ENHANCEMENTS PROGRAM

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21), and SAFETEA-LU all included a requirement that 10 percent of federal Surface Transportation Program funding be dedicated to a Transportation Enhancement (TE) program. These types of projects add community or environmental value to planned or completed transportation projects. The three general categories of enhancement projects include bicycle/pedestrian, historic/archaeological, and scenic/environmental.

Between 2008 and late 2011, 14 TE projects were under construction or completed. Ten additional TE projects have received funding and are scheduled to have construction begin in 2012 or 2013. Of the projects completed or under construction, costs ranged in price from $132,912 for a landscaping project in the city of Fairfield to $2,245,550 for the final phase of the city of Lebanon's streetscape project. Two projects scheduled to begin construction in 2013 have price tags over $6 million.

Taken collectively, between the years 2008 and 2013, 24 separate projects in the four Ohio counties of the OKI region received a total of $24.7 million in OKI allocated federal TE funding. The local sponsors contributed a total of $13 million in matching local funds for a total investment of more than $37.7 million dollars. Neither Kentucky or Indiana sub-allocate TE funds to OKI.

As the TE program has grown through the last decade, its popularity has increased substantially and the demand for funding continues to grow. As of early 2012, OKI staff was monitoring and assisting local sponsors on approximately 12 projects which are in the active stage of development. These projects are expected to apply for an estimated $6 million to $8 million in OKI allocated TE funding in the near future, whereas OKI's annual allocation from ODOT is about $2 million. Beyond these active projects, staff has also coordinated with a similar number of applicants, who are in the earlier stages of project development, and may be applying for funding in future years. A summary of the current status of all OKI funded projects from 2008 with funding committed through 2013 is presented in Figure A-1.

Figure A-1: Transportation Enhancements Project Status (Fiscal Year 2008 through Fiscal Year 2013)

Fiscal Year (FY)	Project	Federal Share	Local Share	Local Share	Status
FY08	Five Mile Streetscape (Anderson Township)	$562,560	$141,640	$704,200	Completed
	Main Street Streetscape (Williamsburg)	$646,536	$222,908	$869,444	Completed
	Mt. Adams Steps (Cincinnati)	$647,000	$997,313	$1,644,313	Completed
FY09	Lebanon Streetscape – Final Phase	$660,000	$1,585,550	$2,245,550	Completed
FY10	Buckwheat Sidewalks (Miami Township)	$117,216	$29,304	$146,520	Completed

Fiscal Year (FY)	Project	Federal Share	Local Share	Local Share	Status
	Glendale Village Square	$745,494	$117,876	$863,370	Completed
	Kellogg Bikepath	$1,216,496	$279,834	$1,496,330	Completed
	Uptown Wayfinding Signage	$341,673	$85,418	$427,091	Completed
	Winton Road Enhancement	$601,528	$150,382	$751,910	Completed
	Deerfield Township Sidewalks	$568,248	$142,062	$710,310	Completed
FY11	Fairfield Landscaping	$108,104	$24,808	$132,912	Completed
	SR 28 Sidewalks (Miami Township)	$165,722	$41,430	$207,152	Completed
	SR 28 Business Sidewalks (Miami Township)	$3,034,972	$3,586,311	$6,621,283	Under Construction
	US 50 Enhancements (Terrace Park)	$800,276	$83,864	$884,140	Completed
FY12	Middletown Enhancements	$56,000	$19,784	$75,784	Construction in 2012
	Stonelick Covered Bridge	$1,110,450	$593,587	$1,704,037	Construction in 2012
	Eastfork Bike Path	$631,522	$254,335	$885,857	Construction in 2012
	Asbury Sidewalks (Anderson Township)	$589,000	$503,680	$1,092,680	Construction in 2012
	IR 75 Landscaping (IR 75 and SR 63 in Warren County)	$693,511	$374,908	$1,068,419	Construction in 2012
FY13	Riverfront Plaza (City of Hamilton)	$707,115	$447,889	$1,155,004	Construction in 2012
	Banks Suspension Bridge/Ohio River Trail/ Broadway (Cincinnati)	$4,497,000	$1,525,250	$6,022,250	Construction in 2013
	Clough Pike Widening (Anderson Township)	$5,250,400	$1,566,600	$6,817,000	Construction in 2013
	Symmes Township Sidewalks	$713,400	$178,350	$891,750	Construction in 2013
	Sharon Road Enhance-	$262,162	$65,540	$327,702	Construction in
2008 to 2013 Totals		**$24,726,385**	**$13,018,623**	**$37,745,008**	

Corridor, Special and County Transportation Plans and Studies

Corridor and other special planning studies provide the opportunity for a focused and comprehensive examination of transportation issues in the OKI region. These studies, by design, consider every feasible alternative to addressing transportation issues under question. Concepts new to the region can be explored for their applicability and potential benefit for addressing regional transportation goals. The process can also include a multitude of diverse local stakeholders on issues they hold as high priority. A summary of the corridor, special and county transportation plans and studies completed since adoption of the last plan update in 2008 is presented in Figure A-2. Chapter 8 presents past, completed studies and makes recommendations for potential future studies in greater detail.

Figure A-2: Completed Corridor, Special and County Transportation Plans and Studies (August 2008 to June 2012)

	Date of Completion
Corridor Studies	
I-471-Corridor	October 2008
Special Studies	
Fiscal Impact Analysis Model	November 2009
GPS Based Household Survey	February 2012
OKI Regional Freight Plan	August 2011
Transit on Board Survey	June 2012

TRANSPORTATION IMPROVEMENT PROGRAM

OKI solicited applications for Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) applications from Ohio entities in 2008 and 2012. In 2012 OKI also solicited projects from the Northern Kentucky Transportation Cabinet (KYTC) for SNK (STP funds allocated to Northern Kentucky). Due to the lower funding levels of STP, CMAQ, and Highway Safety Improvement Program (HSIP) federal funds available to Dearborn County in Indiana, OKI has been working with the local jurisdictions and the County Engineer to develop projects using funds specified for solely for Dearborn County.

ODOT has sub-allocated approximately $22 million in federal STP funds, $12 million in federal CMAQ funds and $2.2 million in federal TE funds annually to OKI for projects located in the Ohio portion of the region. KYTC sub-allocates approximately $5.8 million in federal SNK funds annually to OKI for projects located in the Kentucky portion of the region. In addition, OKI receives approximately $95,000 in federal STP funds, $131,000 in federal CMAQ funds and $11,000 in federal HSIP funds for projects in the Indiana portion of the region (Dearborn County).

Highway Projects

A summary of highway projects that were either implemented (contract/let) or cancelled since the 2008 plan are presented in Figure A-3. This figure includes all federally funded projects, not just those using OKI sub-allocated federal funds.

Figure A-3: Federally Funded Highway Projects Implemented or Deleted (July 1, 2008 to January 31, 2012)

PID	Delete Date	Facility	Location	Description	Reason
OHIO					
24585	3/30/2009		District-wide	Pavement marking and RPM contract	Contract Let
24637	8/18/2008		District-wide	Sealing contract	Contract Let
25374	4/9/2009		District-wide	Bridge repair	Contract Let
75631	10/29/2010		District-wide	Bridge repair	Contract Let
75680	3/31/2011		District-wide	Pavement preventive maintenance	Contract Let
75681	8/5/2010	IR 74	District-wide	District-wide crack sealing on priority system	Contract Let
75839	6/11/2009		District-wide	Install 18 traffic signals at various locations	Contract Let
87896	6/3/2010	IR 275		Install wire rope in median of IR 275	Contract Let
87949	9/22/2010		District-wide	Rigid overlays	Contract Let
87971	5/20/2010		District-wide	Install backplates for various signals	Contract Let
87972	5/27/2010		District-wide	Install backplates for various signals	Contract Let
87990	6/10/2010		District-wide	Install edge line rumble strips	Contract Let
Butler					
75717	4/15/2010	SR 73	Bridge #BUT-73-0151	Install rigid overlay	Contract Let
76290	6/10/2010	SR 4 Bypass (Phase 2)	SR 4 to SR 4	Roadway widening	Contract Let
77099	3/18/2010	US 27	Merry Day Drive/ Mela-nee Lane to the Oxford north corporate line	Widening for center turn lane, curb and gutter, sidewalks	Contract Let
77204	2/17/2011	US 42	Hamilton Coun-ty line to Warren County line	Roadway widening for a 3rd lane where nonexistent	Contract Let
77746	3/16/2011	SR 732	City of Oxford	Urban paving	Contract Let
77928	8/6/2009	US 27	Parts of US 27	Minor rehabilitation	Contract Let
78073	4/28/2011	CR 20	Lakota Hills to Wetherington	Major widening	Contract Let
78085	5/6/2009	SR 747	Interstate Drive	Intersection Improvement	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
79384	2/9/2009	US 127	City of Fairfield	Urban paving	Contract Let
79386	2/9/2009	SR 129	City of Hamilton	Urban paving	Contract Let
79396	4/27/2009	US 27	City of Oxford	Urban paving	Contract Let
79686	1/1/2009	SR 122	Grand Avenue to IR 75	Widening	Moved to PID 10754
80517	4/28/2009	SR 73/177	Intersection of SR 73 and SR 177	Upgrade Intersection	Contract Let
80517	4/28/2011	SR 73/177	Intersection of SR 73 and SR 177	Intersection upgrading	Contract Let
81336	10/28/2011	US 127	Intersection of US 127 and SR 73	Intersection improvement	Contract Let
81622	11/12/2009	SR 744	Preble County line to SR 122	Resurfacing	Contract Let
81900	7/6/2009	Fairfield Signals	54 signals in the City of Fairfield	Upgrade and interconnect	Contract Let
81988	5/23/2011	Butler Warren Rd	Tylersville Rd to Bethany Rd	Roadway widening	Contract Let
82156	7/1/2008	IR 75	Ramps from IR 75 to Union Centre Boulevard	Improve signals	Project Cancelled
82406	5/6/2010	Reilly Millville Rd	Bridge over Indian Creek	Replace superstructure	Constract Let
82423	4/29/2010	Hamilton New London Rd	Bridge over Indian Creek	Replace superstructure & rehabilitate	Contract Let
83074	4/13/2010	Monroe Signals	City of Monroe	Signal safety upgrades	Contract Let
83392	4/29/2010	SR 4 Bypass (Phase 1)	Intersection with Hamilton Mason Rd	Construct superstreet intersection	Contract Let
83394	4/8/2010	SR 4 Bypass (Phase 3)	Intersection with Tylersville Road	Construct superstreet intersection	Contract Let
83395	7/28/2011	SR 4 Bypass (Phase 5A)	0.23 miles south of SR 129 to the Princeton Road intersection	Roadway widening	Contract Let
83549	7/17/2008	US 27	Downtown Oxford	Replace brick pavers	Contract Let
83811	7/28/2011	SR 732	Butler County omitting Oxford	Urban paving	Contract Let
84140	4/2/2009	Liberty Sidewalks	Liberty Township	Safe Routes to School Project	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
85222	9/22/2010	SR 4	City of Fairfield	Landscaping	Contract Let
85431	8/6/2010	Various locations	Butler, Franklin, Hamilton and Montgomery counties	Railroad double stack clearance	Contract Let
86231	1/19/2010	Sutphin St	Grand to Central (Middletown)	Resurfacing	Contract Let
86233	1/19/2010	SR 122	Reinartz to Briel (Middletown)	Resurfacing	Contract Let
86244	12/8/2009	CR 20	Tylersville Road	Resurfacing	Contract Let
86257	4/15/2010		Oxford multi-use path	Construct bike/walking path	Contract Let
86571	3/10/2010		Ross Schools	School Bus Replacement	Contract Let
86629	5/6/2010	IR 75	Cin Day Road WB ramp to NB IR 75	Repair landslide	Contract Let
86673	5/27/2011		City of Hamilton	Safe Routes to School	Contract Let
87086	5/27/2010	CR 30	Various locations	Guardrail replacement	Contract Let
Clermont					
22375	6/15/2009	SR 275	Bridge #CLE-276-0104	Bridge replacement	Contract Let
22376	5/27/2010	SR 774/73	Bridge #CLI-73-1441	Bridge replacement and culvert rehabilitation	Contract Let
25176	5/27/2010	SR 133	Bridge #CLE-133-2065/3435	Bridge repairs	Contract Let
75303	6/11/2009	SR 125	Intersection with Amelia Olive Branch	Intersection improvement	Contract Let
75647	2/4/2010	SR 132	Bridge #CLE-132-2631	Bridge replacement	Contract Let
75682	6/9/2011	SR 132	Batavia corporate line to US 50	Plane and pave	Contract Let
77136	2/9/2009	SR 132	0.75 miles south of SR 222	Geotechnical services	Contract Let
77929	6/3/2010	SR 133	Portions of SR 133	Minor rehabilitation	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
77932	10/8/2009	SR 222	SR 133 to Felicity corporate line	Minor rehabilitation	Contract Let
78994	5/27/2009	CR 181	Bridge #CLE-181-032	Bridge replacement	Contract Let
79005	3/13/2009	CR 351	Bridge over NS RR	Replace bridge	Contract Let
79070	6/8/2011	CR 303	Bridge over Nine Mile Creek	Bridge replacement	Contract Let
79111	5/13/2011	SR 28 Business	SR 28 Bypass to Cook Road	Roadway widening	Contract Let
81570	12/23/2009	Buckwheat Road	Mulberry School Dr to Linden Creek Dr	Add sidewalks	Contract Let
81603	8/6/2009	SR 232	Various portions of SR 232 in Clermont County	Resurface	Contract Let
81619	11/25/2009	SR 131	SR 133 to Brown County line	Resurfacing	Contract Let
81886	6/11/2009	New Richmond Overlook	Village of New Richmond	Scenic byway project	Contract Let
82139	5/13/2011	Wolfpen-Pleasant Hill Road	SR 131 to 1.05 mi north of SR 131	Roadway improvements	Contract Let
82140	7/28/2011	SR 28	.44 mile west of IR 275 to IR 275 SB exit ramp	Roadway widening	Contract Let
82141	5/26/2011	SR 125	Village of Bethel	Signal project	Contract Let
82761	5/26/2010	College Dr	Clermont College	New roadway	Contract Let
83605	6/24/2011	SR 749	0.1 mile east of Pond Run Road	Replace failed retaining wall	Contract Let
83727	9/2/2008	IR 275	Five Mile Road to SR 32	Diamond grinding to reduce noise	Contract Let
83809	5/21/2009	SR 276	SR 133 to SR 132	Resurface and pave county garage lot	Contract Let
83812	8/5/2010	SR 125	IR 275 to SR 132	Resurfacing	Contract Let
84358	10/8/2009	SR 48/132	Portions of SR 48 and SR 132	Resurfacing and pavement repair	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
84427	5/6/2009	US 50	0.21 miles east of SR222 to 1.41 miles east of SR222	Grind pavement and install linear delineation	Contract Let
84470	8/6/2009	SR 727	SR 131 to SR 133	Resurface	Contract Let
84547	5/12/2011	SR 132	Bridge over tributary of East Fork Little Miami River	Bridge rehabilitation	Contract Let
86229	8/19/2009	Various County Roads	Various County Routes in Clermont Conty	Resurfacing, full depth repair	Contract Let
86229	12/18/2009	Various County Routes	Various County Routes in Clermont County	Mill and fill	Contract Let
87510	3/9/2011	SR 28	McDonald Drive to Branch Hill Guinea Pike	Addition of sidewalks, signs and crosswalks	Contract Let
89519	8/17/2011	Various locations	Various locations in Clermont County	Replace and install new guardrail	Contract Let
Hamilton					
8347	10/16/2008	US 127	South of IR 275	Widen to 4 lanes	Contract Let
13539	2/9/2009	IR 75	Bridge over West Fork of Mill Creek	Bridge replacement	Contract Let
20082	6/3/2011	US 50	Waldvogel Viaduct	Viaduct replacement	Contract Let
23302	5/11/2009	IR 275	0.84 to 0.95 north of Morgan Road	Slide repair	Contract Let
24954	3/16/2011	IR 71	Bridge HAM-71-0248R	Paint superstructure	Contract Let
25075	11/13/2008	US 52	IR 275 to HAM/CLE county line	Resurfacing	Contract Let
75567	2/9/2009	IR 275	Ohio/Indiana state line to IR 74	Minor rehabilitation	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
75674	7/17/2008		Various routes in Hamilton County	Priority crack sealing	Contract Let
75678	9/3/2009	IR 71	SLM 2.75 to 16.14	Preventive Maintenance	Contract Let
75720	8/6/2010	IR 75	From I-71 to 0.10 mile south of Harrison Ave	Bridge rehabilitations	Contract Let
75736	4/14/2011	US 50	6th Street Expressway	Roadway rehabilitation	Contract Let
75856	11/13/2009	Ohio River Trail	Carrel to Wilmer (Phase 1)	Multi-use bike/hike trail	Contract Let
75880	3/30/2009	US 22 (Phase 3)	1.41 miles north of I-275 to 0.18 miles south of the HAM/WAR Co. Line	Major widening	Contract Let
77164	1/14/2009	Banks In-termodal	Bid package #5	Superstructure for block 26	Contract Let
77205	11/26/2008	US 127	Houston Road to Crest Road	Widening	Contract Let
77484	2/17/2009	US 27	IR 74 /US 27 exit ramp to 0.15 mi. north of US-127 exit ramp	Turn lane addition	Contract Let
77744	1/21/2010	US 22	City of Montgomery	Urban paving	Contract Let
77748	7/23/2009	SR 747	City of Springdale	Urban paving	Contract Let
77811	4/1/2010	IR 74	Various bridges on IR 74 in Hamilton County	Bridge painting	Contract Let
77811	4/1/2010	IR 74	Various bridges on IR 74 in Hamilton County	Bridge painting	Contract Let
78083	2/4/2010	IR 74	Rybolt Rd to Harrison Avenue	Relocate EB off ramp	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
78088	11/13/2008	SR 747	Crescentville Road intersection	Add turn lanes	Contract Let
79014	7/17/2008	US 42	Glendale-Milford Rd at US 42	Add turn lanes on Glendale-Milford Rd	Contract Let
79016	10/16/2008	SR 125	At Five Mile Road and Forest Road	Intersection improvements	Contract Let
79088	4/21/2011	Montana Avenue	Boudinot Avenue to Farrell Avenue	Widen to four 10-foot lanes	Contract Let
79089	5/14/2010	Us 127	Ashtree Drive to Windermere Way	Widen roadway, add left turn lanes	Contract Let
79382	4/15/2010	US 27	City of Cincinnati	Urban paving	Contract Let
79393	5/7/2009	US 50	Mill Street to SR 28	Resurfacing	Contract Let
79394	8/19/2010	US 22	City of Montgomery	Urban paving	Contract Let
80037	4/22/2010	Kellogg Bikepath	Sutton Avenue to Four Mile Road	Bikepath	Contract Let
80098	11/24/2010	IR 74	0.2 miles west to 0.2 miles west of SR 128	Replace superstructure	Contract Let
80813	3/13/2009	SR 4	Glensprings Drive to IR 275 EB ramp	Add a lane on NB SR 4	Contract Let
81667	2/11/2010	US 22	City of Norwood	Urban paving	Contract Let
81779	5/27/2010	Blue Ash Signals	YMCA Drive to Cooper Road in Blue Ash	Replace signal equipment at 6 intersection	Contract Let
81784	7/2/2009	Sharonville Signals	East Sharon Road to Cornell Road	Traffic signal improvements	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
81798	7/1/2009	Cheviot Signals	North Bend Road to Bridgetown Road	Install mast arms, signal interconnect	Contract Let
82278	5/12/2011	IR 75	Mitchell Avenue Interchange (Phase 1 of widening)	Reconstruct interchange	Contract Let
82282	2/11/2010	IR 75	Monmouth Street overpass	Replace bridge	Contract Let
82284	11/23/2011	IR 74	0.56 miles east of Montana Ave. to the Elmore Street overpass	Improve Colerain/ Beekman interchange	Contract Let
82798	8/18/2008	CR 457	Interchange with IR 74	Widen for turn lanes	Contract Let
83076	81/18/08	IR 71	1.1 to 1.4 miles N of the OH/KY line	Improve skid resistance	Contract Let
83080	11/10/2011	SR 4	Intersection of SR 4 and SR 747	Improve the signal at the intersection	Contract Let
83469	9/1/2011	CR 239	0.24 north and south of IR 275	Roadway widening project	Contract Let
83518	7/7/2011	SR 264/SR 747	Portions of SR 264 and SR 747	Resurfacing	Contract Let
83637	7/7/2011	Wayne and Wyoming Avenues	7 signalized intersections in Lockland	Signal project	Contract Let
83769	8/18/2011	Ashbury Road	Anderson Township	Sidewalk project	Contract Let
83925	6/3/2010	Sharon Road	Bridges over Sharon Road and NS Railroad	Steel beam bridge painting	Contract Let
83965	5/13/2010	IR 275	Ramp from Blue Rock Rd to WB 275	Slide repair	Contract Let
84126	11/12/2009	Waldvogel Railroad Relocation	.13 mi. West of State Street to .10 mile east of Evans Street	Removal and reconstruction of the existing CSX and two CIND Railroad Lines	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
84305	6/10/2010	Glendale Village Square	Village Square Drive in Glendale	Streetscape—paver sidewalks, lighting, landscaped median	Contract Let
84314	6/10/2010	Winton Rd Enhance-ment	Winton Road North Hill Lane to Fleming Road	Streetscape—benches, bridge fencing, lighting	Contract Let
84426	5/27/2010	SR 126	1.37 to 1.97 miles east of US 27	Grind pavement to increase friction	Contract Let
84444	9/1/2011	SR 562	Bridge HAM-562-0.04l	Bridge rehabilitation	Contract Let
84497	11/15/2011	IR 75	SLM 10.09 to 12.60	Resurface and pavement repair	Contract Let
84636	11/13/2009	Uptown Wayfinding	Uptown area of the City of Cin-cinnati	Install new and replace existing wayfinding signs	Contract Let
84786	7/2/2009	Banks In-termodal	Blocks 16 and 20	Superstructure for blocks 16 and 20	Contract Let
85094	3/4/2010	US 22	City of Silverton	Urban paving	Contract Let
86065	3/31/2010	Banks In-termodal	Contract #9	Realign Mehring Way from Elm Street to Main St	Contract Let
86065	3/31/2010	Banks In-termodal	Contract #9	Realign Mehring Way from Elm Street to Main St	Contract Let
86076	4/14/2011	US 50	Village of Ter-race Park	Streetscape	Contract Let
86234	1/13/2010	Blue Rock Road	Sheed Road to Cheviot Road	Resurfacing	Contract Let
86236	8/5/2009	CR 256	From the Bridge over I-71 to the bridge over I-275	Mill and fill	Contract Let
86237	8/4/2009	Harrison Avenue	Lovell to School Section	Resurfacing	Contract Let
86238	2/17/2010	Northland Boulevard	WCL of Springdale to W. Kemper Rd	Repair base, resurface	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
86240	7/9/2009	CR 470	Cooper Road to Glendale Milford Rd	Mill and fill	Contract Let
86241	4/14/2010	Galbraith Road	Daly to Winton Road	Roadway rehabilitation	Contract Let
86242	11/25/2009	Galbraith Road	Deer Park west corporate line to Blue Ash Road	Mill and fill, restore pavement cross slope	Contract Let
86246	3/30/2010	Mosteller Road	Sharon Road to 400 ft south of Kemper	Roadway rehabilitation	Contract Let
86247	4/14/2010	Various locations in Cincinnati	Sections of Hyde Park, Oakley and Madisonville	New computerized traffic control system network	Contract Let
86284	4/1/2010	Galbraith Road	Amberley Village	Roadway rehabilitation	Contract Let
86287	2/4/2010	US 50	Milford/Terrace Park corporate line to Elm Street	Catch basin repair, curb replacement, signal replacement	Contract Let
86370	5/19/2010	Banks In-termodal	Bid package #11	Phase II of the Intermodal center	Contract Let
86511	12/23/2009	Sharon Rd	Troy Ave to Morse Road (Glendale)	Resurfacing	Contract Let
86519	12/23/2009	Main Street	Dining Lane to Catalina Apts. (Addyston)	Resurfacing	Contract Let
86798	9/1/2011	IR 75	Sharon Road exit ramps	Eliminate slip ramps	Contract Let
86799	5/12/2011	IR 71	State line to IR 75	Install pavement markings	Contract Let
86800	12/8/2011	US 22	Galbraith Road to SR 126	Change lane configura-tion from 4 to 3 lanes	Contract Let
86801	6/24/2011	IR 71	Fields Ertel/ Mason-Montgomery Rd Interchange	Improve signal timing and operations	Contract Let
86894	12/7/2011	US 22	Kennedy Road to Weller Avenu	Upgrade traffic and pedestrian signals	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
87070	4/1/2010	Vine Street	City of St. Bernard	Mill and overlay	Contract Let
87071	4/28/2011	SR 747	City of Springdale	Signal project	Contract Let
87149	8/5/2010	IR 75	State maintained portion of Western Hills Viaduct over IR 75	Roadway rehabilitation	Contract Let
88234	9/22/2010	IR74/IR75	From WHV north to I-74 along I-75 and from Florida Avenue to Beekman Street along Colerain Ave	Building demolitions for IR 74 and IR 75 widening projects	Contract Let
88794	5/26/2011	Hamilton Ave and Compton Road	14 locations in Mt Healthy	Retrofit all existing traffic signal heads	Contract Let
89060	5/12/2011	US 27	Intersection with Blue Rock Road	Install traffic signal & restripe roadway	Contract Let
91129	7/5/2011	US 52	Intersection of US 52 & Asbury Road	Emergency Culvert Reconstruction	Contract Let
Warren					
10754	4/27/2009	IR 75	SR 122 interchange	Major rehabilitation	Contract Let
22950	6/3/2010	IR 71	Jeremiah Morrow Bridges	Bridge replacements	Contract Let
24947	1/21/2010	SR 741	Bridges over Muddy Creek and Little Muddy Creek	Bridge replacements	Contract Let
77137	2/17/2009	SR 123	2.03 miles W of IR 71	Stream erosion and embankment failure	Contract Let
77905	11/12/2009	US 22	4.02 to 4.08 miles north of SR 48	Culvert replacement	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
79017	6/11/2009	US 42	Intersection with Tylersville Road	Intersection improvement	Contract Let
79388	3/12/2009	US 42	City of Mason	Urban paving	Contract Let
79850	5/9/2011	US 42	Butler-Warren Road to Tylersville Road	Turn lanes, bike lane and sidewalks	Contract Let
80226	5/4/2009	Cincinnati Dayton Rd	.28 mi. north of SR 122	Bridge replacement	Contract Let
81624	11/10/2011	SR 132/133	Portions of SR 132 and SR 133	Resurfacing	Contract Let
81968	4/28/2011	IR 71	NB IR 71 to SB SR 48	Ramp study	Contract Let
81986	4/28/2011	Bethany Road	Butler-Warren Road to 0.5 mi. west of Mason-Montgomery Road	Widen roadway to 3 lanes with right-of-way for 5 lanes	Contract Let
82957	7/7/2011	US 22/SR 123	Various culverts	Line, rehabilitate and/or replace	Contract Let
83006	5/20/2010	US 42	Northern Lebanon corp line to 4-lane section	Plane and pave roadway	Contract Let
83146	12/23/2008	Lebanon Streetscape (SR 48)	Main Street to Silver Street	Streetscape Project	Contract Let
84109	12/11/2009	US 22	Deerfield Township	Add sidewalks on both sides of US 22	Contract Let
84307	1/19/2012	SR 741	Courseview Drive to Bethany Road	Urban paving in the City of Mason	Contract Let
84462	1/20/2011	SR 48	Various portions of SR 48	Resurface and pavement repairs	Contract Let
84465	1/20/2011	SR 123	SLM 0.06 to 7.72	Resurface and pavement repairs	Contract Let
84863	4/15/2010	SR 123	1.04 miles south of US 22	Minor rehab of historic bridge	Contract Let
86239	11/25/2009	Columbia Rd, various county roads	Various roads in Warren County	Resurface, stripe and add berms	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
86248	10/12/2009	Kings Island Drive	From Western Row Road north for about one mile	Resurfacing	Contract Let
87514	10/17/2011	IR 75	Interchange of IR 75 and SR 63	Construct a gateway/ streetscape	Contract Let
KENTUCKY					
6-388.01		Various bridges	Ohio River bridges	Fracture critical inspection	Contract Let
Boone					
6-1064.00	5/13/2009	CR 1329	Bridge and approaches over Ashby Fork Road	Replacement project	Contract Let
6-193.00	4/7/2011	South Airfield Rd	From KY 18 to KY 1017	New Roadway project	Contract Let
6-195.09	11/24/2010	Florence Sidewalks	From Tanners Lane west over IR 71/75 to Hopeful Church	Sidewalk project	Contract Let
6-2032.00	3/31/2011	IR 75	MP 169.439 to MP 182.813	Mill and resurface	Contract Let
6-2033.00	3/31/2011	IR 75	MP 169.439 to 176.000	Grade, drain and surface	Contract Let
6-405.00	6/30/2011	KY 237	MP 7.49 to 9.897	Pavement and guardrail rehabilitation	Contract Let
6-8000.21	3/8/2012	IR 275	IR 275/KY 212	Interchange reconstruction	Deleted
6-8000.50	3/8/2012	IR 275	IR 275/KY 20	Reconstruct entrance ramp	Deleted
6-8413.00	12/21/2010	KY 1829 (Industrial Road)	US 25 to KY 1303 (Turkeyfoot Road)	Widen to 5 lanes	Contract Let
2010 RTP 1	4/26/2011	Florence Park	City of Florence	Recreational Trails project	Contract Let
TE 12	7/1/2009	Burlington Sidewalks	Burlington Historic District	Sidewalk project	Contract Let
Campbell					

PID	Delete Date	Facility	Location	Description	Reason
6-1054.00	9/26/2008	KY 2238	Bridge over the 3 Mile Creek	Bridge replacement	Contract Let
6-2020.00	6/17/2011	IR 275	MP 73.55 to 75.38	Structural overlay	Contract Let
6-2021.00	6/17/2011	IR 471	MP 0.00 to 5.72	Pavement reconstruction	Contract Let
6-2026.00	6/17/2011	IR 275	MP 75.386 to MP 77.023	Structural overlay	Contract Let
6-2800.30	6/17/2011	IR 275	MP 75.5 to 77.00	Install median cable	Contract Let
6-46.20	11/3/2010	US 27	KY 154 to Campbell County Park	Roadway widening	Contract Let
6-8103.00	2/18/2011	KY 2345	Collins Blvd. to IR 275 bridge	Reconstruct roadway	Contract Let
Kenton					
6-2019.00	9/21/2010	IR 75	KY 1120 overpass to KY 8 overpass	Mill overlay	Contract Let
6-2022.00	9/21/2010	IR 75	KY 1072 to KY 1120	Repair and grind pavement	Contract Let
6-2027.00	9/21/2010	IR 275	Horsebranch Road to US 25	Repair and grind pavement	Contract Let
6-2034.00	2/24/2011	Dixie Highway	Dudley Rd to Town Center Blvd in Crestview Hills	Sidewalk project	Contract Let
6-213.00	4/15/2011	Central Area Loop	City of Covington	Intersection improvements	
6-219.05	6/30/2011	Dixie Highway	Miles Elementary School	Sidewalk project	Contract Let
6-219.06	2/15/2011	US 25 McAlpin/ Garvey	3-way Intersection	Intersection improvement	Contract Let
6-220.00	2/28/2011	KY 17	Roebling Suspension Bridge	Bridge painting	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
6-273.00	6/30/2009	KY 1120 (12th Street)	IR 75 to Russell Street	Roadway reconstruction	Contract Let
6-2800.20	9/21/2010	IR 275	KY 9 to KY 1303	Install high tension median cable	Contract Let
6-352.01	11/10/2010	Wright Rd	East of KY 2043	N/S railroad crossing	Contract Let
6-363.00	3/23/2011	US 25	At Dudley Road	Turn lanes	Contract Let
6-71.01	11/9/2010	KY 1303	1.48 KM	Roadway relocation	Contract Let
2010 RTP-2	1/28/2011	Licking River Greenway	City of Covington	Trailside/trailhead project	Contract Let
CMAQ 6	8/1/2008	Dixie Hwy and Sunset Avenue	Sidewalks around Miles Elementary School	Sidewalk project	Contract Let
SRTS 3	8/1/2008		Arnett Elementary School	SRTS Program	Contract Let
TE 22	5/19/2009	Renaissance III	Downtown Independence district	Sidewalk replacement project	Contract Let
INDIANA					
Dearborn					
88850	9/10/2009	Conwell Street	US 50 to Exporting Street	Roadway reconstruction	Contract Let
200722	11/19/2008	Bell Branch Road	Bridge #15 over Laughery Creek	Bridge rehabilitation	Contract Let
300114	9/10/2009	13 counties in Indiana	Ohio River ScenicByway	Interpretive panels in 13 counties	Contract Let
300719	9/10/2009	SR 1	Bridge over IR 74	Bridge reconstruction	Contract Let
710059	10/1/2008	Various locations	New or modernized traffic signals	Signal project	Contract Let
711012	12/10/2008	SR 148	Maple Street to US 50	District pavement project	Contract Let
800376	8/15/2009	IR 275	Along IR 275 in Dearborn County	Sign modernization	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
810291	10/7/2009	SR 1	Near Georgetown Road	Demolish and remove 2 houses	Contract Let
810334	8/12/2009	IR 275	Near US 50	ARTIMIS system extension	Contract Let
810365	4/8/2010	SR 46	Bridge over Logan Creek	Bridge rehabilitation	Contract Let
810415	3/29/2009	SR 46	SR 1 to US 52	Preventive maintenance	Contract Let
900093	10/21/2009	York Ridge Road	SR 1 to North Dearborn Road	Resurfacing	Contract Let
900094	10/1/2008	Weisburg Road	SR 48 to North Dearborn Road	Resurfacing project	Project suspended
900095	7/29/2009	North Hogan Rd	SR 350 to Hogan Hill Road	Chip and Seal/fog seal	Contract Let
900096	7/29/2009	N Dearborn Road	Various locations	Chip and Seal/fog seal	Contract Let
900144	8/26/2009	SR 148	SR 48 to Maple Street in Center and Manchester Townships	HMA overlay and preventive maintenance	Contract Let
900159	6/24/2009	Ridge Ave	City of Greendale	HMA overlay	Contract Let
901652	1/27/2010	Nowlin Avenue	Rand Avenue to Meadowcreek Drive	Milling and paving	Contract Let
800426	5/12/2010	IR 275	Ramp from US 50 to IR 27t	Interchange modification	Contract Let
501247	5/14/2010	IR 74	SR 101 to SR 1	HMA overlay	Contract Let
501248	5/14/2010	IR 74	SR 1 to Ohio line	HMA overlay	Contract Let
710083	5/14/2010	IR 74	At RP 164 + 2	Erosion/landslide	Contract Let
710084	5/14/2010	IR 74	At RP 167.1	Erosion/landslide	Contract Let
710008	5/14/2010	IR 74	At RP 165	Slide correction	Contract Let
710986	1/12/2011	Lesko Park	Park Trail	Bicycle/pedestrian trail project	Contract Let
401194	3/4/2011	George Street	City of Aurora	Historic bridge rehabilitation	Contract Let
100343	4/13/2011	SR 1	Bridge over Salt Fork Creek	Bridge rehabilitation project	Contract Let

PID	Delete Date	Facility	Location	Description	Reason
201170	4/13/2011	US 50	Bridge over CSX RR and Railroad Avenue	Bridge deck replacement project	Contract Let
600727	5/1/2011	US 50	Intersection with Doughty Road	Intersection improvement	Contract Let
1005490	5/11/2011	US 50	Intersection with Doughty Road	Traffic signal project	Contract Let
1005964	12/14/2011	SR 46	Bridge over Logan Creek	Bridge painting project	Contract Let
1006586	1/11/2012	State Line Road	Bright Elementary School	School warning signs—HSIP project	Contract Let
1006587	1/11/2012	North Dearborn Road	North Dearborn Elementary School	School warning signs—HSIP project	Contract let
1006590	1/11/2012	Old State Route 1	Sunman Dearborn Intermediate School	School warning signs—HSIP project	Contract Let

TRANSIT PROJECTS

In addition to TIP highway projects that were either implemented (contract/let) or cancelled since the 2008 plan, there were numerous TIP transit projects that were also implemented during the period. Figure A-4 provides the list of transit projects that were awarded since the adoption of the 2008 plan.

Figure A-4: Federally Funded Transit Projects Implemented or Deleted (July 1, 2008 to June 30, 2011)

ALI CODE	ALI Description	Federal Funds Programmed	Federal Funds Authorized	Remaining Federal Funds
Butler County Regional Transit Authority				
11.12.04	5 replacement <30' buses	$375,000	$375,000	$0
11.13.04	8 replacement <30' buses for expansion	$400,000	$400,000	$0
11.42.07	Acquire ADP Hardware	$15,000	$15,000	$0
11.42.11	Acquire 4 support vehicles	$120,000	$120,000	$0
11.42.20	Acquire miscellaneous support equipment	$35,000	$35,000	$0
11.43.04	Construct storage facility	$670,000	$499,409	$170,591
11.44.03	Rehabilitate/renovate administrative/maintenance facility	$30,000	$30,000	$0
11.92.03	Purchase landscaping/scenic beautification	$16,500	$16,500	$0
11.7A.00	Preventive maintenance	$150,000	$150,000	$0
30.09.01	Operating Assistance up to 50% federal share (OH-37-X073)	$819,178	$409,589	$409,589
30.09.01	Operating Assistance up to 50% federal share (OH-57-X034)	$428,400	$214,200	$214,200
11.43.04	Construct storage facility (OH-96-X001)	-$160,000	-$160,000	$0
30.09.01	Operating Assistance 100% federal share-ARRA (OH-96-X001)	$160,000	$160,000	$0
11.42.20	Acquire miscellaneous support equipment	$250,000	$200,000	$50,000
30.09.01	Operating assistance up to 50% federal share	$466,000	$233,000	$233,000
11.12.04	Buy replacement vehicles <30 foot bus	$386,095	$308,876	$77,219
Clermont Transportation Connection				
11.92.02	Purchase bus shelters	$7,000	$7,000	$0
11.92.06	Purchase bicycle access, facilities & equipment on buses	$5,049	$5,049	$0
11.12.04	3 replacement <30' buses (PID 81948)	$136,800	$136,800	$0
11.12.04	5 replacement <30' buses	$610,000	$610,000	$0
11.42.11	Acquire 3 support vehicles	$60,000	$60,000	$0
11.44.05	Rehabilitate/renovate yards and shop	$1,000,000	$727,588	$272,412
11.93.06	Construct bicycle access, facility and equipment on buses	$14,118	$14,118	$0
11.7A.00	Preventive Maintenance	$110,000	$40,000	$70,000
11.42.09	Acquire mobile surveillance/security equipment	$12,900	$10,310	$2,590
11.92.02	Purchase bus shelters	$8,000	$6,310	$1,690
11.92.08	Purchase signage	$5,000	$4,000	$1,000
11.42.09	Acquire mobile surveillance/security equipment	$12,900	$10,310	$2,590
11.7A.00	Preventive Maintenance	$175,000	$140,000	$35,000
11.42.09	Acquire mobile surveillance/security equipment	$15,000	$12,000	$3,000
11.42.09	Acquire mobile surveillance/security equipment	$15,000	$12,000	$3,000
11.92.08	Purchase signage	$15,000	$12,000	$3,000
11.12.04	Buy replacement vehicles <30 foot bus	$181,416	$141,600	$39,816

Middletown Transit System				
30.09.01	Operating Assistance up to 50% federal share	$47,551	$47,551	$0
30.09.01	Operating Assistance up to 50% federal share	$388,381	$328,050	$60,331
44.22.00	General development/comprehensive planning	$63,256	$64,000	$0
11.7A.00	Preventive maintenance	$505,000	$505,000	$0
11.7C.00	Non fixed route ADA Paratransit Service	$147,370	$147,370	$0
11.14.03	Rehab/rebuild 30' buses	$476,394	$476,394	$0
11.12.04	2 replacement <30' buses	$150,000	$160,000	$0
11.34.02	Rehabilitate/renovate bus station	$20,000	$25,000	$0
11.43.02	Construct maintenance facility (bus wash facility)	$360,000	$360,000	$0
11.14.04	Rehabilitate/renovate storage facility	$170,000	$170,000	$0
11.14.02	Miscellaneous support equipment (bus lift/hoist)	$52,000	$52,000	$0
30.09.01	Operating Assistance up to 50% federal share (OH-90-X679)	$1,172,960	$586,480	$586,480
44.22.00	General development/comprehensive planning (OH-90-X679)	$65,000	$52,000	$13,000
11.7A.00	Preventive maintenance (OH-90-X679)	$267,000	$213,600	$53,400
11.7C.00	Non fixed route ADA Paratransit Service (OH-90-X679)	$148,212	$118,570	$29,642
11.12.04	Buy replacement <30' buses (OH-96-X013)	-$4,042	-$4,042	$0
11.32.10	Acquire bus passenger shelters (OH-96-X013)	$170,000	$170,000	$0
11.34.02	Rehabilitate/renovate bus station (OH-96-X013)	-$25,000	-$25,000	$0
11.42.20	Acquire miscellaneous support equipment (OH-96-X013)	-$22,500	-$22,500	$0
11.43.02	Construct maintenance facility (OH-96-X013)	$48,797	$48,797	$0
11.44.04	Rehabilitate/renovate storage facility (OH-96-X013)	-$26,297	-$26,297	$0
30.09.01	Operating Assistance 100% federal share (OH-96-X013)	$247,895	$247,895	$0
11.7A.00	Preventive maintenance (OH-96-X013)	-$115,437	-$115,437	$0
11.7C.00	Non fixed route ADA Paratransit Service (OH-96-X013)	$7,572	$7,572	$0
44.22.00	General development/comprehensive planning	-$42,593	-$42,593	$0
30.09.01	Operating assistance up to 50% federal share	-$586,480	-$586,480	$0
11.7A.00	Preventive Maintenance	-$114,703	-$114,703	$0
11.7C.00	Non fixed route ADA paratransit service	-$106,113	-$106,113	$0
11.7C.00	Non fixed route ADA paratransit service	-$12,457	-$12,457	$0
44.22.00	General development/comprehensive planning	-$9,407	-$9,407	$0
44.22.00	General development/comprehensive planning	$52,000	$52,000	$0
11.7A.00	Preventive Maintenance	$114,703	$114,703	$0
11.7C.00	Non fixed route ADA paratransit service	$118,570	$118,570	$0
30.09.01	Operating assistance up to 50% federal share	$586,480	$586,480	$0
11.7C.00	Non fixed route ADA paratransit service	$150,000	$120,000	$30,000
11.7A.00	Preventive Maintenance	$185,000	$148,000	$37,000
44.22.00	General development/comprehensive planning	$165,000	$132,000	$33,000
30.09.01	Operating assistance up to 50% federal share	$1,375,377	$687,689	$687,688
SORTA				
11.92.02	Bus shelters (FY 2005 project)	$99,456	$99,456	$0
11.92.03	Purchase landscaping/scenic beautification (FY 2005 project)	$15,000	$15,000	$0
11.92.08	Purchase signage (FY 2005 project)	$11,624	$11,624	$0
11.93.05	Construct pedestrian access/walkways (FY 2005 project)	$50,000	$50,000	$0
11.12.01	3 replacement 40' buses	$776,000	$776,000	$0
11.12.01	4 replacement 40' buses (ODOT CMAQ)	$1,070,749	$1,070,749	$0
11.12.01	6 replacement 40' buses	$1,367,632	$1,367,632	$0
11.12.04	14 replacement <30' buses (includes inspection) T-1539, T-1540	$700,000	$700,000	$0
11.12.06	5 replacement articulated buses	$1,949,967	$1,949,967	$0

11.12.01	4 x 40' Diesel Buses	$1,562,500	$337,000	$1,225,500
11.12.01	4 x 40' Diesel Buses	$1,250,000	$125,000	$1,125,000
11.12.03	3 x 40' Diesel Hybrid Buses	$1,927,500	$0	$1,927,500
11.12.04	5 x <30' Diesel Buses	$375,000	$37,500	$337,500
11.42.11	1 x Supervisor Vehicles	$25,530	$2,530	$23,000
11.42.08	IT Software	$50,000	$5,000	$45,000
11.42.09	Security Improvements	$45,000	$11,500	$33,500
11.42.07	IT Hardware	$50,000	$5,000	$45,000
11.42.06	Shop Equipment	$50,000	$5,000	$45,000
11.42.20	Bldg & Facility Equip.	$75,000	$9,500	$65,500
11.44.03	Renov. Adm. Facility	$187,500	$70,701	$116,799
11.93.03	Transit Enhancement	$45,000	$4,500	$40,500
11.75.96	Florence Hub (Phase I)	$2,106,325	$0	$2,106,325
11.75.96	Turkeyfoot Park & Ride	$1,051,838	$0	$1,051,838
11.62.02	Communications - Phase 1	$1,500,000	$1,466,063	$33,937
11.62.02	Communications - Phase 2	$1,500,346	$0	$1,500,346
11.42.10	Fare Collection - Phase 1	$1,000,000	$0	$1,000,000
11.44.03	Renov. Main/Admin	$350,000	$190,693	$159,307
11.92.02	Transit Enhancement	$200,000	$173,180	$26,820
11.33.03	Transit Intermodal Terminal (OH-04-0026)	$677,160	$677,160	$0
11.33.03	Transit Intermodal Terminal (OH-04-0027)	$231,990	$185,592	$46,398
11.12.01	Buy 3 replacement 40-foot buses (OH-58-0004)	$1,028,750	$823,000	$205,750
11.12.01	Buy 3 replacement 40-foot buses (OH-90-X669)	$1,083,000	$866,400	$216,600
11.14.40	Rehabilitate/rebuild spare parts (OH-90-X669)	$336,000	$268,800	$67,200
11.16.40	Lease assoc cap maintenance items (OH-90-X669)	$616,280	$493,024	$123,256
11.42.06	Acquire shop equipment (OH-90-X669)	$990,000	$792,000	$198,000
11.42.08	Acquire ADP software (OH-90-X669)	$10,000	$8,000	$2,000
11.42.09	Acquire mobile surveillance/security equip. (OH-90-X669)	$142,000	$113,600	$28,400
11.42.09	Acquire mobile surveillance/security equip. (OH-90-X669)	$142,000	$113,600	$28,400
11.42.20	Acquire miscellance support equipment (OH-90-X669)	$96,400	$77,120	$19,280
11.44.03	Rehabilitate/renovate administration/maint. Facility (OH-90-X669	$334,000	$241,600	$92,400
11.44.03	Rehabilitate/renovate administration/maint. Facility (OH-90-X669	$192,000	$139,983	$52,017
11.92.02	Purchase bus shelters (OH-90-X669)	$80,000	$64,000	$16,000
11.92.03	Purchase landscaping/scenic beautification (OH-90-X669)	$32,000	$25,600	$6,400
11.92.06	Purchase bicycle access, facil & equip on buses (OH-90-X669)	$55,868	$44,694	$11,174
11.92.08	Purchase signage (OH-90-X669)	$48,000	$38,400	$9,600
11.7A.00	Preventive Maintenance (OH-90-X669)	$13,216,658	$10,573,326	$2,643,332
11.7C.00	Non fixed route ADA paratransit service (OH-90-X669)	$1,976,416	$1,403,730	$572,686
11.92.06	Purchase bicycle access, facil & equip on buses (OH-90-X669)	$5,877	$4,702	$1,175
11.7A.00	Preventive Maintenance (OH-90-X669)	$612,263	$489,810	$122,453
11.7A.00	Preventive Maintenance (OH-90-X678)	$6,673,708	$538,966	$6,134,742
11.12.01	Buy 20 40-foot replacement buses (OH-95-X044)	$7,246,653	$4,710,324	$2,536,329
11.12.04	Buy 11 <30-foot replacement buses (OH-95-X044)	$768,253	$537,777	$230,476
11.42.11	Acquire support vehicles (OH-95-X044)	$105,000	$73,500	$31,500
11.12.01	Buy 3 40-foot replacement buses (OH-96-X004)	$1,641,000	$1,641,000	$0
11.12.01	Min-hybrid thermal mgmt kit-buses (OH-96-X004)	$350,000	$350,000	$0

SORTA (continued)				
11.12.03	Buy 4 30-foot replacement buses (OH-96-X004)	$2,160,000	$2,160,000	$0
11.42.06	Bus fluid management system (OH-96-X004)	$351,310	$351,310	$0
11.62.02	Purchase and install communications system (OH-96-X004)	$8,671,000	$8,671,000	$0
11.92.02	Purchase bus shelters (OH-96-X004)	$140,000	$140,000	$0
11.92.03	Purchase landscaping/scenic beautification (OH-96-X004)	$15,403	$15,403	$0
11.92.08	Purchase signage (OH-96-X004)	$20,000	$20,000	$0
11.7A.00	Preventive Maintenance (OH-96-X004)	$4,191,540	$4,191,540	$0
11.12.01	Min-hybrid thermal mgmt kit-buses	-$350,000	-$350,000	$0
11.12.01	Buy 1 40-foot replacement bus (OH-96-X004)	$219,704	$219,704	$0
11.12.03	Buy 1 30-foot replacement bus (OH-96-X004)	$130,296	$130,296	$0
11.42.09	Acquire mobile surveillance/security equipment	$52,500	$42,000	$10,500
11.42.11	Acquire support vehicles	$90,000	$72,000	$18,000
11.42.09	Acquire mobile surveillance/security equipment	$52,500	$42,000	$10,500
11.93.05	Construct pedestrian access/walkways	$95,000	$76,000	$19,000
11.42.11	Acquire support vehicles	$90,000	$72,000	$18,000
11.16.40	Lease associated capitalized maintenance items	$551,068	$440,854	$110,214
11.7C.00	Non fixed route ADA paratransit service	$1,644,161	$1,289,161	$355,000
11.7A.00	Preventive maintenance	$6,843,475	$5,474,780	$1,368,695
11.82.06	Purchase bicycle access, facility and equipment on bues	$57,900	$46,320	$11,580
30.09.01	Operating assistance up to 50% federal share	$1,180,968	$590,484	$590,484
11.33.03	Dana Avenue streetscape	$251,323	$201,058	$50,265
11.42.09	Acquire mobile surveillance/security equipment	$34,080	$27,264	$6,816
11.92.02	Purchase bus shelters	$23,680	$18,944	$4,736
11.7A.00	Preventive maintenance	$2,847,743	$2,278,194	$569,549
11.12.01	Buy 19 replacement 40 foot buses	$7,532,509	$4,896,131	$2,636,378
11.12.01	Buy 4 replacement 40 foot buses	$2,812,641	$2,334,492	$478,149
11.44.03	Rehabilitate/renovate administrative/maintenance facility	$1,065,582	$776,418	$289,164
TANK				
11.12.01	4 x 40' Diesel Buses	$1,562,500	$337,000	$1,225,500
11.12.01	4 x 40' Diesel Buses	$1,250,000	$125,000	$1,125,000
11.12.03	3 x 40' Diesel Hybrid Buses	$1,927,500	$0	$1,927,500
11.12.04	5 x <30' Diesel Buses	$375,000	$37,500	$337,500
11.42.11	1 x Supervisor Vehicles	$25,530	$2,530	$23,000
11.42.08	IT Software	$50,000	$5,000	$45,000
11.42.09	Security Improvements	$45,000	$11,500	$33,500
11.42.07	IT Hardware	$50,000	$5,000	$45,000
11.42.06	Shop Equipment	$50,000	$5,000	$45,000
11.42.20	Bldg & Facility Equip.	$75,000	$9,500	$65,500
11.44.03	Renov. Adm. Facility	$187,500	$70,701	$116,799
11.93.03	Transit Enhancement	$45,000	$4,500	$40,500
11.75.96	Florence Hub (Phase I)	$2,106,325	$0	$2,106,325
11.75.96	Turkeyfoot Park & Ride	$1,051,838	$0	$1,051,838
11.62.02	Communications - Phase 1	$1,500,000	$1,466,063	$33,937
11.62.02	Communications - Phase 2	$1,500,346	$0	$1,500,346
11.42.10	Fare Collection - Phase 1	$1,000,000	$0	$1,000,000
11.44.03	Renov. Main/Admin	$350,000	$190,693	$159,307
11.92.02	Transit Enhancement	$200,000	$173,180	$26,820

TANK (continued)				
44.23.01	Planning Projects	$40,000	$0	$40,000
11.7A.00	Preventative Maint.	$363,482	$0	$363,482
11.12.01	40' Diesel Buses	$1,300,832	$0	$1,300,832
11.12.04	<30' Diesel Buses	$480,000	$66,336	$413,664
11.42.11	Supervisor Vehicles	$21,600	$0	$21,600
11.42.08	It Software	$40,000	$0	$40,000
11.42.09	Security Improvements	$40,000	$0	$40,000
11.42.07	IT Hardware	$40,000	$0	$40,000
11.42.06	Shop Equipment	$40,000	$0	$40,000
11.42.20	Bldg & Facility Equip	$60,000	$0	$60,000
11.44.03	Renov. Admin Facility	$150,000	$0	$150,000
11.93.03	Transit Enhancement	$40,000	$0	$40,000
11.12.04	<30' Diesel Shuttle Buses	$1,420,000	$1,420,000	$0
11.42.10	Fare Collection-Phase 2	$1,000,000	$0	$1,000,000
44.21.00	JARC Planning - 1st Year	$61,710	$0	$61,710
30.09.01	Reverse Commute - 2nd Year	$232,144	$0	$232,144
11.12.03	40' Diesel Hybrid Buses	$1,066,000	$0	$1,066,000
11.12.01	40' Diesel Buses	$1,521,328	$0	$1,521,328
44.23.01	Planning Projects	$156,250	$125,000	$31,250
11.7A.00	Preventive Maintenance	$713,398	$570,718	$142,680
11.12.01	40' diesel buses	$4,345,050	$3,476,040	$869,010
11.12.04	<30' diesel buses	$625,000	$500,000	$125,000
11.42.11	Supervisor vehicles	$33,750	$27,000	$6,750
11.42.08	IT Software	$62,500	$50,000	$12,500
11.42.09	Security improvements	$62,500	$50,000	$12,500
11.42.07	IT Hardware	$62,500	$50,000	$12,500
11.42.06	Shop equipment	$62,500	$50,000	$12,500
11.42.20	Building and facility equipment	$93,750	$75,000	$18,750
11.44.03	Renovate administrative facility	$234,375	$187,500	$46,875
11.93.03	Transit enhancement	$62,500	$50,000	$12,500
11.75.96	18X park and ride	$625,000	$500,000	$125,000
11.75.96	Florence Hub (phase II)	$2,500,000	$2,000,000	$500,000
11.44.20	Lamps for storage barn	$62,500	$50,000	$12,500
11.44.04	Storage barn refurbishing	$250,000	$200,000	$50,000
11.33.04	6th Street Newport park and ride	$1,250,000	$1,000,000	$250,000
11.7d.02	Employee education/training	$25,000	$20,000	$5,000
44.23.01	Planning Projects	$156,250	$125,000	$31,250
11.7A.00	Preventive Maintenance	$713,398	$570,718	$142,680
11.12.01	40' diesel buses	$4,345,050	$3,476,040	$869,010
11.12.04	<30' diesel buses	$625,000	$500,000	$125,000
11.42.11	Supervisor vehicles	$33,750	$27,000	$6,750
11.42.08	IT Software	$62,500	$50,000	$12,500
11.42.09	Security improvements	$62,500	$50,000	$12,500
11.42.07	IT Hardware	$62,500	$50,000	$12,500
11.42.06	Shop equipment	$62,500	$50,000	$12,500
11.42.20	Building and facility equipment	$93,750	$75,000	$18,750
11.44.03	Renovate administrative facility	$234,375	$187,500	$46,875
11.93.03	Transit enhancement	$62,500	$50,000	$12,500
11.75.96	18X park and ride	$625,000	$500,000	$125,000
11.75.96	Florence Hub (phase II)	$2,500,000	$2,000,000	$500,000
11.44.20	Lamps for storage barn	$62,500	$50,000	$12,500
11.44.04	Storage barn refurbishing	$250,000	$200,000	$50,000
11.33.04	6th Street Newport park and ride	$1,250,000	$1,000,000	$250,000
11.7d.02	Employee education/training	$25,000	$20,000	$5,000
Warren County Transit				
11.12.15	3 replacement light transit vehicles	$163,040	$163,040	$0

Appendix B: Project Scoring Process

OVERVIEW

This scoring process is intended to assist in the selection of worthy roadway, public transportation, bicycle/pedestrian, freight, and Intelligent Transportation Systems (ITS) projects for the OKI 2040 Regional Transportation Plan. Its basis is a procedure originally adopted by the OKI Intermodal Coordinating Committee and Board of Directors to evaluate Transportation Improvement Program (TIP) and the Ohio Department of Transportation's (ODOT) Transportation Review Advisory Committee (TRAC) projects. This process provides a systematic approach to ranking the numerous projects which will need to be evaluated in the development of a financially constrained regional transportation plan. In November 2011, this process was adapted to fit the nature of the regional transportation plan and 20+ year planning horizon. Since the 2008 update of this plan, the criteria have been adjusted in relation to non-roadway freight, environmental impacts, and complete streets all of which are reflective of the current TIP scoring process. The process makes best use of available data and points of emphasis in the federal transportation bill. Maintenance projects are not included since they are of high importance and are assumed to be part of the plan.

A numeric ranking for each project will be determined for a relative comparison with other projects. This scoring process is meant to provide information for decision-making and development of a recommended list of projects in the plan. Public input and OKI leadership will determine the final recommended list of projects.

Several criteria are evaluated in the scoring process. The first seven apply to all projects and provide a potential of 60 points. A project is then scored under the roadway, transit or non-roadway freight sections, all of which provide a potential for another 45 points for a total possible 105 points. A description of the criteria and the OKI 2040 Regional Transportation Plan project scoring process follows. Chart summaries of all points are found in figures B-1, B-2 and B-3 and B-4 at the end of this appendix.

OVERALL CRITERIA

There are seven criteria that follow provide a potential of 60 points to each transportation project recommendation. Figure B-1 summarizes the measures and point values for each of the overall criteria.

Environmental Justice

The environmental justice criterion addresses the emphasis placed on transportation impacts on minority, elderly, low income, disabled and/or zero-car household populations. Impacts could include such things as affects on travel times, division of neighborhoods, change in noise and/or air pollution, etc. which may occur as a result of project implementation. This is a subjective evaluation. Projects are awarded point values as follows:

- Positive impact 5 points
- No impact 3 points
- Negative impact 0 points

Economic Vitality

The economic vitality criterion awards points for projects that serve to support existing, expanding or new non-retail employment centers. Projects are awarded point values as follows:

- Projects demonstrating a significant positive impact 10 points
- Projects not demonstrating a significant positive impact 0 points

Air Quality

The air quality criterion relates to continued efforts to improve the region's air quality and encourage investment in more environmentally friendly forms of fuel use. Reduction in vehicle miles of travel (VMT), vehicle hours of travel (VHT), and the use of cleaner vehicles will be considered in the allocation of up to 10 points based on anticipated reduction of vehicle emissions. A maximum score of 10 points could be awarded for projects involving a location with high average daily traffic (ADT), a high percentage of trucks, high current congestion, and a potential for a large improvement in congestion due to project implementation. Examples of potential improvements include construction of a new roadway link reducing circuitous travel (VMT reduced), additional intersection turn lanes (VHT reduced), addition of a new bus on an existing route reducing headway (VMT and VHT reduced), or the replacement of older diesel buses with new hybrid electric buses (cleaner vehicles). Projects are awarded point values as follows:

- Significant VMT/VHT reduction and increase cleaner vehicles 7 to 10 points
- Moderate VMT/VHT reduction and/or increase in cleaner vehicles 4 to 6 points
- Low VMT/VHT reduction and/or increase in cleaner vehicles 0 to 3 points

Environmental Impact

The environmental impact criterion addresses the impact transportation projects may have on environmentally sensitive areas. Input received through environmental consultations, detailed in Chapter 4 of this Plan, informs the scores for this element. Projects are awarded point values as follows:

- Project avoids environmentally sensitive area(s) 5 points
- Any impact(s) will be mitigated 3 points
- Impact(s) will not be mitigated 0 points

Local Priority

The local priority criterion reflects the relative importance of each project as indicated by affected communities and/or future public sponsor. It is important that OKI have a sense of the local situation and preference for solutions to transportation problems. Local communities are asked to review and prioritize all projects within their area or jurisdiction. The prioritized project listings received from public agencies (city, county, state, etc.) are used to assign high, medium or low priority. If a local priority was received from more than one agency, the average score was used and projects were awarded point values as follows:

- High priority – one agency 10 points
- Medium and high priority – two agencies 8 points
- Medium priority - one agency 6 points

- High and low priorities - two agencies 6 points
- Low and medium priorities - two agencies 4 points
- Low priority - one agency 1 point

Complete Streets/Multimodal/Intermodal

The complete streets/multimodal/intermodal criterion awards points based on the project's ability to include and/or enhance more than the primary mode or specifically address freight intermodal needs. If the proposed project facilitates intermodal integration and connectivity, or includes design elements for more than one transportation mode up to 10 points may be obtained. An example of multimodal integration as well as a complete street improvement would be a roadway reconstruction project that creates adequate space for bicycle use, even though a formal bike path is not part of the design. Another example would be a bus purchase by a transit operator where the specifications called for bicycle racks to be included. An example of multimodal investment is a roadway widening project that provides bus turnouts at designated bus stops, or a bus preemption feature in the traffic signal design. If a transit operator proposed a project for a park-and-ride lot/transfer center that included a linkage to an existing bike path and provided bike racks, the maximum of 10 points could be scored for this intermodal project. Projects are awarded point values as follows:

- Three or more modes or intermodal freight project 10 points
- Two mode design 5 points
- Primary mode only included in project proposal 0 points

Corridor Study/Comprehensive Plan

The corridor study/ comprehensive plan recommendation criterion awards up to 10 points for projects identified as high priority through a formal corridor study or comprehensive planning process. This is meant to recognize the significant overall detailed planning invested in key transportation corridors. Important yet lower priority projects included in such a study or plan may be awarded five points. Projects with little or no status relative to a corridor study or a comprehensive plan will be scored zero points in this category. Projects are awarded point values as follows:

- Inclusion in study or plan as high priority 10 points
- Inclusion in study or plan as medium or low priority 5 points
- No inclusion or status provided in existing study or plan 0 points

ROADWAY PROJECTS

There are eight criteria that follow provide a potential of 45 points to each roadway-specific transportation project recommendation. Figure B-2 summarizes the measures and point values for each of the roadway criteria.

Safety

The project is assigned a safety score ranging from one to five points based on the number of crashes per million vehicle miles traveled (MVMT). Projects are awarded point values as follows:

- Nine or more crashes per MVMT 5 points
- Seven or more crashes per MVMT 4 points
- Five or more crashes per MVMT 3 points
- Three or more crashes per MVMT 2 points
- Less than three crashes per MVMT 1 point

Impact on Safety

The scoring process also takes into consideration the extent to which the project will have a positive impact on improving the level of safety for roadway travelers. The impact on safety criterion ranges from zero to five points. New facilities will be scored based on existing routes that the project is designed to alleviate, if any. Projects are awarded point values as follows:

- High positive impact on improving safety 5 points
- Medium positive impact on improving safety 3 points
- Low or no positive impact on improving safety 0 points

Average Daily Traffic (ADT)/Facility Type

The average daily traffic (ADT) or facility type criterion combines two features which are a barometer of a roadway's significance in the regional system. This combination allows for the consideration of both current volume and functional hierarchy. This combination permits the roadways with high volumes to be assigned a high score even if the facility is not high on the functional class system. ADT and functional class are both readily available data. High volume roadways on the interstate system will score highly (up to 10 points) and low volume local roads will be scored zero. Projects are awarded the highest point value of either data source as follows:

- 40k+ or Freeway/Expressway 10
- 30k+ or Principal Arterial 8
- 20k+ or Minor Arterial 6
- 10k+ or Collector 4
- Less than 10k or Local 0

Existing Congestion Level

The existing congestion level uses observed travel time and delay estimates to assign up to five points. Projects are awarded point values as follows:

- High current congestion 5
- Moderate current congestion 3
- Little or no current congestion 0

2040 Level of Service

2040 Level of Service (LOS) is a measure used to determine the effectiveness of elements of transportation infrastructure. LOS is most commonly used to analyze roadways and intersections by categorizing traffic flow with corresponding safe driving conditions. The Highway Capacity Manual and American Association of State Highway and Transportation Office's (AASHTO) Geometric Design of Highways and Streets ("Green Book") descriptions for defining levels of service along with the OKI 2040 Regional Transportation Plan point values for projects are:

- F = Forced or breakdown flow 5
- E = Unstable flow 5
- D = Approaching unstable flow 4
- C = Stable flow 3
- B = Reasonable free flow 2
- A = Free flow 1

Level of Service Impact

The extent to which the proposed project alleviates the future level of congestion (impact on 2040 LOS) has a range of zero to five points. If the proposal does not improve the congestion at all, zero points are awarded. Any new facility will be scored based on existing routes it is designed to alleviate, if any. Projects are awarded point values as follows:

- High impact on reducing future congestion 5
- Medium impact on reducing future congestion 3
- Low or no impact on reducing future congestion 0

Freight Volume

The freight volumes criterion provides points for roadway projects based on percentage of truck traffic within the project area. Up to five points are awarded. Projects are awarded point values as follows:

- Twelve percent truck traffic or greater 5
- Nine percent to <12% truck traffic 4
- Six percent to <9% truck traffic 3
- Three percent to <6% truck traffic 2
- One percent to <3% truck traffic 1
- Less than 1% truck traffic 0

Feasibility

Some projects have greater feasibility than others due to engineering, economic or social constraints. Others may lack political or public will, right-of-way availability or other issues. The feasibility criterion is an indication of the likelihood of a project to advance to construction or implementation based on these factors. Those projects which appear to be highly feasible will be scored five points. Those projects perceived as unfeasible will score zero points. Projects are awarded point values as follows:

- Highly feasible 5

- Moderately feasible 3 to 4
- Marginally feasible 1 to 2
- Not feasible 0

TRANSIT PROJECTS

There are four criteria that follow provide a potential of 45 points to each public transportation or transit-specific transportation project recommendation. Figure B-3 summarizes the measures and point values for each of the transit criteria.

Type

The type of project being sought relates to the score assigned. The term "type" may include but not necessarily be limited to vehicle replacement, service support, fixed facilities such as park and ride, stations or bus barns and vehicle expansion. The range reflects the importance of maintaining and supporting the existing service, as opposed to expansion activities. Projects can receive up to 10 points in this category as follows:

- Bus replacement 10
- Service support 8
- Fixed facility 6
- Vehicle expansion 4
- Other 2

Ridership Impact

An important component of transit projects is their ridership impact. Investments should be oriented to at least maintaining the existing ridership, if not increasing it. The point values assigned the different measures of this criterion echo this philosophy and are awarded as follows:

- Increases ridership 15
- Maintains ridership 8
- No impact on ridership 0

Safety/Security

The safety and security criterion awards points to projects that can be linked to improving safety conditions. The existing safety and security problem must be documented along with a plan to address these problems. Up to 10 points are available and are awarded as follows:

- Essential to safety/security 10
- Significant to safety/security 8
- Moderately impacts safety/security 6
- Minimally impacts safety/security 4
- No impact on safety/security 0

Timing and Analysis Level

The sooner a proposal can be put in place, the sooner its impact will be felt in the region. Timing and analysis

level are the criteria used to assign a value as follows. Projects that will be implemented within five years (matches transit operator's approximate long range planning horizon) are awarded 10 points. Improvements to, or expansion of the system, such as opening new transit hubs, that are anticipated to be implemented after five years and are included in a local planning study or transit development plan are awarded five points. Those that are anticipated to be implemented after five years and are not included in a local planning study or transit development plan are awarded zero points. The point values for timing and analysis level are summarized as follows:

- Near term (<5 years) 10
- Mid/long term and part of local plan (>5 years) 5
- Long term and not part of local plan (>5 years) 0

NON-ROADWAY FREIGHT TRANSPORTATION PROJECTS

There are four criteria that provide a potential of 45 points to each non-roadway, freight-specific transportation project recommendation. Figure B-4 summarizes the measures and point values for each of the freight criteria.

Mode Specific Traffic Flow

The mode specific traffic flow criterion awards points based on volume to capacity (V/C) ratios in the project area. Projects greater than a 1.0 ratio indicate a high level of congestion and will receive the most available points. Projects are awarded point values as follows:

- Mode V/C >1.0 10
- Mode V/C .75 to <1.0 8
- Mode V/C .50 to <.75 6
- Mode V/C .25 to <.50 4
- Mode V/C <.25 0

Impact on Roadway Congestion

The impact on roadway congestion factor provides points based on the extent to which the project with work to remove large trucks from roadways in the OKI region, thereby alleviating the current level of congestion. A high reduction in trucks cannot be awarded to a project that does not document an existing congestion problem. Applicants should provide an analysis documenting how they arrived at their anticipated truck reduction value. Consideration will be given to the type of roadway facilities impacted, its current peak period capacity, congestion levels and the effect of large truck-equivalent reductions. Up to 15 points are available and awarded as follows:

- High number of trucks removed per day 15
- Medium number of trucks removed per day 10
- Low number of trucks removed per day 5
- No trucks removed per day 0

Safety/Security

The safety and security criterion awards points to projects that can be linked to improving safety conditions in the project area. The existing safety and security problem must be documented along with a plan to address these problems. Up to 10 points are available and are awarded as follows:

- High positive impact 10
- Medium positive impact 6
- Low positive impact 2
- No impact 0

Facility Type

Each non-roadway, freight transportation project included in this plan utilizes and is assigned to either a rail or water facility. The rail or water port facility type criterion for non-highway, freight projects is intended to serve a similar purpose as the hierarchy of facility types for highways. A potential of ten (10) points is awarded based on facility type. In all cases a public benefit must be demonstrated.

- **Rail**

Like highways, railroad track is categorized according to function. Scoring is based on the type or category of railroad track that will be improved by the project. Main tracks handle through-train movements between and through stations and terminals, as opposed to switching or terminal movements. Main tracks typically experience higher train volumes and train speeds of rail cars. Projects associated with main tracks will be awarded 10 points. Passing tracks or sidings are tracks used primarily along main tracks for meeting and passing trains and to ensure safe and efficient deliveries. Projects associated with passing tracks will receive up to eight points. A branch line is a railroad line that typically carries freight from its origin to a main line. Projects associated with a branch line will be awarded up to six points. Lastly, a side track, switching track, and industrial track are tracks used for the loading, unloading, and storage of rail cars. Rail yard improvements would also be included in this category. Projects associated with side tracks will be awarded up to four points.

◊ Mainline track 10
◊ Passing track 8
◊ Branch line 6
◊ Side, switching and industrial track (yard) 4

- **Water Port**

The water port facility type criterion is not designated similarly as roadways or rail in terms of function. There is no type or category for water ports. Therefore, the points for this criterion are awarded first, on whether the proposed project is located along or serves any navigable waterway and second, if the project is examined for direct access to road and/or rail. Up to 10 points are available and are awarded as follows:

◊ Located on any navigable waterway with direct roadway and rail access 10
◊ Located on any navigable waterway with direct roadway or rail access 6
◊ Ancillary port activity serving any navigable waterway 4

Figure B-1: Scoring Parameters for All Projects

CRITERION	MEASURE	POINT VALUE
Environmental Justice	Positive Impact	5
	No Impact	3
	Negative Impact	0
Economic Vitality	Significant Enhancement	10
	No Significant Enhancement	0
Air Quality	Significant	7-10
	Moderate	4-6
	Low	0-3
Environmental Impacts	Avoids impact	5
	Impacts are mitigated	3
	Impacts are not mitigated	0
Local Priority	High	10
	Medium/High	8
	Medium	6
	Low/Medium	4
	Low	1
Complete Streets/ Multimodal/Intermodal	Three+ Modes or Intermodal	10
	Two Mode Design	5
	Primary Mode Only	0
Corridor Study/ Comprehensive Plan	High Priority	10
	Medium or Low Priority	5
	No Status	0

Figure B-2: Scoring Parameters for Roadway Projects

CRITERION	MEASURE	POINT VALUE
Safety	Nine or more crashes per MVMT	5
	Seven or more crashes per MVMT	4
	Five or more crashes per MVMT	3
	Three or more crashes per MVMT	2
	Less than three crashes per MVMT	1
Impact on Safety	High Impact	5
	Medium Impact	3
	Low Impact	0
ADT/Facility Type	40k+ or Freeway/Expressway	10
	30k+ or Principal Arterial	8
	20k+ or Minor Arterial	6
	10k+ or Collector	4
	Less than 10k or Local	0
Existing Congestion Level	High	5
	Moderate	3
	Little or None	0
2040 Level of Service	E/F	5
	D	4
	C	3
	B	2
	A	1
Impact on 2040 Level of Service	High Impact	5
	Medium Impact	3
	Low Impact	0
Freight Volume	Twelve percent Trucks or greater	5
	Nine to <12% Trucks	4
	Six to <9% Trucks	3
	Three to <6% Trucks	2
	One to <3% Trucks	1
	Less than 1% Trucks	0
Feasibility	High	5
	Moderate	3-4
	Marginal	1-2
	Not Feasible	0

Figure B-3: Scoring Parameters for Transit Projects

CRITERION	MEASURE	POINT VALUE
Type	Bus Replacement	10
	Service Support	8
	Fixed Facility	6
	Vehicle Expansion	4
	Other	2
Ridership Impact	Increase	15
	Maintain	8
	No Impact	0
Safety/Security	Essential	10
	Significant	8
	Moderate	6
	Minimal	4
	None	0
Timing and Analysis Level	Near Term	10
	Mid/Long Term and Part of Local Plan	5
	Long Term and not part of Local Plan	0

Figure B-4: Scoring Parameters for Non-Roadway, Freight Projects

CRITERION		MEASURE	POINT VALUE
Mode Specific Traffic Flow		Mode V/C >1.0	10
		Mode V/C .75 to <1.0	8
		Mode V/C .50 to <.75	6
		Mode V/C .25 to <.50	4
		Mode V/C <.25	0
Impact on Roadway Congestion		High Number of Trucks Removed/Day	15
		Medium Number of Trucks Removed/Day	10
		Low Number of Trucks Removed/Day	5
		No Trucks Removed/Day	0
Safety/Security		High Positive Impact	10
		Medium Positive Impact	6
		Low Positive Impact	2
		No Impact	0
Facility Type	**Rail**	Mainline Track	10
		Passing Track	8
		Branch Line	6
		Side, Switching and Industrial Track (yard)	4
	Water Port	Located on Navigable Waterway With Direct Roadway and Rail Access	10
		Located on Navigable Waterway With Direct Roadway or Rail Access	6
		Ancillary Port Activity Serving Navigable Waterway	2

Appendix C: Detailed Record of Public Participation Activities

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
4/26/2011	Meeting with Staff members	Staff meeting to go over the timeline, chapter assignments and logo for the 2012 LRP Update.	Bob Koehler, Mary Luebbers, Travis Miller, Don Burrell, Andy Reser, Robyn Bancroft, Regina Brock, Florence Parker, Brad Mason, Mark Paine	
8/12/2012	Legal Notice	A legal notice was placed in the Cincinnati Enquirer, LaJornada/TSJ Media, the Cincinnati Herald	Gayle Foster	Yes
8/9/2011	ICC Meeting	Plan Update Presentation #1 consisted of a 15 minute PowerPoint presentation covering a general overview of the Plan's importance; Update's purpose, goals, new features, timeline, public participation efforts, September Open Houses; and, existing and future regional demographics.	Bob Koehler, Robyn Bancroft and Mary Luebbers	
8/11/2011	Executive Committee	Plan Update Presentation #1 consisted of a 15 minute PowerPoint presentation covering a general overview of the Plan's importance; Update's purpose, goals, new features, timeline, public participation efforts, September Open Houses; and, existing and future regional demographics.	Bob Koehler, Robyn Bancroft and Mary Luebbers	
8/15/2011	Meeting Facilities	In August staff began identifying/touring sites for Public Meetings and by the end of August had confirmed all (4) meeting facilities to host the first round.	Regina Brock Florence Parker	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
9/6/2011	ICC Meeting	Plan Update Presentation #2 consisted of 15 minute PowerPoint Presentation covering land use, housing density, environmental resources and the September Open Houses.	Travis Miller, Margo Lindahl and Emi Randall	
9/8/2011	Executive Committee Meeting	Plan Update Presentation #2 consisted of 15 minute PowerPoint Presentation covering land use, housing density, environmental resources and the September Open Houses.	Travis Miller, Margo Lindahl and Emi Randall	
9/8/2011	Media Advisory	Announcing the OKI 2040 Regional Transportation Plan Update Public Meetings (September) All 4 dates & locations	Sarah Fry	
9/12/2011	Media Advisory/	Announcing the OKI 2040 Regional Transportation Plan Update Public Meetings (September) All 4 dates & locations	Sarah Fry	
9/12/2011	Newspaper Article	Cincinnati.com article announcing the 2040 public open houses dates and locations for September and what the process is for updating the plan	Brian Cunningham	
9/12/2011	Radio announcement	91.7 WVXU announcing the 2040 public open house Tuesday from 4-7 at the Union Township Civic Center and a link to OKI's website	Robert Koehler	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
9/13/2011	Public Meeting	September Open Houses—Clermont County	Bob Koehler, Robyn Bancroft, Don Burrell, Regina Brock, Florence Parker, Andy Reser, Margo Lindahl, Travis Miller, Mark Paine, Mark Policinski	
9/15/2011	Newspaper article	Business Courier placed an article announcing the remaining three public open houses in Kenton County, Hamilton County and Butler County	Robyn Bancroft	
9/15/2011	Public Meeting	September Open Houses-Kenton County	Bob Koehler, Robyn Bancroft, Don Burrell, Regina Brock, Florence Parker, Andy Reser, Margo Lindahl, Travis Miller, Mark Paine	
9/22/2011	Media Advisory	Announcing the OKI 2040 Regional Transportation Plan Update Public Meetings (September) last two dates & locations	Sarah Fry	
9/26/2022	Media Advisory	Announcing the OKI 2040 Regional Transportation Plan Update Public Meetings (September) last two dates & locations	Sarah Fry	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
9/27/2011	Public Meeting	September Open Houses – Hamilton County	Bob Koehler, Robyn Bancroft, Don Burrell, Regina Brock, Florence Parker, Andy Reser, Margo Lindahl, Mark Paine, Robert Lakeberg, Sarah Fry, Mary Luebbers, Emi Randall, Mark Policinski	
9/28/2011	Public Meeting	September Open Houses-Butler County	Bob Koehler, Robyn Bancroft, Don Burrell, Regina Brock, Florence Parker, Margo Lindahl, Mark Paine, Mary Luebbers	
10/11/2011	ICC Meeting	Presentation #3 –15 min PowerPoint--local project prioritization and POH summary	Bob Koehler	
10/13/2011	Board of Directors	Presentation #3 –15 min PowerPoint--local project prioritization and POH summary	Bob Koehler	
11/8/2011	ICC Meeting	Presentation #4 –15 min PowerPoint--local project prioritization deadline reminder—presentation on congestion (LOS, specific trouble locations, travel/ commute times, CMP alternative solutions, performance measures, etc.	Robyn Bancroft, Andy Reser	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
11/10/2011	Executive Committee	Presentation #4 –15 min PowerPoint--local project prioritization deadline reminder—presentation on congestion (LOS, specific trouble locations, travel/ commute times, CMP alternative solutions, performance measures, etc.	Robyn Bancroft, Andy Reser	
12/12/2011	Facebook	Notice on OKI's facebook page, "Work on the 2040 Regional Transportation Plan Update has begun! Please join us for one of the upcoming public open houses to learn more about the plan itself and what we know so far regarding existing and future conditions.	Gayle Foster	
1/10/2012	ICC Meeting	Presentation #5 – 15 min PowerPoint--Fiscal Constraint Forecast and review prioritization process	Bob Koehler	
1/12/2012	Board of Directors	Presentation #5 –15 min PowerPoint--Fiscal Constraint Forecast and review prioritization process	Bob Koehler	
1/20/2012	Twitter	Tweet on OKI's twitter page "the draft Freight chapter of the 2040 OKI Regional Transportation Plan now available	Gayle Foster	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
1/24/2012	OKI Air Quality Interagency Consultation Conference Call	The schedule for OKI's update to the Regional Transportation Plan, OKI is preparing a 2040 Transportation Plan. A draft plan and draft regional conformity analysis scheduled for completion by April 30, 2012 and plan adoption June 21, 2012.	Andy Reser, Bob Koehler	
1/26/2012	Presentation	Staff made a presentation involving an overview of the OKI 2040 Regional Transportation Plan to the Hamilton County Commissioners	Florence Parker	
1/26/2012	Community Councils	Staff provided a copy of the flyer announcing the first round of Open Houses to the (52) area community councils and neighborhood associations for distribution at their meetings/ newspapers	Florence Parker	
2/6/2012	EJ Committee	Email announcing the draft project list to be presented in April with the plan update	Florence Parker	
2/7/2012	ICC Meeting	Presentation #6—15 min PowerPoint—Draft Prioritization Process and Project List	Bob Koehler	
2/9/2012	Executive Committee	Presentation #6 – 15 min PowerPoint—Draft Prioritization Process and Project List	Bob Koehler	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
2/10/2012	Twitter	Tweet on OKI's twitter page—Mary Luebbers keynote presentation to the Community Planning Forum hosted HC Regional Planning Commission—mention of 2040 Plan Update.	Mary Luebbers	
2/14/2012	Facebook	OKI's facebook page-- -- Project Scoring project and listing IMPORTANT NOTICE FROM OKI RCOG!! OKI has released the Overview of the DRAFT Project List Scoring Process. THIS MEANS THAT... the process for deciding what, which and how projects are funded is ready for you to review and give comment on or to ask questions. Here is the link to the 2040 Plan http://www.oki.org/departmentstransportation/2040plan.html. We are asking for your input! All questions and comments will be respected.	Gayle Foster	
2/24/2012	Regional Planning Forum	10-min general overview power point presentation on the 2040 plan update	Robyn Bancroft	
3/1/2012	Email-Community Councils	Announcing the 2040 open house meetings to be held in April—flyer included	Florence Parker	Yes

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
3/6/2012	ICC Meeting	Presentation #8—Draft Project List Summary and April Open House Announcements	Robyn Bancroft, Robert Koehler	
3/8/2012	Executive Committee Meeting	Presentation #8—Draft Project List Summary and April Open House Announcements	Robyn Bancroft, Robert Koehler	
3/12/2012	Email-Butler County TID Meeting	Announcing the 2040 public open house meetings in April—flyer included	Robert Koehler	
3/22/2012	Email-WCPO Community Advisory Board	Announcing the 2040 public open house meetings in April – flyer included	Florence Parker	Yes
3/23/2012	Email-EJ Committee Members	Announcing the 2040 public open house meetings in April – flyer included	Florence Parker	Yes
3/26/2012	Legal Notice	Announcing the 2040 public open house meetings and locations was placed in the Cincinnati Enquirer and Herald	Regina Brock, Gayle Foster	
3/27/2012	Email-facility locations hosting public open house	Announcing the 2040 public open house meetings in April – flyer included	Florence Parker	
3/29/2012	TSJ media	Radio (WOXY-FM) announcing the 2040 public open house meetings in April – announced 4-2-12 AM & PM, 4/11-12 AM & PM, 4-17-12 PM and 4-20-12 AM	Regina Brock, Gayle Foster	Yes
3/30/2012	Email-United Way	Announcing the 2040 public open house meetings in April – flyer included	Florence Parker	
4/10/2012	Phone Interview	Journal-Press/Dearborn County Register newspapers in Lawrenceburg announcing the 2040 public open house meetings in April	Robyn Bancroft	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
4/10/2012	Web Calendar	Butler County Event Calendar announcing the 2040 public open house meetings in April	Gayle Foster	
4/19/2012	Email-Queen City Bike	Announcing the 2040 public open house meeting in April – flyer attached	Don Burrell	
4/16/2012	Public Open House	April Public Open House-Butler County	Robert Koehler, Robyn Bancroft, Regina Brock and Mary Luebbers	
4/16/2012	Dearborn County Register	Article announcing the public open house to be held in Dearborn County	Robyn Bancroft	
4/17/2012	Public Open House	April Public Open House – Dearborn County	Robert Koehler, Robyn Bancroft, Regina Brock and Mark Paine	
4/18/2012	Public Open House	April Public Open House – Clermont County	Robert Koehler, Robyn Bancroft, Regina Brock and Mark Paine	
4/19/2012	Email-Queen City Bike	Announcing the 2040 public open house meeting in April – flyer attached	Don Burrell	
4/19/2012	Public Open House	April Public Open House – Hamilton County	Robert Koehler, Robyn Bancroft, Regina Brock, Mary Luebbers, Don Burrell and Florence Parker	
4/20/2012	Public Open House	April Public Open House – Warren County	Robert Koehler, Robyn Bancroft, Regina Brock and Mary Luebbers	
4/23/2012	Public Open House	April Public Open House – Kenton County	Robert Koehler, Regina Brock, Andy Reser and Mary Luebbers	
4/24/2012	Public Open House	April Public Open House – Boone County	Robyn Bancroft, Regina Brock and Andy Reser	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
4/25/2012	Public Open House	April Public Open House – Campbell County	Robert Koehler, Robyn Bancroft, Regina Brock, Mark Paine	
5/8/2012	ICC Meeting	Presentation #9—Summary of the April Open House and public hearing announcement	Robyn Bancroft	
5/10/2012	Executive Committee Meeting	Presentation #9- Summary of the April Open House and public hearing announcement	Robyn Bancroft	
5/18/2012	DRAFT 2040 Regional Transportation Plan document	Placed on OKI website, OKI front office, library branches in each eight counties: Butler, Boone, Clermont, Campbell, Hamilton, Kenton, Warren and Dearborn. Also located at Kentucky Transportation Cabinet, District 6, Ohio Department of Transportation, District 8 and Indiana Department of Transportation	Regina Brock	
5/29/2012	Legal Notice	Announcing the Public Hearing on the 2040 Draft Regional Transportation Plan was placed in the Cincinnati Enquirer, Herald and LaJornada	Regina Brock, Gayle Foster	Yes
6/11/2012	Public Hearing	Public Hearing on the DRAFT 2040 Regional Transportation Plan	Regina Brock, Gayle Foster	
6/12/2012	ICC Meeting	Presentation #10-Adoption of the 2040 Regional Transportation Plan	Robyn Bancroft	

Date	Activity	Description	Participiating OKI Staff	Published in Minority-Focused Newspaper
6/19/12	Radio Announcement	WVXU mentioned that the 2040 presentation was presented to the City's Transportation/ Infrastructure Subcommittee	Robyn Bancroft	
6/21/2012	Board of Directors Meeting	Presentation #10-Adoption of the 2040 Regional Transportation Plan	Robyn Bancroft	

Appendix D: Previous Study Source for Each Fiscally-Constrained Project

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
101	Cincinnati-Dayton Rd	OKI 2030 Regional Transportation Plan, 2008 Update; Butler County Thoroughfare Plan, 2008 Update	Designated as one of the fiscally constrained projects in OKI Plan Update; Given medium timing (5-10 years) in Thoroughfare Plan
102	Cox Rd	Butler County Thoroughfare Plan 2008 Update	Locals referenced it, but OKI staff could not locate project in this plan
103	South Hamilton Crossing	OKI Regional Freight Plan, June 2011; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council
104	SR 128	Butler County Thoroughfare Plan, 2008 Update	Locals referenced it, but OKI staff could not locate project in this plan
105	SR 747	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in this Plan Update
106	US 127 (Pleasant Ave)	Butler County Thoroughfare Plan, 2008 Update	Given medium timing (5-10 years) in Thoroughfare Plan
108	Bethany Rd	Butler County Thoroughfare Plan, 2008 Update	Locals referenced it, but OKI staff could not locate project in this plan
109	Ohio Intelligent Transportation System (ITS) Projects	OKI ITS Plan	Generally listed in Intelligent Transportation System Plan
201	Aicholtz Rd Widening	Clermont County 2006 Thoroughfare Plan	Designated as high priority in Thoroughfare Plan project list - page 20, #94
202	Eastern Corridor Segment IV Phase 1	OKI Eastern Corridor Plan; Clermont County Transportation Improvement District Regional Transportation Improvement Plan; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council (TRAC)
203	Eastern Corridor Segment IV Phase 2	OKI Eastern Corridor Plan; Clermont County Transportation Improvement District Regional Transportation Improvement Plan; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council (TRAC)

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
204	Eastern Corridor Segment IV Phase 3	OKI Eastern Corridor Plan; Clermont County Transportation Improvement District Regional Transportation Improvement Plan; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council (TRAC)
205	Eastern Corridor CLER-SR 32-2.25 Segment IV(a)	OKI Eastern Corridor Plan; Clermont County Transportation Improvement District Regional Transportation Improvement Plan; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council (TRAC)
207	Old SR 74 - Phase 1	Clermont County Thoroughfare Plan 2006	Designated as high priority in Thoroughfare Plan project list - page 20, #101
208	NEW Aicholtz Rd Connector	CCTID RTIP	Designated as high priority in Thoroughfare Plan project list - page 20, #93
301	Brent Spence Bridge (Ohio Portion)	OKI Regional Freight Plan, June 2011	Listed as one of the top 12 priorities in Freight Plan
302	Eastern Corridor Red Bank Rd Segment	Eastern Corridor; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council (TRAC)
303	Mill Creek Expressway Phase 4	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
304	Mill Creek Expressway Phase 5	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
305	Mill Creek Expressway Phase 6	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
306	Mill Creek Expressway Phase 7	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
307	Mill Creek Expressway Phase 8	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
308	US 42 (Reading Rd)	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in this Plan Update

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
309	US 42 (Reading Rd)	GO Cincinnati Plan	No ranking provided for this project in this Plan
310	Reading Rd Grade Separation, Sharonville	OKI Regional Freight Plan, June 2011	Listed as one of the top 12 priorities in Freight Plan
312	Thru the Valley Phase 1	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
313	Thru the Valley Phase 2	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
314	Thru the Valley Phase 3	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
315	Thru the Valley Phase 7	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
316	Thru the Valley Phase 8	OKI 2011 TRAC list; OKI North South Transportation Initiative, 2004	Designated as high priority in Transportation Review Advisory Council (TRAC)
317	Cincinnati Streetcar Phase 1	Regional Rail Plan, City Climate Protection Plan	Regional Rail 2007 HDR Feasbility Study Phase 1
318	Western Hills Viaduct	Cincinnati Railroad Improvement Plan, OKI Regional Freight Plan, June 2011	
319	Acquisition of Abandoned Railroad Right of Way	no known plan	
320	Anderson Center Station Park & Ride Phase 2	OKI Eastern Corridor Plan; Anderson Plan	No priority given to this project in either plan
321	Eastern Corridor Oasis Line Segments 1, 2, 3 & 4	OKI Eastern Corridor Plan; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council
322	Hopple Street Passing Track and Crossovers	OKI Regional Freight Plan, June 2011	Listed as one of the top 12 priorities in Freight Plan

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
323	New Martin Luther King/I-71 Interchange	Uptown Transportation Study	Listed as one of four high priorities in this Study
324	SORTA Reading Road Corridor BRT	Bus Rapid Transit studies currently underway	no plan
325	SORTA Downtown-Hamilton Ave Corridor BRT	Bus Rapid Transit studies currently underway	no plan
326	SORTA Montgomery Ave Corridor BRT	Bus Rapid Transit studies currently underway	no plan
327	SORTA North Bend/ Cheviot Park & Ride	Metro Capital Strategy Plan, 2009	Designated as high priority in this Study
328	SORTA Evanston/ Xavier University Transit Hub	Metro Capital Strategy Plan, 2009	Designated as high priority in this Study
330	NEW Eastern Corridor Relocated SR 32	Eastern Corridor; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council
331	I-75 Thru the Valley Railroad Bridge	OKI North South Transportation Initiative, 2004; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council
332	Lick Run Project Improvements (Queen City/Westwood Ave Corridor)		
333	SORTA Avondale Transit Hub	Metro Strategic Plan, 2012	Designated by SORTA staff as high priority to be accomplished by 2020
334	SORTA Kenwood/ Galbraith Transit Hub	Metro Strategic Plan, 2012	Designated by SORTA staff as high priority to be accomplished by 2020
335	SORTA Oakley Transit Hub	Metro Strategic Plan, 2012	Designated by SORTA staff as high priority to be accomplished by 2020
336	SORTA Springdale/Tri-County Transit Hub	Metro Strategic Plan, 2012	Designated by SORTA staff as high priority to be accomplished by 2020
402	NEW Bethany Rd	OKI Southwest Warren County Transportation Plan	Designated as high priority in this Plan

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
403	Butler-Warren Rd	2008 Deerfield Township Comprehensive Plan	Comp Plan generally states on page 72, "Butler-Warren Road Improvements"
404	Butler-Warren Rd	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in OKI Plan Update - termini documented as Barrett Rd to Tylersville Rd
405	Kings Island Dr Extension	OKI Regional Freight Plan, June 2011	Assigned medium timing - not listed as one of the top 12 priorities in this Freight Plan
406	Mason Montgomery Rd	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in OKI Plan Update
407	I-71 Fields Ertel Interchange	Warren County Study; OKI 2011 TRAC list	Designated as high priority in Transportation Review Advisory Council
408	SORTA Kings Island Park & Ride	Metro Capital Strategy Plan, 2009	Designated as high priority in this Study
501	CR 1001 (Camp Ernst Rd)	Boone County Transportation Plan , KY 237/KY 536 Study completed in 2001	Ranked as high priority (part of #5) in County Plan
502	KY 237 (Gunpowder Rd)	Boone County Transportation Plan; KY 237/ KY 536 Study completed in 2001	Ranked as high priority (#19) in County Plan
503	Hicks Pike	Boone County Transportation Plan	Ranked as high priority (#10) in County Plan
504	I-71/75 South interchange	OKI 2030 Regional Transportation Plan, 2008 Update; OKI North South Transportation Initiative, 2004	Designated as one of the fiscally constrained projects in OKI Plan Update; Category III Project (a low priority project that will be completed beyond a 25 year threshold) in NSTI
505	US 25/KY 338 Grade Separation	Boone County Transportation Plan - 2006	Little or no status - not specifically identified
506	KY 18 (Burlington Pike)	Boone County Transportation Plan	Ranked as Medium priority (#29) in the Boone County Transportation Plan

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
507	KY 236 (Donaldson Rd)	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in this Plan Update
508	KY 237 (North Bend Rd)	Boone County Transportation Plan - 2006	Little or no status - not specifically identified
509	KY 3060 (Frogtown Rd)	Boone County Long Range Plan	Ranked as High priority (#15) in the Boone County Transportation Plan
510	KY 3076 (Mineola Pike)	Boone County Long Range Plan	Ranked as High priority (#27) in the Boone County Transportation Plan
511	KY 338 (Richwood Rd)	Boone County Long Range Plan	Ranked as High priority (part of #2)in the Boone County Transportation Plan
512	KY 536 (Mt. Zion Rd)	Boone County Transportation Plan - 2006	Little or no status - not specifically identified
513	US 25 (Dixie Hwy)	OKI 2030 Regional Transportation Plan, 2008 Update; Boone County Long Range Plan	Designated as one of the fiscally constrained projects in this Plan Update with termini stated as (KY 338 to Walton; Ranked as Medium priority (part of #28) in the Boone County Transportation Plan
514	US 42	Boone County Transportation Plan - 2006	specifically identifed project - medium priority Exhibit 6-13
515	US 42	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in this Plan Update
516	US 42	Boone County Long Range Plan	Ranked as high priority (part of #14) in County Plan
517	NEW KY 3060 Frogtown Rd Connector Extension-North	Boone County Plan; Kentucky Transportation Cabinet DRAFT 6-Year Plan	Ranked as high priority (#12) in the County Plan

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
518	Mall Rd/I-71/75 Interchange	Kentucky Transportation Cabinet DRAFT 6-Year Plan; City of Florence Area Study, 2012	In 6-year Draft Plan
519	NEW Connector	Boone County Comprehensive Plan, 2005	specifically identifed as needed project - pg 12
520	TANK Cincinnati/ Northern Kentucky International Airport Transit Hub	TANK Transit Network Study	Designated as high priority in this Study
521	KY 338 (Richwood Rd)	Boone County	
522	Kentucky Intelligent Transportation System (ITS) Projects	OKI ITS Plan	Generally listed in ITS Plan
601	I-471	2011 OKI Regional Freight Plan; OKI I-471 Study	Not listed as one of top 12 priorities in this Freight Plan
602	KY 8	Campbell 2008	This project is not specifically identified in County Plan
603	KY 9/I-275 Interchange	OKI I-471 Study	Designated as low priority in this OKI Study
605	KY 9 (AA Hwy)	OKI 2030 Regional Transportation Plan, 2008 Update; Campbell	Designated as one of the fiscally constrained projects in OKI Plan Update
606	NEW KY 1998	Campbell 2008	This project is not specifically identified in County Plan
608	TANK I-471 Transit Way	TANK Transit Network Study	Designated as high priority in this Study
609	TANK Northern Kentucky University Transit Hub	TANK Transit Network Study	Designated as high priority in this Study
610	TANK Suburban Crosstown Transit Service	TANK Transit Network Study	Designated as medium priority in this Study
611	US 27	Kentucky Transportation Cabinet DRAFT 6-Year Plan	Listed as item number 6-189.01 in this plan
612	NEW Northern Kentucky River Path Bike Trail	Campbell; Northern Kentucky River Path Plan,2000	Designated as high priority in County Plan

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
701	Brent Spence Bridge (Kentucky Portion)	OKI North South Transportation Initiative, 2004, OKI Regional Freight Plan, June 2011	Not listed as one of top 12 priorities in this Freight Plan
705	Buttermilk Pike/I-71/75 Interchange	OKI North South Transportation Initiative, 2004	Ranked as Category I Project (a high priority project that will be completed in one to 15 years) in this plan
706	I-75	OKI 2030 Regional Transportation Plan, 2008 Update; Kenton County Transportation Plan	Listed as a "Needed, But NOT Fiscally Constrained" Project" (Appendix D) in OKI Plan Update; Included in County Plan
707	KY 1072 (Kyles Ln)	Kenton County 2006 Transportation Plan	Project is specifically identified as congestion management area Map 3.1A in County Plan
708	KY 1303 (Turkeyfoot Rd)	OKI 2030 Regional Transportation Plan, 2008 Update; KY 237/KY 536 Study completed in 2001; Kenton Transportation Plan	Designated as one of the fiscally constrained projects in OKI Plan Update
709	KY 1303 (Turkeyfoot Rd)	OKI 2030 Regional Transportation Plan, 2008 Update; Kenton County 2006 Transportation Plan	Designated as one of the fiscally constrained projects in OKI Plan Update
710	KY 16	OKI 2030 Regional Transportation Plan, 2008 Update; Kenton County 2006 Transportation Plan	Designated as one of the fiscally constrained projects in OKI Plan Update
711	KY 16	Kenton County 2006 Transportation Plan	Specifically identifed for upgrade Map 3.1A
712	KY 1829/KY 1486	Kenton County 2006 Transportation Plan	Specifically identifed for upgrade Map 3.1A
713	KY 236 (Stevenson Road)	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in OKI Plan Update

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
714	KY 371	OKI 2030 Regional Transportation Plan, 2008 Update; Kenton County Transportation Plan	Designated as one of the fiscally constrained projects in OKI Plan Update
715	KY 536	Kentucky Transportation Cabinet DRAFT 6-Year Plan; OKI Regional Freight Plan, June 1011	Listed in 6-Year Draft Plan; Not listed as one of top 12 priorities in this Freight Plan
716	KY 536	OKI 2030 Regional Transportation Plan, 2008 Update; KY 237/ KY 536 Study completed in 2001; Kenton County Transportation Plan	Designated as one of the fiscally constrained projects in OKI Plan Update
717	KY 8	OKI 2030 Regional Transportation Plan, 2008 Update; Kenton County Transportation Plan; OKI Central Area Loop Study	Designated as one of the fiscally constrained projects in OKI Plan Update
719	NEW KY 177/KY 16 Connection	OKI Regional Freight Plan, June 2011	Not listed as one of top 12 priorities in this Freight Plan
720	TANK Edgewood Park & Ride	TANK Transit Network Study	Listed as medium priority in this Study
721	TANK Turkeyfoot Park & Ride	TANK Transit Network Study	Listed as medium priority in this Study
723	TANK Dixie Hwy Corridor BRT	Bus rapid transit studies currently underway	no plan
724	KY 16	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in OKI Plan Update
725	KY 8	OKI 2030 Regional Transportation Plan, 2008 Update; Kenton County Transportation Plan	Designated as one of the fiscally constrained projects in OKI Plan Update
726	TANK I-71/75 Transit Way	TANK Transit Network Study	Listed as high priority in this Study

2040 Plan Project Identification Number	Project Name	Previous Study/Plan Title	Associated Notes
801	SR 1	OKI 2030 Regional Transportation Plan, 2008 Update; OKI Regional Freight Plan, June 2011	Designated as one of the fiscally constrained projects in OKI Plan Update; Not listed as one of top 12 priorities in this Freight Plan
802	Bicycle and Pedestrian Projects	OKI Bike Plan, 2008 Update;Dearborn County Parks and Recreation Master Plan, 2011; OKI US 50 Gateway Plan	
803	NEW Bright to I-74 Connector	Dearborn County Comprehensive Plan, 2009 Update	This project is not specifically identified in Comp Plan
804	Catch-A-Ride: Security Cameras and RFI Driver Card	Dearborn County Comprehensive Plan, 2009 Update	This project is not specifically identified in Comp Plan
805	I-74 ARTIMIS Message Sign	OKI Regional Freight Plan, June 2011	Not listed as one of top 12 priorities in this Freight Plan
806	SR 350	no plan	
807	Catch-A-Ride: Fare Collection Boxes and RFI Custom	Dearborn County Comprehensive Plan, 2009 Update	This project is not specifically identified in Comp Plan
808	Indiana Rail Transit Right of Way Preservation	OKI 2030 Regional Transportation Plan, 2008 Update	Designated as one of the fiscally constrained projects in OKI Plan Update as Indiana Rail Right of Way Preservation for future passenger rail transit
809	Indiana Intelligent Transportation System (ITS) Projects	OKI ITS Plan	Generally listed in ITS Plan
810	Alternative Fuel Stations for Truck Fleets	OKI Regional Freight Plan, June 2011	Not listed as one of top 12 priorities in this Freight Plan

Appendix E: Needed, Non-Fiscally Constrained Project List

This appendix lists an additional 289 projects identified as needed but not fiscally constrained, meaning funding for these projects is not expected to be available. These are considered to be projects with merit and will remain available for future consideration, but should not be considered as part of the plan.

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Butler	Cincinnati-Dayton Rd	Widen by adding one lane from Milliken Rd to Monore south corporate line	$6,000,000
Ohio	Butler	Cincinnati-Dayton Rd	Widen by adding one lane from Crescentville Rd to West Chester Rd	$3,500,000
Ohio	Butler	Cincinnati-Dayton Rd Mouse Hole	Widen by adding one lane and construct new Norfolk Southern Railroad piers/bridge from SR 129 to Maud Hughes	$15,000,000
Ohio	Butler	CR 113 (Liberty Fairfield Rd)	Widen to five lanes from SR 4 to Great Miami River	$2,500,000
Ohio	Butler	Eaton Ave	Widen by adding two lanes with safety upgrades from Taft Pl to Beissinger Rd	$3,500,000
Ohio	Butler	Hamilton-Mason Rd Mouse Hole	Widen roadway and construct new Norfolk Souther Railroad piers/ bridge	$12,000,000
Ohio	Butler	I-75/Union Centre Blvd Interchange	Widen by adding lane to both I-75 exit ramps and reconfiguration of Union Centre Blvd	$4,000,000
Ohio	Butler	Kyles Station Rd Mouse Hole	Widen roadway and construct new Norfolk Southern Railroad piers/ bridge	$14,000,000
Ohio	Butler	Lesourdsville-W. Chester Rd	Hamilton Mason Intersection improvement and widening	$3,000,000
Ohio	Butler	Lesourdsville-W. Chester Rd	Widen by adding one lane from Cincinnati-Dayton Rd to Tylersville Rd	$10,000,000
Ohio	Butler	Liberty Fairfield Rd	Widen by adding one lane from Millikin Rd to SR 4	$8,000,000
Ohio	Butler	Main St	Widen by adding one lane Monroe corporate line to SR 63	$3,000,000
Ohio	Butler	North Gilmore Rd	Widen to three lanes from Holden Blvd to Symmes Rd	$2,500,000
Ohio	Butler	NEW Cox Rd	Extend Cox Rd from dead end north of Liberty Way north to the Butler/Warren County Line	$20,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Butler	New London Rd	Widen by adding one lane with safety upgrades from Ross Hanover Rd to D St	$3,500,000
Ohio	Butler	NEW Marshall Rd	Extend roadway from Riverview Ave to Miller Rd	$4,000,000
Ohio	Butler	NEW Millikin Rd Interchange	New interchange and road improvements including widening at I-75	$40,000,000
Ohio	Butler	NEW NW Washington Blvd Extension	Construct new, four lane extension and bridge across Great Miami River from West Elkton Rd to US 127	$30,000,000
Ohio	Butler	NEW NW Washington Blvd Extension	Construct new, four lane extension from US 127 (N 3rd St) to SR 4 (Fairgrove Ave)	$6,000,000
Ohio	Butler	NEW Salzman Extension	Construct new extension from Todhunter Rd to SR 63	$4,000,000
Ohio	Butler	NEW SR 63 Extension (Pioneer Pkwy)	PID: 20499; Construct new, two lane facility from US 127 eastward to existing SR 63 at SR 4	$73,000,000
Ohio	Butler	NEW Yankee Road	Construct new extension from Linn Rd to SR 63	$4,000,000
Ohio	Butler	NW Washington Blvd	Widen by adding three lanes from Eaton Ave to Cleveland Ave	$6,000,000
Ohio	Butler	Oxford State Rd	Reconstruct and widen from Yankee Rd to SR 4	$6,000,000
Ohio	Butler	Port Union Road	Widen to thee lanes from Bypass 4 to Holden Blvd including railroad bridge replacement	$15,000,000
Ohio	Butler	Princeton Rd	Improve geometry and add turn lanes from Maud Hughes to Yankee Rd	$3,000,000
Ohio	Butler	Princeton Rd Mouse Hole	Widen roadway and construct new Norfolk Sourthern Railroad piers/ bridge	$12,000,000
Ohio	Butler	River Rd	Widen by adding one lane with safety upgrades from Williams Ave to St. Clair Ave	$2,500,000
Ohio	Butler	Ross Hanover Rd	Widen with turn lanes and safety upgrades at New London Rd	$1,000,000
Ohio	Butler	Ross Rd	Widen by adding one lane from SR 4 to Hamilton County line	$2,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Butler	SORTA West Chester Park & Ride	Replace nearby leased facility with new Park & Ride near I-75/ Cincinnati-Dayton Rd Interchange	$1,300,000
Ohio	Butler	SR 122	Widen by adding one lane with bridge over Great Miami River from Trenton-Franklin Rd to Carmody Blvd	$4,000,000
Ohio	Butler	SR 129 - Millville Ave	Add one lane with safety upgrades and traffic signals from Ross Ave to Rockford Dr	$6,500,000
Ohio	Butler	SR 177 - Main St	Add one or two lanes from Stahlheber Rd to Main St/Eaton Ave/Millville Ave	$8,000,000
Ohio	Butler	SR 63	Add one lane in each direction from Lawton to Cincinnati-Dayton Rd	$2,500,000
Ohio	Butler	SR 73	Widen in Trenton from Busenbark to SR 77 (N. Miami St)	$2,000,000
Ohio	Butler	SR 747	PID 91493: Widen to include right turn lanes on SR 747 and Union Centre Blvd	$680,000
Ohio	Butler	SR 747	PID 91495: Widen SR 747 on the northern leg to include a right turn lane at Princeton	$530,000
Ohio	Butler	Tylersville Rd	Build three lane section making vertical and horizontal improvements from SR 747 to Cincinnati-Dayton	$7,000,000
Ohio	Butler	University Blvd	Bus shelters; upgrading handicap ramps - curbing	$250,000
Ohio	Butler	US 127	Add one lane from John Gray to Symmes	$7,500,000
Ohio	Butler	US 127	Add lane each direction from St. Clair to Grand Blvd	$10,000,000
Ohio	Butler	US 27	Widen to three lanes from Millville to Stillwell Beckett	$20,000,000
Ohio	Butler	US 27	Widen to four lanes from Ross to Millville	$20,000,000
Ohio	Butler	Wayne Madison Rd	CSX railroad grade separation project	$15,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Butler	West Chester Rd Mouse Hole	Widen roadway and construct new Norfolk Southern Railroad piers/ bridge	$16,000,000
Ohio	Butler	Yankee Rd	Widen roadway from University Blvd to Oxford State Rd	$7,000,000
Ohio	Butler, Hamilton	SORTA Liberty Township Park & Ride	Extend Route 42X to Liberty Township Park & Ride	$830,000
Ohio	Clermont	CTC Fareboxes & Electronic Payment System	Purchase fare boxes and system to accept electronic payments (credit cards, smart cards, etc.)	$2,000,000
Ohio	Clermont	CTC Mobil Data Computers	Purchase mobil data computers and all required support equipment to place one in every demand response	$2,000,000
Ohio	Clermont	CTC Operations Facility Phase II	Construction of a new operations facility at 4003 Filager Rd., Batavia, OH 45103	$4,000,000
Ohio	Clermont	Mt Carmel - Tobasco Rd	Widen to three lanes with access management from Clough Pike to SR 125	$6,000,000
Ohio	Clermont	NEW Aicholtz Rd Extension	PID 82552: New connection from Glen Este-Withamsville Rd to Bach-Buxton Rd	$13,000,000
Ohio	Clermont	NEW Amelia-Olive Branch Relocation	New three lane connector and ramp improvements from SR 32/Olive-Branch Stonelick Interchange to Clough Pike	$5,000,000
Ohio	Clermont	NEW Heitman Lane Extension	New connection from existing Heitman to Olive Branch-Stonelick Interchange with an overpass alternate to east terminus of Heitman Ln	$6,500,000
Ohio	Clermont	NEW SR 133 Ohio River Bridge	Upgrade from KY 9 to I-71 and construct new bridge at Meldahl Dam and upgraded SR 133	$500,000,000
Ohio	Clermont	NEW SR 32 (Frontage Rd)	PID 82586: New three lane frontage road with additional turn lanes at major intersections from Bauer Rd to Half Acre Rd	$12,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Clermont	NEW SR 32 (Herold Rd)	PID 82587: Construct new interchange 1000 feet west of existing Herold Rd Intersection	$13,000,000
Ohio	Clermont	Old SR 74 Widening	PID 82582: Widen to three lanes with four foot shoulders, curb and gutter from Olive Branch-Stonelick Rd to Armstrong Blvd	$4,500,000
Ohio	Clermont	SR 131 Widening	Widen by adding third lane with additional turn lanes if necessary from US 50 to Wolfpen Pleasant Hill	$2,500,000
Ohio	Clermont	SR 32 (Batavia Rd) Interchange	PID 82588: Convert existing half interchange to full at Front Wheel Dr in Batavia	$12,000,000
Ohio	Clermont	SR 32 ARTIMIS Message Sign	Introduce message sign on westbound approach to I-275	$350,000
Ohio	Clermont	Wards Corner	Widen with one lane and sidewalks from Branch Hill Guinea to SR 48	$5,000,000
Ohio	Clermont	Wards Corner	Widen by adding one lane with sidewalks from Loveland Miamiville to Branch Hill Guinea Rd	$5,000,000
Ohio	Clermont, Hamilton	SORTA Milford Park & Ride	Replace nearby leased facility with new Metro Park & Ride	$770,000
Ohio	Hamilton	Blue Rock Rd	Widen by adding one lane from Hamilton Avenue to Spring Grove Ave	$3,000,000
Ohio	Hamilton	Burnet Ave	Upgrade traffic operations by adding turn lanes, street widening and parking restrictions from Reading Rd to Forest Ave	$7,000,000
Ohio	Hamilton	Cheviot Rd	Widen and rehab from Tallahassee to Jessup	$5,000,000
Ohio	Hamilton	Cincinnati Streetcar Phase 1: Uptown Connector	The alignment of the Uptown Connector extends from Findlay Street on the south up Vine Street to Cor	$43,100,000
Ohio	Hamilton	Cincinnati Streetcar Phase 2: Uptown Circulator	Multiple alignments are being considered. All alignments extend roughly from Corry to Erkenbrecher A	$100,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Hamilton	Cincinnati Streetcar Phase 3: East/West Connector	Cincinnati Museum Center to Broadway Commons	$50,000,000
Ohio	Hamilton	CTCS Signal System	CTCS Signal System - throughout city of Cincinnati	$5,000,000
Ohio	Hamilton	Delhi Ave	Standard lane widths from Fairbanks to city limits	$10,000,000
Ohio	Hamilton	Delta/Eastern/Kellogg	Intersection improvements and bridge replacement at railroad overpass	$20,000,000
Ohio	Hamilton	Duck Creek Rd	Widen by adding one lane in each direction from Kennedy Rd to Red Bank Rd	$7,000,000
Ohio	Hamilton	Eastern Corridor Wasson Line	Rail transit plus feeder bus	$308,570,000
Ohio	Hamilton	Eden Ave Corridor	Extend Eden to McMillan from William Howard Taft to ML King	$10,000,000
Ohio	Hamilton	Fields Ertel Rd	Widen, rehab and Access Management from Reed Hartman to I-71	$17,500,000
Ohio	Hamilton	Five Mile Trail Connection (North)	Widen Newtown Rd to create connection between Five Mile Trail and Little Miami Scenic Trail	$500,000
Ohio	Hamilton	Five Mile Trail Connection (South)	Widen Beechmont Ave to create connection between Five Mile Trail and Ohio River Trail	$1,000,000
Ohio	Hamilton	Freeman Ave Bridge	Superstructure replacement over Sixth St Expressway	$10,000,000
Ohio	Hamilton	Galbraith Rd	Replace bridge over Anthony Wayne and Norfolk Southern Railroad	$10,000,000
Ohio	Hamilton	Harvey Ave Corridor	Widen by adding one lane from ML King to Forest	$7,000,000
Ohio	Hamilton	I-275	HAM - 275 - 32.2 PID 91466: Remove slip ramp at US 22	$130,000
Ohio	Hamilton	I-275	Add two lanes from US 52 to Five Mile Rd	$9,000,000
Ohio	Hamilton	I-275 Westbound ARTIMIS Message Sign	Introduce message sign on one mile before SR 126 Interchange	$350,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Hamilton	I-71	Add one lane in each direction from Dana/Duck Creek to Kenwood Rd	$30,000,000
Ohio	Hamilton	I-71	Eliminate a loop ramp at I-275	$20,000,000
Ohio	Hamilton	I-71	Eliminate left entrance/exits from I-471 to Reading Rd	$20,000,000
Ohio	Hamilton	I-71	HAM - 71 - 12.44 PID 91066: Intersection improvement at US-22 (Montgomery Rd)	$3,400,000
Ohio	Hamilton	I-74	Widen to add turn lanes at Dry Fork Rd Interchange	$3,000,000
Ohio	Hamilton	I-74	Widen to include one additional lane in each direction from Indiana state line to I-275 overlap	$15,000,000
Ohio	Hamilton	I-74	Widen to include one additional lane in each direction from I-275 to Montana Ave	$18,000,000
Ohio	Hamilton	I-74 Ramp Metering	Install Ramp Metering at Harrison Ave Interchange	$500,000
Ohio	Hamilton	I-74/I-275	PID 25354: Add lane in the I-74/I-275 overlap in Colerain Township	$85,000,000
Ohio	Hamilton	I-74/I-275	Add lane and reconfigure eastern interchange in Green Township	$70,000,000
Ohio	Hamilton	Little Miami Scenic Trail	Construction of new bike/hike bridge over Little Miami River and multi use path connection in Beechmont Ave/Lunken Airport area	$5,700,000
Ohio	Hamilton	Mill Creek Additional Track	Increase rail capacity by adding approximately 8,600 feet of fourth track from RH Tower (located at the north end of the CSX Queensgate Terminal) to the NA Junction	$20,000,000
Ohio	Hamilton	Mitchell Ave	Add two lanes, improve roadway alignment and lengthen railroad bridges from Spring Grove Ave to Vine St	$20,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Hamilton	NEW Ancor Connector	Construct new, two lane roadway connecting Broadwell Rd industrial area to SR 32	$6,000,000
Ohio	Hamilton	NEW Bridge over I-75 and railroad	Construct new bridge from Elmore to Central Pkwy	$20,000,000
Ohio	Hamilton	New Railroad Connection "Southwest Connection"	Construct a railroad flyover bridge connecting CIND and CSX Indiana Subdivision to CSX No 1 and 2 mainline tracks	$56,000,000
Ohio	Hamilton	New Station Track	Add approximately 1500 feet of track parallel to CSX mainline tracks at the Cincinnati Union Terminal for future, additional passenger service	$4,000,000
Ohio	Hamilton	North Bend Rd	Add lane(s), rehab and improve intersection from Kleeman to Westward Northern Blvd	$8,000,000
Ohio	Hamilton	Ohio River Trail	Construct separate Shared Use Path (Bike/Hike Trail) across Mill Creek in city of Cincinnati from State Ave to Central Ave	$8,000,000
Ohio	Hamilton	Ohio River Trail	Construct separate Shared Use Path (Bike/Hike Trail) along Ohio Riverbank in city of Cincinnati from Corbin to downtown	$20,000,000
Ohio	Hamilton	Ohio River Trail	Construct new multi-use path on Five Mile Rd in Clermont County near/at Woodland Mound Park	$6,000,000
Ohio	Hamilton	Railroad Bridge (Galbraith Rd)	Adjust lane widths to meet current standards and replace CSX Railroad bridge over Galbraith Rd	$10,000,000
Ohio	Hamilton	Railroad Track Improvements at the Conrail Site	Construct spurs or other necessary railroad improvements to facilitate railroad service to the former Conrail site located on US 50 (River Rd)	$4,000,000
Ohio	Hamilton	Sharon Rd	Add two lanes from Chester Rd to I-75	$3,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Hamilton	Uptown Signal System Improvements	Improve signal system	$5,000,000
Ohio	Hamilton	SORTA Administrative Facility	Construct new administative offices at the site of the existing Metro Queensgate facility	$15,000,000
Ohio	Hamilton	SORTA Bond Hill Transit Hub	Construct mini transit hub for Metro and other services in the area including pedestrian connections	$3,180,000
Ohio	Hamilton	SORTA Chester Rd Park & Ride	Replace leased facility with new Park & Ride near Sharon/Chester Rd Intersection in Springdale	$900,000
Ohio	Hamilton	SORTA Facility Expansion	Construct third operating facility	$42,000,000
Ohio	Hamilton	SORTA Bond Hill Facility Improvements	Upgrade and renovate existing Bond Hill facility	$14,290,000
Ohio	Hamilton	SORTA Lockland Transit Hub	Construct mini transit hub for Metro and other services in the area including pedestrian connections	$3,130,000
Ohio	Hamilton	SORTA Lower Price Hill Transit Hub	Construct mini transit hub for Metro and other services in the area including pedestrian connections	$4,080,000
Ohio	Hamilton	SORTA Madisonville Transit Hub	Construct mini transit hub for Metro and other services in the area including pedestrian connections	$500,000
Ohio	Hamilton	SORTA: Montgomery Park & Ride	Replace leased facility with new Park & Ride near Kemper/ Montgomery Rd Intersection	$900,000
Ohio	Hamilton	SORTA Glenway/ Warsaw Ave Corridor BRT Service	Conduct alternatives analysis, design, and implement bus rapid transit improvements as part of regional network	$500,000
Ohio	Hamilton	SR 264	Add one lane in each direction from Moonridge Dr to Harrison Ave	$3,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Hamilton	SR 562	Add two lanes from I-75 to I-71 in city of Cincinnati	$25,790,000
Ohio	Hamilton	I -75 Thru the Valley Phase 5	TRAC TIER 3; PID: 88132; Add fourth lane, auxiliary lane from Shepherd entrance to Galbraith southbound exit	$77,600,000
Ohio	Hamilton	I-75 Thru the Valley Phase 6	TRAC TIER 3; PID: 88133; Add fourth lane and auxiliary lane for northbound I-75	$99,440,000
Ohio	Hamilton	US 127	Add two lanes from I-275 to John Gray	$3,000,000
Ohio	Hamilton	US 27 (Colerain Ave)	Add one lane from Virginia Ave to Spring Grove Ave with geometric improvements near I-74/75 junction	$7,000,000
Ohio	Hamilton	US 42 (Reading Rd)	Provide five lanes and intersection improvements from Elsinore to Burnett	$1,900,000
Ohio	Hamilton	US 50 (River Rd)	Add center turn lane from Addyston eastern corporate line to Fairbanks Ave	$15,000,000
Ohio	Hamilton	US 52 (Riverside Dr)	Add two lanes and geometric improvements at railroad overpass	$20,000,000
Ohio	Hamilton	Victory Pkwy	New bike facilities from Reading Rd to Eden Park Dr	$10,000,000
Ohio	Hamilton	Wilmer Ave	Add one lane and geometric improvements from Beechmont Ave to Kellogg Ave	$5,000,000
Ohio	Hamilton	Winton Rd	Widen by adding one lane from North Bend Rd to Timber Trail	$3,500,000
Ohio	Hamilton	Winton Rd	Add lane and rehab from Fleming to Lake Ridge	$8,000,000
Ohio	Hamilton	Wooster Rd	Add one lane and make geometric improvements from Beechmont Ave to Emerald	$8,000,000
Ohio	Warren	Bikeway Connectivity	Connect Lebanon - Countryside YMCA Trail with city of Mason Trail System at Mason Morrow Millgrove Rd	$1,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Warren	Columbia Rd	Widen by constructing a continuous center lane on Columbia Road to enable left turning movements from Kings Mill Rd to Mason-Morrow-Millgrove Rd	$7,500,000
Ohio	Warren	Columbia Rd	Widen from Locust Ave to Stony Hollow Ct	$4,000,000
Ohio	Warren	Dixie Hwy (formerly Cincinnati-Dayton Rd)	Widen to five lanes from SR 122 to SR 73 in Middletown	$24,000,000
Ohio	Warren	Greentree Rd	Widen by adding one lane, reprofile, realign from I-75 to SR 123	$15,000,000
Ohio	Warren	Hendrickson Rd	Widen by adding one lane Cincinnati-Dayton Rd to Union Road	$16,800,000
Ohio	Warren	I-71	SR 741/Kings Mill Rd Interchange improvement	$20,000,000
Ohio	Warren	I-71/Western Row Rd Interchange	Create full interchange	$40,000,000
Ohio	Warren	Manchester Rd	Widen to three lanes and realign offset intersections from Union Road to SR 123	$6,000,000
Ohio	Warren	Mason Montgomery Rd	Widen one lane in each direction from Socialville Fosters Rd to Western Row Rd in Mason	$5,000,000
Ohio	Warren	Mason-Morrow-Millgrove Rd	Widen to five lanes from US 42 to SR 48 in Mason	$10,000,000
Ohio	Warren	NEW Butler-Warren Rd/Cox Rd Extension	Widen to five Lanes and extend roadway from Bethany to SR 63	$15,000,000
Ohio	Warren	NEW Bypass 48 Pedestrian Bridge	Construct pedestrian bridge over Bypass 48 at Cook Rd	$1,500,000
Ohio	Warren	NEW Central Ave Extension / I-75 Overpass	Extend from Dixie Hwy to Union Rd in city of Middletown and construct I-75 overpass	$15,000,000
Ohio	Warren	NEW Gateway Blvd	Construct new, two Lane extension north from SR 63 to Union Rd	$1,250,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Warren	NEW Gateway Blvd	Construct new, five Lane extension to Butler-Warren Cox Rd	$4,250,000
Ohio	Warren	NEW Glosser Rd and Bunnel Rd	Add one lane on Glosser Rd from SR 63 to US 42 and extend/widen Glosser Rd from US 42 to Fujitech Dr	$13,000,000
Ohio	Warren	NEW I-75/Greentree Rd Interchange	Construct new interchange	$25,000,000
Ohio	Warren	NEW I-75/ Manchester Rd Interchange	Construct new interchange and widen Dixie Hwy to Union Rd	$27,500,000
Ohio	Warren	NEW I-75/Towne Blvd Overpass	New roadway overpass, application of access management principles, inclusion of sidewalks from Towne Blvd to Union Rd in city of Middletown	$14,000,000
Ohio	Warren	NEW Outer Loop Rd	Construct new roadway in city of Middletown from Union Rd to SR 122	$6,000,000
Ohio	Warren	NEW Waterstone Connector	Extend Waterstone Drive over I-71 to Duke Drive	$6,800,000
Ohio	Warren	Snider Rd	Widen one lane in each direction from Fields-Ertel to US 42	$13,000,000
Ohio	Warren	Snider Rd	Widen one lane in each direction from US 42 and Tylersville Rd	$6,000,000
Ohio	Warren	Socialville-Fosters Rd/ Old 3 C Highway	Widen to add capacity and make profile improvements from Butler-Warren Rd to US 22/3	$15,000,000
Ohio	Warren	SORTA Southwest Warren County Transit Hub	Construct mini transit hub for Metro and other services in the area including pedestrian connections	$3,000,000
Ohio	Warren	SR 122	Widen for additional lane in each direction from Union Rd to SR-741	$12,000,000
Ohio	Warren	SR 123	Widen by adding two lanes from I-71 to SR 48	$6,000,000
Ohio	Warren	SR 123	Widen by adding one lane from Greentree Rd to West St	$5,100,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Warren	SR 123 Improvements	Widen to improve capacity at SR 123 south of SR 122	$2,000,000
Ohio	Warren	SR 48	Widen by adding two lanes from SR 73 to Montgomery County line	$9,000,000
Ohio	Warren	SR 48	Widen to three lanes from Stephens Rd to Fosters-Maineville	$1,500,000
Ohio	Warren	SR 48	Widen one lane in each direction from Mason-Morrow-Millgrove Rd to Stephens Rd (south of US 22/3)	$15,000,000
Ohio	Warren	SR 48	Widen by adding one lane from Miller Rd to Kirby Rd in city of Lebanon	$2,300,000
Ohio	Warren	SR 741	Widen one lane in each direction from SR 63 and US 42	$12,000,000
Ohio	Warren	SR 741	Widen one lane in each direction from US 42 and I-71	$10,000,000
Ohio	Warren	SR 741	Relocate and widen from SR 63 and Greentree Rd	$12,000,000
Ohio	Warren	Union Rd	Widen to five lanes from Atrium Blvd to Hendrickson Rd	$4,000,000
Ohio	Warren	Union Rd	Widen to five lanes from Campus Loop to Shaker Rd	$4,000,000
Ohio	Warren	US 22	Widen by adding two lanes each direction at bridge over Little Miami River	$6,000,000
Ohio	Warren	US 22	Widen to five lanes from Old Mill to Morrow-Cozaddale (does not including bridge over Little Miami River)	$20,000,000
Ohio	Warren	US 42	Widen for additional lane in each direction from SR 741 to Lebanon corporate line	$12,000,000
Ohio	Warren	Warren County Bus Circulator System	Introduce bus circulator system in Warren County	$820,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Ohio	Butler, Clermont, Hamilton, Warren	Alternative Fuel Stations for Truck Fleets	Construct commercial compressed/liquid natural gas fueling stations in partnership with the private sector on high truck-traffic roadways	$3,000,000
Ohio	Butler, Clermont, Hamilton, Warren	Rail Transit Right of Way Preservation	Preservation of right-of-way for future passenger rail transit	$5,000,000
Kentucky	Boone	I-275/KY 3076 Interchange	Reconstruct to urban diamond configuration	$8
Kentucky	Boone	I-71/75/ KY 18 (Burlington Pike) Interchange	Interchange improvements	$10,000,000
Kentucky	Boone	I-75	Major widening in each direction from KY 18 to I-275	$345,000,000
Kentucky	Boone	I-75	Improve collector/distributor system from KY 18 to US 42	$23
Kentucky	Boone	I-75/Mall Rd Interchange	Provide sidewalk	$2,950,000
Kentucky	Boone	KY 1292 (Beaver Rd)	Major widening from US 42 to I-75 at Walton	$7,000,000
Kentucky	Boone	KY 14	Reconstruct from Stevenson Mill Rd to I-75 (west side of interchange)	$29,500,000
Kentucky	Boone	KY 14	Reconstruct from US 42 at Hume to I-71	$21,500,000
Kentucky	Boone	KY 18 (Burlington Pike)	Reconstruct and widen from Woolper Rd to Caroline Williams Way	$28,500,000
Kentucky	Boone	KY 18 (Burlington Pike)	Provide walkway on north side of KY 18 through I-75 interchange in Florence	$1,550,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Kentucky	Boone	KY 18 (Burlington Pike)	Eliminate depressed median and add additional lane in each direction from Darlington Dr to Houston	$5,000,000
Kentucky	Boone	KY 18 (Burlington Pike)	Major widening from Greenview Rd to I-75	$15,000,000
Kentucky	Boone	KY 20 (Petersburg Rd)	Relocation of roadway from Petersburg to Ashby's Fork Rd includes reconstruction/ elimination of Petersburg Hill	$18,700,000
Kentucky	Boone	KY 338 (Richwood Rd)	Reconstruct and widen from Hicks Pike to (KY 2951) Chambers Rd	$32,000,000
Kentucky	Boone	KY 338 (Richwood Rd)	Reconstruct from KY 2951 (Chambers Rd) to US 42	$39,000,000
Kentucky	Boone	KY 8	Reconstruct with curb, gutter, sidewalks and bicycle paths from KY 20 to Kenton County line	$20,000,000
Kentucky	Boone	KY 842 (Weaver Rd)	Reconstruct with additional through lanes, curb, gutter, sidewalks and bicycle facilities	$26,000,000
Kentucky	Boone	KY 842 (Weaver Rd)	Reconstruct and upgrade from from US 25 to KY 1303 and redesignate as KY 842	$23,500,000
Kentucky	Boone	NEW Camp Ernst Rd	Roadway extension (southern phase) from KY 536 to upgraded KY 14 at US 42	$28,000,000
Kentucky	Boone	NEW Conrad Lane Extension	Extend S. Airfield Road west to Conrad Lane/KY 237	$20,000,000
Kentucky	Boone	NEW I-71/US 25 Off-Ramp	Construct new, four lane connector from I-71\75 to US 25 near KY 2951	$25,000,000
Kentucky	Boone	NEW KY 8	Extend KY 8 to I-275 at Exit 11	$100,000,000
Kentucky	Boone	TANK Florence Circular	Implement new circulator bus transit service within city of Florence	$250,000
Kentucky	Boone	US 25	Reconstruct and widen from KY 1829 (Industrial Rd) to US 42	$26,000,000
Kentucky	Boone	US 42	Widen from KY 237 to KY 842	$31,500,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Kentucky	Boone	US 42	Reconstruct from KY 1292 to KY 3060	$36,000,000
Kentucky	Boone	US 42	Reconstruct from KY 14 to KY 1292	$12,000,000
Kentucky	Boone	US 42	Reconstruct from the Gallatin County line to KY 14	$19,500,000
Kentucky	Boone, Campbell, Kenton	Alternative Fuel Stations for Truck Fleets	Construct commercial compressed/liquid natural gas fueling stations in partnership with the private sector on high truck-traffic roadways	$1,500,000
Kentucky	Boone, Campbell, Kenton	Rail Transit Right of Way Preservation	Preservation of right of way for future passenger rail transit	$3,500,000
Kentucky	Campbell	I-275	Major widening from AA Hwy to Ohio state line	$92,250,000
Kentucky	Campbell	KY 1121 (Persimmon Grove Pike)	Reconstruct from KY 824 (Jerry Wright Rd) to KY 10	$10,000,000
Kentucky	Campbell	KY 1121 (Persimmon Grove Pike)	Reconstruct/realign and upgrade to collector from KY 824 (Jerry Wright Rd) to KY 10	$14,250,000
Kentucky	Campbell	KY 1998 (Pooles Creek)	Reconstruct from AA Hwy to US 27 in Cold Spring	$40,500,000
Kentucky	Campbell	KY 2238 (Three Mile Rd)	Major widening from KY 2345 southeast to I-275 in Wilder	$26,000,000
Kentucky	Campbell	KY 2345	Reconstruct from West John's Hill Rd to KY 9 in Wilder	$19,200,000
Kentucky	Campbell	KY 2924 (Tollgate Rd)	Reconstruct from US 27 to KY 915 in Alexander	$32,250,000
Kentucky	Campbell	KY 547	Reconstruct from KY 9 (Licking Pike) to KY 8	$25,500,000
Kentucky	Campbell	KY 8	Reconstruct from KY 547 to Lower Eight Mile	$14,000,000
Kentucky	Campbell	KY 8	Reconstruct from Lower Eight Mile to KY 1566	$28,500,000
Kentucky	Campbell	KY 8	Reconstruct from Clark St to Tower Hill Rd in Dayton with new railroad underpass	$12,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Kentucky	Campbell	KY 8	Reconstruct from Tower Hill Rd to KY 445	$56,000,000
Kentucky	Campbell	KY 8	Reconstruct from KY 1996 to KY 735	$27,000,000
Kentucky	Campbell	KY 824 (Jerry Wright Rd)	Reconstruct/realign from KY 1121 to US 27 and upgrade to collector	$20,000,000
Kentucky	Campbell	KY 915	Reconstruct from KY 10 to KY 2924 (Tollgate Rd)	$21,500,000
Kentucky	Campbell	KY 915	Reconstruct from KY 2924 (Tollgate Rd) to KY 9 (Licking Pike)	$13,700,000
Kentucky	Campbell	NEW Bridge	Construct new bridge north of I-275 from KY 16 at KY 177 intersection to KY 9 south of Three Mile Creek	$16,000,000
Kentucky	Campbell	NEW KY 536	Construct new, two lane connector from KY 9 (Licking Pike) to KY 8	$52,000
Kentucky	Campbell	TANK I-471 Transit Way	Full build-out in Campbell County	$35,000,000
Kentucky	Campbell	TANK Intown Crosstown Transit Service	Implement new intown crosstown bus transit service between cities of Ft. Mitchell, Covington and Newport	$570,000
Kentucky	Campbell	TANK Monmouth St Corridor and Newport Shuttle	Implement specific transit improvements along the Monmouth St corridor in Newport	$2,000,000
Kentucky	Campbell	TANK South Bank Shuttle Improvements	Implement transit shelter, bike and aesthetic enhancements to bus stop locations along SBS route	$500,000
Kentucky	Campbell	US 27	Add two lanes from I-471 to Murnan Rd in Cold Spring	$75,000,000
Kentucky	Campbell	US 27	Major widening from Murnan Rd to KY 9 eastbound ramp in Cold Spring	$25,000,000
Kentucky	Campbell	US 27	Major widening from KY 9 (Licking Pike) eastbound ramp to KY 709 (East Alexandria Pike) in Alexandria	$16,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Kentucky	Campbell	US 27	Major widening from one mile south of KY 10 to KY 709 in Alexandria	$60,000,000
Kentucky	Kenton	15th Street Pedestrian Bridge	Replace existing bridge with a pedestrian bridge from Madison to Russell	$1,730,000
Kentucky	Kenton	19th St	Install vehicular loop detectors and pedestrian push buttons at signalized intersections from Augustine to Jefferson	$240,000
Kentucky	Kenton	CS 2085 (Wayman Branch Rd)	Reconstruct, widen, repair culvert, and stabilize hillside from KY 17 to KY 16	$26,250,000
Kentucky	Kenton	Horsebranch Rd Pedestrian Path	Construct 2.6 mile multi-purpose path from Thomas More Pkwy at St. Elizabeth Hospital to KY 17 (Madison Pike) in Fort Wright (primary cost is addressing drainage issues)	$2,000,000
Kentucky	Kenton	I-275	Major widening from I-75 to AA Hwy	$97,000,000
Kentucky	Kenton	I-75	Extend the I-75 ramp from Buttermilk Pike to Dixie Hwy ramp	$6,250,000
Kentucky	Kenton	KY 1017	Reconstruct/widen from New Dolwick Connector to Mineola Pike in Boone County	$35,000,000
Kentucky	Kenton	KY 1072 (Kyles Lane)	Reconstruct from US 25 to KY 8 in city of Ludlow	$13,000,000
Kentucky	Kenton	KY 14	Reconstruct from US 25 to KY 17	$17,000,000
Kentucky	Kenton	KY 1486	Reconstruct from KY 16 to Old Madison Pike	$63,000,000
Kentucky	Kenton	KY 16	Reconstruct from KY 17 to US 25 in Boone County	$20,000,000
Kentucky	Kenton	KY 17	Reconstruct from KY 3072 (Hempfling Rd) to KY 14	$15,500,000
Kentucky	Kenton	KY 177 (Decoursey Pike)	Reconstruct from KY 536 to KY 2042	$18,000,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Kentucky	Kenton	KY 177 (Decoursey Pike)	Reconstruct from KY 2042 to KY 14	$16,500,000
Kentucky	Kenton	KY 177 (Decoursey Pike)	Reconstruct from KY 14 to Pendleton County line	$14,000,000
Kentucky	Kenton	KY 177 (Decoursey Pike)	Reconstruct and widen with bikeway from Grand Ave to Porter Rd with turn lane at KY 1930	$38,650,000
Kentucky	Kenton	KY 177 (Decoursey Pike)	Reconstruct from Porter Rd to KY 2044 (Petty Rd)	$20,000,000
Kentucky	Kenton	KY 177 (Decoursey Pike)	Reconstruct from KY 2044 (Petty Rd) to KY 536	$15,250,000
Kentucky	Kenton	KY 1930	Reconstruct and widen from KY 177 in Ryland Heights to KY 177 near Fairview	$40,800,000
Kentucky	Kenton	KY 2045	Reconstruct and widen via portion of KY 2044 corridor from Marshall Rd to KY 177	$5,100,000
Kentucky	Kenton	KY 2373	Widen from Dolwick Connector to KY 371	$10,750,000
Kentucky	Kenton	KY 371 (Amsterdam Rd)	Reconstruct from WCKY radio tower to KY 8	$46,500,000
Kentucky	Kenton	KY 371 (Amsterdam Rd)	Widen from US 25 TO KY 17	$10,000,000
Kentucky	Kenton	KY 371 (Amsterdam Rd)	Major widening from Collins Rd to Prospect Point Dr in city of Villa Hills	$6,000,000
Kentucky	Kenton	KY 8	Improve traffic operations from Russell St to Scott St in city of Covington	$1,300,000
Kentucky	Kenton	KY 8	Reconstruct and correct major slip area from Boone County line to Bromley city limits	$25,000,000
Kentucky	Kenton	Licking River Greenway Future Phase	Stabilize riverbanks, remove invasive species, restore native plants from south limit of current trail near the railroad bridge at East 15th and Maryland	$2,500,000
Kentucky	Kenton	NEW IR-5	Construct new interchange south of Walton	$20,300,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Kentucky	Kenton	NEW KY 1501 (Hands Pike) Extension	Extension on new alignment from KY 16 to KY 177 (Decoursey Pike)	$6,750,000
Kentucky	Kenton	NEW KY 536	Reconstruct and widen from KY 16 to KY 177 (Decoursey Pike) on new alignment	$98,000,000
Kentucky	Kenton	NEW KY 8 (4th Street Pedestrian Bridge)	Construct new stand alone bike/ped bridge along the north side of existing bridge over Licking River	$4,000,000
Kentucky	Kenton	NEW Mary Grubbs Highway Extension	New alignment from new Mary Grubbs Hwy railroad bridge eastward to KY 17 near the KY 17/KY 16 intersection	$90,000,000
Kentucky	Kenton	NEW Southbank Riverfront Commons	Construct new shared use path and river edge walkway along the Ohio River from Madison to Greenup	$23,500,000
Kentucky	Kenton	TANK I-71/75 Transit Way	Full build-out in Boone and Kenton counties	$50,000,000
Kentucky	Kenton	TANK Madison Ave Corridor	Implement specific transit improvements in city of Covington	$1,000,000
Kentucky	Kenton	TANK South Bank Shuttle	Implement transit shelter, bike and aesthetic enhancements to bus stop locations along SBS route	$500,000
Kentucky	Kenton	US 25	Reconstruct from Turfway Rd to KY 236	$25,000,000
Kentucky	Kenton	US 25	Major widening from I-275 to Dudley Pike	$15,000,000
Kentucky	Kenton	US 25	Reconstruct from I-275 to KY 1072 (Kyles Lane)	$20,000,000
Kentucky	Kenton	US 25	Reconstruct from Grant County line to Boone County line	$26,000,000
Kentucky	Kenton	US 25	Widen from KY 236 to Hallam Ave and replace railroad bridge	$18,000,000
Kentucky	Kenton	US 25	Construct dedicated right turn lane on southbound I-75 exit ramp in city of Covington	$750,000

State	County	Facility	Description	Cost Estimate (in 2012 dollars)
Kentucky	Kenton	US 25	Major widening for two additional lanes from I-71/75 to 12th St in city of Covington	$15,000,000

Appendix F: Regionally Significant Environmental Resources

Table 1. Regionally Significant Environmental Resources

Category	Description
State Conserved Areas	State parks, state wildlife areas (Ohio) and wildlife management areas (Kentucky), and state preserves (preserves are established under state law) ▪ Areas where state investments conserve environmental resources
Regionally Significant Streams	High quality streams or stream segments identified for conservation or protection by the states based on one or more of the following: ▪ Designated as a National and State Scenic River based on outstanding qualities to be protected for the future (the national system includes 1/4 of 1%, or 166, of the nation's rivers) ▪ Identified as a priority area for conserving aquatic species (by the state wildlife conservation plan) ▪ Designated for use as habitat by species that require a high level of water quality (by use designations included in water quality standards in state code) ▪ Reported as supporting its designated use for aquatic habitat (by the 2010 state Integrated Report) ▪ Classified for high ecological value (in state Antidegradation Policy included in water quality standards in state code)
Wetlands	Areas where transportation projects are likely to involve additional costs if impacts to wetland functions are not avoided (more than a third of the nation's threatened and endangered species live only in wetlands) ▪ Includes the Oxbow of the Great Miami River (habitat important for rare species and migration)
Endangered, Threatened, and Rare Species	Species native to the OKI Region that are listed at federal or state levels as endangered (in danger of extinction), threatened (likely to become endangered within the forseeable future), or at risk ▪ 165 species native to the OKI Region are state listed. ▪ Nearly two thirds of the region's 104 state-listed animal species depend on aquatic habitat for survival, and nearly half of these are "critically imperiled" or "imperiled" at global levels. ▪ The survival of listed species depends partly on Regionally Significant Streams, State Conserved Area, and Wetlands.
Prime and Important Farmland and Agricultural Districts	Areas where transportation projects may involve additional costs if they reduce the land's use or suitability as farmland ▪ Prime Farmland has soil characteristics that make it the world's most productive agricultural land and a globally-scarce resource. ▪ Impacts to Prime and Important Farmland from federally-funded projects are to be avoided or mitigated under federal policy. ▪ Agricultural Districts in Ohio and Kentucky are enrolled in state programs for 5-year protection as agricultural use (per request of property owner) that may include mitigation from impacts of state-funded projects.

OKI 2012 Environmental Consultations

Table 2. State Conserved Areas in the OKI Region

Map Code	Facility Name	County	Acres	Note
Nature Preserves - dedicated under state law				
NP1	Hueston Woods State Nature Preserve	Butler	29	Within a state park
NP2	Sharon Woods Gorge	Hamilton	21	Within a county park
NP3	Caesar Creek Gorge State Nature Preserve	Warren	483	
NP4	Halls Creek Woods State Nature Preserve	Warren	278	
NP5	Crooked Run … Sanctuary	Clermont	78	
NP6	Boone County Cliffs State Nature Preserve[a]	Boone	75	
NP7	Dinsmore Woods State Nature Preserve[a]	Boone	105	
	OKI Region		1,069	
Wildlife Areas / Wildlife Management Areas - preserves with hunding and fishing				
WA1	Pater Wildlife Area	Butler	192	
WA2	Spring Valley Wildlife Area[b]		288	
WA3	Caesar Creek Lake Wildlife Area[b]	Warren	1,109	Connected to a state park
WA4	East Fork Wildlife Area	Clermont	2,705	Connected to a state park
WA5	Mullins Wildlife Management Area	Kenton	259	
WA6	Adair Wildlife Management Area	Boone	635	
	OKI Region		5,188	
State Parks				
SP1	Hueston Woods State Park[b]	Butler	1,022	Includes State Nature Preserve
SP2	Caesar Creek State Park[b]	Warren	7,066	Connected to a Wildlife Area
SP3	Little Miami State Park	Cl,Hm,Wr	127	
SP4	Stonelick State Park	Clermont	1,258	
SP5	East Fork State Park	Clermont	7,301	Connected to a Wildlife Area
SP6	Big Bone Lick State Park	Boone	512	
	OKI Region		17,286	

[a]Owned by Boone County Fiscal Court; dedicated to Kentucky state natuer Preserves systems

[b]Extends beyond the OKI Region (acreage is for in-region only)

Additional State Conserved Area (not listed or mapped)

- Ohio State Dedicated Natural Areas (434 acres in Hamilton County)
- Indiana Preserves without trails or parking (62 acres in Dearborn County)

Source of Acreage Data

Acreage of sites entirely within the OKI Region is from state agency websites. Acreage for in-region portion of sites that extend outside of the OKI Region is from OKI.

State Agency Websites

OH http://www.dnr.state.oh.us/Home/Preserves/preserves_info/mapofpreserves/tabid/860/Default.aspx
http://www.dnr.state.oh.us/Home/wild_resourcessubhomepage/WildlifeAreaMapsLandingPage/tabid/19694/Default/aspx
http://www.dnr.state.oh.us/parks/default/tabid/726/Default.aspx

KY http://naturepreserves.ky.gov/naturepreserves/Pages/preserves.aspx
http://www.kdfwr.state.ky.us/kfwis/wmaguide.asp?lid=600&NavPath=C100C154
http://parks.ky.gov/

OKI 2012 Environmental Consultations. Data and sources: 12/2010 updated 2/2012

Table 3. Regionally Significant Streams in the OKI Region

OKI 2012 Environmental Consultations (prepared September 2011)

	criteria used for Ohio streams is in blue			criteria used for Kentucky streams is in green		criteria used for Indiana streams is in purple	
River and Streams	**County**	**Total Stream Length**	**Designated as Scenic River[1]**	**Identified as Priority Area for Conserving Aquatic Wildlife[2]**	**Designated for a High Level of Aquatic Life Use[3]**	**Reported as Attaining its Aquatic Life Use Designation[4]**	**Classified for High Ecological Value in Antidegradation Policy[5]**
Great Miami River	Butler Dearborn Hamilton Warren	170.3		#5 rank among 11 Ohio Focus Watersheds		Indiana Category 2 for Dearborn Co. part	
Big Cave Run (trib. to Sevenmile Cr.)	Butler	2.9				Ohio Category 1	
Cotton Run (trib. to Sevenmile Cr.)	Butler					Ohio Category 1	
Doublelick Run	Dearborn Hamilton	1.2 in Ohio				Indiana Category 2 for Dearborn Co. part	
Elk Creek	Butler	12.6			Ohio Exceptional Warmwater Habitat		
Four Mile Creek	Butler	38.2			Ohio Exceptional Warmwater Habitat between RM 13/Darrtown Rd. & RM .4/Sevenmile Ave		Proposed as Ohio Superior High Quality Water between RM 13.83/Curlane Run & RM .61/unnamed trib.
Mutton Run (trib. to Sevenmile Cr.)	Butler					Ohio Category 1	
Ninemile Creek (trib. to Sevenmile Cr.)	Butler	3.6				Ohio Category 1	
Sevenmile Creek (tributary to Four Mile Cr.)	Butler	32.5			Ohio Exceptional Warmwater Habitat	Ohio Category 1	Ohio Superior High Quality Water
Twin Creek	Warren	46.2			Ohio Exceptional Warmwater Habitat	Ohio Category 1	Ohio Outstanding State Water
Licking River	Campbell Kenton			Mussels Conservation Area	Kentucky Outstanding State Resource Water S. of RM 19.3/SR 536 bridge	Kentucky Category 2 between RM 0 & RM 4.8 and RM 31.0 & RM 37.6	
Bowman Creek	Kenton	6.0			Kentucky Outstanding State Resource Water	Kentucky Category 2	Kentucky Exceptional Water
Cruises Creek	Kenton	8.6				Kentucky Category 2	
Sawyers Fork (tributary to Cruises Creek)	Kenton	3.3			Kentucky Outstanding State Resource Water	Kentucky Category 2	Kentucky Exceptional Water
Little Miami River	Clermont Hamilton Warren	105.5	▪ National Scenic River N of Foster ▪ National Recr. River S of Foster ▪ State Scenic River for entire length	#1 rank among 11 Ohio Focus Watersheds	Ohio Exceptional Warmwater Habitat upstream of RM 3.0/Beechmont Ave.	Ohio Category 1 for mainstem between Caesar Creek & O'Bannon Creek	Ohio Outstanding State Water
Agins Run (tributary to Todd Fork)	Warren					Ohio Category 1	
Caesar Creek	Warren	33.9	Lower 2 miles are included in the Little Miami River's designation		Ohio Exceptional Warmwater Habitat		Ohio Superior High Quality Water

Table 3. Regionally Significant Streams in the OKI Region

OKI 2012 Environmental Consultations (prepared September 2011)

criteria used for Ohio streams is in blue | criteria used for Kentucky streams is in green | criteria used for Indiana streams is in purple

River and Streams	County	Total Stream Length	Designated as Scenic River[1]	Identified as Priority Area for Conserving Aquatic Wildlife[2]	Designated for a High Level of Aquatic Life Use[3]	Reported as Attaining its Aquatic Life Use Designation[4]	Classified for High Ecological Value in Antidegradation Policy[5]
Dry Run (tributary to Turtle Creek)	Warren	1.3			Ohio Coldwater Habitat between hdwtr.s & RM 1.2		
East Fork	Clermont	81.7			Ohio Exceptional Warmwater Habitat		Ohio Superior High Quality Water downstream of RM 45.18/ Howard Run (excl. reservoir)
Halls Creek	Warren	4.1			Ohio Exceptional Warmwater Habitat		
Homans Branch (tributary to Sharp Run, tributary to Lick Run)	Warren					Ohio Category 1	
Kunkers Run (tributary to Sugar Run)	Warren					Ohio Category 1	
Lick Run (tributary to Todd Fork)	Warren	4.9				Ohio Category 1	
Newman Run	Warren	4.0			Ohio Exceptional Warmwater Habitat		
Sharps Run (tributary to Lick Run)	Warren					Ohio Category 1	
Sugar Run (tributary to Todd Fork)	Warren	1.6				Ohio Category 1	
Todd Fork	Warren	35.0				Ohio Category 1	
Whitakers Run (tributary to Todd Fork)	Warren					Ohio Category 1	
Ohio River	Boone Cambell Clermont Dearborn Hamilton Kenton			Mussels Conservation Area east of the Licking River		Indiana Category 2 Kentucky Category 2 ORSANCO did not assess aquatic life use because of differences in state approaches to handling data with conflicting results	
Big Bone Creek	Boone	10.7				Kentucky Category 2 between RM 1.2 & RM 10.7	
Brush Creek (tributary to Twelvemile Cr.)	Campbell					Kentucky Category 2 between RM 0 & RM 1.6	
Double Lick Creek (tributary to Woolper Creek)	Boone	3.5			Kentucky Outstanding State Resource Water	Kentucky Category 2	Kentucky Exceptional Water
Fourmile Creek	Campbell					Kentucky Category 2 between RM .2 & RM 9.4	
Garrison Creek	Boone	4.85			Kentucky Outstanding State Resource Water	Kentucky Category 2	Kentucky Exceptional Water
Laughery Creek	Dearborn					Indiana Category 2 west of Hayes Branch	

Table 3. Regionally Significant Streams in the OKI Region

OKI 2012 Environmental Consultations (prepared September 2011)

criteria used for Ohio streams is in blue | criteria used for Kentucky streams is in green | criteria used for Indiana streams is in purple

River and Streams	County	Total Stream Length	Designated as Scenic River[1]	Identified as Priority Area for Conserving Aquatic Wildlife[2]	Designated for a High Level of Aquatic Life Use[3]	Reported as Attaining its Aquatic Life Use Designation[4]	Classified for High Ecological Value in Antidegradation Policy[5]
Little South Fork (tributary to Big South Fork)	Boone	5.9			Kentucky Outstanding State Resource Water between RM 1.2 & RM 5.9	Kentucky Category 2 between RM 1.2 and 5.9	Kentucky Exceptional Water between RM 1.2 & RM 5.8
Mudlick Creek (tributary to Big Bone	Boone	11.3				Kentucky Category 2 between RM .2 & RM 6.1	
North Hogan Creek	Dearborn					Indiana Category 2 between Goose Run & unnamed tributary near E. end of Short Ridge Rd.	
Pleasant Run Creek	Kenton	3.4				Kentucky Category 2 between RM .2 & RM 3.4	
Second Creek	Boone	2.9			Kentucky Outstanding State Resource Water between RM .2/ backwaters & RM 2.7/headwaters	Kentucky Category 2 between RM .5 & RM 2.9	Kentucky Exceptional Water between RM .4 & RM 2.9
Tanners Creek	Dearborn					Indiana Category 2 between unnamed tributaries south of the Conrail line and north of Greendale Cemetery	
Twelvemile Creek	Campbell	13.2				Kentucky Category 2 between RM 3.5 & 9.0 and RM 10.4 & 13.2	
Unnamed tributary to Laughery Creek in Caesar Creek Township	Dearborn					Indiana Category 2	
Whitewater River (trib. to Great Miami River)	Butler Dearborn Hamilton			Meets Indiana plan criteria for Priority Conservation Areas	Ohio Exceptional Warmwater Habitat	Ohio Category 1 for Hamilton Co. mainstem Indiana Category 2 S of Logan Creek	Ohio Superior High Quality Water
Blue Creek (headwaters)	Dearborn					Indiana Category 2	
Cooper Run	Dearborn Hamilton					Ohio Category 1 Indiana Category 2	
Crane Run	Dearborn					Indiana Category 2	
Dry Fork (trib. to Whitewater River)	Butler Hamilton	19.6 in Ohio			Ohio Exceptional Warmwater Habitat between state line & RM 10.2/Atherton Rd.	Ohio Category 1 south of Howard Creek	
Fox Run	Hamilton					Ohio Category 1	
Jamison Creek	Dearborn Hamilton	.6 in Ohio				Ohio Category 1 Indiana Category 2	
Lee Creek (tributary to Dry Fork)	Hamilton	6.5				Ohio Category 1	
Logan Creek	Dearborn					Indiana Category 2	

Table 3. Regionally Significant Streams in the OKI Region

OKI 2012 Environmental Consultations (prepared September 2011)

criteria used for Ohio streams is in blue | criteria used for Kentucky streams is in green | criteria used for Indiana streams is in purple

River and Streams	County	Total Stream Length	Designated as Scenic River[1]	Identified as Priority Area for Conserving Aquatic Wildlife[2]	Designated for a High Level of Aquatic Life Use[3]	Reported as Attaining its Aquatic Life Use Designation[4]	Classified for High Ecological Value in Antidegradation Policy[5]
Phillips Creek (tributary to Dry Fork)	Butler	4.1				Ohio Category 1	
Pinhook Creek	Dearborn					Indiana Category 2	
Pipe Creek (headwaters)	Dearborn					Indiana Category 2	
Sand Run Creek	Dearborn Hamilton	3.1 in Ohio				Ohio Category 1 Indiana Category 2	
Unnamed tributary with confluence on the eastern side of the Whitewater River just north of I-74	Dearborn					Indiana Category 2	
Unnamed tributary with confluence on the eastern side of the Whitewater River and north of Braysville	Dearborn					Indiana Category 2	

[1]Designated as Scenic River

Designated rivers are free-flowing with outstanding qualities to be protected for future generations. Designation does not prohibit development nor involve federal control of private property. Protection relies on landowners, river users, and nonprofits; federal, state, and local regulations and programs; ODNR consideration of public project impacts (outside of municipalities); and community involvement. Major threats are increased impervious surface, clearing of streamside forest, floodplain encroachment, channelization/piping, and increased wastewater effluent.

State Data Source	Basis for OKI Selection	Website	State Agency
Ohio Scenic Rivers Program established by Scenic Rivers Act	The Little Miami River is one of fourteen state-designated rivers.	http://www.dnr.state.oh.us/tabid/985/Default.aspx	Ohio Dept. of Natural Resources, Div. of Natural Areas and Preserves
National Wild and Scenic Rivers System established by the Wild & Scenic Rivers Act	The Little Miami River is one of 166 federally-designated rivers (¼ of 1% of the nation's rivers).	http://www.rivers.gov/ and http://www.rivers.gov/wsr-little-miami.html	U.S. Fish and Wildlife Service

[2]Identified as Priority Area for Conserving Aquatic Wildlife

Conservation needs, strategies, and priorities are defined in state wildlife plans in an effort to conserve wildlife and habitat before they become more rare and more costly to protect. Plans focus on preserving species with the greatest conservation need.

State Data Source	Basis for OKI Selection	Website	State Agency
Ohio Comprehensive Wildlife Conservation Strategy (2005)	Ohio Focus Areas for conserving aquatic habitat NOTE: The plan also identiifes priority conservation areas for terrestrial habitat, but none are in the OKI Region.	http://www.fws.gov/midwest/FederalAid/state_plans.html	Ohio Dept. of Natural Resources, Div. of Wildlife
Kentucky Comprehensive Wildlife Conservation Strategy (2005) and 2010 Wildlife Action Plan Revision	Kentucky rivers with watersheds identified as Conservation Areas for aquatic taxonomic groups (HUC-8) NOTE: Mussels are 1 of the 7 groups of species (taxonomic groups) with state-defined Conservation Areas. Freshwater mussels is the most threatened and rapidly declining species group in North America. NOTE: The OKI map does not show Conservation Areas for mussels by HUC-14 (Campbell Co. 05100101 230290 & 05090201 380110), Amphibians (area in Boone & Kenton Co.s), or Bird Forestland & Wetland (area in Campbell & Kenton Co.s)	http://fw.ky.gov/kfwis/stwg/	Kentucky Dept. of Fish and Wildlife Resources
Indiana Comprehensive Wildlife Conservation Strategy, 2006	Indiana criteria for conservation priorities (related to plan goal and critical needs): the Whitewater R. addresses the plan's goal -- to preserve the state's native biological diversity -- and critical needs -- to provide habitat for rare species and connectivity for wildlife movement and migration.	http://www.fws.gov/midwest/FederalAid/state_plans.html	Indiana Dept. of Natural Resources, Div. of Fish and Wildlife, Wildlife Diversity Section

[3]Designated for a High Level of Aquatic Life Use

States assign Designated Uses to individual streams based on their existing and potential ability to support aquatic habitat, recreation, water supply, and other functions. Designated Uses are part of administrative code for State Water Quality Standards that define how the state will meet Clean Water Act goals: to restore and maintain surface waters to levels that support fish, shellfish, and wildlife and recreation. Designated uses can be revised when states review standards every 3 years.

State Data Source	Basis for OKI Selection	Website	State Agency
Ohio Administrative Code, Chapter 3745-1 Water Quality Standards	▪ Ohio Exceptional Warmwater Habitat (capable of supporting and maintaining an exceptional or unusual community of warmwater aquatic organisms) ▪ Ohio Coldwater Habitat (capable of supporting populations of native coldwater fish and associated vertebrate and invertebrate organisms and	http://www.epa.ohio.gov/dsw/rules/3745_1.aspx	Ohio EPA, Div. of Surface Water (DSW)
Kentucky Administrative Regulations, Title 401, Chapter 10 Water Quality Standards	Kentucky Outstanding State Resource Water (support federally listed endangered or threatened species or may be designated for exceptional aesthetic or ecological value, location within a state or local government park, or within a watershed that can provide scientific data)	http://www.lrc.ky.gov/kar/TITLE401.HTM	Ky. Energy and Environment Cabinet, Dept. for Environmental Protection/DEP, Div. of Water
Indiana Administrative Code, Title 327, Article 2, Water Quality Standards	Indiana Outstanding State Resource Water (waters of high quality that are designated by the Water Pollution Control Board -- none are in Dearborn Co. Waters may be considered as OSRWs that have unique or special ecological, recreational, or aesthetic significance.)	http://www.in.gov/legislative/iac/T03270/A00020.PDF	Ind. Dept. of Env. Mgmt. (IDEM), Office of Water Quality, Watershed Assessment & Plng. Branch

[4]Reported as Attaining its Aquatic Life Use Designation

Streams that attain their designated uses (meet standards) are listed in a biannual Integrated Report. Attainment corresponds to Category 1 or 2; other categories indicate streams that have not yet been assessed or don't meet standards. The Integrated Report fulfills Clean Water Act requirements for Section 305(b) inventories of water quality conditions (indicate progress in meeting designated uses) and Section 303(d) lists of waters that do not meet standards (ranked by need for a Total Maximum Daily Load /TMDL).

State Data Source	Basis for OKI Selection	Website	State Agency
2010 Ohio Integrated Water Quality Monitoring and Assessment Report	Ohio Category 1: "Use attaining" for aquatic life. Reporting units are watersheds with 12-digit hydrologic unit codes/HUC-12 or Large River Assessment Units/LRAUs (avg. 38 square miles).	http://epa.ohio.gov/dsw/tmdl/2010IntReport/2010OhioIntegratedRe	Ohio EPA, Div. of Surface Water (DSW)
Integrated Report to Congress on the Condition of Water Resources in Kentucky, 2010	Kentucky Category 2: "Assessed designated uses(s) is/are fully supporting, but not all designated uses assessed." Reporting units are streams or stream segments.	http://water.ky.gov/waterquality/Pages/IntegratedReport.aspx	Ky. Energy and Environment Cabinet, Dept. for Environmental Protection/DEP, Div. of Water, W.Q. Branch
Indiana Integrated Water Monitoring and Assessment Report: 2010 (draft pending U.S.EPA approval)	Indiana Category 2: "The waterbody is fully supporting the designated use assessed and no other use is threatened; insufficient data and information are available to determine if the remaining uses are supported or threatened." Reporting units are Assessment Units that are reach-specific for streams.	http://www.in.gov/idem/nps/2639.htm or 317-308-3173 Office of W. Q.: Integrated Report Coordinator	Ind. Dept. of Env. Mgmt. (IDEM), Office of Water Quality, Watershed Assessment & Planning Branch

2010 Biennial Assessment of Ohio River Water Quality Conditions (305b)	"...Having highlighted what would be considered impaired, the commission's assessment is not asessing the aquatic life use because of differences in states' approaches to handling data with conflicting results...." pages 2 & 3	http://orsanco.org/biennial-assessment-of-ohio-river-water-quality-conditions-305b	Ohio River Valley Water Sanitation Commission (ORSANCO)

[5]Classified for High Ecological Value in Antidegradation Policy

Antidegradation policy is intended to preserve the existing quality of streams classified as having exceptional ecological value, as indicated by types and variety of species. Policy defines how water quality can be lowered but still maintain existing uses. It regulates wastewater dischargers and may be applied to construction and storm water sources. Antidegradation policy is part of administrative code for Water Quality Standards and is reviewed every 3 years; stream classifications can be revised.

State Data Source	Basis for OKI Selection	Website	State Agency
Ohio Administrative Code, Chapter 3745-1, Water Quality Standards	Ohio Superior High Quality Water/SHQW (exceptional ecological values based on presence of threatened or endangered species and high level of biological integrity): 35% of remaining pollutant assimilative capacity is reserved from use for wastewater treatment Ohio Outstanding State Water/OSW (qualifies as Superior High Quality Waters and further distinguished as among the best waters of the state from an ecological perspective): 70% of remaining pollutant assimilative capacity is reserved from use for wastewater treatment NOTE: set-asides can be reduced by credit projects that enhance water quality	http://www.epa.ohio.gov/dsw/rules/3745_1.aspx	Ohio EPA, Div. of Surface Water (DSW)
Kentucky Administrative Regulations, Title 401, Chapter 10 Water Quality Standards, Sections 026-031	Kentucky Exceptional Water (includes streams with Designated Use as Outstanding State Resource Water/OSRW): the same protection approach applies to all streams that are not impaired (including High-Quality Waters that have not been assessed) NOTE: the Licking R. segment that is an OSRW is not Exceptional Water (its size precludes the technical process that supports the EW classification)	http://www.lrc.ky.gov/kar/TITLE401.HTM	Ky. Energy and Environment Cabinet, Dept. for Environmental Protection/DEP, Div. of Water
Indiana Administrative Code, Title 327, Article 2, Water Quality Standards	▪ Indiana Outstanding State Resource Waters/OSRW: none are designated in Dearborn Co. (the Whitewater River is a good candidate because of recreational and aquatic habitat value) NOTE: Indiana Antidegradation Policy is under development.	http://www.in.gov/idem/5387.htm	Ind. Dept. of Env. Mgmt. (IDEM), Office of Water Quality, Watershed Assessment & Plng. Branch

September, 2011

Table 4. Endangered, Threatened, and Rare Species in the OKI Region

OKI 2012 Environmental Consultations

Listed Species (see notes at end of table)	Species listed at federal or state level	Number of species in the OKI Region that have …					Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn
		Global Heritage Rank	Federal Status	Ohio Status	Kentucky Status	Indiana Status								
Number of Animal Species	104	32	19	88	61	54	14	33	46	24	37	36	36	10
Number of Plant Species	61	5	1	51	15	27	13	25	18	14	5	5	2	10
Number of Total Species	165	37	20	139	76	81	27	58	64	38	42	41	38	20
Mammals (4)														
American badger	Taxidea taxus	Concern		Concern		Concern								●
Bobcat	Lynx rufus			Endangered		Concern			●					●
Eastern Spotted Skunk	Spilogale putorius				Concern						●	●		
Indiana Bat	Myotis sodalis	Imperiled	Endangered	Endangered	Endangered	Endangered	●	●	●		●		●	
Reptiles (5)														
Eastern Box Turtle	Terrapene carolina			Concern		Concern			●	●				
Kirtland's Snake	Clonophis kirtlandii	Imperiled		Threatened	Threatened	Endangered	●	●	●	●		●	●	
Northern Rough Greensnake	Opheodrys aestivus			Concern		Concern		●	●					
Spotted Turtle	Clemmys guttata			Threatened		Endangered				●				
Timber Rattlesnake	Crotalus horridus			Endangered		Endangered								●
Birds (23)														
American Bittern	Botaurus lentiginosus			Endangered	Historic	Endangered			●					
Bachman's Sparrow	Aimophila aestivalis	Vulnerable		Extirpated	Endangered						●		●	
Bald eagle	Haliaeetus leucocephalus		Delisted	Threatened	Threatened	Concern	●		●		●			
Bank Swallow	Riparia riparia				Concern						●	●		
Barn Owl	Tyto alba			Threatened	Concern	Endangered					●		●	●
Bewick's Wren	Thryomanes bewickii			Endangered	Concern								●	
Black-crowned Night-heron	Nycticorax nycticorax			Threatened	Threatened	Endangered	●		●					●
Henslow's Sparrow	Ammodramus henslowii			Concern	Concern	Endangered					●			
Interior Least Tern	Sterna antillarum athalassos		Endangered		Threatened	Endangered								●
Lark Sparrow	Chondestes grammacus			Endangered	Threatened				●			●		
Least Bittern	Ixobrychus exilis			Threatened	Threatened	Endangered	●			●				
Loggerhead Shrike	Lanius ludovicianus			Endangered		Endangered			●	●				●
Northern Harrier	Circus cyaneus			Endangered	Threatened	Endangered		●						
Osprey	Pandion haliaetus			Threatened	Concern	Endangered	●			●				
Peregrine Falcon	Falco peregrinus			Threatened	Endangered	Endangered	●	●	●		●	●	●	
Savannah Sparrow	Passerculus sandwichensis				Concern						●			
Sedge Wren	Cistothorus platensis			Concern	Concern	Endangered			●					

Listed Species (see notes at end of table)	Species listed at federal or state level	Number of species in the OKI Region that have …					Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn
		Global Heritage Rank	Federal Status	Ohio Status	Kentucky Status	Indiana Status								
Birds (continued)														
Sharp-shinned Hawk	Accipiter striatus			Concern	Concern	Concern			●					
Sora Rail	Porzana carolina			Concern			●		●					
Upland Sandpiper	Bartramia longicauda			Threatened	Historic	Endangered	●			●	●			
Vesper Sparrow	Pooecetes gramineus				Endangered						●	●	●	
Virginia Rail	Rallus limicola			Concern		Endangered				●				
Yellow-crowned Night-heron	Nyctanassa violacea			Threatened	Threatened	Endangered			●					
Amphibians (4)														
Cave Salamander	Eurycea lucifuga			Endangered			●		●					
Eastern Hellbender	Cryptobranchus alleganiensis alleganiensis	Vulnerable		Endangered	Endangered	Endangered					●	●	●	
Redback Salamander	Plethodon cinereus				Concern						●		●	
Northern Leopard Frog	Rana pipiens				Concern	Concern					●		●	
Fish (20)														
Alligator Gar	Atractosteus spatula	Vulnerable		Extirpated	Endangered						●	●	●	
Bigeye Shiner	Notropis boops			Threatened				●	●	●				
Black Buffalo	Ictiobus niger				Concern						●	●		
Blue Catfish	Ictalurus furcatus			Concern				●						
Blue Sucker	Cycleptus elongates	Critically imperiled		Endangered					●					
Burbot	Lota lota			Concern	Concern				●		●			
Channel Darter	Percina copelandi			Threatened		Endangered		●	●					
Diamond Darter	Crystallaria cincotta	Vulnerable	Candidate		Extirpated						●			
Eastern Sand Darter	Ammocrypta pellucida			Concern					●					
Goldeye	Hiodon alosoides			Endangered				●		●				
Lake Sturgeon	Acipenser fulvescens	Vulnerable		Endangered	Endangered	Endangered			●			●	●	
Mountain Madtom	Noturus eleutherus			Endangered				●	●					
Northern Madtom	Noturus stigmosus	Critically imperiled		Endangered	Concern	Concern		●	●					
Paddlefish	Polyodon spathula			Threatened				●	●	●				
River Darter	Percina shumardi			Threatened					●					
River Redhorse	Moxostoma carinatum			Concern				●	●	●				
Shortnose Gar	Lepisosteus platostomus			Endangered				●						
Spottail Shiner	Notropis hudsonius				Concern							●		

Listed Species (see notes at end of table)	Species listed at federal or state level	Number of species in the OKI Region that have …												
		Global Heritage Rank	Federal Status	Ohio Status	Kentucky Status	Indiana Status	Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn
Fish (continued)														
Tonguetied Minnow	Exoglossum laurae			Threatened			●							
Variegate Darter	Etheostoma variatum					Endangered								●
Crustaceans (1)														
Sloan's Crayfish	Orconectes sloanii	Imperiled		Threatened			●		●	●				
Aquatic Snails (3)														
Furrowed Lioplax	Lioplax sulculosa				Concern						●	●	●	
Onyx Rocksnail	Leptoxis praerosa				Concern						●	●	●	
Varicose Rocksnail	Lithasia verrucosa				Concern						●			
Freshwater Mussels (39)														
Black Sandshell	Ligumia recta			Threatened				●						
Butterfly	Ellipsaria lineolata			Endangered				●	●					
Catspaw	Epioblasma obliquata obliquata	Critically imperiled	Endangered	Endangered	Endangered	Extirpated					●	●	●	
Clubshell	Pleurobema clava	Imperiled	Endangered	Endangered	Endangered	Endangered					●	●	●	
Cracking Pearlymussel	Hemistena lata	Critically imperiled	Endangered	Extirpated	Extirpated	Extirpated						●	●	
Creek Heelsplitter	Lasmigona compressa			Concern	Endangered							●	●	
Deertoe	Truncilla truncata			Concern				●	●	●				
Ebonyshell	Fusconaia ebenus			Endangered				●	●					
Elephant-ear	Elliptio crassidens			Endangered				●	●					
Elktoe	Alasmidonta marginata			Concern	Threatened			●	●	●		●	●	
Fanshell	Cyprogenia stegaria	Critically Imperiled	Endangered	Endangered	Endangered	Endangered					●	●	●	
Fawnsfoot	Truncilla donaciformis			Threatened				●	●	●				
Flat Floater	Anodonta suborbiculata			Concern				●	●	●				
Hickorynut	Obovaria olivaria			Extirpated					●					
Little Spectaclecase	Villosa lienosa			Endangered	Concern	Concern		●						●
Monkeyface	Quadrula metanevra			Endangered				●	●					
Northern Riffleshell	Epioblasma torulosa rangiana	Imperiled	Endangered	Endangered	Endangered	Endangered					●	●	●	
Ohio Pigtoe	Pleurobema cordatum	Critically imperiled		Endangered		Concern		●	●					
Orangefoot Pimpleback	Plethobasus cooperianus	Critically imperiled	Endangered		Endangered	Endangered					●	●	●	
Pink Mucket	Lampsilis abrupta	Imperiled	Endangered	Endangered	Endangered	Endangered					●	●	●	
Pocketbook	Lampsilis ovata			Endangered	Endangered						●	●	●	

Listed Species (see notes at end of table)	Species listed at federal or state level	Number of species in the OKI Region that have …												
		Global Heritage Rank	Federal Status	Ohio Status	Kentucky Status	Indiana Status	Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn
Freshwater Mussels (continued)														
Purple Lilliput	Toxolasma lividus	Imperiled		Endangered	Endangered	Concern				●				
Purple Wartyback	Cyclonaias tuberculata			Concern				●	●					
Pyramid Pigtoe	Pleurobema rubrum	Imperiled		Endangered	Endangered	Endangered					●	●	●	
Rabbitsfoot	Quadrula cylindrica cylindrica	Vulnerable	Candidate	Endangered	Threatened	Endangered						●	●	
Rayed Bean	Villosa fabalis	Imperiled	Proposed Endangered	Endangered	Extirpated	Concern		●		●	●	●	●	
Ring Pink	Obovaria retusa	Critically imperiled	Endangered	Extirpated	Endangered	Extirpated					●	●	●	
Rough Pigtoe	Pleurobema plenum	Critically imperiled	Endangered	Extirpated	Endangered	Endangered					●	●	●	
Round Pig-toe	Pleurobema sintoxia			Concern						●				
Salamander Mussel	Simpsonaias ambigua	Vulnerable		Concern	Threatened	Concern		●				●	●	
Scaleshell	Leptodea leptodon	Critically imperiled	Endangered	Extirpated	Extirpated	Extirpated					●	●	●	
Sheepnose	Plethobasus cyphyus	Vulnerable	Proposed Endangered	Endangered	Endangered	Endangered		●	●		●	●	●	
Snuffbox	Epioblasma triquetra	Vulnerable	Proposed Endangered	Endangered	Endangered	Endangered		●	●	●		●	●	
Spectaclecase	Cumberlandia monodonta	Vulnerable	Proposed Endangered	Extirpated	Endangered	Extirpated					●	●	●	
Threehorn Wartyback	Obliquaria reflexa			Threatened				●	●	●				
Wartyback	Quadrula nodulata			Endangered				●	●					
Washboard	Megalonaias nervosa			Endangered					●	●				
Wavy-rayed Lampmussel	Lampsilis fasciola			Concern		Concern		●						
Winged Mapleleaf	Quadrula fragosa	Critically imperiled	Endangered	Extirpated	Extirpated							●	●	
Insects (5)														
Blue Corporal (dragonfly)	Ladona deplanata			Endangered			●			●				
Cobblestone Tiger Beetle	Cicindela marginipennis	Imperiled		Threatened		Endangered			●					●
Northern Metalmark	Calephelis borealis	Vulnerable			Threatened						●	●		
Plains Clubtail (dragonfly)	Gomphurus externus			Endangered		Rare	●		●					
Six-banded Longhorn Beetle	Dryobius sexnotatus			Concern	Threatened	Threatened					●	●	●	
Vascular Plants (61)														
Blue False Indigo	Baptista australis			Endangered	Concern	Rare		●						
Buckbean	Menyanthes trifoliata			Threatened						●				

Listed Species (see notes at end of table)	Species listed at federal or state level	Number of species in the OKI Region that have …													
		Global Heritage Rank	Federal Status	Ohio Status	Kentucky Status	Indiana Status	Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn
Vascular Plants (continued)															
Buffalo Clover	Trifolium reflexum	Vulnerable		Endangered	Endangered	Endangered						●		
Burhead	Echinodorus berteroi			Threatened	Threatened	Extirpated	●		●	●				
Butternut / White Walnut	Juglans cinerea	Vulnerable			Threatened	Watch list								●
Buttonweed	Diodia virginiana					Watch list								●
Canada Lily	Lilium canadense					Rare								●
Canada Milk-vetch	Astragalus canadensis			Concern						●				
Carolina Willow	Salix caroliniana			Concern		Watch list	●	●	●	●				
Common Prickley Pear	Opuntia humifusa			Concern						●				
Deam's Three-seeded Mercury	Acalypha virginica var. deamii			Concern		Rare		●	●	●				
Dwarf Bulrush	Lipocarpha micrantha			Threatened					●					
Elliptic-leaved Arrowhead / Delta Arrowhead	Sagittaria platyphylla			Endangered	Endangered			●						
Fern-leaved Scorpion-weed	Phacelia bipinnatifida			Concern				●	●					
Five-angled Dodder	Cuscuta pentagona			Threatened			●		●					
Floating Pondweed	Potamogeton natans			Concern				●						
Gray Beardtongue	Penstemon canescens			Threatened		Endangered								●
Hairy/Shaggy False Gromwell	Onosmodium hispidissimum				Endangered	Endangered					●			
Inland rush	Juncus interior			Endangered						●				
Lake Cress	Armoracia aquatica					Endangered								●
Louisanna Broomrape	Orobanche ludoviciana			Extirpated	Historic							●		
Low Spearwort / Pursh Buttercup	Ranunculus pusillus			Endangered		Endangered		●						
Matted Broomspurge	Euphorbia serpens			Endangered		Endangered								●
Maypop / Purple Passion-flower	Passiflora incarnata			Threatened		Rare			●					
Midland Sedge	Carex mesochorea			Endangered			●							
Missouri Gooseberry	Ribes missouriense			Threatened			●	●	●					
Missouri Violet	Viola missouriensis			Endangered				●						
Netted Chain Fern	Woodwardia areolata			Concern		Rare		●						
Nodding Rattlesnake-root	Prenanthes crepidinea				Concern	Watch list					●			
Pale Umbrella-sedge / Short-point Flatsedge	Cyperus acuminatus			Threatened		Watch list	●							
Potato-dandelion	Krigia dandelion			Threatened				●						
Prairie Brome	Bromus kalmii			Concern			●							
Prairie Wake-robin	Trillium recurvatum			Threatened				●	●					

Listed Species (see notes at end of table)	Species listed at federal or state level	Number of species in the OKI Region that have …													
		Global Heritage Rank	Federal Status	Ohio Status	Kentucky Status	Indiana Status	Butler	Clermont	Hamilton	Warren	Boone	Campbell	Kenton	Dearborn
Vascular Plants (continued)															
Prairie Wedge Grass	Sphenopholis obtusata var. obtusata			Threatened						●				
Primrose Willow	Ludwigia decurrens					Watch list								●
Red Chokeberry	Aronia arbutifolia			Endangered				●						
Riverbank Paspalum	Paspalum repens			Threatened				●	●					
Running Buffalo Clover	Trifolium stoloniferum	Vulnerable	Endangered	Endangered	Threatened	Endangered		●	●		●	●	●	●
Screw-stem / Twining Bartonia	Bartonia paniculata			Endangered		Watch list		●						
Side-oats Grama	Bouteloua curtipendula				Concern						●			
Small Fringed Gentian	Gentianopsis procera			Concern						●				
Smooth Buttonweed	Spermacoce glabra			Concern				●	●					
Snowy Campion	Silene nivea			Endangered			●	●						
Softleaf Arrow-wood	Viburnum molle			Threatened	Concern	Rare	●							●
Southern Black-haw	Viburnum rufidulum			Concern				●	●					
Southern Dewberry	Rubus trivialis			Endangered				●						
Southern Hairy Rock Cress	Arabis hirsuta var. adpressipilis			Concern			●							
Southern Wapato	Sagittaria montevidensis			Concern			●	●	●	●				
Southern Woodrush	Luzula bulbosa			Threatened				●						
Sparse-lobed Grape Fern	Botrychium biternatum			Endangered		Watch list		●						
Spring Coral-root	Corallorhiza wisteriana			Concern				●	●	●				
Stemless Evening-primrose	Oenothera triloba				Threatened	Extirpated						●	●	
Tansy Mustard	Descurainia pinnata			Concern					●					
Three-birds Orchid	Triphora trianthophora			Concern					●	●				
Timid Sedge	Carex timida	Imperiled		Threatened		Endangered	●							
Virginia Mallow	Sida hermaphrodita	Vulnerable		Concern	Threatened	Endangered		●	●			●		
Virginia Saxifrage	Saxifraga virginiensis					Watch list								●
Waterplantain Spearwort	Ranunculus ambigens			Extirpated	Concern						●			
White Wand-lily / White Camas	Zigadenus elegans			Concern		Rare				●				
Wild Kidney Bean	Phaseolus polystachios			Concern						●				
Western Hairy Rock Cress	Arabis hirsuta var. pycnocarpa			Endangered	Historic		●							

Global Heritage Rank (rankings from 1 to 5)

▪ Critically imperiled globally (#1 rank) ▪ Imperiled globall (#2 rank) ▪ Vulnerable/Rare and uncommon globally (#3 rank)

▪ Additional global rankings and also state rankings of abundance are included in each state's Natural Heritage Database

Federal Status (U.S. Fish and Wildlife Service)
- Endangered - Species in danger of extinction throughout all or a significant portion of its range
- Threatened - Species likely to become endangered within the foreseeable future throughout all or a significant portion of its range
- Concern = Species of Concern are listed only for Kentucky (Species of Management Concern) - Species with no legal protection but important to monitor in need of concentrated conservation action
- Candidate Species - Species under consideration for official listing as threatened or endangered (U.S. EPA)
- Proposed Endangered - Species proposed for official listing as endangered (U.S. EPA).

State Status
- Endangered - In danger of disappearing from the state
- Threatened - Continued or increased threat will result in species becoming endangered
- Concern - Species of Concern (Ohio wildlife status), Potentially Threatened (Ohio plant status), Special Concern (Kentucky status), Species of Special Concern (Indiana status)
- Extirpated - Known or presumed to have disappeared from the state (Kentucky)
- Historic - "reported... but not seen for at least 20 years" (Kentucky)
- Rare (Indiana)
- Watch List (Indiana)

Sources for County Data
- *Ohio Biodiversity Database Rare Species List by County* . Ohio Dept. of Natural Resources. July 2011. Includes state and federal status. http://www.ohiodnr.com/Home/Rare_Plants/RarePlantSpeciesbyCount/tabid/20404/Default.aspx
- *County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky* . Kentucky State Nature Preserves Commission. May 2011. Includes state and federal status; includes global and state rankings. http://naturepreserves.ky.gov/pubs/publications/KSNPC_countylist.pdf
- *Indiana County Endangered, Threatened and Rare Species List.* Indiana Dept. of Natural Resources, Div. of Nature Preserves, Indiana Natural Heritage Data Center. June 10, 2010. Includes state and federal status; includes global and state rankings. http://www.in.gov/dnr/naturepreserve/files/np_dearborn.pdf

Sources for State Status of Species Listed for the OKI Region (in addition to information in county data)
- *Ohio's Endangered Species* . Ohio Dept. of Natural Resources, Div. of Wildlife. October 2010. http://www.dnr.state.oh.us/Portals/9/pdf/pub356.pdf
- Rare Native Ohio Plants 2010-2011 Status List. Ohio Dept. of Natural Resources, Div. of Natural Areas and Preserves. http://www.ohiodnr.com/Home/Rare_Plants/20102011RareNativeOhioPlants/tabid/22557/Default.aspx
- *Rare and Extirpated Species/Biota and Natural Communities of Kentucky* . Kentucky State Nature Preserves Commission. May 2011. http://naturepreserves.ky.gov/pubs/publications/ksnpc_ets201105.pdf
- *Indiana's Species of Greatest Conservation Need* . Indiana Dept. of Natural Resources, Div. of Fish and Wildlife, Wildlife Diversity Section. July 2009. (insect status provided by staff) http://www.in.gov/dnr/fishwild/files/fw-Indiana_Species_of_Greatest_Conservation_Need.pdf
- *Endangered, Threatened, Rare and Extirpated Plants of Indiana* . Indiana Dept. of Natural Resources, Div. of Nature Preserves. May 2010. http://www.in.gov/dnr/naturepreserve/files/np-etrplants051910.pdf

Appendix G: OKI 2012 Environmental Consultations: Discussion of OKI 2040 Regional Transportation Plan's Potential Environmental Effects

"PART 1 OF 3: CONCERNS ABOUT ENVIRONMENTAL IMPACTS AND SUGGESTIONS FOR THEIR AVOIDANCE (represents only the discussion recorded in consultation sessions)

Stream crossings are of concern for any stream, but especially for streams that overlie aquifers, are relatively unimpaired, or are classified as Regionally Significant. Where roadways cross stream corridors, concerns are that streams and stream corridors be retained and that streams be protected from the impacts of roadway runoff. Suggestions are to:

- Increase the use of detention basins and roadside ditches
- Reduce use of road salt (benefits to water resources, trees and vegetation, and wildlife; complicated by public expectations)
- Use road salt alternatives (slag is not a good alternative)
- Reduce the use of culverts
- Use clearspan bridges (span the floodplain and drain runoff to the land)

Roadway runoff management is of concern for the effect of pollutants, temperature, volume, and velocity (roadway runoff is a major source of stream impairments). Suggestions are for 1) greater use of green infrastructure and 2) diversion of roadway runoff from combined sewers. Suggestions are to:

- Divert roadway runoff in combined sewer areas to separate sewers or streams (after filtration/ pretreatment)
- Increase the use of green infrastructure for managing runoff
- Use existing swales or detention basins if available
- Increase use of detention basins and roadside ditches
- Increase use of exfiltration treatment (in the curb-and-gutter system) where right-of-way is limited and streams need protection
- Increase use of pervious pavement treatments
- Acquire/expand right-of-way sufficient to allow for green infrastructure/best management practices

Project-level floodway impacts are of concern for their cumulative effect on increased downstream flooding. Participants cited increased flood damage in communities along part of the Ohio River as a result of additional fill from roadways and other development projects.

- Keep project fill out of the floodways
- Keep projects out of the floodway
- Use bridges that span the floodway

Impacts to **Agricultural Districts** are of concern for their potential to reduce farming and require mitigation in areas where property-owners have enrolled their land in state programs that provide protection for 5-year intervals.

Impacts of development that follows roadway improvements can be greater concern than project impacts, especially in areas with little development.

- Use compact or conservation development in developing areas

Hydric soils and headwater streams are of concern as limited resources that help sustain rare native plant and animal species.

- Overlay resource data with transportation project locations early on to optimize opportunity to avoid adverse impacts

PART 2 OF 3: SUGGESTIONS FOR USING PROJECTS FOR ENVIRONMENTAL AND COMMUNITY BENEFITS (represents only the discussion recorded in consultation sessions)

Divert roadway runoff from the combined sewer system (reduces cost for treatment or overflow reduction). Diversion to streams (after pre-treatment) increases stream base flow and improves aquatic habitat, which is especially appropriate for upstream areas.

Add trees to roadway right-of-way (or median or cloverleafs)

Include sufficient right-of-way for installing green infrastructure to manage roadway runoff

Capitalize on maintenance practices: **Reduce mowing and expand natural or native vegetation** (mow for safety and allow the rest to revert to more natural habitat)

Consider the potential to **add trails**

Optimize mitigation benefits: Concentrate compensatory mitigation in the watershed where impacts occured (priority over use of consolidated mitigation site), and develop mitigation agreement concurrent with or after project development (not before, in case additional impacts arise)

PART 3 OF 3: COMMENTS ON INDIVIDUAL PROJECTS

BUTLER COUNTY

20499	TIP	new roadway facility	SR 63 Extension	US 127 Eastward to existing SR 63 at SR4	New 2-lane facility

Locals don't want this project constructed.

80516	TIP	new roadway facility	Oxford Connector	From US 27 to SR 73	Construct a new two-lane connector road (toll credits)

The Great Miami River Area and area overlying the aquifer (above brewery) to be crossed by this project need to be protected from road salt and other contaminants.

BUTLER AND WARREN COUNTIES

402	Recommended	adding lanes	Butler-Warren Rd	Fields-Ertel to US 42	Widen to 3 Lanes

Right-of-way should be expanded if possible for addition of green infrastructure to manage stormwater (and potential to add side-walks/complete streets).

403	Recommended	adding lanes	Butler-Warren Rd	US 42 to Tylersville Rd.	Widen to 3 lanes

Right-of-way should be expanded if possible for addition of green infrastructure to manage stormwater (and potential to add side-walks/complete streets).

CLERMONT COUNTY

Project should be aligned and designed to minimize impacts on Shayler Run (alignment appears to include

82581	TIP	new roadway facility	Amelia-Olive Br. Relocation	Clough Pike to Olive Branch-Stonelick Rd. at SR 32	New 3-lane connector and ramp improvements

two stream crossings). Additional concern is that project will contribute to loss of greenspace in Union and Batavia Townships.

Project should be designed to protect Slabcamp Run, including design of crossing to protect the stream and

82586	TIP	new roadway facility	SR 32-Frontage Road	Bauer Rd. to Half Acre Rd.	New three-lane frontage road with additional turn lanes at major intersections.

avoiding placement of streams in culverts.

CLERMONT AND HAMILTON COUNTIES

330	Recommended	new roadway facility	" NEW Eastern Crd. Relocated SR32 "	US 50 to Eight Mile Rd	TRAC TIER 3; PID: 86462; Relocated and construction for controlled access, new 4-lane, multimodal arterial facility with river crossing west of IR 275.

The new bridge should be designed to avoid adverse impacts to the Little Miami River and corridor. The migitation agreement that has been negotiated should be adhered to, but roadside areas should be planted as forest instead of sod (involves revision of agreement).

HAMILTON COUNTY

76257	TIP	adding lanes	IR 75	From 0.1 mile N of Harrison Ave. to 0.1 miles S of Paddock Rd.	Major rehabiliation of pavement. Phase 4 of IR 75 corridor projects. PE for phases 1-7
77889	TIP	adding lanes	IR 75	From south of SR 562 to north of SR 4	Widen for additional through lanes, reconstruct interchanges as needed (phase 8)
82286	TIP	adding lanes	IR 75	0.4 miles N of Mitchell Ave to 0.2 miles N of SR 562	Reconstruct IR 75 from north of Mitchell interchange through SR 562 interchange. (Phase 7)
303	Recommended	major reconstruction/ interchange improvements	Mill Creek Expressway Phase 4	IR-75 - 2.30	TRAC TIER 1; PID: 76257; Study the corridor for access improvements including interchanges at Hopple St.,IR74 and Mitchell Ave. ...Work includes bridge work, and other work determined by the study phase.

307	Recommended	adding lanes	Mill Creek Expressway Phase 8	IR-75 - 7.85	TRAC TIER 3; PID: 77889; Project will widen for additional through lanes, rehabilitate existing pavement and bridges. Reconstruct SR 562 interchange, remove the Towne Ave. interchange, complete minor improvements to the Paddock Road interchange, and tie into the existing SR 126 interchange southern ramps. Project extends from SR 562 to SR 126/ Galbraith Rd. area.

Area affected by I-75 widening between I-74 and Carthage should be re-forested.

For projects in area served by the combined sewer system:

Roadway runoff should be directed or re-directed to storm sewers or to streams (after pre-treatment)

WARREN COUNTY

76374*	TIP	traffic operations	SR 122	.12 miles west of SR123 west junction to .12 miles east of SR 741	Add left turn lanes on all appraoches at both SR122/SR123. Improve 5-leg intersection.

Existing swales should be retained. Shaker Creek headwaters should be protected.

85320	TIP	new roadway facility	SR 123/SR 63 Connector	SR 123 to SR 63 west of Lebanon	New connector road

The impacts of this project's future extension to the interstate would be of greater concern than the current project. Consider option to build a loop trail to connect with Armco Park/Shaker Creek.

401	Recommended	adding lanes	NEW Bethany Rd	West Mason Corp. Limit to Mason-Morrow-Millgrove Rd.	Widen to 5 lanes and connect Bethany and Mason-Morrow-Millgrove

Existing basins along Bethany Road should be used to manage runoff. The project should be considered for potential addition of a trail.

405	Recommended	adding lanes	Mason Montgomery Rd	Fields Ertel to Socialville Fosters Road	Widen one lane in each direction

Right-of-way should be expanded if possible for addition of green infrastructure to manage stormwater (and potential to add side-walks/complete streets).

CAMPBELL COUNTY

607	Recommended	new roadway facility	NEW KY 536	US 27 to AA Highway (KY 9)	6-352.00 Extension of existing roadway. 3.50 miles in length.

The crossing should be designed to protect Brush Creek (classified by OKI as a Regionally Significant Stream; tributary to Twelvemile Creek which is also classified by OKI as a Regionally Signficant Stream). Project impacts on Agricultural Districts are a concern.

CAMPBELL AND KENTON COUNTIES

606	Recommended	new roadway facility	"NEW KY 1998 ALSO KENTON CO."	KY 177 to KY 9	New bridge and approach Road to provide access from AA Highway near KY 1998 to KY 177

The new Licking River crossing is of concern for impacts to the river from the bridge and new facility and from the effects of additional development (the Licking River is classified by OKI as a Regionally Significant Stream).

KENTON COUNTY

716	Recommended	major reconstruction	KY 8	4th Street Bridge over Licking River	Replace the 4th Street Bridge with the same number of vehicular lanes with additional accomodations for pedestrians and cyclists

Concern is for the crossing's effects on the Licking River (effects of runoff from the bridge and of bridge construction; the Licking River is classified by OKI as a Regionally Significant Stream).

DEARBORN COUNTY

801	Recommended	adding lanes	SR 1	US 50 to Now-lin Av. and SR 1 intersection	Realign and widen by adding a lane each direction

Runoff should be managed to avoid impacts to the Oxbow or increased flooding in the Bellview Road area. Fill should be kept out of the floodway. If feasible, the project should be kept out of the floodway.

803	Recommended	new roadway facility	NEW Bright to I-74 Connector	North Dearborn Rd. to I-74	New 2-lane roadway

Concern is for the effects of a new roadway over the Whitewater River (for impacts from the bridge and new facility and the effects of additional development; the Whitewater River is classified by OKI as a Regionally Significant Stream).

803	Recommended	new roadway facility	NEW Bright to I-74 Connector	North Dearborn Rd. to I-74	New 2-lane roadway

Runoff should be captured and managed to avoid impacts on North Hogan Creek.

AIR QUALITY CONFORMITY DETERMINATION OF THE OKI 2040 REGIONAL TRANSPORTATION PLAN AND THE OKI FY 2012-2015 TRANSPORTATION IMPROVEMENT PROGRAM IN THE CINCINNATI-MIDDLETOWN-WILMINGTON OH-KY-IN, COMBINED STATISTICAL AREA FOR NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)– TECHNICAL DOCUMENTATION

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I. INTRODUCTION

The Ohio-Kentucky-Indiana Regional Council of Governments (OKI) is the metropolitan planning organization (MPO) for the Greater Cincinnati/Northern Kentucky area responsible for transportation planning and air quality conformity. Transportation conformity is a mechanism to ensure that federal funding and approval are given to those transportation activities that are consistent with the air quality goals of the State Implementation Plans for Indiana, Kentucky and Ohio. In June 2012, OKI is scheduled to adopt its *OKI 2040 Regional Transportation Plan* and amendment to the *OKI FY2012-2015 Transportation Improvement Program.*

This report documents that the *OKI 2040 Regional Transportation Plan* and its short range componenent, the *OKI FY2012-2015 Transportation Improvement Program* are in conformance with the State Implementation Plans (SIPs) of Indiana, Kentucky and Ohio, complies with the Clean Air Act, and the analysis is in accordance with federal Transportation Conformity Regulations, 40 CFR Parts 51 and 93. The analysis is also in accordance with other applicable federal and state requirements such as the *Ohio State Transportation Conformity Rules, Ohio Administration Code Part 3745-101-01 through 20* and the Commonwealth of Kentucky's *Conformity of Transportation Plans, Programs and Projects: 401 KAR 50:066*. Methodologies and results of the conformity determination are presented herein.

This report documents the process used by OKI to make an air quality conformity assessment for its Plan and Program. Section II describes the applicable conformity criteria. Section III provides a description of OKI's conformity analysis process and discusses how that process was applied to assess the proposed projects. The development of emission estimates is also described in Section III. Section IV lists the projects included in the highway and transit networks. The finding of conformity for the Indiana and Ohio portion of the nonattainment area is made in Section V. The finding of conformity for the Kentucky portion of the nonattainment area is made in Section VI. The interagency consultation and public participation process is discussed in Section VII.

II. CONFORMITY CRITERIA

Pursuant to provisions of the CAAA of 1990, U.S. EPA designated a nine county area in the Cincinnati area as a basic nonattainment area for ozone under the eight-hour ozone standard in April 2004. In December 2004, U.S. EPA designated an eight county Cincinnati area as nonattainment under the annual fine particulate matter (PM2.5) standard. With attainment of the eight-hour ozone standard, the area was reclassified as an ozone maintenance area in 2010. The Cincinnati ozone maintenance area includes Lawrenceburg Township in Dearborn County Indiana, the Kentucky counties of Boone, Campbell and Kenton, and the Ohio counties of Butler, Clermont, Clinton, Hamilton and Warren. In 2011, U.S. EPA approved requests to redesignate the region to attainment of the annual PM2.5 standard. The PM2.5 maintenance area is identical except for the exclusion of Clinton County. The OKI Regional Council of Governments, as the Metropolitan Planning Organization (MPO), consists of Dearborn, Boone, Campbell, Kenton, Butler, Clermont, Hamilton and Warren counties. The *OKI 2040 Regional Transportation Plan* and the *OKI FY2012-2015 Transportation Improvement Program* address the MPO area only. The cities of Franklin and Carlisle in Warren County are part of the Miami Valley Regional Planning Commission (MVRPC) planning area. Projects within this portion of Warren County have been included in the conformity analysis. Clinton County is outside of the OKI region, but is part of the ozone maintenance area. The Ohio Department of Transportation (ODOT) is the lead planning agency for Clinton County. The Clinton County emissions analysis has been prepared by ODOT and has been included in this conformity determination.

Ozone is formed through chemical reactions induced when sunlight reacts with volatile organic compounds (VOCs; principally hydrocarbons) and nitrogen oxides (NO_X). VOCs and NO_X occur from incomplete combustion of fossil fuels. Transportation-related sources are a major contributor of these pollutants. Since heat speeds the reactions, ozone levels are typically highest during hot summer days. PM2.5 refers to a complex mixture of fine particulates, primarily from fossil fuel combustion. PM2.5 is emitted directly and will also form indirectly through reactions with precursor emissions, especially NO_X.

EPA's Transportation Conformity Rule (40 CFR Part 93) requires transportation plans and programs to demonstrate consistency with the applicable SIP motor vehicle emissions budgets or interim conformity tests by performing a regional emissions analysis. A regional emissions analysis uses quantitative and qualitative analysis to estimate the total transportation-related emissions of VOC, NO_X and PM2.5 for certain future years, and may include the effects of any emission control programs which are already adopted or committed to in the SIP. Table 1 summarizes the conformity analysis years and tests required.

Table 1. OKI 2040 Regional Transportation Plan Update Conformity Analysis Summary

Ozone	
Attainment status:	8-hour ozone maintenance area
Geography:	Butler, Clermont, Clinton, Hamilton, & Warren Counties in Ohio; Boone, Campbell, & Kenton Counties in Kentucky; Lawrenceburg Twp, Dearborn County Indiana
A/Q Status:	MOBILE-based 8-Hour ozone budgets approved. On 1/18/12, OKI provided MOVES-based ozone inventory to states. Need EPA approval of revision.
SIP Commitments:	RVP 7.8 in Ohio Counties (except Clinton) RFG in Kentucky Counties
Conformity Tests:	8-hour ozone budget tests of OKI Plan/TIP analysis years plus Clinton 24-hour summer emissions
Analysis Years:	2015 Budget year, 2020 Budget year, 2030 Interim year, 2040 Plan horizon year
Other:	ODOT provided Clinton Co. emissions to OKI. OKI prepared both MOBILE and MOVES-based VOC and NOx emissions

Ohio/Indiana Ozone	**2015**	**2020**	**2030**	**2040**
Ohio/Indiana VOC Budget (MOBILE)	31.73	28.82	28.82	28.82
Ohio/Indiana VOC Budget (MOVES proposed)	56.06	42.83	42.83	42.83
Ohio/Indiana NOx Budget (MOBILE)	49.00	34.39	34.39	34.39
Ohio/Indiana NOx Budget (MOVES proposed)	94.24	73.13	73.13	73.13
Northern Kentucky Ozone				
N. Kentucky VOC Budget (MOBILE)	9.76	10.07	10.07	10.07
N. Kentucky VOC Budget (MOVES proposed)	11.15	8.76	8.76	8.76
N. Kentucky NOx Budget (MOBILE)	14.40	13.27	13.27	13.27
N. Kentucky NOx Budget (MOVES proposed)	37.87	28.13	28.13	28.13

PM2.5	
Attainment status:	$PM_{2.5}$ maintenance area, annual standard
Geography:	Butler, Clermont, Hamilton, & Warren Counties in Ohio; Boone, Campbell, & Kenton Counties in Kentucky; Lawrenceburg Twp, Dearborn County Indiana
A/Q Status:	$PM_{2.5}$ MOVES-based budgets approved
SIP Commitments:	None
Conformity Tests:	Annual $PM_{2.5}$ budget tests of OKI Plan/TIP analysis year networks
Analysis Years:	2015 Budget year, 2021 Budget year, 2030 Interim year, 2040 Plan horizon year
Other:	Use of MOVES required. $PM_{2.5}$ includes brake and

Ohio and Indiana PM2.5	2015	2021	2030	2040
Ohio/Indiana Annual PM2.5 Budget	1678.60	1241.19	1241.19	1241.19
Ohio/Indiana Annual NOx Budget	35723.83	21747.71	21747.71	21747.71
N. Kentucky PM2.5	2015	2021	2030	2040
N. Kentucky Annual PM2.5 Budget	389.67	302.92	302.92	302.92
N. Kentucky Annual NOx Budget	8045.65	7384.32	7384.32	7384.32

Criteria and procedures required for demonstrating conformity of transportation plans and programs are specified in EPA's Transportation Conformity Regulations. The applicable conformity criteria and procedures are summarized below:

1. A determination should be made that the endorsed transportation plan and program will be consistent with the emissions budget in the submitted control strategy SIP or redesignation request.

2. An assurance should be given that no goals, directives, recommendations or projects identified in the transportation plan and program contradicts in a negative manner with any specific requirements or commitments of the applicable implementation plan.

3. Transportation plans and programs should provide for the expeditious implementation of transportation control measures in the applicable implementation plan.

4. Transportation plan and program conformity determinations will be based on the most recent emissions estimates, which in turn are to be based on the most recent population, employment, travel, and congestion estimates as determined by the MPO or other authorized agency.

5. A determination should be made that the transportation plans and programs do not increase the frequency and severity of existing violations of the national ambient air quality standards (NAAQS).

III. OKI'S CONFORMITY PROCESS

Transportation networks

The conformity analysis involves the use of the six TRANPLAN-based transportation networks developed for OKI's 2005 conformity finding for the *Air Quality Conformity Determination for Amendment #2 to the OKI 2040 Regional Transportation Plan*. Each transportation network consists of separate highway and transit components. The Ohio Department of Transportation provided emissions data for Clinton County. Details on the conformity analysis for Clinton County are provided in Appendix F.

The five networks specifically developed for use in this conformity process represented the ozone and PM2.5 SIP budget year (2015), an ozone budget year (2020), a PM2.5 budget year (2021), an interim year (2030) and the Regional Transportation Plan horizon year (2040). All regionally significant projects regardless of the funding source were evaluated for their impacts on air quality in the maintenance area.

- The 2015 transportation network includes the existing network plus *FY 2012-2015 Transportation Improvement Program* that are expected to be open to traffic before July 1, 2015.
- The 2020 transportation network includes the 2015 network plus projects in the *FY2012-2015 Transportation Improvement Program* and the *OKI 2040 Regional Transportation Plan* that are expected to be open to traffic before the year 2020.
- The 2021 transportation network is identical to the 2020 network.
- The 2030 transportation network includes the 2021 network plus projects in the *FY2012-2015 Transportation Improvement Program* and *OKI 2040 Regional Transportation Plan* that are expected to be open to traffic before the year 2030.
- The 2040 transportation network includes the 2030 network plus projects in the *OKI 2040 Regional Transportation Plan* that are expected to be open to traffic before the year 2040.

OKI Travel Demand Model

Vehicle miles traveled and vehicle hours were estimated using the OKI Travel Demand Model Version 7.6. The OKI Travel Demand Model is composed of CUBE Voyager programs and a series of FORTRAN programs written by OKI. It is a state of the practice model that uses the standard 4 phase sequential modeling approach of trip generation, distribution, modal choice and assignment. The model uses demographic and land use data and capacity and free-flow speed characteristics for each roadway segment in the network to produce a "loaded" highway network with forecasted traffic volumes with revised speeds based on specified speed/capacity relationships.

Travel analysis zones are the basic geographic unit for estimating travel in the OKI model. The OKI region is subdivided into 1608 traffic analysis zones to permit detail as well as manageability. A variety of socioeconomic data items are used in the OKI transportation planning process. These data are used primarily to forecast future travel patterns by serving as independent variables in OKI trip generation equations. The following categories of planning data are utilized:

- Population (household and group quarter)
- Households
- Household vehicles
- Employment (by employment category and zone of work)
- Labor force participation (by zone of residence)
- Area type

The principal data requirements of the OKI travel demand forecasting model are population and employment. From these variables, other characteristics including households, labor force, and personal vehicles may be derived. Chapter 3 of *OKI 2040 Regional Transportation Plan Update* provides a complete demographic overview of the region.

OKI utilizes both base year (2005) and future year data (2015, 2020, 2030, and 2040) in the planning process. Planning data are maintained at the Traffic Analysis Zone (TAZ) level, and originate in the 2000 Census of Population and Housing. Base year 2005 and future year data for each variable are developed through various methods. More detailed explanation of base year and future year data generation for each of the above-mentioned categories of planning data follows. All of the variables represent the latest OKI planning assumptions.

Population

Base and Future Year Data: Population data for base year 2005 and future years 2015, 2020, 2030, and 2040 originate with the 2000 Census of Population and Housing. Utilizing ArcView GIS, population data at the zonal level for 2000 was derived from the area proportion allocation of block level population.

As a tri-state regional planning agency, OKI uses the most current county level projections as prepared by the respective state data centers (Ohio Department of Development Office of Strategic Research, Kentucky State Data Center and Indiana Business Research Center) as control totals. Projections (years 2005 to 2040) were released by the Ohio state data center in 2011, the Indiana state data center in 2007 and the Kentucky State Data Center in 2009. Population projections at the zonal level are calculated by multiplying household size by the projected zonal households. Household size is factored so that, in each county, the sum of the zonal populations equals the control total.

Households

Base Year Data: Household data for base year 2005 originates with the 2000 Census of Population and Housing. Utilizing the geographic information system ArcMap, household data at the zonal level for 2000 was derived from the area

proportion allocation of block level households. Year 2000 household data was updated to 2005 with residential building permits issued between January 2000 and December 2004. The residential building locations were geo-coded in ArcMap, then aggregated to the TAZs. The housing unit totals for each TAZ were converted to households by applying a vacancy rate, an adjustment for permitted but unbuilt units, and subtracting demolitions (where data was available). These households were then added to the year Census 2000 zonal household total to arrive at 2005 households for each TAZ.

Future Year Data: The preparation of household projections was accomplished by calculating the number of households for a projected county population using ratios of householders to total population by age specific cohorts derived from the 2000 Census for each analysis year. Disaggregation to TAZs was determined by historical trends, existing and future land use, topography, flood plain information, availability of land, local knowledge and other factors.

Household Vehicles

Base and Future Year Data: Base and future year household vehicle data were obtained from the 2000 Census of Population and Housing. The 2000 Census was the only source of household vehicle data available at the block group level at the time the data was developed. Average vehicles per household were calculated for block groups then applied to the TAZs associated with each block group. The 2005, 2010, 2020, 2030 and 2040 vehicles per household level was held at the 2000 level based on the fact that, since 2002, the number of vehicles per household has exceeded the number of drivers per household.

Labor Force

Base and Future Year Data: The OKI labor force is a function of the population as determined by a labor force participation ratio (the number of employed persons in the labor force per persons 16 and over). Household data for base year 2005 originates with the 2000 Census of Population and Housing. Utilizing the geographic information system ArcMap, household data at the zonal level for 2000 was derived from the area proportion allocation of block group level employed labor force. The labor force projections for 2005, 2015, 2020, 2030, and 2040 were based on the most recent projections of national labor force participation rates by age and sex cohorts from the U.S. Department of Labor, Bureau of Labor Statistics for each of those years. These rates were then applied to the projected county age/sex cohorts and adjusted to eliminate the unemployed to arrive at a county employed labor force control total. Employed labor force at the zonal level is calculated by multiplying the labor force participation rate by the zonal population. The labor force participation rate is adjusted so that, in each county, the sum of the zonal labor force counts equals the control total.

Employment

Base Year Data: Quarterly Census of Employment and Wages (QCEW or ES202) data for 2005 was utilized as the primary tool to calculate employment at the zonal level. Individual business records containing physical location, number of employees and North American Industry Classification System (NAICS) code were geocoded through ArcMap and aggregated to the TAZ level. This data set was supplemented by other sources of data to complete the commuting employment picture in the OKI region. Each zone's employment was divided according to the NAICS code into three classes (retail, office, industrial) based upon the potential for generating trips.

Future Year Data: For future year employment projection, calculation was first made of the employment at the regional level. At the regional level, employment is a calculation of the region's employed labor force minus workers who live in the region but commute out to work, plus workers who live outside the region but commute in to work. The regional total was disaggregated first to the county level based on historic trends and expected changes in the county's share of the region's employment and then to the TAZ level. Disaggregation to TAZs was determined by historical trends, existing and future land use, topography, flood plain information, availability of land, local knowledge and other factors.

Area Type

Base and Future Year Data: For each analysis year, each TAZ is assigned an area type designation as CBD, Urban, Suburban or Rural based on population and employment densities.

Model Calibration

OKI's Travel Demand Model has been validated to observed traffic volumes for the model base year 2005. The modeling network encompasses the entire ozone Maintenance area with the exception of Clinton County, Ohio. The modeling network also includes Greene, Miami and Montgomery counties in Ohio and the remainder of Dearborn County Indiana. The difference between estimated vehicle miles traveled (VMT) and 2005 observed VMT is less than 1%. A highway screenline analysis compares the screenline observed and simulated traffic volume discrepancies with the ODOT standard of maximum desirable deviation. The comparison shows that the model performs at a satisfactory level and all the errors were under the ODOT curve. Further information can be found in OKI's 2007 report, "*OKI/MVRPC Travel Demand Model Methodology/Validation Report*". For the calibration, OKI used over 3000 traffic counts collected through 2006 by the Ohio Department of Transportation (ODOT), the Kentucky Transportation Cabinet, many county and local governments, transportation engineering consultants, and OKI. These traffic counts cover nearly 50% percent of the links in the OKI portion of the modeling network. The methodology provides consistency with past emission inventory and conformity analysis work performed by OKI.

Local Inputs and Post-Model Processing

OKI incorporates a variety of sources of local data to both improve and confirm the accuracy of VMT, as well as other travel-related parameters. Free flow speeds used on the highway and transit networks are based on travel time studies performed locally. The OKI post-processing program, IMPACT, uses the loaded highway network to generate VMT by hour, VMT by speed distribution and VMT by facility type. These tables are then included as input into MOVES. Two separate sets of VMT tables are generated: one for the four Ohio counties plus Dearborn County Indiana, and a second for the three Kentucky counties. The VMT by hour tables utilize hourly traffic distribution and directional split factors for different roadway types as developed by OKI. The main source of the data was the permanent traffic counting stations located throughout the OKI region for the years of 2004-2006. This data was supplemented with data collected at coverage count stations (locations with counts taken on only one-two days). The stations were classified by area type: urban and rural, and functional classification: freeway, arterial and collector. Speeds representing various "loaded" conditions (with traffic volumes) are estimated using techniques from the 1997 Highway Capacity Manual. This permits the estimation of speeds as conditions vary from hour to hour on the different facility types throughout the region. The IMPACT program performs the appropriate summation by area and roadway type as well as regional totals. OKI has also developed seasonal conversion factors to adjust traffic volumes to summer conditions. The factors were derived from local data collected at permanent traffic counting stations during 1994-1997 utilizing the average daily traffic monthly conversion factors for June, July and August.

Emission Factor Models

OKI's conformity assessment utilized U.S.EPA's emissions models MOBILE6.2 and MOVES2010a to develop emission factors for VOC's, NO_X and PM2.5. The MOBILE6.2 input file contains local parameters, developed through consultation with ODOT and OEPA, for temperature, fuel programs and fuel characteristics. The local parameters are combined with the VMT and speed tables from the OKI Travel Demand Model to produce emission factors measured in grams per mile for the appropriate analysis year. These emission factors are then multiplied by VMT. The methodologies incorporated into MOBILE6.2 for estimating emissions are based on methods and research conducted by U.S.EPA. OKI's development of MOBILE6.2 input values were guided by the U.S.EPA's document "*Technical Guidance on the Use of MOBILE6 for Emission Inventory Preparation", January 2002*.

Table 2 summarizes the settings used in the MOVES run specification file. Table 3 lists the data and sources used in the MOVES County-Data Manager.

Table 2

MOVES RunSpec Parameter	Settings
MOVES 2010a, default database 20100829	
Scale	County, Emission Rates
Time Span	Time aggregation = Hour July weekday, July meteorological data All hours of day selected Weekdays only
Geographic Bounds	Two Custom Domains 1) 4 Ohio counties and Lawrenceburg IN, 2) 3 Kentucky counties
Vehicles/Equipment	All source types, gasoline and diesel
Road Type	All road types including off-network
Pollutants and Processes	VOC, hydrocarbons, NOx and all PM2.5 pollutants. No emissions from refueling.
Strategies	Modified AVFT strategy file to reflect 0% CNG buses in the transit fleet
General Output	Units= grams, joules and miles
Output Emissions	Time = hour, Location =county, on-road emission rates by road type and source use type.
Advanced Performance	none

Table 3

MOVES County Data Manager	Data Source
Source Type Population	Local and default. Local data from KYTC (2011) and ODOT (2010) from motor vehicle registration data. Default data used for source types 41, 61 and 62 in Ohio.
Vehicle Type VMT	Local and default. HPMSVTypeYear VMT=daily VMT from OKI travel demand model with EPA's daily to annual VMT converter applied. monthVMTFraction = default. dayVMTFraction=default, hourVMTFraction=local.
I/M Programs	Default modified to reflect discontinued I/M program in 2006
Fuel Formulation	Modified to reflect low RVP fuel program in Southwest Ohio
Fuel Supply	Default
Meteorology Data	Local. MOBILE6 converted values for Ohio and Kentucky values from Kentucky Division for Air Quality.
Ramp Fraction	Local. OKI travel demand model.
Road Type Distribution	Local. OKI travel demand model.
Age Distribution	Local and default. Local data from KYTC (2011) and ODOT (2010) from motor vehicle registration data. Default data used for source types 41, 61 and 62.
Average Speed Distribution	Local. OKI travel demand model.

Complete MOBILE6.2 and MOVES input and output files are available electronically upon request.

IV. PROJECTS INCLUDED IN THE TRANSPORTATION NETWORK

The transportation plan includes a number of projects, which, due to their scope and regional significance, trigger the need for a new finding of conformity. Sections 93.126 and 93.127 of the Transportation Conformity Rule cite a number of project types, such as safety and maintenance projects that may be excluded from the regional emissions analysis required to determine conformity. Because of their nature, the "exempt" projects will not affect the outcome of the regional emissions analysis nor will they add substance to the analysis. The Transportation Plan highway projects listed in Table 4 are considered "non-exempt" in regards to air quality and thus are required to be included in a conformity finding. OKI's highway and transit networks include the existing transportation system plus all regionally significant projects regardless of funding source. Regionally significant project means a "non-exempt" transportation project that is on a facility that serves regional transportation needs.

Table 4: 2040 Plan Non-Exempt Projects

PID	Plan ID	Facility	Location	Description
Additional Non-Exempt Projects Identified for the 2015 Highway Network				
Ohio				
Butler				
89308	222	CR 113 (Liberty Fairfield Rd)	SR 4 to Great Miami River	Add 2 lanes
81769	0	US 27	From Stillwell-Beckett Rd to Chestnut Street in the City of Oxford	Add center turn lane from Southpoint to Chestnut
Hamilton				
88706	679	Kennedy Connector	0.53 mile parallel route to Ridge Avenue (Modification #1, 6-7-11, amendment #5, 1-12-12)	Construct parallel route by extending Kennedy Avenue to the south
83077	637	IR 71	Pfeiffer Road to I-275	Add 1 lane NB, Pfeiffer to I-275; Add 1 lane SB, Pfeiffer to SR 126
87399	810	IR 71	Fields Ertel Interchange	Lengthening of NB and SB exit ramps from IR 71
87401	810	IR 71	Fields-Ertel/Mason-Montgomery	Interchange improvement including new ramp from I-71 NB to Fields-Ertel
82284	0	IR 74	From 0.56 miles E of Montana Ave to Elmore St overpass. (PE carried in PID 76257)	Improve Colerain/Beekman interchange with associated work on IR 74. (Phase 3 of IR 75 projects)
Warren				
	407	I-71 Fields Ertel Interchange	Interchange at Fields Ertel/Mason-montgomery	Interchange improvements
85320	812	SR 123/SR 63 Connector	SR 123 to SR 63 west of Lebanon	New 2 lane connector
Kentucky				
Boone				
6-8001.21	0	KY 237	From Woodcreek Drive to Rogers Lane (middle section)	Reconstruct and widen to 4 lanes
6-8001.25	0	KY 237	MP 5.37 to 6.262--Rogers Lane to KY 18 (north section)	Reconstruct and widen to 4 lanes
Campbell				
6-8105.01	0	New Route	From I-275 to the AA Highway--new connector road (Amendment #31, 11-10-10)	Construct a new 2-lane connector (NKU Loop Rd.)
6-8105.02	0	New Route	From I-275 to the AA Highway--new connector road (Admin Mod. #31, 11-9-10)	New 4-lane connector from KY 9 to KY 2345
6-8105.03	0	New Route	Near Northern Kentucky University (Amend Mod #31, 11-9-10)	New connector KY 2345 to KY 2238
6-8101.01	318	KY 9	MP 21.643 to KY 8 near 4th Street Bridge (Amendment #6, 3-8-12)	Construct a new route with 4 through lanes
6-156.00	0	KY 547	AA Highway to KY 10	Reconstruction, add climbing lane
Kenton				
6-344.11	0	KY 16	I-275 to south intersection of Old Taylor Mill Rd.	Reconstruct and widen to 5 lanes
6-344.30	0	KY 16	Sunbright Drive to Old Taylor Mill Connector (Amendment #6, 3-8-12)	Widen to 5 lanes
6-344.40	0	KY 16	Old Taylor Mill Connector to Blackstone	Widen to 5 lanes
6-344.50	0	KY 16	Blackstone Court to IR 275 (see 6-344.11 for ROW and UTIL) Admin. Mod #3, 9-6-11	Reconstruct and widen to 5 lanes

Table 4: 2040 Plan Non-Exempt Projects

PID	Plan ID	Facility	Location	Description
Additional Non-Exempt Projects Identified for the 2020 Highway Network				
Ohio				
Butler				
	103	South Hamilton Crossing	Grand Blvd in city of Hamilton connecting SR 4 (Erie Blvd) on the east side of the four existing CSX	Replace with RR grade separation
80516	257	Oxford Connector	From US 27 to SR 73	Construct a new two-lane connector road
86137	206	SR 4 Bypass Phase 5b	Princeton Road to the SR 4/SR 4 Bypass northern intersection	Widening to four lanes, intersection improvement at SR 4/SR 4 Bypass northern intersection
Clermont				
	201	Aicholtz Rd Widening	Eastgate Blvd to Glen Este-Withamsville	Widen to 5 lanes
	202	Eastern Corridor Segment IV Phase 1	IR 275/SR 32 Interchange	Reconstruct with signalized ramp terminations at SR 32 and improved Aicholtz Rd connection
	208	NEW Aicholtz Rd Connector	Mt. Carmel-Tobasco to Eastgate Blvd	New 2-lane connection with center turn lane
82552	402	Aicholtz Road Extension	Glen Este-Withamsville Rd. to Bach-Buxton Rd.	New 5-lane roadway
82553	433	Aicholtz Road Connector (CR 3)	Mt. Carmel-Tobasco to Eastgate Blvd.	Reconnect Aicholtz Rd./Rust Ln. under I-275 to Mt. Carmel-Tobasco Rd.
82554	403	Aicholtz Road Widening	Eastgate Blvd. to Glen Este-Withamsville	Widen to 4 lanes with center turn lane
82557	404	Old SR 74 - Phase 1	Eastgate Road to Bach-Buxton North	Add center turn lane
82561	441	Heitman Lane Extension	Olive Branch-Stonelick to east terminus of Heitman Lane	Widen to three lanes
82581	401	Amelia-Olive Branch Relocation	Clough Pike to Olive Branch-Stonelick Rd. at SR 32	New 3-lane connector and ramp improvements
82582	442	CR 171 (Old SR 74)	Olive Branch-Stonelick Rd. to Armstrong Blvd.	Widening to three lanes with 4 foot page shoulders and curb and gutter
76289	0	IR 275	Approximately 1.5 miles north of SR 32 to 1.0 miles south of SR 32, including portions of SR 32	Phase 1: Reconstruct interchange with signalized ramp terminations at SR32
22970-2	438	SR 32-Bach-Buxton Interchange	Elick Ln. to Old SR 74	Extend five lane Bach-Buxton extension with SR 32 interchange
22970-2	440	SR 32-Glen Este-Withamsville Overpass	Glen Este-Withamsville Rd.	New Glen Este-Withamsville overpass
82586	446	SR 32-Frontage Road	Bauer Rd. to Half Acre Rd.	New three-lane frontage road.
82587	445	SR 32-Herold Road	1000' west of existing Herold Rd. intersection on SR 32	New interchange
82589	414	SR 32-DeLaPalma/McKeever	McKeever and DeLa Palma Intersections at SR 32	Grade separated interchanges
Hamilton				
	320	Anderson Center Station Park and Ride Phase 2	Five Mile Rd & Towne Center Way	Expansion of hub with addition of 100 parking spaces
	324	SORTA: New BRT Service: Reading Road Corridor	Reading Rd Corridor	Reading Rd. BRT between Reading And Cincinnati CBD
	325	SORTA: New BRT Service: Downtown-Hamilton Ave Corr	Downtown-Hamilton Ave Corridor	Hamilton Av. BRT between Northgate Mall And Cincinnati CBD
	326	SORTA: New BRT Service: Montgomery	Montgomery Rd Corridor	Montgomery Av. BRT between Blue Ash And Cincinnati CBD
	332	Lick Run Project Improvements (Queen City/Westwood	Queen City Ave and Westwood Ave from Western Hills Viaduct to White Street	Widen Westwood to 7 total lanes (4 lanes WB, 3 EB). Demote Queen City to 1 lane each direction.
88135	645	GE Parkway	Shepherd Lane to Glendale Milford Road	Add local roadway connection on eastside of IR 75

Table 4: 2040 Plan Non-Exempt Projects

PID	Plan ID	Facility	Location	Description
Additional Non-Exempt Projects Identified for the 2020 Highway Network				
89053	643	IR 71	Temporary maintenance of traffic for routing IR 71 traffic onto IR 471 (Amendment #29, 9-9-10)	Construction of 2 lane connections between IR 71 and IR 471
76257	636	IR 75	From 0.1 mile N of Harrison Ave. to 0.1 miles S of Paddock Rd.	Upgrade interchanges
77889	645	IR 75	From south of SR 562 to north of SR 4 (Amendment #28, 8-12-10)	Widen for additional through lanes, reconstruct interchanges as needed
88124	645	IR 75	From bridge at 10.10 (over Mill Creek) to SR 126 (phase 3)	Add 4th lane in each direction and associated improvements
88133	645	IR 75	Between Galbraith and Shepherd Roads	Add 4th lane and auxiliary lane for NB IR 75
88134	645	IR 75	WB SR 126 to NB IR 75 and SB IR 75 to SB SR 126	Construct new ramps
89069	645	IR 75	IR 75 corridor (Amendment #29, 9-9-10)	Widen IR 75 from north of bridge over Findlay Street to northern terminus of Brent Spence Bridge
88790	620	SR 264 (Bridgetown Rd)	Intersection of SR 264/Taylor/Bridgetown	Widen to 4 lanes
Kentucky				
Boone				
	505	US 25/KY 338 Grade Separation	KY 338 (Richwood Rd) to Winning Colors Dr	Widen to 5 lanes and grade separated interchange at KY338 and US25
	518	Mall Road/I-71/75 Interchange	Mall Road Interchange	New ramp from Mall Rd. to IR75 SB
	521	KY 338 (Richwood Road)	US 25 (Dixie Hwy) to Triple Crown Boulevard (does NOT include TIP projects 6-18.00: KY 338/I-75 Inte	Widen to 5 lanes
6-14.00	121	IR 75/KY 536 Interchange	IR 71/75 at KY 536 (Mt. Zion Road) See 14.01 for study (Amendment #31, 11-10-10, #32, 1-13-11)	Improve interchange and widen KY 536 to five lanes east to US 25
6-14.50	153	IR 75	From KY 536 to US 42 (MP 178.04 to 180.11). Amendment #32, 1-13-11	Add 1 lane each direction
6-18.00	120	IR 75/KY 338 Interchange	KY 338 (Richwood Road) Interchange (Amendment #31, 11-10-10, #32, 1-13-11)	Add 3 lanes and improve I-75 interchange, add auxillary lane each direction btwn KY536 and KY338
6-8000.21	108	IR 275	I-275/KY 212 Interchange and KY 20 reconstruction	Airport access interchange improvements with new ramp I-275 WB to KY 212 SB and upgrade KY 20
6-158.00	117	KY 536	From US 42 to I-75 (TIP Amendment 8-9-07)	Widen to 5 lanes
6-351.10	0	US 25	Richwood Road to Winning Colors Drive, grade separation of KY 338 at US 25 & RR Overpass	Widen to 5 lanes
6-351.20	0	US 25	Winning Colors Drive to Beesom Drive	Widen to 5 lanes
6-351.30	0	US 25	Beesom Drive to Aristocrat Drive with grade separation of KY 536 at US 25	Widen to 5 lanes
6-351.40	0	US 25	Aristocrat Drive to RR spur crossing	Widen to 5 lanes
Campbell				
	601	I-471	I-275 to Ohio State line	Widen to 4 lanes each direction?
	610	TANK Suburban Crosstown Transit Service	Florence to Ft. Wright to NKU	New TANK route from Florence hub to NKU hub with Ft. Wright stop
	611	US 27	from the Pendleton County to KY 154	Widen to 4 lanes, divided
6-8104.00	303	IR 471	KY 8 interchange	Construct a new southbound off-ramp from I-471 to KY 8
6-352.00	335	KY 536	US 27 to AA Highway (KY 9)	Extension of existing roadway
Kenton				
	715	KY 536	Boone County line to KY 17	Widen to 5 lanes

Table 4: 2040 Plan Non-Exempt Projects

PID	Plan ID	Facility	Location	Description
Additional Non-Exempt Projects Identified for the 2020 Highway Network				
	723	TANK: New BRT Service: Dixie Highway Corridor	Dixie Highway Corridor	BRT service along TANK Rte 1
6-162.00	718	KY 536	Boone County Line to KY 17 (Amendment #6, 3-8-12)	Widen to 5 lanes

Table 4: 2040 Plan Non-Exempt Projects

PID	Plan ID	Facility	Location	Description
Additional Non-Exempt Projects Identified for the 2030 Highway Network				
Ohio				
Butler				
	101	Cincinnati-Dayton Rd	West Chester Rd. to I-75	Widen to 3 lanes
	102	Cox Rd	Barrett to Tylersville	Widen to 3 lanes
	104	SR 128	Rossgate to Cin Brookville	Widen to 3 lanes
	105	SR 747	Princeton Rd. to SR 4 (N. Jct)	Widen to 5 lanes
	106	US 127 (Pleasant Ave)	Symmes Rd to St Clair Ave	Add center turn lane
	107	SORTA Liberty Twp. Park & Ride	Vicinity of SR 129 and Cincinnati-Dayton Road	Extend Route 42x to ODOT/BCTID Liberty Twp. Park & Ride
	108	Bethany Rd	Cincinnati Dayton to Butler Warren	Widen to 3 lanes
20499	0	SR 63 Extension	US 127 Eastward to existing SR 63 at SR4	New 2-lane facility
Clermont				
	203	Eastern Corridor Segment IV Phase 2	IR 275 SR 32 EB and southside of Eastgate Blvd Intersection (Bob notes: New off ramp)	Construct SB I-275 to EB SR 32 flyover ramp and NB I-275 to EB SR 32 flyunder ramp
	207	Old SR 74 - Phase 1	From Glen Este-Withamsville to the Old SR 74 intersection with SR 32 near Shayler Road	Add center turn lane
Hamilton				
	301	Brent Spence Bridge	IR 71/IR 75 bridge over the Ohio River	Ohio portion of BSB
	304	Mill Creek Expressway Phase 5	IR-75 - 3.85	4 continuous lanes each direction
	306	Mill Creek Expressway Phase 7	IR-75 - 6.87	4 continuous lanes each direction
	307	Mill Creek Expressway Phase 8	IR-75 - 7.85	4 continuous lanes each direction
	308	US 42 (Reading Rd)	Clinton Springs to Paddock	Add center turn lane
	309	US 42 (Reading Rd)	Victory Pkwy To Langdon Farm Rd	Add center turn lane
	310	Reading Rd Grade Separation, Sharonville	Reading Rd at-grade Norfolk Southern railroad crossing	Replace with RR grade separation
	313	Thru the Valley Phase 2	IR 75 - GE Parkway	Add local roadway connection on east side of IR 75?
	317	Cincinnati Streetcar Phase 1	Phase 1: Riverfront Loop	Additional funding to complete to 2nd street
87036	604	West ML King Drive (CR 612)	Central Parkway to Clifton Avenue.	Widen to 5 lanes w/ twltl from Central Pkwy to Clifton, 8 lanes from Clifton to Reading.
89077	643	IR 71	Part of the Brent Spence Bridge project (Amendment #29, 9-9-10)	Replace Brent Spence Bridge
82286	645	IR 75	0.4 miles N of Mitchell Ave to 0.2 miles N of SR 562 (PE in PID 76257) Letter of Concurrence 1-5-11	Reconstruct IR 75 from north of Mitchell interchange through SR 562 interchange. (Phase 7)
82288	645	IR 75	0.3 miles S of Shepherd Lane to 0.2 miles N of Glendale-Milford Rd (Amend #15, 4-9-09, #33, 2-10-11)	Reconstruct IR 75 between Shepherd Lane and Glendale-Milford Road (Phase 8 of IR 75 projects)
83723	645	IR 75	Monmouth overpass to just south of Clifton (phase 5)	Add a lane to IR 75 and reconfigure the IR74/75 interchange
Warren				
	402	NEW Bethany Road	West Mason Corp. Limit to Mason-Morrow-Millgrove Rd.	Widen to 5 lanes and connect Bethany and Mason-Morrow-Millgrove
	403	Butler-Warren Road	Fields-Ertel to US 42	Add center turn lane
	404	Butler-Warren Road	US 42 to Tylersville Rd.	Add center turn lane
	405	Kings Island Dr Extension	Kings Mill Rd. to Mason-Morrow-Millgrove Rd.	Widen Columbia Rd to 5 lanes
	406	Mason Montgomery Road	Fields Ertel to Socialville Fosters Road	Widen to 6 lanes

Table 4: 2040 Plan Non-Exempt Projects

PID	Plan ID	Facility	Location	Description
Additional Non-Exempt Projects Identified for the 2030 Highway Network				
Kentucky				
Boone				
	501	CR 1001 (Camp Ernst Road)	KY 237 to KY 536	Reconstruct and widen to 4 lanes
	504	I-71/75 South interchange	I-71/75 SB to I-71 SB	Add 1 lane
	507	KY 236 (Donaldson Road)	from Cherry Tree Lane to Mineola Pike (KY 3076)	Widen to 5 lanes
	510	KY 3076 (Mineola Pike)	I-275 to KY 236 (Donaldson Rd.)	Widen to 5 lanes
	511	KY 338 (Richwood Road)	Triple Crown Boulevard to Hicks Pike	Widen to 3 lanes
	512	KY 536 (Mt Zion Road)	from US 25 to Kenton County line	Widen to 5 lanes
	516	US 42	New Haven School Rd to KY 3060	Widen to 5 lanes
	517	NEW KY 3060 Frogtown Rd Connector Extension-North	KY 3060 Frogtown Rd. to KY 536 (Mt. Zion Rd)	2-lane extension from KY 3060 to KY 536
	519	NEW Connector	from KY 237 (Pleasant Valley Road) to KY 842 (Hopeful Church Road)	New 2-lane connector
Campbell				
	606	NEW KY 1998	KY 177 to KY 9	New 2-lane connection and bridge from KY 177 to KY 9 near KY 1829. Connection to Locust Pk.
Kenton				
	701	Brent Spence Bridge	I-71/I-75 bridge over the Ohio River	KY portion of BSB
	705	Buttermilk Pike/I-71/75 Interchange	Buttermilk Pike interchange	Auxiliary lane extension
	706	I-75	IR 275 to Dixie	Widen to 4 lanes each direction
	707	KY 1072	IR 75 to Henry Clay Ave.	Widen to 3 lanes
	708	KY 1303 (Turkeyfoot Road)	Turkeyfoot Road from KY 536 to Richardson	Widen to 5 lanes
	709	KY 1303 (Turkeyfoot Road)	Dudley to US 25	Widen to 4 lanes from I-275 to US25
	710	KY 16	Hands Pike (KY 1501) to KY 536	Widen to 5 lanes
	711	KY 16	KY 536 to KY 17 in Nicholson	Widen to 5 lanes
	712	KY 1829/KY 1486	KY 1829 from KY 1303 (Turkeyfoot Rd) to KY 3035 and KY 1486 from KY 3035 to KY 17	Widen to 3 lanes on partial new alignment
	716	KY 536	KY 17 to KY 16	Widen to 5 lanes
	720	TANK Edgewood Park & Ride	Edgewood - TANK route 18X	New 50 space Park & Ride facility
	721	TANK Turkeyfoot Park & Ride	Turkeyfoot Road - TANK route 19X	New 50 space Park & Ride facility
6-17.03	702	IR 75	MP 191.277 to 191.777--Brent Spence Bridge	KY portion of BSB
6-17.04	704	IR 75	Brent Spence Bridge (see 6-17.03) Administrative Mod #20, 9-8-09; Amendment #31, 11-10-10)	Replace bridge with 14-lane capacity
Indiana				
Dearborn				
	806	SR 350	North Hogan to US 50	Widen to 4 lanes

Table 4: 2040 Plan Non-Exempt Projects

PID	Plan ID	Facility	Location	Description
Additional Non-Exempt Projects Identified for the 2040 Highway Network				
Ohio				
Clermont				
	204	Eastern Corridor Segment IV Phase 3	IR 275, SR 32 (Bob notes: SB off)	Construct braided ramp connections between Eastgate Blvd and I-275
	205	Eastern Corridor CLER-SR 32-2.25 Segment IV(a)	SR 32 from Glen Este-Withamsville to Old SR 74 - and new overpass at SR 32 and Glen Este-Withamsvill	Add interchange capacity and new ramp connections
82309	0	IR 275	1.5 mi S to 1.0 mi N of SR 32 on IR 275;.15 mi W to 1.0 mi E of IR 275 on SR 32 (amend #19, 9-10-09)	Phase 2 of IR 275/SR 32 interchange project. IR 275 SR 32 EB & southside of Eastgate Blvd interchang
82588	417	SR 32-Batavia Interchange	SR 32 interchange in Village of Batavia	Convert existing half interchange to full
Hamilton				
	302	Eastern Corridor Red Bank Rd Segment	Red Bank Rd, US 50 to IR 71	Widen to 4 lanes plus center turn lane
	312	Thru the Valley Phase 1	IR 75 - 12.60	Widen to 4 continuous lanes each direction
	314	Thru the Valley Phase 3	IR 75 - 10.10	Widen to 4 continuous lanes each direction
	315	Thru the Valley Phase 7	IR 75 - 10.52	new ramp WB SR126 to NB I75 and SB I75 to WB SR126. Remove Galbraith ramp to WB SR126
	321	Eastern Corridor Oasis Line Segments 1, 2, 3 & 4	Oasis Rail Line (downtown Cincinnati to Milford)	New rail transit between downtown Cincinnati Riverfront Transit Center and City of Milford
	323	New Martin Luther King/I-71 Interchange	Martin Luther King	New MLK interchange with IR 71
	330	NEW Eastern Corridor Relocated SR 32	US 50 to Eight Mile Rd	New 4-lane road
Kentucky				
Boone				
	502	KY 237 (Gunpowder Road)	KY 536 (Mt. Zion Rd) to US 42	Widen to 5 lanes
	513	US 25 (Dixie Highway)	KY 16 to KY 338	Widen to 5 lanes
	515	US 42	I-71/75 to KY 842	Widen to 3 lanes each direction with center turn lane
6-8000.20	108	IR 275	I-275/KY 212 Interchange and KY 20 reconstruction	Airport access interchange improvements with new ramp I-275 WB to KY 212 SB and upgrade KY 20
Campbell				
	602	KY 8	KY 1998 to KY 547 in Silver Grove	Add center turn lane
	605	KY 9 (AA Hwy)	I-275 to US 27	Widen to 6 lanes with access control
Kenton				
	714	KY 371	Avon Dr to I-71/75	Add 2 lanes
	719	NEW KY 177/KY 16 Connection	Between the Licking River, KY 177 and KY 16	New 2-lane connection between KY 177 and KY 16
Indiana				
Dearborn				
	801	SR 1	US 50 to Nowlin Av. and SR 1 intersection	Add 1 lane each direction
	803	NEW Bright to I-74 Connector	North Dearborn Rd. to I-74	New 2-lane roadway

V. CONFORMITY DETERMINATION FOR THE OHIO AND INDIANA PORTION OF THE NONATTAINMENT AREA

OKI has determined that the recommended projects in this amended *OKI 2040 Regional Transportation Plan* are consistent with the air quality goals of the SIP and the conformity requirements under the 8-hour ozone standard and the annual PM2.5 standard. OKI's quantitative conformity findings for ozone-forming emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) in the Ohio and Indiana portion of the ozone maintenance area are found in Table 5. The MOBILE6.2-based emissions and budgets are shown in Table 6. Table 7 shows the quantitative conformity finding for annual PM2.5 and NO_x emissions in the Ohio and Indiana portion of the PM2.5 maintenance area.

Table 5
Quantitative Conformity Findings of Ozone-forming Emissions (tons per day) for the Ohio[1] and Indiana Portion[2] of the Maintenance Area - MOVES

	2015	2020	2030	2040
Ohio/Indiana VOC Budget	56.06	42.83	42.83	42.83
Ohio/Indiana VOC Emissions	37.21	28.80	24.46	24.63
Ohio/Indiana NOx Budget	94.24	73.13	73.13	73.13
Ohio/Indiana NOx Emissions	67.88	53.96	49.90	24.18

Table 6
Quantitative Conformity Findings of Ozone-forming Emissions (tons per day) for the Ohio[1] and Indiana Portion[2] of the Maintenance Area – MOBILE6.2

	2015	2020	2030	2040
Ohio/Indiana VOC Budget	9.76	10.07	10.07	10.07
Ohio/Indiana VOC Emissions	7.91	7.13	6.28	7.78
Ohio/Indiana NOx Budget	14.40	13.27	13.27	13.27
Ohio/Indiana NOx Emissions	11.26	8.07	6.09	6.66

Table 7
Quantitative Conformity Findings of PM2.5 Emissions (tons per year) for the Ohio and Indiana Portion[2] of the Maintenance Area - MOVES

	2015	2021	2030	2040
Ohio Annual Direct PM2.5 Budget	1678.60	1241.19	1241.19	1241.19
Ohio Annual Direct PM2.5 Emissions	499.05	405.31	361.03	401.02
Ohio Annual NOx Budget	35723.83	21747.71	21747.71	21747.71
Ohio Annual NOx Emissions	24062.39	19475.01	18894.82	9205.53

[1]Includes Clinton County
[2]Dearborn County emissions are for the maintenance portion only

- VOC and NO_x emissions in the Ohio and Indiana portion of the ozone maintenance area do not exceed the 2015 VOC or NO_x budget or the 2020 VOC or NO_x budget for the budget years 2015 and 2020, the intermediate year 2030, or the Plan year 2040.
- Annual Direct PM2.5 and annual NO_x emissions in the Ohio and Indiana portion of the PM2.5 maintenance area do not exceed the 2015, or 2021 budget for the budget years 2015 and 2021, the intermediate year 2030, or the Plan year 2040.
- OKI qualitatively finds no factors in the TIP or the amended *OKI 2040 Regional Transportation Plan* that would cause or contribute to a new daily ozone or annual PM2.5 violation or exacerbate an existing violation in the years before 2015 for the Ohio and Indiana portion of the maintenance area.
- OKI qualitatively finds that no goals, directives, recommendations or projects identified in the *OKI 2040 Regional Transportation Plan* contradict in a negative manner any specific requirements or commitments of the applicable state implementation plan.
- The applicable implementation plans do not contain any transportation control measures (TCM's), therefore; nothing in *OKI 2040 Regional Transportation Plan* can interfere with their timely implementation.

VI. CONFORMITY DETERMINATION FOR THE KENTUCKY PORTION OF THE NONATTAINMENT AREA

OKI has determined that the recommended projects in this *OKI 2040 Regional Transportation Plan* are consistent with the air quality goals of the SIP and the conformity requirements under the 8-hour ozone standard and the annual PM2.5 standard. OKI's quantitative conformity findings for ozone-forming emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are found in Table 8. The MOBILE6.2-based emissions and budgets are shown in Table 9. The emissions include the impact of reformulated gasoline (RFG) as a SIP commitment. The PM2.5 quantitative conformity finding is found in Table 10.

Table 8
Quantitative Conformity Findings of Ozone-forming Emissions (tons per day) for the Kentucky Portion of the Nonattainment Area - MOVES

	2015	2020	2030	2040
N. Kentucky VOC Budget	11.15	8.76	8.76	8.76
N. Kentucky VOC Emissions	6.60	4.34	3.61	3.96
N. Kentucky NOx Budget	37.87	28.13	28.13	28.13
N. Kentucky NOx Emissions	18.97	9.02	8.35	6.99

Table 9
Quantitative Conformity Findings of Ozone-forming Emissions (tons per day) for the Kentucky Portion of the Nonattainment Area – MOBILE6.2

	2015	2020	2030	2040
N. Kentucky VOC Budget	9.76	10.07	10.07	10.07
N. Kentucky VOC Emissions	7.91	7.13	6.28	7.78
N. Kentucky NOx Budget	14.40	13.27	13.27	13.27
N. Kentucky NOx Emissions	11.26	8.07	6.09	6.66

Table 10
Quantitative Conformity Findings of PM2.5 Emissions (tons per year) for the Kentucky Portion of the Nonattainment Area - MOVES

	2015	2021	2030	2040
N. Kentucky Direct PM2.5 Annual Budget	389.67	302.92	302.92	302.92
N. Kentucky Direct PM2.5 Annual Emissions	323.61	119.36	89.51	104.45
N. Kentucky NO_x Annual Budget	8045.65	7384.32	7384.32	7384.32
N. Kentucky NO_x Annual Emissions	6547.65	3099.79	3237.70	2633.81

- VOC and NO_x emissions in the Kentucky portion of the ozone maintenance area do not exceed the 2015 VOC or NO_x budget or the 2020 VOC or NO_x budget for the budget years 2015 and 2020, the intermediate year 2030, or the Plan year 2040.
- Annual Direct PM2.5 and annual NO_x emissions in the Kentucky portion of the PM2.5 maintenance area do not exceed the 2015, or 2021 budget for the budget years 2015 and 2021, the intermediate year 2030, or the Plan year 2040.
- OKI qualitatively finds no factors in the TIP or the amended *OKI 2040 Regional Transportation Plan* that would cause or contribute to a new daily ozone or annual PM2.5 violation or exacerbate an existing violation in the years before 2015 for the Kentucky portion of the maintenance area.
- OKI qualitatively finds that no goals, directives, recommendations or projects identified in the *OKI 2040 Regional Transportation Plan* contradict in a negative manner any specific requirements or commitments of the applicable state implementation plan.
- The applicable implementation plan in Kentucky does not contain any transportation control measures (TCM's), therefore; nothing in *OKI 2040 Regional Transportation Plan* can interfere with their timely implementation.

VII. INTERAGENCY CONSULTATION AND PUBLIC INVOLVEMENT

OKI has engaged in consultation procedures with the Indiana Department of Transportation, the Indiana Department of Environmental Management, the Ohio Department of Transportation, the Ohio Environmental Protection Agency, the Kentucky Transportation Cabinet, the Kentucky Division of Air Quality, Miami Valley Regional Planning Commission, the U.S. Environmental Protection Agency, and the U.S. Department of Transportation before making this conformity determination and throughout the conformity process as appropriate. The draft document was made available on the OKI website. The interagency consultation process was undertaken in accordance with OKI's Transportation Conformity Consultation Memorandum of Understanding (MOU), as adopted by the OKI Board of Directors on April 10, 2008. The Conformity MOU sets forth policy, criteria, and procedures for demonstrating and assuring conformity of such activities to applicable implementation plans developed according to Part A, Section 110 and Part D of the Clean Air Act. The Conformity MOU can be found on OKI's website. Interagency consultation was initiated on January 24, 2012 with a conference call. Appropriate conformity analysis years and tests, as well as a schedule, were determined. Beginning June 11, 2012, copies of this conformity document, presented as Appendix H in the draft *OKI 2040 Regional Transportation Plan*, were made available for public inspection on OKI's website and at OKI's office. Notice of the availability of the draft Plan document, and the announcement of the public comment period and the June 11, 2012 public hearing were published in several local newspapers. The public review period and public hearing were held prior to the final review by OKI's Intermodal Coordinating Committee on June 12, 2012 and action by the OKI Board of Directors on June 21, 2012. There were no comments pertaining to this conformity analysis. Other comments on the Plan are documented separately.

MEMORANDUM OF UNDERSTANDING
AMONG
THE OHIO-KENTUCKY-INDIANA REGIONAL COUNCIL OF GOVERNMENTS,
THE OHIO ENVIRONMENTAL PROTECTION AGENCY,
THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT,
THE INDIANA DEPARTMENT OF TRANSPORTATION,
THE MIAMI VALLEY REGIONAL PLANNING COMMISSION,
THE OHIO DEPARTMENT OF TRANSPORTATION,
THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY-REGION 5,
THE FEDERAL HIGHWAY ADMINISTRATION-OHIO DIVISION,
THE FEDERAL HIGHWAY ADMINISTRATION-INDIANA DIVISION,
THE FEDERAL TRANSIT ADMINISTRATION-REGION 5

The purpose of this Memorandum of Understanding (MOU) is to implement section 176(c)(4)(E) of the Clean Air Act (CAA), as amended (42 USC 7401 et seq.), the related requirements of 23 U.S. C. 109(j), and regulations under the Code of Federal Regulations (CFR) section 40, Part 93, Subpart A with respect to the conformity of transportation plans, programs, and projects that are developed, funded or approved by the United States Department of Transportation (U.S. DOT) and by Metropolitan Planning Organizations (MPOs), and the Ohio Department of Transportation (Ohio DOT), the Indiana Department of Transportation (INDOT) or other recipients of funds under title 23 USC or the Federal Transit Laws (49 USC Chapter 53). This MOU sets forth policy, criteria, and procedures for demonstrating and assuring conformity of such activities to applicable implementation plans developed according to Part A, section 110 and Part D of the CAA.

This is a MOU concerning the criteria and procedures for the conformity determination of transportation plans, programs and projects in the Cincinnati-Middletown-Wilmington OH-KY-IN, Combined Statistical Area for National Ambient Air Quality Standards (NAAQS), pursuant to the CAA Amendments of 1990.

The Kentucky portion of the Cincinnati-Middeltown-Wilmington OH-KY-IN area will have a separate state rule or agreement for transportation conformity consultation. Although the Kentucky agencies and Region 4 federal agencies are not parties to this agreement, the agencies are expected to participate in the consultation meetings and to review materials. These parties are: Kentucky Environmental and Public Protection Cabinet (KEPPC); United States Environmental Protection Agency-Region 4 (U.S. EPA-R4); Kentucky Transportation Cabinet (KYTC); Federal Highway Administration-Kentucky Division (FHWA-KY); and Federal Transit Administration-Region 4 (FTA-R4). These parties do not need to be signatories to this MOU since Kentucky will submit a revision to the Kentucky SIP to address transportation conformity consultation procedures which will be the same or substantially similar to these procedures.

The 10 parties to this MOU are as follows, hereafter referred to as “all parties”:

Ohio-Kentucky-Indiana Regional Council of Governments MPO (OKI)
Miami Valley Regional Planning Commission (MVRPC)
Ohio Environmental Protection Agency (Ohio EPA)
Indiana Department of Environmental Management (IDEM)
Ohio Department of Transportation (Ohio DOT)
Indiana Department of Transportation (INDOT)
Federal Highway Administration-Ohio Division (FHWA-OH)
Federal Highway Administration-Indiana Division (FHWA-IN)
Federal Transit Administration-Region 5 (FTA-R5)
United States Environmental Protection Agency-Region 5 (U.S. EPA-R5)

This MOU will be submitted as a revision to the Ohio State Implementation Plan (SIP) required by section 176 of the CAA Amendments of 1990 and will govern conformity determinations in the OKI MPO area. The OKI region consists of Dearborn County, Indiana; Boone, Campbell, and Kenton counties in Kentucky; Butler, Clermont, Hamilton and Warren counties in Ohio. OKI is responsible for the air quality conformity determination for the region's transportation plans, projects and programs in these counties. Clinton County is outside of the OKI region, but is part of the ozone nonattainment area. Ohio DOT is the lead planning agency for Clinton County. MVRPC is the lead planning agency for the cities of Franklin, Carlisle and Springboro in Warren County Ohio.

This MOU will continue to apply to any revised nonattainment area geographies resulting from future designations, or designation revisions for the criteria pollutants within the OKI areas.

Execution of this MOU by each party shall be by signature of each party's representative.

The provisions of this MOU shall be implemented through appropriate procedures, resolutions, or other means, in order to comply with the requirements of all federal and state laws and regulations relating to the conformity determination and development of applicable implementation plan revisions. This MOU along with Attachments A and B defines and delineates the roles, processes, and responsibilities of each signatory to this MOU.

Attachment A

Transportation Air Quality Conformity Protocol

Conformity Procedures

In accordance with the requirements under section 176 (c)(4)(C) of the CAA, Ohio EPA submitted a state implementation plan (SIP) revision to U.S. EPA on August 17, 1995. This submittal was found to be complete on October 5, 1995. In this submittal, Ohio EPA adopted state rules to meet the requirements of 40 CFR Part 51, Subpart T, as published on November 24, 1993. Transportation conformity is required for all nonattainment or maintenance areas for any transportation related criteria pollutants [40 CFR 51.394 (b)].

On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU promotes more efficient and effective Federal surface transportation programs by focusing on transportation issues of national significance, while giving state and local transportation decision makers more flexibility for solving transportation problems in their communities. Section 6011 of SAFETEA-LU specifically addresses transportation conformity. One of the requirements, (f)(4)(E) states,

> "Not later than 2 years after the date of enactment of the SAFETEA-LU the procedures under subparagraph (A) shall include a requirement that each state include in the state implementation plan criteria and procedures for consultation required by subparagraph (D) (i), and enforcement and enforceability (pursuant to sections 93.125 (c) and 93.122 (a) (4) (ii) of Title 40, Code of Federal Regulations (CFR) in accordance with the Administrator's criteria and procedures for consultation, enforcement and enforceability."

States are no longer required to adopt all of the provisions of the federal conformity rule. The three required conformity SIP elements are:

1) consultation procedures [40 CFR 93.105] (Attachment B);
2) procedures for determining regional transportation-related emissions [40 CFR 93.122(a)(4)(ii)] (Attachment A); and
3) enforceability of design concept and scope and project-level mitigation and control measures [40 CFR 93.125 (c)] (Attachment A).

In accordance with 40 CFR 93.105, the SIP or SIP revision shall include procedures for interagency consultation (federal, state and local), resolution of conflicts, and public consultation as described in Attachment B. Public consultation shall be developed in accordance with the requirements for public participation in 23 CFR Part 450. The SIP shall include procedures to be undertaken by OKI, state and federal DOTs, local air quality agencies and U.S. EPA, prior to making transportation conformity determinations, and by state and local air agencies and U.S. EPA with OKI, state and federal DOTs, in developing applicable implementation plans. OKI and Ohio DOT must provide reasonable opportunity for consultation with all parties and local air quality and transportation agencies as described in Attachment B.

In accordance with 40 CFR 93.122(a)(4)(ii), OKI will not include emissions reduction credits from any control measures that are not included in its transportation plan (TP) or transportation improvement program (TIP) and do not require a regulatory action, in the regional emissions analyses used in the conformity demonstration unless OKI, or FHWA/FTA obtains written commitments, as defined in 40

CFR 93.101, from the appropriate entities to implement those control measures. The written commitments to implement those control measures must be fulfilled by the appropriate entities. Prior to making a conformity determination on a TP or TIP, OKI will ensure the project design concept and scope are appropriately identified in the emissions analyses used in the regional conformity demonstration.

In accordance with 40 CFR 93.125(c), prior to making a project-level conformity determination for a transportation project, FHWA/FTA must obtain from the project sponsor and/or operator written commitments, as defined in 40 CFR 93.101, to implement any project-level mitigation or control measures in the construction or operation of the project identified as conditions for National Environmental Policy Act (NEPA) approval. The written commitments to implement those project-level mitigation or control measures must be fulfilled by the appropriate entities. Prior to making a project-level conformity determination, written commitments will be obtained before such mitigation or control measures are used in a project-level hot-spot conformity analysis [40 CFR 93.125(c)]. Consultation on these commitments will take place as a part of a consultation process prior to the project-level conformity analysis and determination. Interagency consultation for a project-level conformity analysis may occur separately from the consultation used during the development of a regional conformity demonstration.

Attachment B

Interagency Consultation Procedures

I. General

Ohio EPA will submit these consultation procedures as a revision to the SIP, whereby all parties to this MOU and other organizations with responsibilities for developing, submitting, or implementing provisions of a SIP must consult with each other on the development of the SIP, the TP, the TIP, and associated conformity determinations in accordance with 40 CFR 93.105(b)(1).

These procedures implement the interagency consultation process for OKI and include procedures to be undertaken by all parties to this MOU before making transportation conformity determinations on the TP and TIP in accordance with 40 CFR 93.105(a)(1) and 40 CFR 93.105(c)(3). This area's geographic coverage includes two MPO's, eight counties in three states: Dearborn County, Indiana; Boone, Campbell, Kenton counties in Kentucky; Butler, Clermont, Hamilton and Warren counties in Ohio. OKI's TP and TIP address only the MPO area. Clinton County is outside of the OKI region, but is part of the nonattainment area. Ohio DOT is the lead planning agency for Clinton County. MVRPC is the lead planning agency for the cities of Franklin, Carlisle and Springboro in Warren County, Ohio. These analyses are combined to make a conformity determination for the OKI region. KYTC and IDEM are lead planning agencies for their respective areas not within the OKI region.

Persons of any organizational level in the signatory agencies may participate in the of the interagency consultation group. All consultation will be open to the public, but not necessitate official public notification. Each agency chooses its representative for interagency consultation, and forwards that person's contact info to OKI whose representative is responsible for maintaining the participant list. Changes in representatives will be given to OKI. OKI will in turn redistribute it to all parties. OKI is responsible for convening meetings and providing an agenda.

Interagency consultation frequency will be as needed, unless there is consensus among the consultation parties to meet on a specific schedule (i.e. quarterly, biannually, annually, etc.). In most cases, consultation will be via conference call and/or email unless the interagency consultation group decides that certain items may require a face-to-face meeting and could not be handled via conference call or email.

Early in the TP and/or TIP development process, the MPO will develop a schedule for key activities and meetings leading up to the adoption of the TP, TIP or amendment to the TP or TIP. In developing the draft TP and/or TIP, the MPO brings important air quality conformity TP and/or TIP related issues to all parties in the interagency consultation group for discussion and feedback. OKI is responsible for making all materials used for these discussions available to the interagency consultation group prior to the consultation sessions. Similar consultation will occur with TP amendments if a new regional analysis is required.

Public participation in the development of the TP and/or TIP will be provided in accordance with OKI's adopted Public Participation Procedures in accordance with 23 CFR 450.

OKI will provide the interagency consultation group an opportunity to review the draft conformity analysis. This review will typically take place during the public review period. This is typically done by e-mail. The interagency consultation group will respond promptly to the OKI staff with any comments. Members of the public can comment on the draft conformity analysis in accordance with OKI's adopted

public participation procedures. All comments received will be included in the final conformity documentation.

OKI and Ohio EPA will be responsible for maintaining a list of any TCMs that are in the applicable SIP for the OKI area [see section IV a].

The following process provides for final documents to be provided to all interagency consultation group members as required by 40 CFR 93.105(c)(7):

After the OKI Board of Director's (MPO Board) adopts the final TP or TIP and associated conformity determination, OKI will provide the final conformity documentation to FHWA and the interagency consultation group for a federal conformity finding. FHWA will initiate formal consultation and will provide 30 days for written comments from the interagency consultation group members. If appropriate, FHWA will issue the formal conformity finding on behalf of U.S. DOT. The TP update or amendment becomes effective the date the U.S. DOT conformity finding is issued. The TIP update or amendment only becomes effective after the U.S. DOT conformity finding is issued, and the FHWA approves the associated TIP update or amendment into Ohio's State Transportation Improvement Program (STIP). OKI will transmit electronic copies of the final conformity analysis to the interagency consultation group members and place a final copy on OKI's Web site.

II. Consultation on Transportation Plans, Transportation Plan Amendments, Transportation Improvement Programs, and Transportation Improvement Program Amendments [40 CFR 93.105]

Consultation on all non-conformity related aspects of transportation plans, transportation improvement programs, and amendments thereto shall be governed by the applicable participation plans developed pursuant to 23 USC 134/49 USC 5303(i)(5), (i)(6), and (j)(4) and 23 USC 135/49 USC 5304 (f)(3) and (g)(3). Consultation on conformity related aspects of these activities are delineated below.

a) Consultation on Transportation Plan and Transportation Plan Amendment Conformity Process

The federal conformity rules at 40 CFR Part 93 defines the criteria and procedures by which conformity will be established in accordance with 40 CF 93.105 (c), interagency consultation will include the following topics, as appropriate:

- travel forecasting and modeling assumptions;
- latest planning assumptions;
- motor vehicle emission factors to be used in conformity analysis;
- appropriate analysis years;
- determination of exempt projects and evaluating whether projects otherwise exempted (as listed in 93.126 and 93.127) should be treated as non-exempt.;
- determination of which minor arterials and other transportation projects should be considered regionally significant projects for the purposes of regional emissions analysis (in addition to those functionally classified as principal arterial or higher or fixed guideway systems or extensions that offer an alternative to regional highway travel;
- which projects should be considered to have a significant change in design concept and scope from the transportation plan or TIP;
- treatment of regionally significant projects (federal and non-federal funded) assumed in the transportation network and the year of operation;

- treatment of regionally significant projects that span MPO boundaries;
- status of TCM implementation;
- financial constraints and other requirements that affect conformity pursuant to federal statewide and metropolitan planning regulations (this item is not a requirement for consultation);
- reliance on a previous regional emissions analysis;
- conformity process public participation procedures; and
- the need for interim TP (in the event of a conformity lapse).

OKI is the lead agency for development of its transportation plans and amendments thereto. OKI is the lead agency for the development of the associated transportation conformity analyses for the Ohio counties of Butler, Clermont, Hamilton, and Warren, the Kentucky counties of Boone, Campbell and Kenton, and Dearborn County, Indiana. MVRPC, Ohio DOT, KYTC and IDEM are lead agencies for the conformity analyses for their respective areas outside the OKI region. OKI and the interagency consultation group will be provided the opportunity to review the Ohio DOT, and INDOT analyses prior to inclusion in the overall conformity document. The interagency consultation parties will participate in the plan development process, review associated documentation, and collaboratively decide on aspects of the conformity determination that must be determined through interagency consultation according to the regulations at 40 CFR Part 93. Opportunity for comment and participation is provided in the interagency consultation conferencing and by commenting on draft materials as described in the general of this document.

If new designations for criteria pollutants occur that expand analyses areas beyond those defined above, interagency consultation will determine the parties responsible for conducting those analyses in accordance with 40 CFR 93.105(c)(2)(ii).

b) <u>Consultation and Notification Procedures for Conformity Analysis of TIP and TIP Amendments</u>

Federal conformity rules at 40 CFR Part 93 defines the criteria and procedures by which conformity will be established. Following OKI's notice that the TIP air quality conformity process has been initiated, OKI and Ohio DOT will coordinate the TIP transportation conformity interagency consultation process. Interagency consultation will include the same topics listed for the transportation plan (see section II. a) as well as the additional topics listed below in accordance with 40 CFR 93.105 (c).

- identification of exempt TIP projects;
- identification of exempt projects which should be treated as nonexempt; and
- determination of an interim TIP (in the event of a conformity lapse) inclusive of projects that can advance during a conformity lapse.

For TIP amendments, OKI and Ohio DOT will consult as identified below:

Consultation required in situations requiring a conformity determination, including but not limited to:

- add non-exempt, regionally significant project that has not been accounted for in the regional emissions analysis; and
- change in non-exempt, regionally significant project that is not consistent with the design concept and scope or the conformity analyses years.

The interagency consultation group will be provided an opportunity to review the draft TIP or TIP amendment conformity documentation concurrent with the TIP public involvement review period. OKI will respond to any questions or comments from the consultation parties within 10 days. After the public review period OKI will adopt the final TIP or TIP amendment and conformity determination. OKI will provide the final TIP or TIP amendment and conformity documentation to the affected state DOT(s). The affected state DOT(s) will forward the documents to FHWA/FTA for final review, incorporation into the STIP and U.S. DOT conformity determination as required by 40 CFR 93.105 (c)(7) and 23 CFR 450.322 of the FHWA/FTA Statewide and Metropolitan Planning rule. Copies of the final TIP or TIP amendment and conformity documentation will be made available on OKI's Web site.

III. Transportation Plan and Transportation Improvement Program Interagency Consultation Agency Roles and Responsibilities [40 CFR 93.105(b)(2)]

Ohio EPA, IDEM

- Reviews and comments on all aspects of the conformity determinations for the TP and TIP in a timely manner;
- Develops, solicits input on and adopts motor vehicle emission budgets;
- Seeks U.S. EPA approval for the use of motor vehicle emissions factors and mobile source budgets in conformity analyses; and
- Reviews and comments on the transportation plan and TIP development documentation and associated air quality analyses in as agreed in this document.

Ohio DOT, INDOT

- Participates as a voting member of the OKI Board of Director's and committees as defined by the OKI agency bylaws;
- Project initiator for state sponsored transportation improvement projects in the OKI region;
- Works directly with OKI in providing and reviewing detailed project programming information;
- Defines the design concept and scope of state sponsored transportation improvement projects to conduct regional emissions analysis;
- Promptly notifies OKI of changes in design concept and scope, cost, and implementation year of regionally significant state sponsored projects;
- Assures project-level CO and PM hotspot analyses are included in OKI region transportation project NEPA documentation when required;
- Identifies and commits to project-level CO and PM mitigation measures for state sponsored transportation projects, as required;
- Implements TCMs for which Ohio DOT/KYTC/INDOT is responsible on the schedule that is found in the SIP;
- Maintains a list of TCMs in the SIP and progress toward implementing the TCMs;
- Works with local municipalities and other project sponsors to ensure that the above procedures are also implemented on locally sponsored highway projects; and
- Assists OKI with travel demand modeling and mobile source emissions estimating processes.

For STIP and STIP amendments exclusively involving projects within the Cincinnati-Middletown-Wilmington OH-KY-IN, Combined Statistical Area for NAAQS, but outside MPO boundaries, Ohio DOT, or INDOT will develop, coordinate, prepare and circulate conformity documentation for interagency consultation and public participation.

OKI

- Develops, coordinates, and circulates transportation plan and TIP supporting and technical documentation for interagency consultation and public participation;
- Conducts transportation plan/TIP and air quality conformity public participation processes;
- Maintains demographic and land use data for travel demand forecasting and regional emissions analysis;
- Works with Ohio DOT, INDOT and local sponsors to define the design concept and scope of projects in the transportation plan and TIP to conduct regional emissions analysis;
- Prepares transportation plan/TIP conformity documentation;
- Includes funding for SIP mandated TCMs in the transportation plan and TIP if required; and
- Adopts transportation plan/TIP, performs the regional emissions analysis and makes conformity determinations.

MVRPC, in the Cincinnati (Franklin, Carlisle, and Springboro) Air Quality Region:

- Develops, coordinates, and circulates transportation plan and TIP supporting and technical documentation for interagency consultation and public participation;
- Conducts transportation plan/TIP and air quality conformity public participation processes;
- Provides OKI with the design concept and scope of projects in the transportation plan and TIP to conduct regional emission analyses;
- Prepares transportation plan/TIP conformity documentation;
- Includes funding for SIP mandated TCMs in the transportation plan and TIP; and
- Adopts transportation plan/TIP and make conformity determinations.

In the Cincinnati (Franklin, Carlisle, and Springboro) Air Quality Region OKI will:

- Maintains demographic and land use data for travel demand forecasting and regional emissions analysis; and
- Conducts the analysis and prepare transportation plan/TIP conformity documentation.

If a new conformity determination is needed in the Cincinnati Air Quality Region due to transportation plan/TIP amendments in the MVRPC MPO only, MVRPC will be responsible for initiating interagency consultation and conducting the public participation process and OKI will conduct the conformity analysis and provide conformity documentation.

U.S. EPA

- Administers and provides guidance on the CAA and transportation conformity regulations;
- Determines adequacy of motor vehicle emissions budget used for making conformity determinations;
- Reviews and comments on transportation plan and transportation improvement program documentation in keeping with participation plan requirements; and
- Reviews and comments on conformity determinations for the transportation plans and transportation improvement programs.

FHWA/FTA

- Consults with U.S. EPA on transportation conformity determinations.
- Provides guidance on transportation planning regulations;
- Ensures that all transportation planning and transportation conformity requirements contained in 23 CFR Part 450 and 40 CFR Part 93, respectively, are met;
- Works with transit agencies to ensure that conformity procedures are implemented in transit agency-sponsored projects; and

- Makes transportation plan/TIP conformity determinations.

IV. State Implementation Plan (SIP) Consultation Process [40 CFR 93.105]

a. SIP Consultation Structure and Process in Ohio

Ohio EPA is responsible for preparing the SIP. If new transportation control strategies or TCMs are considered necessary to achieve and/or maintain federal air quality standards, the interagency consultation group will discuss possible TCMs for inclusion in the SIP. Ohio EPA will provide and update schedules for SIP development that will be available to all agencies and the public. Public involvement will be in accordance with Ohio EPA's public involvement procedures. Key documents will be posted on Ohio EPA's Web site. SIP development will normally cover inventory development, determination of emission reductions necessary to achieve and/or maintain federal air quality standards, transportation and other control strategies that may be necessary to achieve these standards, contingency measures, and other such technical documentation as required.

Ohio EPA is responsible for informing OKI of any TCMs in the SIP and OKI is responsible for maintaining a list of these TCMs and is responsible for tracking progress toward implementation and will share the list and implementation schedule with the interagency consultation parties. The interagency consultation parties will determine as required by 40 CFR 93.113(c) (1) whether past obstacles to implementation of TCMs, which are behind the schedule established in the SIP, have been identified and are being overcome. The interagency consultation group will assure that state and local agencies provide approval and funding priority to TCMs that are approved in the SIP. The interagency consultation group will also consider revisions to the SIP to remove TCMs or substitute TCMs or other emission reduction measures.

OKI and Ohio DOT develop the travel activity and emissions data that are used by Ohio EPA in establishing the on-road motor vehicle emission inventories for the SIP with consultation from Ohio EPA on the inputs for emission modeling.

If new transportation control strategies are considered that may aid the region to achieve and/or maintain federal air quality standards, Ohio EPA will provide OKI and Ohio DOT with guidance for estimating their impacts on regional emissions This SIP process will define the motor vehicle emissions budget (MVEB), and its various components, that will be used for future conformity determinations of the TP and TIP. Prior to publishing the draft SIP, OKI, Ohio DOT, KYTC, KEPPC, INDOT and IDEM will have an opportunity to review and comment on the proposed MVEB.

In accordance with 40 CFR 93.105 (b)(2)(iii) and 40 CFR 93.105 (c)(7) Ohio EPA will circulate the draft SIP for public review, and all comments will be responded to in writing prior to adoption of the SIP. The draft will be amended as needed in response to comments received. Ohio EPA will then transmit the final document with amendments, along with the public notice, public hearing transcript and a summary of comments and responses, to U.S. EPA.

b. Agency Roles and Responsibilities [40 CFR 93.105(b)(2)(i)]

The following provides a summary on the roles and responsibilities of the different agencies with involvement in development and review of SIP submittals dealing with TCMs or emissions budgets.

Ohio EPA, KEPPC, IDEM

- Responsible for air quality monitoring, preparation and maintenance of detailed and comprehensive emissions inventories, air quality modeling, and other air quality planning and control responsibilities;
- Responsible for preparing drafts of SIP submittals, revising those drafts, incorporating other agencies' comments, attending and scheduling public hearings, preparing public hearing transcripts and responding to public comments;
- Responsible for timely SIP submittal to U.S. EPA; and
- Provides concurrence with TCM substitution in the SIP.

Ohio DOT, KYTC, INDOT

- Assists in developing regional travel demand forecasts used in the SIP mobile emissions inventories and analyses of new TCMs;
- Assists in developing mobile source inventories and analyses as needed; and
- Participates in reviewing and commenting on draft SIP documents.

OKI

- Responsible for developing regional transportation emissions analysis used in the SIP emissions inventories and analyses of new TCMs;
- Monitor and report on implementation of federal TCMs;
- Responsible for providing review and comments on draft SIP documents; and
- Provides concurrence with TCM substitution in the SIP.

U.S. EPA

- Receives the Ohio EPA SIP submittals and has the responsibility to act on them in a timely manner;
- Reviews and comments on submittals through various meetings, workshops and hearing that are conducted;
- Provides guidance on the CAA;
- Determines adequacy of motor vehicle emissions budget used for making TP/TIP conformity findings; and
- Provides concurrence with TCM substitution in the SIP.

FHWA/FTA

- Provides guidance on transportation planning regulation; and
- Participates in the SIP review and comment process.

Please note: while these are key areas and agencies involved in the development of the SIP, participation in the SIP process by other agencies may occur.

V. Project-level Conformity Determinations for Carbon Monoxide (CO) and/or Fine Particulate Matter (PM) [40 CFR 93.105 (c)(1)(i)]

Project sponsors are required to conduct project-level conformity analyses by the FHWA/FTA NEPA process. FHWA/FTA are responsible for making all project-level conformity determinations. FHWA/FTA, with the participation of U.S. EPA, identifies the applicable procedures for CO and/or PM analyses. Project sponsors should use the most recently identified procedures. In accordance with 40 CFR 93.105 (c)(1)(i) and other applicable regulations, Ohio DOT, KYTC and INDOT will determine the following:

1. That FHWA/FTA, with U.S. EPA review participation, has approved the project-level CO and/or PM conformity analyses which are included in the project's environmental document prior to initiating federal authorizations.

2. That the design concept and scope of the project has not changed significantly from that used by OKI, Ohio DOT, KYTC and INDOT in their most recent regional transportation conformity analyses of the TP and TIP.

The OKI governing board or policy committee may periodically review and participate with Ohio DOT, KYTC, INDOT and other agencies as appropriate in the update of the CO and/or PM analyses. Through the NEPA process, Ohio DOT, KYTC and INDOT may provide technical guidance to project sponsors who use these procedures.

VI. Monitoring of Transportation Control Measures (TCMs) [40 CFR 93.105 (c)(1)(iv)]

As part of the conformity documentation for a TP and/or TIP, OKI will identify the status of SIP TCMs. If TCM emissions reductions are included as part of the motor vehicle emissions budget, OKI will estimate the portion of emission reductions that have been achieved. If there are funding or scheduling issues for a SIP transportation control measure, OKI will describe the steps being undertaken to overcome these obstacles, including means to ensure that funding agencies are giving these TCMs maximum priority. OKI may propose substitution of a new TCM or TCMs for all or a portion of an existing TCM that is experiencing implementation difficulties (see section VII below).

VII. Conflict Resolution [40 CFR 93.105 (d)]

Conflicts between any parties of this MOU that arise during consultation will be resolved as follows:

1. A statement of the nature of the conflict will be prepared and agreed to by the conflicting parties and shared with the remaining signatories.

2. Disagreeing parties will consult in a good faith effort to resolve the conflict in a manner acceptable to all parties.

3. If they are unsuccessful, the directors of the signatory agencies or their designees shall meet to resolve differences in a manner acceptable to all parties.

4. If none of the above steps produces a satisfactory resolution, the directors of the signatory agencies have 14 days to appeal to the governor(s) of the affected states. OKI will send correspondence to the directors of the signatory agencies informing them that attempts to resolve the conflict have failed and they plan to proceed with their conformity decision or policy in conflict. The 14-day appeal period will commence on the first normal business day following Ohio EPA's and IDEM's receipt of correspondence (whichever is later) via Certified U.S. Mail and/or other certified delivery from OKI. The appeal period will expire at midnight of the 14th calendar day following receipt of such notice.

5. If a party other than Ohio EPA or IDEM appeals to the Governor, that participant must inform the Ohio EPA or IDEM of the Governor's response to the appeal. Ohio EPA or IDEM has an additional 14 calendar days from that notification of appeal to the Governor if it disagrees with the response. If Ohio EPA or IDEM appeals to their respective Governor, the final conformity

determination must have the concurrence of the Governor. If Ohio EPA or IDEM does not appeal to the Governor within 14 days, OKI may proceed with the final conformity determinations. The Governor may delegate his or her role in the process, but not to the head or staff of Ohio EPA, Ohio DOT, IDEM, INDOT or OKI.

VIII. Public Consultation Procedures [40 CFR 93.105 (e)]

OKI will follow its adopted public participation procedures when making conformity determinations on transportation plans and programs. These procedures establish a proactive public participation process which provides opportunity for public review and comment by, at a minimum, providing reasonable public access to technical and policy information considered by OKI at the beginning of the public comment period and prior to taking formal action on a conformity determination for the TP and TIP, consistent with these requirements and those of 23 CFR 450.316(a). Meetings of OKI are open to the public. Any charges imposed for public inspection and copying should be consistent with the fee schedule contained in 49 CFR 7.43. These agencies also shall provide opportunity for public participation in conformity determinations for projects where otherwise required by law.

MEMORANDUM OF UNDERSTANDING
TRANSPORTATION CONFORMITY
CONSULTATION PROCEDURES
Parties: OKI, MVRPC, Ohio EPA, Ohio DOT, IDEM, INDOT, FHWA, FTA and U.S. EPA

LIST of SIGNATORIES

Note: Signatures appear on separate, multiple pages.

Mark Policinski
Executive Director
Ohio-Kentucky-Indiana Regional Council of Governments

Donald R. Spang
Executive Director
Miami Valley Regional Planning Commission

Robert J. Shook
Chairperson

Chris Korleski
Director
Ohio Environmental Protection Agency

James G. Beasley, P.E., P.S.
Director
Ohio Department of Transportation

Daniel Murray
Assistant Commissioner
Indiana Department of Environmental Management, Office of Air Quality

Karl B. Browning
Commissioner
Indiana Department of Transportation

Dennis Decker
Division Administrator
Ohio Division
Federal Highway Administration *(FHWA-OH is lead for U.S. DOT)*

Robert F. Tally, Jr., P.E.
Division Administrator
Indiana Division
Federal Highway Administration

Marisol Simon
Regional Administrator
Region 5
Federal Transit Administration

Mary Gade
Regional Administrator
Region 5
U.S. Environmental Protection Agency