



## **CONCEPTUAL ALTERNATIVES IMPLEMENTATION PLAN**

Eastern Corridor Segments II and III  
PID 86462

JULY 24, 2019

Prepared for:

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## 1.0 INTRODUCTION

This report provides an Implementation Plan for 68 recommended transportation projects developed for Segments II and III of the Eastern Corridor Program, a regional transportation initiative that integrates roadway network improvements, new rail transit options, expanded bus service, bikeways and walking paths to improve travel and access between Greater Cincinnati's eastern communities and its central employment, economic, and social centers. The Eastern Corridor Program is administered by the Ohio Department of Transportation (ODOT), in cooperation with the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the local Eastern Corridor Implementation Partners, which include Hamilton County Transportation Improvement District (TID), Clermont County TID, City of Cincinnati, Ohio-Kentucky-Indiana Regional Council of Governments (OKI), and Southwest Ohio Regional Transit Authority (SORTA).

The Eastern Corridor study area includes a 165-square mile area and extends east from downtown Cincinnati through Hamilton County, just past I-275 in western Clermont County. The Eastern Corridor is comprised of four core segment areas, each of which include coordinated transportation improvement studies and projects in varying stages of planning, construction, and completion. Located at the center of the Eastern Corridor region, Segments II and III extend between the Red Bank Corridor (Segment I) and the Beechmont Levee (SR 32/SR 125) to the I-275/SR 32 interchange in the Eastgate Area of Clermont County (Segment IV) and encompass key routes through this area, including: US 50/Wooster Pike, SR 125/Beechmont Levee, and SR 32.

The transportation projects recommended in this document for implementation were developed with extensive input from Advisory Committees for six Focus Areas within the Segments II and III area, as well as the public, which was gathered through public workshops, public meetings, and a comprehensive online public input tool. In addition, these concepts were evaluated based on engineering studies and environmental considerations and found to best meet the transportation needs of the traveling public and the local and regional community. These projects range from low-cost, easy to implement projects such as traffic signal improvements, to major new capacity projects, which will require detailed engineering and environmental studies. While each recommended project is considered to be a "stand alone" project, which will have independent utility when constructed, the projects also have additive benefits and will improve east-west connectivity for the Greater Cincinnati region. Based on a travel time analysis prepared for this study, which is included in **Appendix B: Traffic Analyses, Section B.6**, the cumulative impact of individual capacity projects recommended in this Implementation Plan result in a two- to six-minute travel time savings in the peak direction for vehicles traveling from I-275 to the Red Bank Corridor, which represents a 5% to 25% reduction in overall travel time.

This Implementation Plan summarizes the engineering studies, environmental considerations, and public involvement activities undertaken to develop the proposed transportation projects. In addition, the plan provides a direction for moving each project forward. While there is no funding available for these projects at the current time, the Implementation Plan includes potential project sponsors and funding sources for

each project, to serve as a roadmap for municipalities and communities within the Segments II and III area, as well as Hamilton County, OKI, and ODOT as they prioritize future transportation projects.

## **Project History**

Transportation studies for the Eastern Corridor Program began with the Eastern Corridor Major Investment Study (MIS), a comprehensive two-year planning study led by OKI and completed in 1999 (OKI, et al. 1999). This study was followed by the *Eastern Corridor Land Vision Plan* in 2002 (Meisner and Associates and HCRPC 2002). Since 2002, the Eastern Corridor Program has used a two-tiered approach to identify improvement alternatives within the full multi-modal plan and provide an assessment of impacts as required under the National Environmental Policy Act (NEPA).

**Tier 1:** The Tier 1 Final Environmental Impact Statement (FEIS) for the Eastern Corridor Program was completed in September 2005 (FHWA, et al. 2005) and the FHWA issued a Tier 1 *Record of Decision* (ROD) in June 2006 (FHWA 2006). The ROD established a multi-modal framework for enhancing the regional transportation network and identified transportation investments to be further evaluated in Tier 2, including new roadway and rail transit projects, local network improvements, expanded bus transit, and pedestrian/bikeway improvements. The Segments II and III recommendation carried forward from the Eastern Corridor Tier 1 ROD consisted of a controlled-access, relocated SR 32 from US 50 in Fairfax, Hamilton County to the I-275/SR 32 interchange in Clermont County, including new alignment through the Little Miami River Valley west of Newtown and a multi-modal river crossing. Tier 1 identified multiple preliminary alternative corridors in which a potential SR 32 relocation could be located.

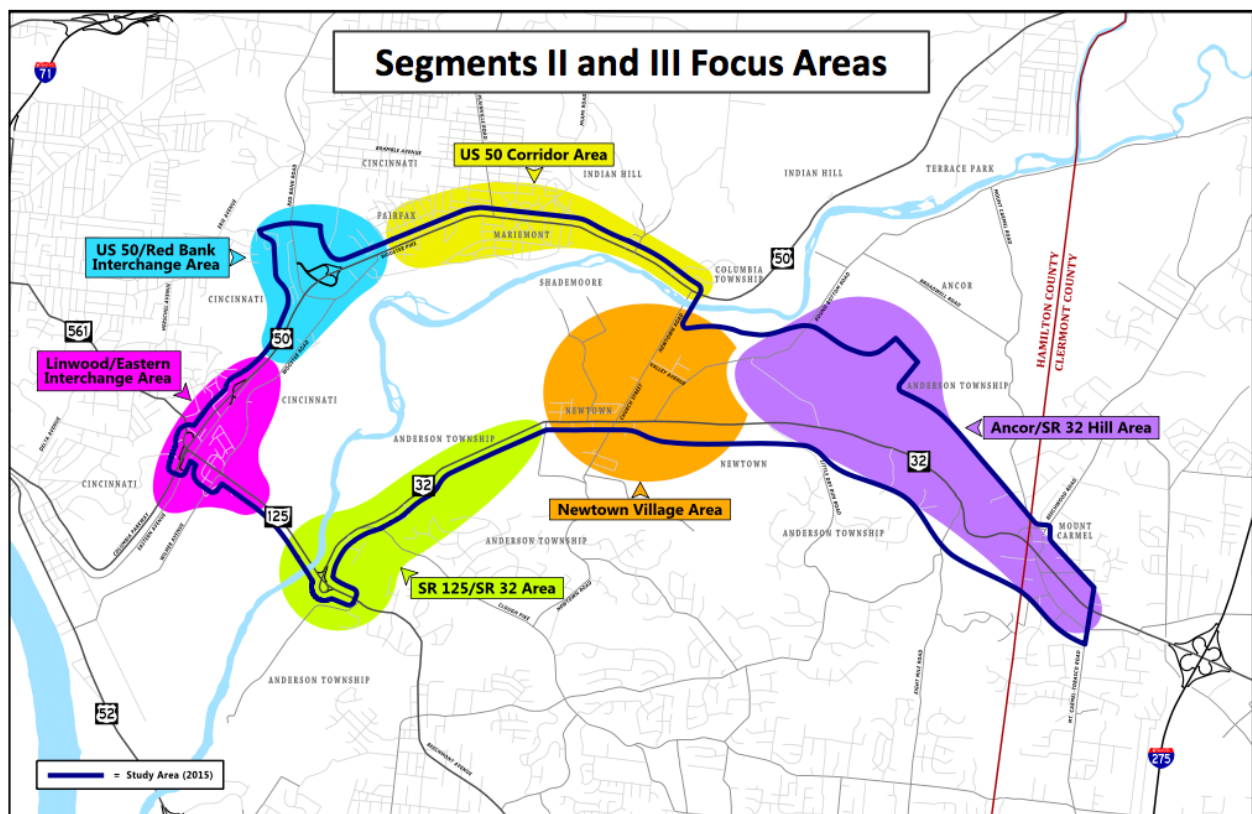
**Tier 2:** Tier 2 investigations began after the ROD was issued and included a more detailed analysis of the engineering and environmental impacts associated with specific alignments within corridors considered for a potential SR 32 relocation. These investigations were documented in the report, *Feasibility Study Segments II-III Relocated SR 32, March 2012* (ODOT and FHWA 2012) and a study Addendum, December 2012 (ODOT and FHWA 2012). Following the completion of the Feasibility Study, conflicting interests between various transportation, environmental, and historic interest agencies, and several local communities led ODOT, in coordination with FHWA, to put project development for Segments II and III on hold. ODOT and the FHWA worked with the U.S. Institute for Environmental Conflict Resolution to establish a process to conduct a comprehensive assessment of stakeholder interests and concerns pertaining to the project. Based on the results of the Situation Assessment conducted by the Consensus Building Institute and completed in November 2014, ODOT concluded that relocating the SR 32 roadway through the Little Miami River Valley has potentially significant environmental impacts, high construction costs, and public and resource agency concerns; therefore, it is no longer considering doing so at this time (ODOT et al. 2014).

However, congestion, travel delays and safety issues still exist through the Segments II and III area of the Eastern Corridor and transportation improvements are needed to address these issues. Therefore, ODOT recommended that the transportation needs in Segments II and III be re-examined and reprioritized and the study area redefined, as needed, to focus on lower-impact improvements to the existing transportation network that could be implemented without significant environmental impacts.

**Transportation Needs Analysis:** In 2016, ODOT launched an effort to re-examine the existing transportation network throughout Segments II and III and reprioritize transportation needs within the Segments II and III study area using a relatively new planning and design philosophy called Performance Based Project Development (PBDP). PBDP is a concept promoted by FHWA and incorporated into ODOT's Project Development Process (PDP). PBDP is a valuable tool in making incremental improvements to existing conditions in an environment that is often constrained by available funding, environmental and property impacts, and other factors. Public input is an important component of the PBDP process. Transportation needs are identified based upon data, further confirmed through public involvement, and documented as primary and secondary needs in the Purpose and Need for the project. This concept is further discussed below.

To identify transportation needs in Segments II and III, the study area was divided into six Focus Areas, including the US 50 Corridor, the US 50/Red Bank Interchange, the Linwood/Eastern Interchange, SR 125/SR 32, Newtown Village, and ANCOR/SR 32 Hill (See **Figure 1**).

**Figure 1: Focus Area Map**



Transportation needs in the focus areas were identified through technical engineering studies and confirmed and refined through community and stakeholder input. Technical studies conducted included: traffic count updates; crash data review; evaluation of major intersections, roadway movements, and ramp junction operations; travel time studies; travel pattern analyses; and roadway geometry assessment

(curves, elevation, sightlines). In addition to technical studies, the project team, comprised of ODOT and its consultant team, conducted extensive public and stakeholder outreach to learn how communities prioritized transportation needs with respect to community goals, objectives, and ongoing planning. Public involvement during the Needs Analysis included six Focus Area workshops involving a total of approximately 100 total participants; a regional online survey completed by approximately 1200 participants; and a public meeting attended by approximately 100 individuals. The information gathered by these efforts was used to identify transportation needs for each Focus Area in the Eastern Corridor study area. The development of the transportation needs for Segments II and III is documented in the study, *Eastern Corridor Segments II and III (PID 86462): Transportation Needs Analysis* (ODOT and Stantec 2017).

Transportation needs in the focus areas were categorized as Primary and Secondary Needs. Primary Needs, as defined, must be addressed by the project to satisfy the Purpose and Need of the project while Secondary Needs are not required to meet the Purpose and Need of the project and will only be addressed if impacts are not too high and funding is available.

**Development of Solutions:** In Fall of 2017, ODOT began to develop solutions for the Primary Needs identified in the Transportation Needs Analysis report. Secondary Needs were addressed as opportunity allowed. Solutions were developed through extensive input from five Advisory Committees comprised of stakeholders from each of Segments II and III's six focus areas. (Note: the US 50/Red Bank Interchange and Linwood/Eastern Interchange Focus Areas were combined into one Advisory Committee since they shared common stakeholders). Advisory Committee members included elected officials, transportation planning professionals, and community and interest group representatives. Advisory Committee members assisted with identifying, evaluating, and prioritizing recommended solutions for transportation needs within their assigned Focus Area(s), as well as developing strategies for implementation. Each Advisory Committee convened for four work sessions throughout this process for a combined total of 20 meetings. Two Public Open House Meetings were also held on October 24 and 25, 2018 during which the public could review and provide input on concepts developed to improve travel and access throughout the Segments II and III study area. All materials from the Open House Meetings were posted online and the public comment period remained open for one month following the Public Open House Meetings. Advisory Committee members considered feedback received from the public to further refine the recommendations, as needed, prior to finalization. The public involvement process is described in greater detail in Section 2.0.

## 2.0 PUBLIC INVOLVEMENT PROCESS

Public involvement was an important component of the development of transportation projects to improve travel and access throughout the Segments II and III study area. Stakeholders and the public provide invaluable insight into the existing and future traffic issues of their communities by virtue of driving the roads every day and understanding the planning and development issues in their communities. In addition, they have a vested interest in decisions made regarding transportation projects in their communities. To ensure that stakeholders and the public had the opportunity to provide input at key decision points, 20 Advisory Committee meetings and two Public Open House Meetings were held throughout the development and refinement of the transportation concepts as described below.

## 2.1 ADVISORY COMMITTEE MEETINGS

In January 2018, letters were sent to elected officials, transportation planning professions, and community and interest group representatives inviting them to participate on, or nominate participants for, Advisory Committees being established for each of the six Focus Areas identified within Segments II and III. In general, individuals were asked to participate on the Advisory Committee for the focus area that they represent. However, several individuals representing groups with interests throughout the Segment II and III study area were asked to participate on each of the Advisory Committees. These individuals include representatives of the Sierra Club, Tri-State Trails/Green Umbrella, and OKI. A complete list of Advisory Committee members is included in **Appendix A: Advisory Committee Meeting Minutes, Section A.1**.

The members of each Advisory Committee were asked to participate in four meetings with ODOT over the course of the study to review the transportation needs identified for their Focus Areas and assist with developing solution concepts, as well as strategies for implementation. More specifically, committee members were asked to:

- Represent their community/organization in discussions relating to project studies, community goals and anticipated project outcomes.
- Provide updates and disseminate information to their community/organization to encourage an exchange of information.
- Share their community's/organization's questions, concerns and general feedback with ODOT and its consultant team.
- Assist with public outreach efforts, as appropriate (share information about upcoming public open houses, etc.).

In total, the project team conducted twenty Advisory Committee meetings. Summaries of the Advisory Committee meetings follow.

### 2.1.1 First Set of Advisory Committee Meetings – February 2018

The first set of Advisory Committee meetings was held in February 2018. Separate meetings were held for each Focus Area, with the exception of the Linwood/Eastern Interchange and US 50/Red Bank Interchange Focus Areas, which were combined since they have common stakeholders. During these meetings, ODOT presented the Primary and Secondary Needs within each of the Focus Areas which were identified during the development of the *Transportation Needs Analysis*. Facilitated by ODOT, the Committees reviewed the transportation needs for the Focus Areas and brainstormed possible concepts and solutions to address these needs. The Advisory Committees also discussed evaluation criteria that could be used to assess the effectiveness of the proposed concepts in addressing the Primary and Secondary Needs. Detailed meeting minutes from each Focus Area Advisory Committee Meeting are provided in **Appendix A, Sections A.2 - A.6**.

Following the first set of Advisory Committee meetings, the project team developed proposed concepts and performed traffic studies to determine how well the concepts would operate when built. Nearly 150 different



concepts were considered to address transportation needs throughout the six Focus Areas. Using the data generated from the traffic studies, the proposed concepts were assessed using several evaluation factors including safety, traffic operations, constructability, estimated construction costs, right-of-way impacts and environmental and community impacts. In addition, concepts were evaluated based on how well they would support multi-modal transportation, improve regional connectivity, and improve local access. **Table 1** shows the factors that were used to evaluate the project concepts after the first set of Advisory Committee meetings, as well as a brief description of the data developed for each evaluation factor. The traffic analyses are further explained in Section 3.0.

**Table 1: Evaluation Factors**

FACTORS	TECHNICAL DATA SOURCE	
	PRELIMINARY EVALUATION OF CONCEPTS FOLLOWING ADVISORY COMMITTEE MEETING #1	DETAILED EVALUATION OF CONCEPTS FOLLOWING ADVISORY COMMITTEE MEETING #2
Safety	Project concepts were identified that would be good candidates for safety improvements based on crash data information collected as part of the Needs Analysis work. Intersections designated as high priority, high crash locations as ranked statewide by ODOT also were identified.	Project safety for each of the identified concepts was determined based on ODOT's Economic Crash Analysis Tool (ECAT). The ECAT Analysis is included in <b>Appendix B: Section B.4.</b>
Traffic Operations	<p>Turning movement count data and certified traffic data was obtained for Existing Year (2015), Opening Year (2022) and Design Year (2042).</p> <p>Highway Capacity Software (HCS) was used to determine Level of Service (LOS) for roadways in the project area for each concept.</p> <p>In addition, a Traffic Signal Warrant Analysis was performed for key intersections in the Eastern Corridor Segments II &amp; III project area to determine where new traffic signals were warranted based on crash rates and speed data. The Traffic Signal Warrant Analysis is included in <b>Appendix B: Section B.3.</b></p>	<p>Highway Capacity Software (HCS) and TransModeler computer simulation models were used to determine the Level of Service (LOS) for the project area under both Build and No Build Alternatives for 2042. The delay in seconds for traffic in 2042 was determined under both the Build and No Build conditions and the % reduction in delay of the Build Alternative from the No Build was calculated. The HCS Analysis is provided in <b>Appendix B: Section B.1</b> and the TransModeler Analysis is provided in <b>Appendix B: Section B.2.</b></p> <p>A Signal Re-Timing Analysis was performed to optimize timing splits and increase progression along the main arterials to reduce delay and congestion.</p>

FACTORS	TECHNICAL DATA SOURCE	
	PRELIMINARY EVALUATION OF CONCEPTS FOLLOWING ADVISORY COMMITTEE MEETING #1	DETAILED EVALUATION OF CONCEPTS FOLLOWING ADVISORY COMMITTEE MEETING #2
		This analysis is provided in <b>Appendix B: Section B.5.</b>
Constructability Issues	Each concept was given a preliminary constructability rating based upon engineering judgement. The three ratings were: simple to construct, moderately difficult to construct, and difficult to construct. One of the major factors that weighed into this determination was the difficulty of the maintenance of traffic while the project was being built. Other factors were site specific.	No additional constructability evaluations were performed after the second Advisory Committee meetings.
Construction Cost	Each concept was given a preliminary cost estimate based upon engineering judgement. The three cost estimates were: less than \$5 million, between \$5 and \$10 million, or greater than \$10 million.	Detailed cost estimates were developed for each concept based upon an aggregation of major cost drivers. Unit prices were derived from ODOT historical bid data. A 25% contingency was added on top of each concept to account for the sum of minor costs and changes expected during detailed design. The cost presented was the calculated cost +/- 20%.
Right-of-Way Impacts	Potential right-of-way impacts were estimated for each concept based on engineering judgement. Impacts were described as: 1) No right-of-way acquisition needed; 2) Right-of-way needed from at least one parcel (no total takes, or relocations); 3) Right-of-way relocations needed.	Detailed right-of-way impacts were assessed for each concept based upon the construction limits developed at this early design stage. Impacts were reported by number of relocations and total right-of-way costs associated with the project. Costs were derived using ODOT's R/W Cost Estimator spreadsheet found in Section 2300 of ODOT's Right of Way Manual.

FACTORS	TECHNICAL DATA SOURCE	
	PRELIMINARY EVALUATION OF CONCEPTS FOLLOWING ADVISORY COMMITTEE MEETING #1	DETAILED EVALUATION OF CONCEPTS FOLLOWING ADVISORY COMMITTEE MEETING #2
Environmental/Community Impacts	Impacts to environmental and community features within the project areas for the transportation concepts were identified from secondary source mapping to determine the level of environmental document that would likely be required. Environmental features include waterways, floodplains, Section 4(f)/6(f) properties (parks, natural areas, wildlife areas).	Potential environmental impacts of environmental and community resources were refined based on approximate construction limits of concepts.
Supports and/or Facilitates Multi-Modal	Alternatives were subjectively evaluated based on how well they would support the needs of transit users, pedestrians, and bicyclists by addressing accessibility and gaps in the existing infrastructure.	No additional evaluation was performed after the second advisory committee meetings.
Improve Regional Connectivity	Alternatives were subjectively evaluated based on how well they would improve regional trips for motorists, pedestrians, and bicyclists by addressing gaps in the existing regional roadway infrastructure and reducing existing areas of traffic congestion.	No additional evaluation was performed after the second advisory committee meetings.
Improve Local Access	Alternatives were subjectively evaluated based on how well they would improve local access by pedestrians, bicyclists, and motorists and how they would reduce local congestion in the immediate project area. A project's impact on local commercial and residential driveways was also a factor.	No additional evaluation was performed after the second advisory committee meetings.

**2.1.2 Second Set of Advisory Committee Meetings – May 2018**

The second set of Advisory Committee meetings were held in May 2018. During these meetings each concept proposed during the first set of Advisory Committee meetings and the preliminary analyses completed to date by the project team were reviewed and discussed. Based on the preliminary evaluation of the concepts, the Advisory Committees recommended concepts to advance for further study within their

Focus Areas. Meeting summaries for the second set of Advisory Committee Meetings are provided in **Appendix A: A.2 - A.6**.

Following the second set of Advisory Committee meetings, additional traffic and engineering analyses were performed on the concepts that were advanced by the committees for further study. In addition, more detailed environmental data were developed for each concept. The detailed engineering and environmental analyses developed for concept evaluation are shown on **Table 1** and the results of the traffic analyses performed are documented in **Appendix B**. These analyses are discussed in more detail in Section 3.0, Traffic Analyses.

### **2.1.3 Third Set of Advisory Committee Meetings – August and September 2018**

Based on the detailed traffic and engineering analyses of the transportation concepts conducted in advance of the second set of meetings, the Advisory Committees continued to examine the list of concepts during the third set of meetings to identify the most cost-effective solutions to recommend for implementation, and to refine or remove other concepts from further study. Of the nearly 150 concepts that ODOT and the Advisory Committees reviewed, almost 100 options were eliminated by the conclusion of the third set of meetings based on evaluation results, potential costs, and/or potential impacts. The remaining 68 recommended concepts were then presented to the broader community for review and input during two public open houses held in October 2018, as discussed in Section 2.2. The concept recommendations from the third set of meetings are provided in the Advisory Committee Meetings Summaries included in **Appendix A: A.2 - A.6**.

### **2.1.4 Fourth Set of Advisory Committee Meetings – December 2018**

During the fourth set of Advisory Committee Meetings, ODOT presented the public feedback received on the project alternatives at the October 24 and 25 Public Open House Meetings (described below) and during the subsequent 30-day public comment period. Based on this input, the committees were tasked with identifying possible refinements to the proposed concepts based on the public comments and determining which, if any, concepts should be eliminated from further consideration. In addition, the committees discussed how the concepts should be prioritized, as well as possible funding sources for each.

## **2.2 PUBLIC OPEN HOUSE MEETINGS – OCTOBER 24 AND 25, 2018**

Open House Meetings were held on October 24 and 25 to gather public input on the transportation improvement concepts developed during the first three sets of Advisory Committee meetings. Of the initial 150 transportation concepts that were identified, 68 concepts were presented to the public for review and input. The Public Meeting Open Houses were attended by approximately 175 individuals. Both Open House Meetings were identical in format and materials presented. However, the two sessions were held on different days and at different locations in the Segments II and III study area in an effort to reach more residents throughout the study area. Following the Public Open House Meetings, all meeting materials were posted on the Eastern Corridor website for further public review and comments were accepted from the public for a 30-day comment period. A summary of the Open House Meetings is included as

**Appendix C: Public Open House Meeting Summary.** This report also documents all comments received and ODOT's response to each.

## 3.0 TRAFFIC ANALYSES

As part of the concept development process, several traffic analyses were performed to assess traffic operations of the proposed concepts. This section provides an overview of these analyses, the results of which are included in detail in **Appendix B**.

### 3.1 HIGHWAY CAPACITY SOFTWARE (HCS)

A Highway Capacity Software (HCS) analysis was performed to evaluate major intersection and ramp junction operations for various improvement concepts in the six focus areas. This analysis utilizes a deterministic methodology to estimate unsignalized and signalized intersection Level of Service (LOS). As defined by the *Highway Capacity Manual*, 6<sup>th</sup> Edition (TRB 2016), LOS is classified into six different levels, ranging from A to F. LOS A denotes free flow conditions with average delays of less than ten seconds while LOS F indicates congested conditions with average delays over fifty seconds (unsignalized) and eighty seconds (signalized). For the Segments II and III concept analysis, LOS was determined for the 2022 No Build opening year and 2042 No Build design year for both the AM and PM peak hours for key intersections in the Segments II and III study area. Results of the HCS analysis are provided in **Appendix B: Section B.1**.

### 3.2 TRANSMODELER SIMULATION ANALYSIS

A TransModeler analysis, which is included in **Appendix B.2**, was used to supplement the HCS analysis results. One advantage that a micro-simulation software like TransModeler provides over a deterministic software like HCS, is that it considers the initial queue delay that builds and dissipates over the peak-hour from unmet demand, spillback queues from auxiliary lanes that may block thru lanes and impacts from upstream and downstream intersections. TransModeler was also used to create simulation videos which were presented to the public during the Open House Meetings and are provided on the Eastern Corridor website at <http://easterncorridor.org/>. Multiple alternatives were analyzed within each of the six focus areas of the Segments II and III study area. The analyses were performed for the 2042 AM and PM peak hours. The simulation models were intended to be high-level planning tools, designed to gain a clear understanding of the relative benefit of the alternatives.

### 3.3 TRAFFIC SIGNAL WARRANT ANALYSES

Traffic Signal Warrant Analyses, the results of which are included in **Appendix B: Section B.3**, were conducted for the key intersections within the Eastern Corridor Segments II and III study area. The traffic volumes used for these analyses were based on 24-hour turning movement counts conducted at each study location. Warrants address a variety of intersection conditions such as vehicular volume, crashes, progression, and delay. Each warrant defines a minimum threshold that must be present before further analysis of traffic signal installation can be conducted. The analyses conducted for intersections within the

study area evaluated Warrants 1, 2, and 3, as these were the most typical conditions in the study area. Warrant 1 is based on eight-hour vehicular volumes of intersecting traffic. Warrant 2 is based on four-hour vehicular volumes of intersecting traffic and Warrant 3 is based on vehicular volume and delay on a minor street when entering or crossing the major street.

### **3.4 ECONOMIC CRASH ANALYSIS TOOL (ECAT)**

An Economic Crash Analysis Tool (ECAT) analysis, included in **Appendix B: Section B.4**, was performed for key intersections within the Eastern Corridor Segments II and III project area. ECAT is an ODOT-customized tool which provides a comparison of the predicted number of crashes for the existing conditions with the predicted number of crashes for the proposed condition. Based on the change in predicted number of crashes, the ECAT tool quantifies the expected benefit-cost ratio (crash cost savings divided by the construction cost) associated with each alternative improvement.

### **3.5 TRAFFIC SIGNAL TIMING STUDY**

Traffic signal timing analyses were performed for 18 intersections within the Eastern Corridor Segments II and III study area. These analyses, which are documented in the *Signal Re-Timing Analysis Operational Report* (Stantec 2019) included in **Appendix B: Section B.5**, were conducted to optimize timing splits and reduce delay and congestion along the main arterials for weekday and commuter traffic patterns. Pre-study travel time runs were conducted in March 2018 and preliminary signal timing plans were submitted to ODOT in April 2018 for review. The proposed weekday AM, Mid-Day, and PM peak period plans were subsequently approved by ODOT and implemented in August 2018. Following implementation of the signal timing plans, ODOT's consultant continued to observe traffic operations and work with local partners in early 2019 to adjust the timing sequences to achieve optimum results.

### **3.6 TRAVEL TIME ANALYSIS**

**Appendix B: Section B.6** presents an analysis of the cumulative travel time benefits that individual projects within the Eastern Corridor Segments II and III study area would have during the morning and afternoon peak periods. This analysis was performed using StreetLight InSight®, a transportation analytics platform, which utilizes the massive volume of geospatial data created by mobile phones, GPS devices, connected cars and commercial trucks, etc. When these devices ping cell towers and satellites, they create location records. StreetLight then utilizes their proprietary algorithmic processing engine to transform these anonymized records into useful transportation data. Using this process, the baseline travel times for key segments in the Segments II and III roadway network were determined. The cumulative travel time benefits of the improvements within the study area were then estimated by applying the lowest cost recommended intersection improvement project at each intersection along two routes between I-275 and Red Bank Road. The reduction in delay at each intersection between the no build and build scenarios was then applied to the no build travel time determined with StreetLight InSight® to determine the percent reduction in travel time.

## 4.0 RECOMMENDATIONS

Based on the recommendations of the Advisory Committees, as well as input received from the public, a total of 68 transportation projects are recommended for implementation. These projects comprise the Action Plan which is presented in **Table 2** on the next page. **The Action Plan** also provides information for the transportation projects that will be useful in programming these projects including estimated project costs, anticipated level of environmental documentation required, project prioritization, suggested project sponsors, and possible funding sources for each project. The development of this information is described below.

### 4.1 ESTIMATED PROJECT COSTS

Estimated project costs were developed for the project concepts based on historical bid data available for ODOT projects from the past four years (2014-2018). The estimates reflect the current conceptual level of project design and include estimated costs for major project components as applicable including right-of-way, roadway, drainage, pavement, utilities, traffic control, structures, building demolition, and maintenance of traffic. Additionally, a 25% design contingency was added to each project estimate. This contingency has been provided to cover the costs of changes to, and improvements upon, the preliminary design required once detailed engineering occurs. This contingency also accounts for the sum of smaller costs not quantified. A summary of the estimated quantities and anticipated costs for the major cost drivers for each project has been included in **Appendix E**. These costs do not take into account construction cost increases due to inflation.

### 4.2 ANTICIPATED LEVEL OF ENVIRONMENTAL DOCUMENTATION REQUIRED

For projects that receive Federal funding or require Federal approvals, environmental documentation must be completed in compliance with the National Environmental Policy Act (NEPA) before projects can proceed to final design, right-of-way purchase, or construction. It is recommended that individual NEPA documentation and associated environmental base studies be completed for each of the proposed project concepts. Due to the time that has lapsed since the completion of the earlier environmental studies for the Segments II and III study area (over five years), additional field investigations and coordination will be required for each proposed project.

Based on a review of secondary source environmental data and mapping for the Segments II and III study area, it is anticipated that each of the recommended projects can receive environmental clearance with completion of a Categorical Exclusion (CE) document. In accordance with FHWA regulations (23 Code of Federal Regulations (CFR) 771, "Environmental Impact and Related Procedures"), CEs are actions which meet the definition contained in the Council on Environmental Quality (CEQ) regulations at 40 CFR 1508.4, and based on past experience with similar actions, do not involve significant environmental impacts. These actions:

- Do not induce significant impacts to planned growth or land use of the area;

**Table 2: Action Plan for Eastern Corridor, Segment II/III Study Area**

Focus Area	PI Mtg Identifier	Identifier	Website Link	Conceptual Project Description	Priority	Maintaining Agency	Phasing Recommendations	Next Steps	Construction Cost Range	Right-of-Way Cost Range
Ancor-SR 32 Hill		32-16		Add warning signs about lane drop on westbound SR 32.	High Priority	ODOT	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$9,500 to \$14,500	\$0
Linwood-Eastern_US-50_Red_Bank		X-2a		Add better signing for auto connectivity.	High Priority	The City of Cincinnati	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$11,000 to \$16,000	\$0
Linwood-Eastern_US-50_Red_Bank		X-4a		Add wayfinding signage.	High Priority	The Village of Fairfax	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$20,000 to \$30,000	\$0
Linwood-Eastern_US-50_Red_Bank		50-1		Add signage indicating "expressway ends". Add flashing beacon to alert drivers to long queues at the Meadowlark intersection.	High Priority	The Village of Fairfax	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$11,000 to \$16,000	\$0
Linwood-Eastern_US-50_Red_Bank		50-2		Add advance signing to alert drivers of drop right lane on eastbound US 50 at Wooster Rd.	High Priority	The Village of Fairfax	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$16,000 to \$24,000	\$0
Linwood-Eastern_US-50_Red_Bank		STS		Improve signal timing (including advanced detection and wireless signal interconnect)	High Priority	The Village of Fairfax	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$58,000 to \$87,000	\$0
Newtown		STS		Improve signal timing (including advanced detection and wireless signal interconnect)	High Priority	The Village of Newtown	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$80,000 to \$120,000	\$0
US 50 Corridor		STS		Improve signal timing (including advanced detection and wireless signal interconnect)	High Priority	The Village of Fairfax; The Village of Mariemont; ODOT	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$104,000 to \$156,000	\$0
US 50 Corridor		I-13a		Replace signal heads in Mariemont Square.	High Priority	The Village of Mariemont	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$27,000 to \$40,000	\$0
US 50 Corridor		I-33a I-32a I-12a I-11a		Add backplates to signals.	High Priority	The Village of Mariemont; ODOT	HSIP Application - Low Cost Bundle	Prepare 2019 HSIP Safety Fund Application	\$9,000 to \$13,000	\$0
Ancor-SR 32 Hill	C5	I-3b	<a href="#">Link</a>	Install a signalized continuous green tee intersection at Eight Mile Rd. Includes grade adjustments on Eight Mile Rd approach to SR 32. Evaluate Eight Mile Road realignment to improve right turn to eastbound SR 32	High Priority	ODOT	Construct before C6	<ul style="list-style-type: none"> <li>Prepare 2019 HSIP Safety Fund Application.</li> <li>Possibly advance with planned ODOT resurfacing projects (PID 105215 in FY22 and PID 105214 in FY24)</li> </ul>	\$1,600,000 to \$2,375,000	\$100,000 to \$200,000
Newtown	B2	I-5a	<a href="#">Link</a>	Increase left turn lane storage along SR 32, add eastbound through lane on SR 32, and add dual SB left turn lanes at Round Bottom intersection.	High Priority	The Village of Newtown		<ul style="list-style-type: none"> <li>Meet with Newtown to develop funding strategy</li> <li>Possibly advance with planned ODOT resurfacing projects (PID 105215 in FY22 and PID 105214 in FY24)</li> </ul>	\$4,400,000 to \$6,600,000	\$365,000 to \$730,000
Ancor-SR 32 Hill	C1	I-4a I-4b	<a href="#">Link</a>	Lengthen storage lanes along SR 32 westbound and Little Dry Run Road northbound. Also improve sight distance problem by improving horizontal curve along Little Dry Run just south of SR 32, and add an EB right turn lane on SR 32	High Priority	The Village of Newtown	Construct with B2 or C3	<ul style="list-style-type: none"> <li>Meet with Newtown to develop funding strategy</li> <li>Possibly advance with planned ODOT resurfacing projects (PID 105215 in FY22 and PID 105214 in FY24)</li> </ul>	\$1,575,000 to \$2,350,000	\$80,000 to \$160,000
Newtown	B7	RB-2	<a href="#">Link</a>	Add shared use path on Round Bottom Rd. between SR 32 and Valley.	High Priority	The Village of Newtown	Construct with B2	<ul style="list-style-type: none"> <li>Meet with Newtown to develop funding strategy</li> <li>Possibly advance with planned ODOT resurfacing projects (PID 105215 in FY22 and PID 105214 in FY24)</li> </ul>	\$90,000 to \$230,000	\$70,000 to \$140,000



Focus Area	PI Mtg Identifier	Identifier	Website Link	Conceptual Project Description	Priority	Maintaining Agency	Phasing Recommendations	Next Steps	Construction Cost Range	Right-of-Way Cost Range
Ancor-SR 32 Hill	C3	32-9	<a href="#">Link</a>	Add center turn lane from Little Dry Run to East Corp Limit. Includes sidewalk from Little Dry Run to east corp. limit (originally part of B6).	High Priority	The Village of Newtown		<ul style="list-style-type: none"> <li>Meet with Newtown to develop funding strategy</li> <li>Possibly advance with planned ODOT resurfacing projects (PID 105215 in FY22 and PID 105214 in FY24)</li> </ul>	\$1,300,000 to \$1,950,000	\$130,000 to \$260,000
Linwood-Eastern_US-50_Red_Bank	E1	I-25b	<a href="#">Link</a>	Improve signal timing, lengthen storage lanes, add dual WB right turn lanes and dual NB thru lanes at Red Bank/Colbank intersection. Also includes new coordinated traffic signal at Colbank & WB US 50 ramps, that allows ramp traffic to US 50 EB to bypass.	High Priority	The Village of Fairfax		Meet with Fairfax to develop funding strategy	\$675,000 to \$1,000,000	\$17,000 to \$34,000
SR 32 / SR 125	A5 A6	125-3a 125-3b	<a href="#">Link</a>	<p>Concept A5 would connect SR 125 walk at Elstun Rd to Little Miami Trail with shared use path along SR 125 utilizing new bridge over Clough Creek and passing behind UDF.</p> <p>Concept A6 would connect SR 125 walk at Elstun Rd to Little Miami Trail with shared use path on new alignment south from SR 32 ramps, on new bridge over Clough Creek, and tying to Elstun Road. Concept A6 modified to provide shared use path along Elstun Road to SR 125 switching from west to east at Spindlehill Dr. {This concept eliminates need for Concept A3 (Elstun-1)}</p>	High Priority	Anderson Township		Evaluate possible slope stability issues on A5 alignment.	\$770,000 to \$1,450,000	\$65,000 to \$180,000
SR 32 / SR 125	A4	125-5	<a href="#">Link</a>	Add shared use path along south side of SR 125 between Elstun Rd and Ranchvale Dr.	High Priority	The City of Cincinnati	Build with or after A5/A6	Work with City of Cincinnati to prioritize bike/ped projects and discuss funding strategy.	\$140,000 to \$200,000	\$200,000 to \$400,000
Linwood-Eastern_US-50_Red_Bank	D5	X-2b-2 X-2b-2a	<a href="#">Link</a>	Create grade separated interchange to connect Wilmer and Wooster.	High Priority	The City of Cincinnati		Engage with Linwood Community Council to further evaluate D5. Next step will consist of developing alternatives before arriving at a recommended preferred alternative.	\$7,000,000 to \$12,100,000	\$875,000 to \$2,500,000
SR 32 / SR 125		X-1b		Install friction pavement to address crashes on ramps between SR 32 and SR 125 in wet conditions.	High Priority	ODOT		<ul style="list-style-type: none"> <li>Prepare 2019 HSIP Safety Fund Application.</li> <li>Possibly advance with planned ODOT resurfacing projects (PID 105215 in FY22 and PID 105214 in FY24)</li> </ul>	\$140,000 to \$210,000	\$0
Ancor-SR 32 Hill	C9	I-9	<a href="#">Link</a>	Improve Broadwell Road and Round Bottom Road intersection to accommodate turning movements of large trucks.	High Priority	Hamilton County		Meet with HCEO to in spring of 2019 to discuss abbreviated safety fund application	\$110,000 to \$170,000	\$15,000 to \$30,000
Newtown	B1	I-6a	<a href="#">Link</a>	Lengthen turn lanes at the Church/Main intersection and add a westbound through lane on SR 32.	High Priority	The Village of Newtown	Evaluate after B2 is constructed	Meet with Newtown to develop funding strategy	\$1,200,000 to \$1,800,000	\$250,000 to \$500,000
US 50 Corridor	F7	BIKE-5	<a href="#">Link</a>	Use old RR bed for bicycle connectivity to Little Miami Trail.	High Priority	Columbia Township		This alternative is being advanced by Great Parks / Columbia Township.	Getting info from Great Parks	Getting info from Great Parks
US 50 Corridor	F8	50-7a	<a href="#">Link</a>	Create shared use path along the south side of US 50 to Promenade intersection, then continue on north side of US 50 to Pocahontas.	High Priority	Columbia Township		Meet with Great Parks to coordinate next steps	\$850,000 to \$1,300,000	\$100,000 to \$200,000
SR 32 / SR 125		X-1c		Extend merge length on ramp from westbound SR 32 to westbound SR 125.	High Priority	The City of Cincinnati		Need to meet with ODOT PM to determine if this work can be added to PID 107295	\$47,000 to \$71,000	\$0

Focus Area	PI Mtg Identifier	Identifier	Website Link	Conceptual Project Description	Priority	Maintaining Agency	Phasing Recommendations	Next Steps	Construction Cost Range	Right-of-Way Cost Range
US 50 Corridor		50-10		Pedestrian crossing of US 50 at Ashley Oaks.	High Priority	Columbia Township		This alternative is being advanced by Columbia Township.	\$55,000 to \$82,000	\$0
US 50 Corridor	F6	50-5	<a href="#">Link</a>	Maintain two lanes in each direction on US 50 between East St and Petoskey Ave by restriping and minor widening into median island.	High Priority	The Village of Mariemont		Mariemont Planning Commission failed to pass consent legislation for this work in January of 2019 to include the work in the 2019 US-50 resurfacing project (PID 101309). Re-evaluate with updated crash data in the summer of 2019.	\$26,000 to \$39,000	\$0
SR 32 / SR 125		X-1e		Install drainage backflow preventer and additional grading along bike trail to reduce flooding frequency on SR 32 ramps under bridge.	High Priority	ODOT		Committed with PID 107295	\$35,000 to \$53,000	\$0
US 50 Corridor		I-13b		Refresh Mariemont Square pavement markings and add RPMs through intersections.	High Priority	The Village of Mariemont		Committed with PID 101309	\$9,000 to \$15,000	\$0
Newtown		I-10a		Install five section head for WB right turn movement at Church/Valley intersection.	High Priority	The Village of Newtown		Committed with local funding	\$4,800 to \$7,200	\$0
Ancor-SR 32 Hill		I-2a		Improve signal timing.	High Priority	ODOT		Committed with ODOT retiming study	n/a	\$0
Ancor-SR 32 Hill		32-13		Add friction pavement surface on SR 32.	High Priority	ODOT		Committed with PID 107133 in summer of 2019	n/a	\$0
Ancor-SR 32 Hill		32-8		Need speed study on SR 32 at Little Dry Run to consider lower legal speed.	High Priority	The Village of Newtown		Completed January 2019	n/a	n/a
Ancor-SR 32 Hill		I-3f		Investigate vegetation removal to improve intersection sight distance.	High Priority	ODOT		Committed with PID 101383 for fall 2019	\$15,000 to \$22,500	\$0
SR 32 / SR 125	A3	Elstun-1	<a href="#">Link</a>	Add sidewalk along Elstun Rd to connect bus stops on SR 125 with rental properties on Spindlehill Dr and Reserve Cir.	Medium Priority	Anderson Township	Not needed if A6 is constructed	First evaluate A5/A6 options and consider sidewalk along Elstun only if shared use path is not considered feasible	\$43,000 to \$64,000	\$15,000 to \$30,000
Linwood-Eastern_US-50_Red_Bank		X-2C		Improve pedestrian crossing at existing bus stops located on SR 125/SR 32 at Wooster/Wilmer	Medium Priority	The City of Cincinnati		Pursue D5/D6 first and consider X-2C only if needed	\$450,000 to \$675,000	0
US 50 Corridor	F5	I-11c	<a href="#">Link</a>	Install a roundabout at Newtown/US 50 intersection.	Medium Priority	ODOT		Re-evaluate this concept with 2019 crash data in the summer of 2019	\$1,375,000 to \$2,150,000	\$180,000 to \$360,000
Linwood-Eastern_US-50_Red_Bank	E3	I-16b	<a href="#">Link</a>	Install roundabout at Meadowlark/US 50 intersection.	Medium Priority	The Village of Fairfax		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$1,200,000 to \$1,800,000	\$12,500 to \$25,000
Newtown	B3	I-8b	<a href="#">Link</a>	Install roundabout at Round Bottom/Valley intersection.	Medium Priority	The Village of Newtown		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$475,000 to \$700,000	\$80,000 to \$160,000
Newtown	B4	I-10c	<a href="#">Link</a>	Install roundabout at Church/Valley intersection.	Medium Priority	The Village of Newtown		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$600,000 to \$910,000	\$165,000 to \$330,000
SR 32 / SR 125	A2	I-7d	<a href="#">Link</a>	Improve Clough & SR 32 intersection to allow full movements by using signalized green tee intersection. Includes center turn lane on SR 32 from Speedway to Clough.	Medium Priority	ODOT		Re-evaluate this concept with 2019 crash data in the summer of 2019	\$1,600,000 to \$2,400,000	\$150,000 to \$300,000
Linwood-Eastern_US-50_Red_Bank	E4	I-20b	<a href="#">Link</a>	Install roundabout at Wooster/Red Bank intersection.	Medium Priority	The Village of Fairfax		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$1,150,000 to \$1,750,000	\$40,000 to \$80,000

Focus Area	PI Mtg Identifier	Identifier	Website Link	Conceptual Project Description	Priority	Maintaining Agency	Phasing Recommendations	Next Steps	Construction Cost Range	Right-of-Way Cost Range
SR 32 / SR 125	A9	32-2a	<a href="#">Link</a>	Connect Five Mile Trail using subdivision streets in Turpin Hills to the end of Patterson Farms Ln, and then by utilizing existing emergency access road connecting to Turpin Lake Place to Little Miami Trail. Final connection to use A7 or A8.	Medium Priority	Anderson Township		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$2,500 to \$4,000	\$30,000 to \$60,000
SR 32 / SR 125	A7	32-1a	<a href="#">Link</a>	Make connection from Turpin Lake subdivision to Little Miami Trail with "mid-block" at-grade pedestrian crossing. Perform speed study in conjunction and move crossing to the intersection.	Medium Priority	Anderson Township	Build after A9	Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$35,000 to \$50,000	\$5,000 to \$10,000
Newtown	B10	RB-3d	<a href="#">Link</a>	Connect Riverside Park and Lake Barber with Little Miami Trail with shared use path. Golf course alignment.	Medium Priority	The Village of Newtown		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$1,175,000 to \$1,775,000	\$107,000 to \$214,000
Newtown	B8	RB-3a	<a href="#">Link</a>	Connect Riverside Park and Lake Barber with Little Miami Trail with shared use path. Portion of alignment along Valley.	Medium Priority	The Village of Newtown		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$160,000 to \$240,000	\$150,000 to \$300,000
Ancor-SR 32 Hill	C10 C11	A-1 A-2	<a href="#">Link</a>	Add access road from Newtown east corporation line to Broadwell Road. Includes adjacent shared use path.	Medium Priority	TBD		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration. Next step will consist of developing alternatives before arriving at a recommended preferred alternative.	\$9,100,000 to \$16,850,000	\$175,000 to \$1,450,000
Ancor-SR 32 Hill	C6	I-3e	<a href="#">Link</a>	New alignment and grade separation of eastbound SR 32 over Eight Mile; unsignalized continuous green tee intersection at Eight Mile and westbound SR 32. (Partial eastbound only grade improvements on hill). Includes grade adjustments on Eight Mile Rd.	Medium Priority	ODOT	Construct after C5	Re-evaluate after construction of C5 or if C10/C11 move forward.	\$11,650,000 to \$17,450,000	\$1,850,000 to \$3,700,000
Linwood-Eastern_US-50_Red_Bank	E5	BIKE-1a BIKE-2a	<a href="#">Link</a>	Connect Wasson Trail to Eastern (at D2) with shared use path along US 50.	Medium Priority	The City of Cincinnati		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$5,100,000 to \$7,700,000	\$855,000 to \$1,710,000
Linwood-Eastern_US-50_Red_Bank	E7	BIKE-2b X-4d-1 BIKE-4a	<a href="#">Link</a>	Connect Wasson Trail to Armleder with shared use path from Ault Park to Red Bank to Wooster, behind Cincinnati Paperboard to Armleder Trail Loop.	Medium Priority	The City of Cincinnati		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration. Shared use path connection without X-4d-1 could be considered.	\$3,100,000 to \$4,650,000	\$830,000 to \$1,660,000
Newtown	B8	RB-1	<a href="#">Link</a>	Connect Riverside Park and Lake Barber with Little Miami Trail with shared use path. Portion of alignment from Riverside Park & Lake Barber to Valley.	Medium Priority	The Village of Newtown		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$820,000 to \$1,230,000	\$195,000 to \$390,000
SR 32 / SR 125		I-22a		Improve signal timing at SR 125 & Elstun intersection.	Medium Priority	ODOT / Anderson Township		Due to planned redevelopment of the Skytop Pavilion, this intersection needs to be analyzed in conjunction with the new development's Traffic Impact Study.	Not available	Not available
SR 32 / SR 125		I-22b		Improve turn lanes at SR 125 & Elstun intersection.	Medium Priority	ODOT / Anderson Township		Due to planned redevelopment of the Skytop Pavilion, this intersection needs to be analyzed in conjunction with the new development's Traffic Impact Study. Possible items to review would be: addition of westbound right turn lane and extension of northbound left turn lane.	Not available	Not available
US 50 Corridor		I-32b		Mariemont HS considering new access point to connect to US 50 Promenade signal.	Medium Priority	Columbia Township		This alternative is being considered by Mariemont Schools.	Not available	Not available

Focus Area	PI Mtg Identifier	Identifier	Website Link	Conceptual Project Description	Priority	Maintaining Agency	Phasing Recommendations	Next Steps	Construction Cost Range	Right-of-Way Cost Range
SR 32 / SR 125	A1	32-4	<a href="#">Link</a>	Correct deficient 'S' curve with new horizontal geometry and make vertical adjustment to alleviate flooding in this area. Allows for pedestrian underpass in A8.	Low Priority	ODOT		<ul style="list-style-type: none"> <li>Re-evaluate this concept with 2019 crash data in the summer of 2019. Include analysis of A8.</li> <li>Investigate raising road and keeping underpass without straightening.</li> <li>Possibly advance with planned ODOT 2022 preventative maintenance project (PID 105214).</li> <li>Evaluate low spot west of Turpin Lake Place that also is prone to flooding</li> </ul>	\$1,700,000 to \$2,500,000	\$40,000 to \$80,000
SR 32 / SR 125	A8	32-1b	<a href="#">Link</a>	Make connection from Turpin Lake subdivision to Little Miami Trail with "mid-block" pedestrian underpass crossing in conjunction with A1.	Low priority	Anderson Township	Construct with A1	Evaluate in coordination with A1	\$540,000 to \$820,000	\$70,000 to \$140,000
SR 32 / SR 125	A10	32-2b	<a href="#">Link</a>	Connect Five Mile Trail using subdivision streets in Turpin Hills to the end of Ropes Dr, and then by new path to Little Miami Trail in conjunction with A7 or A8.	Low Priority	Anderson Township	Construct with A7 or A8.	Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$1,050,000 to \$1,600,000	\$1,000,000 to \$2,000,000
Newtown	B5	Church-1	<a href="#">Link</a>	Adjust grade at railroad crossing on Church St.	Low Priority	The Village of Newtown		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$85,000 to \$250,000	\$10,000 to \$20,000
Ancor-SR 32 Hill	C2	I-4c	<a href="#">Link</a>	Install a continuous green tee intersection at Little Dry Run. Includes horizontal curve adjustment on Little Dry Run just south of SR 32 to improve sight distance.	Low Priority	The Village of Newtown	Construct after B2	Evaluate after completion of B2.	\$1,825,000 to \$2,750,000	\$50,000 to \$100,000
Ancor-SR 32 Hill	C4	32-10	<a href="#">Link</a>	Add WB left turn lane at Hickory Creek Drive.	Low Priority	ODOT		Re-evaluate this concept with 2019 crash data in the summer of 2019. Possibly advance with planned ODOT 2024 resurfacing (PID 105214).	\$1,250,000 to \$1,850,000	\$40,000 to \$80,000
Ancor-SR 32 Hill	C8	I-2b	<a href="#">Link</a>	Lengthen NB, SB and EB left turn lanes at Beechwood intersection. Adjust approach curve on Old SR 74 to provide better visibility at intersection.	Low Priority	ODOT		Re-evaluate this concept with 2019 crash data in the summer of 2019. Consider repurposing westbound outside shoulder as dedicated right turn lane.	\$350,000 to \$525,000	\$15,000 to \$30,000
Linwood-Eastern_US-50_Red_Bank	D1	I-26b	<a href="#">Link</a>	Create continuous right turn lane at Beechmont Circle for turn onto Wooster from SR 125.	Low Priority	The City of Cincinnati		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$320,000 to \$480,000	\$0
Linwood-Eastern_US-50_Red_Bank	D3 D4	I-29a I-29b	<a href="#">Link</a>	Install a traffic signal or roundabout at Beechmont/Linwood intersection. (Does not require closure of ramp from Eastern to US-50/SR-125).	Low Priority	The City of Cincinnati		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration. Update crash data for ramp from Eastern to US-50/SR-125 as part of analysis. Next step will consist of developing alternatives before arriving at a recommended preferred alternative.	\$310,000 to \$2,650,000	\$20,000 to \$120,000
US 50 Corridor	F3	I-15a	<a href="#">Link</a>	Right turn lane extension on southbound Watterson by using peak-hour parking restriction.	Low Priority	The Village of Fairfax		Evaluate after completion of low-cost signal upgrade bundle.	\$10,000 to \$15,000	\$0
US 50 Corridor	F4	I-12b	<a href="#">Link</a>	Extend southbound left turn lane at Walton Creek/US 50 intersection.	Low Priority	Hamilton County		Evaluate after completion of low-cost signal upgrade bundle.	\$75,000 to \$115,000	\$125,000 to \$250,000
SR 32 / SR 125	A11	32-3	<a href="#">Link</a>	New shared use path (1.8 miles) from Five Mile Trail to Little Miami Trail along Newtown Rd., Ragland Rd & Turpin Ln. Includes culverts for stream crossings along Ragland Rd.	Low Priority	Anderson Township		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$2,100,000 to \$3,100,000	\$750,000 to \$1,500,000

Focus Area	PI Mtg Identifier	Identifier	Website Link	Conceptual Project Description	Priority	Maintaining Agency	Phasing Recommendations	Next Steps	Construction Cost Range	Right-of-Way Cost Range
US 50 Corridor	F9	50-9	<a href="#">Link</a>	Extend sidewalk along south side of US 50 east to Newtown Rd.	Low Priority	Columbia Township		Work with Columbia Township to consider including this recommendation in zoning for redevelopment.	\$170,000 to \$260,000	\$100,000 to \$200,000
Ancor-SR 32 Hill	C7	32-18-3	<a href="#">Link</a>	Reduce grade on SR 32 hill by grade separating the Beechwood/Old SR 74 and Eight Mile intersections. Includes two-way frontage road on north side of new SR 32 alignment, low speed connections at Eight Mile and roundabout interchange at Beechwood. (Full grade improvements on hill). Includes grade adjustments on Eight Mile Rd approach to SR 32 and addition of WB left turn lane at Hickory Creek (C4).	Low priority	ODOT		Re-evaluate after construction of C5/C6 or if C10/C11 move forward.	\$37,400,000 to \$56,100,000	\$2,600,000 to \$5,200,000
US 50 Corridor	F1 F2	I-13d I-13e	<a href="#">Link</a>	Add curb bump out to move stop bar for better sight distance on northbound Miami at Square, also add curb bump out to create perpendicular crosswalk just west of Crystal Springs.	Low Priority	The Village of Mariemont		Eastern Corridor Study Analysis complete; turned over to local agency for future consideration.	\$28,000 to \$55,000	\$0

- Do not require the relocation of significant numbers of people;
- Do not have a significant impact on any natural, cultural, recreational, historic, or other resource;
- Do not involve significant air, noise or water quality impacts;
- Do not have significant impacts on travel patterns; or
- Do not otherwise, either individually or cumulatively, have any significant environmental impacts, and are, therefore, categorically excluded from the requirement to prepare an Environmental Assessment or Environmental Impact Statement.

Categorical Exclusions are classified as “C” or “D” in accordance with 23 CFR 771.117. The appropriate level of CE classification for each project is based on the type of action and project impacts. ODOT’s guidance document, *ODOT NEPA Assignment Categorical Exclusion Guidance*, (February 2019) identifies the environmental impact thresholds for each level of CE. Categorical Exclusions defined as C1 and C2 require limited environmental documentation and can be approved by the ODOT District Environmental Coordinator (DEC). The DEC is also able to approve CE determinations of D1 actions, but these projects require a greater level of environmental analysis and documentation than C1 and C2 actions. CE determinations which meet the environmental threshold for D2 and D3 actions require the greatest level of environmental documentation and need to be submitted to ODOT’s Office of Environmental Services (OES) for review, increasing the time required for environmental clearance.

### **4.3 PROJECT PRIORITIZATION**

Projects are listed as high, medium, and low priorities. High priority projects are those that should be implemented first when funding becomes available. Projects identified as high priority are those that would result in an immediate improvement of a specific transportation need. These projects typically have very favorable benefit/cost ratios and provide significant improvements to traffic operations and/or transportation network.

Medium priority projects should be implemented after the high priority projects when funding becomes available. These projects also provide a transportation benefit but may have received a slightly lower level of stakeholder or public support than high priority projects.

Low priority projects, while still providing some transportation improvement, do not provide as great a transportation improvement as medium and high priority projects. These projects generally have lower benefit/cost ratios. In addition, projects may be considered low priority if they have significant right-of-way or environmental challenges, or high construction costs.

### **4.4 POSSIBLE FUNDING SOURCES**

Funding each of the recommended transportation projects presents the biggest challenge to project implementation. There are four sources of transportation project funding: federal, state, local, and private. Federal, state, and local transportation programs are facing revenue shortfalls, making funding very competitive. Most transportation projects receive funds from several sources. To assist project sponsors in securing funds for their projects, potential funding sources are identified for select projects and projects are rated and prioritized for funding using the scoring methodologies which would be used by the funding

agency (either ODOT or OKI depending on the funding). The estimated funding scores for the projects are included in **Appendix D: Estimated Funding Scores**.

There are several potential sources of funding for recommended projects, which are identified below. An overview of these programs, which includes a description, summary of the application process, and local contacts is provided as **Attachment D.1**, in **Appendix D**.

### **Federal Funding Programs**

- Transportation Review Advisory Council (TRAC) funds (Major New Capacity Program); managed by ODOT
- Highway Safety Improvement Program (HSIP); managed by ODOT and County Engineers Association of Ohio (CEAO)
- Surface Transportation Block Grant Program (STBG), formerly Surface Transportation Program (STP); managed by OKI and CEAO
- Transportation Alternatives (TA), which includes Safe Routes to School (SRTS); managed by OKI and ODOT
- Congestion Mitigation Air Quality (CMAQ); managed by OKI

### **State, Local, and Other Programs**

- Recreational Trails Program (RTP) and Clean Ohio Trails Fund (COTF); managed by Ohio Department of Natural Resources (ODNR)
- State Capital Improvement Program (SCIP) and Local Transportation Improvement Program (LTIP); managed by Ohio Public Works Commission (OPWC)

## **5.0 NEXT STEPS**

The next steps for the recommended transportation projects will depend, in part, on the types of funding that are pursued. As previously mentioned, projects that receive federal funding or require a Federal action such as a permit, must comply with the National Environmental Policy Act (NEPA). If a project is funded through state, local or other funds and does not require any permits, there is no NEPA compliance requirement. In general, the steps that will be followed for implementation of the recommended projects are as follows:

1. Identification of project sponsors.
2. Identification of possible funding sources; preparation and submittal of funding applications.
3. Development and refinement of project plans.

4. Performance of environmental impact assessments and preparation of National Environmental Policy Act (NEPA) documents, as required. Any project requiring a federal approval, i.e., permit, Interchange Modification Study, etc. will require NEPA compliance. Obtain approval of NEPA documents.
5. Completion of final design, utility relocation, and right-of-way acquisition.
6. Project construction.



## 6.0 REFERENCES

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## **7.0 ACRONYMS**

<b>CE</b>	-	<b>Categorical Exclusion</b>
<b>CEAO</b>	-	<b>County Engineers Association of Ohio</b>
<b>CFR</b>	-	<b>Code of Federal Regulations</b>
<b>CEQ</b>	-	<b>Council on Environmental Quality</b>
<b>CMAQ</b>	-	<b>Congestion Mitigation Air Quality</b>
<b>COTF</b>	-	<b>Clean Ohio Trails Fund</b>
<b>DEC</b>	-	<b>District Environmental Coordinator</b>
<b>FEIS</b>	-	<b>Final Environmental Impact Statement</b>
<b>FHWA</b>	-	<b>Federal Highway Administration</b>
<b>HSIP</b>	-	<b>Highway Safety Improvement Program</b>
<b>LPA</b>	-	<b>Local Public Agency</b>
<b>LTIP</b>	-	<b>Local Transportation Improvement Program</b>
<b>MIS</b>	-	<b>Major Investment Study</b>
<b>NEPA</b>	-	<b>National Environmental Policy Act</b>
<b>ODOT</b>	-	<b>Ohio Department of Transportation</b>
<b>OES</b>	-	<b>Office of Environmental Services</b>
<b>OKI</b>	-	<b>Ohio-Kentucky-Indiana Regional Council of Governments</b>
<b>OPWC</b>	-	<b>Ohio Public Works Commission</b>
<b>PDP</b>	-	<b>Project Development Process</b>
<b>PBPD</b>	-	<b>Performance Based Practical Design</b>
<b>RTP</b>	-	<b>Recreational Trails Program</b>
<b>ROD</b>	-	<b>Record of Decision</b>
<b>SCIP</b>	-	<b>State Capital Improvement Program</b>
<b>SORTA</b>	-	<b>Southwest Ohio Regional Transit Authority</b>

<b>SRTS</b>	-	<b>Safe Routes to School Program</b>
<b>STIP</b>	-	<b>State Transportation Plan</b>
<b>STBG</b>	-	<b>Surface Transportation Block Grant Program (STBG)</b>
<b>STP</b>	-	<b>Surface Transportation Program</b>
<b>TA</b>	-	<b>Transportation Alternatives</b>
<b>TID</b>	-	<b>Transportation Improvement District</b>
<b>TIP</b>	-	<b>Transportation Improvement Plan</b>
<b>TRAC</b>	-	<b>Transportation Review Advisory Council</b>