



Final Report

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Glossary of Terms

AM/PM Peak Period – The part of the day during which traffic congestion on roads is highest. Normally, this happens twice a day—once in the morning and once in the evening, the times when the most people commute. For this study, peak periods were determined to be the following times based on traffic counts performed for this study: 7:00am to 9:00am and 4:00pm to 6:00pm.

Average Daily Traffic (ADT) – The total volume of traffic passing a point or segment of a highway facility in both directions divided by the number of days in the year measured in vehicles per day (vpd).

Design speed – A speed used to design the horizontal and vertical alignments of a roadway.¹

Functional classification – The process by which streets and highways are grouped into classes, or systems, according to the character of traffic service that they are intended to provide. There are four highway functional classifications: Freeway, arterial, collector, and local roads. All streets and highways are grouped into one of these classes, depending on the character of the traffic.

Horizontal curvature (HC) – A transition between two tangent roadway sections. The minimum radius for a horizontal curve varies depending on the design speed.

Indiana Department of Transportation (INDOT) -- INDOT is responsible for state roads, interstates and U. S. routes including adjacent overpasses and ramps on these roadways. Construction and maintenance of these roads is also INDOT's responsibility along with traffic control devices along these roadways, including signs and traffic signals. Local cities, counties and towns are responsible for all other roadways that are not a state road, interstate or U.S. route.

Level of Service (LOS) – A quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst.¹

Local Project Agency (LPA) -- The local project agency is typically a local government (city, township or county) which oversees and manages federal aid transportation projects on behalf of INDOT. LPAs typically own and maintain the transportation infrastructure under their jurisdiction. INDOT maintains standards and certification for LPAs to manage transportation projects with Federal Funding.

Minimum Radius – A limiting value of curvature for a given design speed, determined from the maximum rate of super-elevation and the maximum friction factor selected for design.³

Sight Distance – The length of the roadway ahead that is visible to the driver. The selected design speed of a roadway establishes the minimum sight distance that should be used in design.³

Stopping Sight Distance (SSD) – The sum of two distances: (1) the distance traversed by the vehicle from the instant the driver sights an object necessitating a stop to the instant the brakes

are applied, and (2) the distance needed to stop the vehicle from the instant brake application begins.³

Sufficiency Rating – A measure developed by the FHWA which is an indicator of a bridge’s sufficiency to remain in service. Sufficiency ratings are determined on a scale from 100 which represents an entirely sufficient bridge, to 0 which represents an entirely insufficient or deficient bridge. The sufficiency rating is calculated using a formula which accounts for structural adequacy and safety; serviceability and functional obsolescence; and essentiality for public use.

Super-Elevation -- The transverse slope or bank of a roadway in a curve to counter act the outward centripetal force of a vehicle, keeping it stable on the pavement and for passengers to maintain comfort.

Vertical Curvature (VC) – A transition between two sloped roadway sections. The required Stopping Sight Distance for a vertical curve varies depending on the design speed.

Volume to Capacity (v/c) Ratio – The ratio of flow rate to capacity for a system roadway segment.

1 AASHTO Highway Capacity Manual 2010

2 Federal Highway Administration (<http://www.fhwa.dot.gov/environment/publications/flexibility/ch03.cfm>)

3 American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets 2011 (6th Edition)

Executive Summary

Purpose

There is no direct route linking the Interstate 74 Harrison/Brookville Interchange (Exit 169) to the Bright area located approximately three miles to the south. Connectivity between Bright and Interstate 74 is challenging due to hilly topography and the Whitewater River. The most direct route from the Harrison/Brookville interchange to Bright is a circuitous 5.5 mile long route utilizing portions of US 52, SR 46, Whites Hill Road and North Dearborn Road.

The Ohio-Kentucky-Indiana Regional Council of Government's (OKI) Metropolitan Transportation Plan has included a potential new connector roadway linking Bright to Interstate 74 since the 2012 Update, however, planning and design for a potential connector had not been initiated.

OKI, with local funding and support from Dearborn County, has conducted the Bright 74 Study (Study) to investigate conceptual solutions to improve safety, access and other travel needs between Bright and the I-74 Harrison/Brookville interchange using existing roadways, potential new roadways and/or a combination of both.

Study Team

The Study Team included representatives from OKI, Dearborn County, the Indiana Department of Transportation, as well as prime consultant AECOM and subconsultants, Corradino Group (Travel Demand Forecasting), Shrewsbury Associates (Environmental Red Flags) and Vox Populi (Public Involvement).

Advisory Committee

OKI established an Advisory Committee to assist the study team. The Advisory Committee consisted of Dearborn County, OKI Board Members and other key stakeholders who represent 20 diverse and well-established governmental agencies, local businesses, emergency service providers and civic-based organizations in the area. Advisory Committee responsibilities included the following:

- Provide study updates and disseminate information to community, organizational and agency members to encourage an exchange of information.
- Share community/organization/agency members' questions, concerns and general feedback.
- Assist with public involvement and outreach efforts, as appropriate.

Public Involvement

A total of five Advisory Committee meetings were conducted during the Study as well as three public open houses. These meetings presented data on existing conditions and provided a venue for the public at large to offer comments on the proposed conceptual solutions and recommendations. Exhibits illustrating existing conditions and proposed solutions, along with

comparisons of the operational performance, environmental impacts and estimated costs were presented to the public for review and comment at the three public information sessions, as well as online at the Study website at <http://bright74.oki.org/>, during three separate 30 day-public comment periods.

Study Area

The Study Area was comprised of 19 square miles within Harrison and Logan Townships in northeastern Dearborn County (see Figure 1). Bright is a census defined place, but is not an incorporated municipality. Access to the I-74 Harrison/Brookville Interchange is primarily via North Dearborn Road, Whites Hill Road, SR 46 and US 52 and was the focus for this Study. Remaining roads in the Study Area are generally local roads. Interstate 74 is accessible west of the Study Area from the interchange at SR 1. Interstate 74 is accessible east of the Study Area in Hamilton County, Ohio from interchanges at New Haven Road, Dry Fork Road and via I-275 at Kilby Road.

Phase 1 Data Collection

Phase 1 of the Study included the development of a *Data Collection Summary Report* for the Study Area. This report included mapping, traffic, crashes and other roadway-related information. Readily available data was collected within the Study Area to identify transportation needs or potential areas of concern. Field data collection was not included in the scope of the Study.

Roadway Conditions

Information on existing roadways has been provided primarily by the Dearborn County Engineer. Most functionally classified roadways within the Study Area are County-maintained routes with the exception of SR 46, US 52 and Interstate 74. Other than Interstate 74, no routes in the Study Area are on the National Highway System (NHS).

Several segments of North Dearborn and Whites Hill Roads do not meet current INDOT Rehabilitation, Restoration, and Resurfacing “3R” design criteria (*INDOT Design Manual Chapter 55*) for grades, horizontal and vertical curvature, lane and shoulder width, and roadside conditions. There are several areas where obstructions are located within 10 feet of the edge of the travel lanes. Existing conditions generally do not allow for the passing of vehicles. Existing geometry can exacerbate the effect of poor weather conditions and the presence of slow or impassible vehicles, which have a detrimental impact on travel time.

Pavement is generally in fair to good condition. There are some minor areas of pavement cracking or base failure in isolated locations, generally attributable to side slope or base drainage conditions. The preferred INDOT paved shoulder width is four to six feet with a minimum of two feet. In nearly all areas, the existing shoulders fail to meet these criteria.

There were approximately 120 injury crashes and a total of 515 crashes in the Study Area from 2009 to 2013 excluding Interstate 74. Crash rates are generally similar to statewide averages.

Existing and Future Traffic

State Line Road is the most heavily traveled non-interstate road within the Study Area. Study area residents utilize several existing routes to access Interstate 74. The majority of interstate travel is to and from Hamilton County. There are approximately 700 daily trips using the Harrison/Brookville Road interchange from the Study Area. There are no significant congestion issues within the Study Area on routes connecting to Interstate 74.

A study-specific small area travel demand model was created to estimate future 2040 traffic volumes. The model forecasts did not indicate future capacity issues within the Study Area roadway network. Significant land use change and growth in traffic volumes are not anticipated during the planning horizon.

Environmental Red Flags

Phase 1 of the Study included the development of a *Red Flag Summary and Environmental Overview Report* for the Study Area with a focus on potential corridors for roadway improvements. The *Red Flag Summary and Environmental Overview* utilized readily available information to identify existing conditions of affected environment, human environment, cultural and historic resources, natural environment, air quality, noise, hazardous materials, Section 4(f) and Section 6(f), geology, permits, and agency coordination. The Study Area includes many water resources, including wetlands, streams, rivers and ponds. Resources also include the floodplain for the Whitewater River.

These resources have been identified and mapped with the Study's concepts overlaid to avoid or minimize impacts to identified resources to the extent possible. Environmental documentation, permitting and federal, state or local agency coordination were not conducted as part of this Study. These tasks have not been initiated during this Study and will be done on a project-specific basis during future phases of project development after this Study is concluded.

Public Comments

While most residents of the Study Area agreed that existing roadways have deficiencies, the primary desire expressed during the public comment period was to preserve the rural quality of the area and maintain existing roadways (see Figure 6). Some members of the Advisory Committee and the general public noted that other interchanges serving the Study Area are more heavily used than the Harrison/Brookville interchange and that other corridors should be evaluated. This Study was focused on travel between Bright and the I-74 Harrison/Brookville interchange; however, in response to public and Advisory Committee input, this Study has included a recommendation for future evaluation of other interstate connectors in the area.

Phase 2 Conceptual Solutions

Draft Purpose and Need

At the conclusion of Phase 1, the Study Team in coordination with the Advisory Committee established the following Draft Purpose and Need for the Study:

“Provide improved travel between the Bright area and Interstate 74 that meets INDOT’s design criteria, reduces travel time, and enhances connectivity and traffic safety while preserving the rural quality.”

The following major goals were identified during the first phase of the Study:

- Preserve rural quality of the area
- Minimize environmental impacts
- Improve travel safety
- Enhance roadway connectivity and economic vitality

Concepts

Four conceptual solutions were developed to improve travel between Bright and the I-74 Harrison/Brookville interchange. These concepts were developed based on information collected during Phase 1. The conceptual solutions were not intended to address capacity or congestion, but were focused on reducing travel time and improving accessibility, safety and travel time reliability. All concepts had forecasted average daily traffic counts (ADTs) between 1,000 and 3,000 vehicles per day.

Concept 1 improves existing portions of North Dearborn and Whites Hill Roads while Concepts 2 through 4 provided alternate routes via new roadway connectors linking North Dearborn Road to SR 46 or Old US 52 (See Figures 8-10). Concepts 2 and 3 also included improving portions of North Dearborn and/or Whites Hill Roads in addition to proposed new roadway.

A range of estimated construction costs for each alternative varied from \$10-20 million for Concept 1 to \$30-55 million for Concept 3.

Design Criteria

The geometric design criteria used to develop the conceptual solutions (both new and existing roads) are based on the current *INDOT Design Manual* for a Local Planning Agency (LPA) Rural Major Collector. Concept 1 “Improvements to Existing Roads” assumes an INDOT Resurfacing, Restoration, and Rehabilitation “3R” improvement of the existing North Dearborn and Whites Hill Roads.

Public Comments

During a second 30-day public comment period, the Advisory Committee and general public were asked how well the four concepts addressed the primary goals established during Phase 1. Responses indicated that most felt that Concept 1: “Improve Existing Roads” met the goals while the proposed new connectors (Concepts 2, 3 and 4) did not (See Table 4).

Phase 3 Preliminary Alternatives

Evaluation of Conceptual Solutions

The Study Team developed a comparison matrix with a composite scoring system to quantitatively compare the concepts and screen them for future evaluation during the final phase of the Study. The matrix uses the four primary goals of the Study with a score assigned to sub factors for each of the goals. The subtotals for each goal were then factored according to the degree of importance taken from Phase 2's public input. The scores were tallied to arrive at an overall composite score. Concept 1 was the clear preference followed by Concept 2 (see Table 5).

The Study Team recommended that Concept 1: "Improve Existing Roads" and Concept 2: "Whites Hill Connector" be advanced for additional refinement and evaluation. Concepts 3 and 4 were recommended for elimination from further evaluation during the course of the Study. The Advisory Committee supported these Study Team recommendations.

Refinement of Concepts 1 and 2

Based on results of the evaluation done during Phase 2 as well as input from the Advisory Committee, the Study Team performed additional evaluation of Concepts 1 and 2. The refined impacts and construction costs associated with Concept 2 were significantly higher than that for Concept 1. Given the disparity in impacts and costs between Concepts 1 and 2, public feedback and the relatively minimal differences in travel time savings, safety and forecasted changes in traffic, the Study Team recommended that only Concept 1: "Improve Existing Roads" would be carried forward as part of the Study recommendations. The Advisory Committee agreed with this recommendation (see Appendix A for conceptual plan and profiles for the proposed geometric improvements to North Dearborn and Whites Hill Roads included as components of Concept 1).

Public Comments

During the third and final public comment period, participants were surveyed as to their views regarding the importance of the proposed enhanced maintenance and geometric improvements to Whites Hill and North Dearborn Roads. The results of the survey indicate that the majority do not feel that the proposed improvements are important at this time. Therefore, geometric improvements have been recommended for long-term implementation while enhanced maintenance is retained as a short-term recommendation. The Advisory Committee supported these recommendations.

The public was also asked about future evaluation and consideration of roundabouts within the Study Area as well as county-wide. The results of the survey indicate that less than one in five support potential use of roundabouts as an intersection design solution at the present time. Therefore, the recommendations do not include evaluation of roundabouts.

Recommendations

Both short- and long-term recommendations were developed by the Study Team and provided to the public for their comments and the Advisory Committee for their consensus.

Short Term Recommendations

Enhanced Maintenance

Conduct a detailed field inventory of existing conditions and perform the following maintenance activities on North Dearborn Road (between State Line Road and Whites Hill Road as well as along Whites Hill Road between North Dearborn Road and SR 46), as needed:

- Address drainage or slippage to mitigate ponding, and address pavement failures
- Repair, replace or add guardrail
- Remove roadside obstructions
- Widen where possible to provide a minimum two foot shoulder
- Add lighting at public roadway intersections
- Add mailbox turnouts
- Improve signage for wayfinding to and from Interstate 74

Long-Term Recommendations

Geometric Improvements to North Dearborn Road and Whites Hill Road

Plan for the long-term geometric improvements to North Dearborn Road and Whites Hill Road to remove deficient horizontal vertical curvature and to provide at least minimal lane and shoulder widths meeting INDOT or County Standards. The geometric details will be determined during future phases of project development. The recommended improvements will require external sources of funding to supplement the County's annual capital improvement budget for its roadways. Given the costs and impacts of the projects, it will likely be necessary to phase construction. The limits and costs of the phased implementation will be determined during future project development. Timing of the respective phases will be dependent on maintenance of traffic, available funding and the ability to acquire the needed rights of way (See Appendix A).

Coordination with INDOT for Improvements to SR-46 and US-52

While not in the County's purview, use of SR 46 and US 52 are necessary for travel between Bright and the I-74 Harrison/Brookville Road interchange. It is recommended that Dearborn County coordinate with INDOT regarding:

- The long-term replacement of the existing SR 46 Bridge over the Whitewater River
- Evaluation of the restricted site distance on US 52 between SR 46 and the Interstate 74 westbound ramps
- Evaluation of the restricted site distance on SR 46 just west of the Whites Hill Road intersection
- Investigation of the challenges drivers face merging from the existing entrance ramp on US 52 to eastbound I-74

County-Wide Roadway System

Other Interstate Connectors

Conduct field inventories and study potential improvements to North Dearborn Road (west of Whites Hill Road to SR 1 and east of State Line Road), Jamison Road and Sand Run Road to improve mobility to Hamilton County and direct connections with I-74 and/or via I-275 to I-74. These evaluations and potential future improvements will require close cooperation and coordination with the Hamilton County Engineer's Office.

Roundabouts

Given the public's stated lack of interest in near term use of roundabouts in this Study Area or the County in general, it is recommended that Dearborn County:

- Monitor the operation and implementation of roundabouts in other locations in the Cincinnati metropolitan area and southern Indiana.
- Provide public education on the benefits of roundabouts where they may be applicable for use in Dearborn County in the future.

Map Crash Data

It is recommended that Dearborn County explore creation of a sustained program to map crash data on county/local roadways to identify or monitor potential locations where roadway improvements may mitigate reoccurring crashes and to assist in prioritizing transportation improvements based on continual monitoring of crash data. This system will aid in support of potential future grant applications for Highway Safety Improvement Program (HSIP) eligible projects. This program will be done in the context of other County-wide GIS needs and priorities.

Inventory County Right of Way

Inventory the existing dedicated right of way along North Dearborn and Whites Hill Roads in the Study Area, as well as the potential needed right of way necessary to provide the width specified in the Dearborn County Zoning Ordinance. This could be expanded to other functionally classified roads in the county system when resources are available. The right of way inventory could be maintained in a sustained GIS enabled right of way management system similar to the crash data.

Introduction

Purpose

There is no direct route linking the Interstate 74 Harrison/Brookville Interchange (Exit 169) to the Bright area located approximately three miles to the south in Dearborn County, Indiana. Connectivity between Bright and Interstate 74 is diminished by hilly topography and the Whitewater River. The most direct route from the Harrison/Brookville Interchange to Bright is a circuitous 5.5 mile long route utilizing portions of US 52, SR 46, Whites Hill Road and North Dearborn Road.

The Ohio-Kentucky-Indiana Regional Council of Government's (OKI) Metropolitan Transportation Plan has included a potential new connector roadway linking Bright to Interstate 74 since the 2012 Update, however, planning and design for a potential connector had not been initiated.

OKI, with local funding and support from Dearborn County, has conducted the Bright 74 Study (Study) to investigate conceptual solutions to improve safety, access and other travel needs between Bright and the I-74 Harrison/Brookville interchange using existing roadways, potential new roadways and/or a combination of both. The Study was conducted in three phases: 1) Data Collection, 2) Conceptual Solutions, and 3) Preliminary Alternatives. Information was shared with the Study Advisory Committee and general public during each phase to solicit input and comments.

Study tasks generally followed the INDOT *Project Development Manual Steps 2 through Step 5* to develop preliminary alternatives, but did not include the initiation of environmental field studies, resources agency coordination or NEPA documentation.

Study Team

The Study Team included representatives from OKI, Dearborn County, the Indiana Department of Transportation, as well as prime consultant AECOM and its subconsultants, Corradino Group (Travel Demand Forecasting), Shrewsbury Associates (Environmental Red Flags) and Vox Populi (Public Involvement).

Advisory Committee

OKI established an Advisory Committee to assist the Study Team. The Advisory Committee consisted of Dearborn County, OKI Board Members and other key stakeholders who represent 20 diverse and well-established governmental agencies, local businesses, emergency service providers and civic-based organizations in the area. Advisory Committee responsibilities included the following:

- Provide study updates and disseminate information to community/organizational/agency members to encourage an exchange of information.

- Share community/organization/agency members' questions, concerns and general feedback.
- Assist with public involvement and outreach efforts, as appropriate.

Refer to the Study *Public Involvement Plan* for additional information regarding the Advisory Committee representatives.

Public Involvement

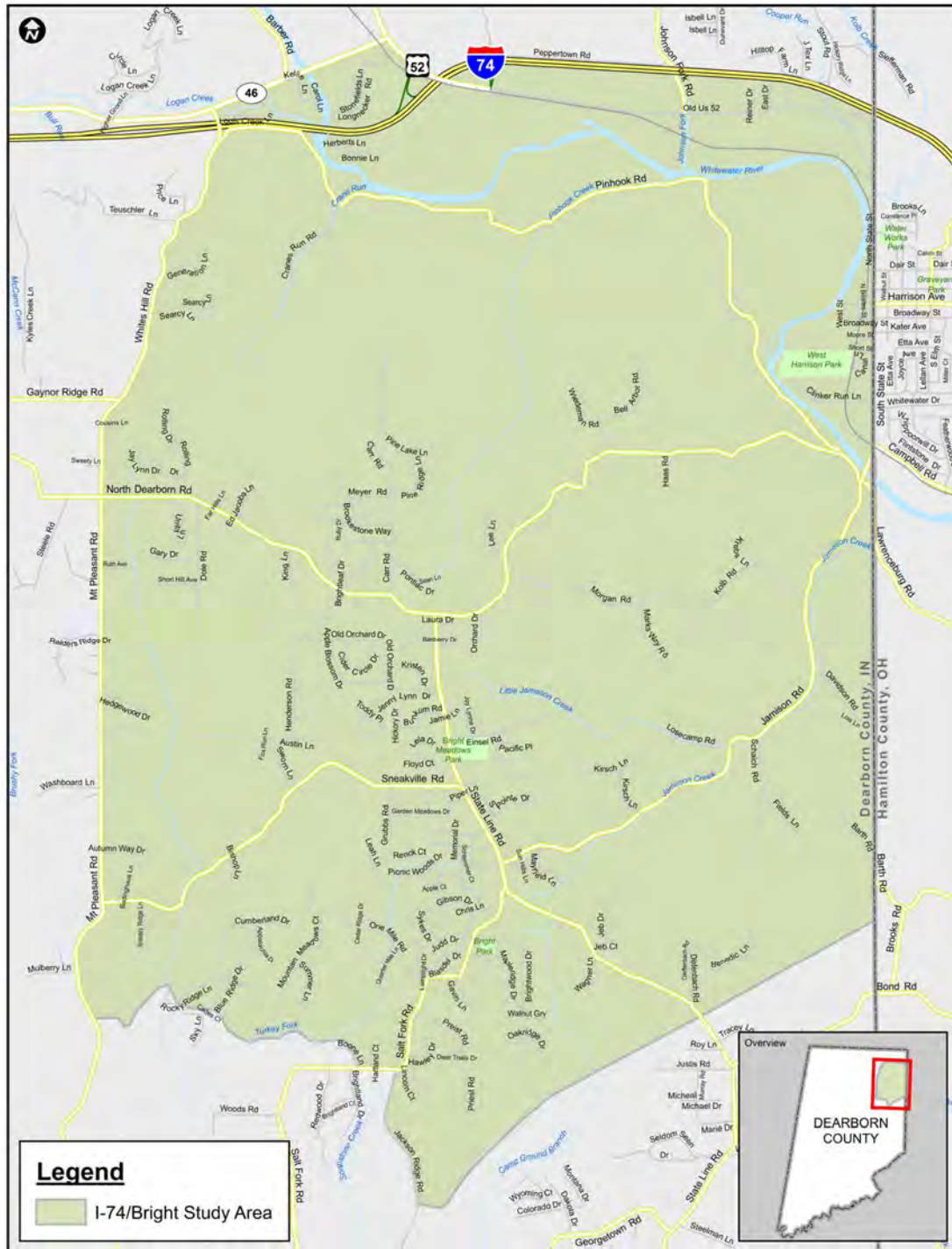
A total of five Advisory Committee meetings were conducted during the Study as well as three public open houses. These meetings presented data on existing conditions and provided a venue for the public at large to offer comments on the proposed conceptual solutions and recommendations. Exhibits illustrating existing conditions and proposed solutions, along with comparisons of the operational performance, environmental impacts and estimated costs were presented to the public for review and comment at the three public information sessions, as well as online at the Study website at <http://bright74.oki.org/>, during three separate 30-day public comment periods. Refer to the *Public Involvement Plan* for additional information on outreach, media coverage and information shared during each of the meetings. Separate Public Comment Summary Reports have been created summarizing surveys results and comments received during each of the three public comment periods.

Study Area

The Study Area was comprised of 19 square miles within Harrison and Logan Townships in northeastern Dearborn County (See Figure 1). Bright is a census defined place, but is not an incorporated municipality. Access to the I-74 Harrison/Brookville Interchange is primarily via North Dearborn Road, Whites Hill Road, SR 46 and US 52 and was the focus for this Study. Remaining roads in the Study Area are generally local roads. Interstate 74 is accessible west of the Study Area from the interchange at SR 1. Interstate 74 is accessible east of the Study Area in Hamilton County, Ohio from interchanges at New Haven Road, Dry Fork Road and via I-275 at Kilby Road.

The Whitewater River runs along the north and east sides of the Study Area separating Bright and unincorporated areas to the south from Interstate 74. Connections to the east and west are provided by North Dearborn and Jamison Roads. The Brookville Subdivision of the Indiana and Ohio Railway runs generally parallel to US 52 north of the Whitewater River. This short line railroad previously connected Brookville in Franklin County with the general railroad network, but is currently not active west of the White Water Mill in West Harrison.

Figure 1: Study Area



Phase 1 Data Collection

Phase 1 of the Bright 74 Study can be summarized as the Data Collection Phase. During this study phase, the Study Team worked to compile and analyze data covering all aspects of the Study Area. The results of these efforts are presented in two reports (*Data Collection Summary Report* and *Red Flag Summary and Environmental Overview*). Field data collection was not included in the scope of the Study.

The purpose of the *Data Collection Summary* was to examine existing traffic, roadway and safety conditions on existing roadways in the Bright 74 Study Area. This report defines where there are problems or deficiencies in the roadway network and includes mapping, identification and review of other roadway characteristics, existing traffic volumes, Level of Service (LOS), crash analysis, land use, existing and future population and employment data, and environmental and community resources. Along with public input, the *Data Collection Summary* provides the catalyst for identifying transportation needs addressed with the conceptual solutions developed during Phase 2 of the Study.

Demographics and Land Use

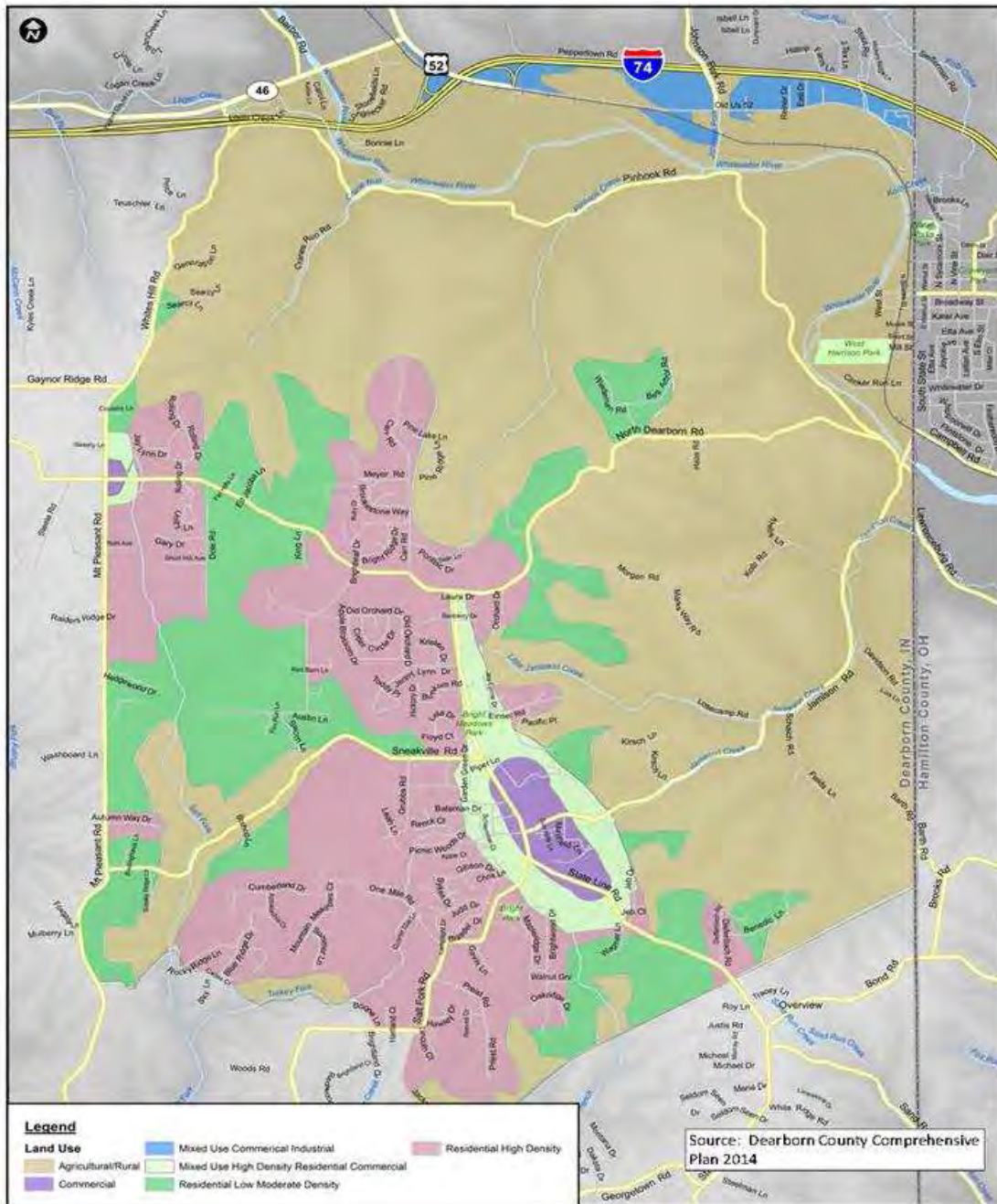
Bright has approximately 2,000 households, with a total population 5,000 and 2,600 employed residents. Employment within Bright is approximately 250 persons. Bright is primarily a semi-rural bedroom community for the larger region. The majority of the population commutes to work within the Greater Cincinnati metropolitan area. Population has remained steady over the past decade. The population of the Study Area is relatively homogenous with small minority populations. There is minimal potential for disproportionate impacts to Environmental Justice populations by the transportation improvement.

Growth in population and employment is forecast to be moderate over the next 20 years with growth between 10 and 20 percent. Significant increases in travel demand are not anticipated during the plan horizon.

Land use, zoning maps and GIS shape files were provided by the Dearborn County Planning Zoning Department. The most recent land-use plan was adopted as part of Dearborn County's Comprehensive Plan update in 2014. Current zoning classifications within the Study Area include agricultural, restricted business, general business, and highway interchange, manufacturing and residential. The zoning for the majority of the Study Area is agricultural and residential. Zoning within the Study Area is administered at the County level.

Future land use is generally planned to be consistent with current uses with the exception of planned commercial and industrial development between the Whitewater River and Old US 52. Significant land use change and growth in traffic volumes is not anticipated during the twenty year planning horizon. See Figure 2 for future land use in the Study Area.

Figure 2: Future Land Use



Roadway Information

Information on existing roadways has been provided primarily by the Dearborn County Engineer. Most functionally classified roadways within the Study Area are County maintained routes with the exception of SR 46, US 52 and Interstate 74. Other than Interstate 74, no routes in the Study Area are on the National Highway System (NHS).

The scope of work did not include a detailed inventory or field inspection of all existing roadways within the Study Area. The focus of this study was the connection between Bright and Interstate 74, therefore a summary of existing conditions was developed for the following roadways which provide the most direct route between Bright and the Interstate 74 Harrison/Brookville Interchange. The following roadway segments were evaluated during the Study.

- State Line Road from Jamison Road to North Dearborn Road
- North Dearborn Road (CR 26) from State Line Road to Whites Hill Road
- Whites Hill Road (CR 203) from North Dearborn Road to SR 46
- SR 46 from Whites Hill Road to US 52
- US 52 from SR 46 to Interstate 74

The Study Team performed a limited review of existing topography and alignment data for the aforementioned roadway segments based on Indiana topographic map data and aerial photography, OKI and County GIS datasets and online street level mapping such as Google Street View™.

The County routes are functionally classified as Rural Major Collectors according to the 2015 INDOT functional classification map of Dearborn County. Based upon available information, several segments of these roadways do not meet current INDOT rehabilitation, restoration, and resurfacing “3R” design criteria (INDOT *Design Manual Chapter 55*) for grades, horizontal and vertical curvature, lane and shoulder width, and roadside conditions.

The preferred paved shoulder width is four to six feet with a minimum of two feet. In nearly all areas, the existing shoulders fail to meet these criteria. Inadequate shoulder width can be a contributing factor in off-the-road crashes. There are existing overhead electric and subsurface communication lines on either side of Whites Hill Road and some areas along North Dearborn Road which are a constraint to significant widening without relocation of the existing poles which could be costly.

Right of Way

Based on available information, dedicated right-of-way along County maintained routes is not prevalent and is typically dedicated only when a lot split or new subdivision is platted in accordance with the County Zoning Ordinance. The County typically acquires right-of-way when necessary for significant new capital improvement projects and does not routinely acquire right-of-way on existing roadways. Most parcel lines are located at the centerline of the roadway. Maintenance or improvements to the existing roadways require agreement or right of entry from the abutting property owners which can inhibit the flexibility to maintain or improve the existing county roadways

North Dearborn Road

There are three areas located along North Dearborn Road with restrictive horizontal curvature representing approximately 35 percent of the alignment between State Line Road and Whites Hill Road. Generally, the vertical profile of North Dearborn Road does not have restrictive grades.

However, there are five substandard vertical curves based on available elevation data. See the *Data Collection Summary Report* and *Conceptual Solutions Report* for additional information.

Whites Hill Road

Two areas have been identified along Whites Hill Road with substandard horizontal curvature or sight distance. From south to north, the first area is located between the existing electrical substation approximately 2,000 feet south of Whites Hill Road and Gaynor Ridge Road. The radii in this area may be sufficient however the embankment on the east side of the roadway inhibits sight distance.

Gaynor Ridge Road intersects Whites Hill Road at sharp skew angle restricting stopping sight distance resulting in the need for a signed stop condition on Whites Hill Road. South of Price Lane for approximately 2,000 feet, there are two curves that have substandard horizontal curvature with inadequate radii and tangent length between the curves. This section leads into a portion of the roadway where gabion retaining walls were added and the alignment straightened during 2005 to 2006. The area from Price Lane to north of I-74 has a 20 mph advisory speed due to horizontal curvature.

The Study Team evaluated the grades and vertical profile along Whites Hill Road based on available Indiana Map data. There are sixteen substandard vertical curves between North Dearborn Road and SR 46 that may limit sight distance. This represents approximately 30 percent of the alignment between North Dearborn Road and SR 46.

Additionally, the general grade exceeds nine percent and for much of the length exceeds 11 percent. This steep sustained grade combined with horizontal curvature can be challenging for heavy vehicles. This section of roadway has a signed advisory speed of 20 mph. The steep grades can be difficult to climb during inclement weather. In general, access to the Bright Area by commercial vehicles and school buses can be challenging due to steep grades, substandard horizontal curvature and lack of shoulders on the existing county road network.

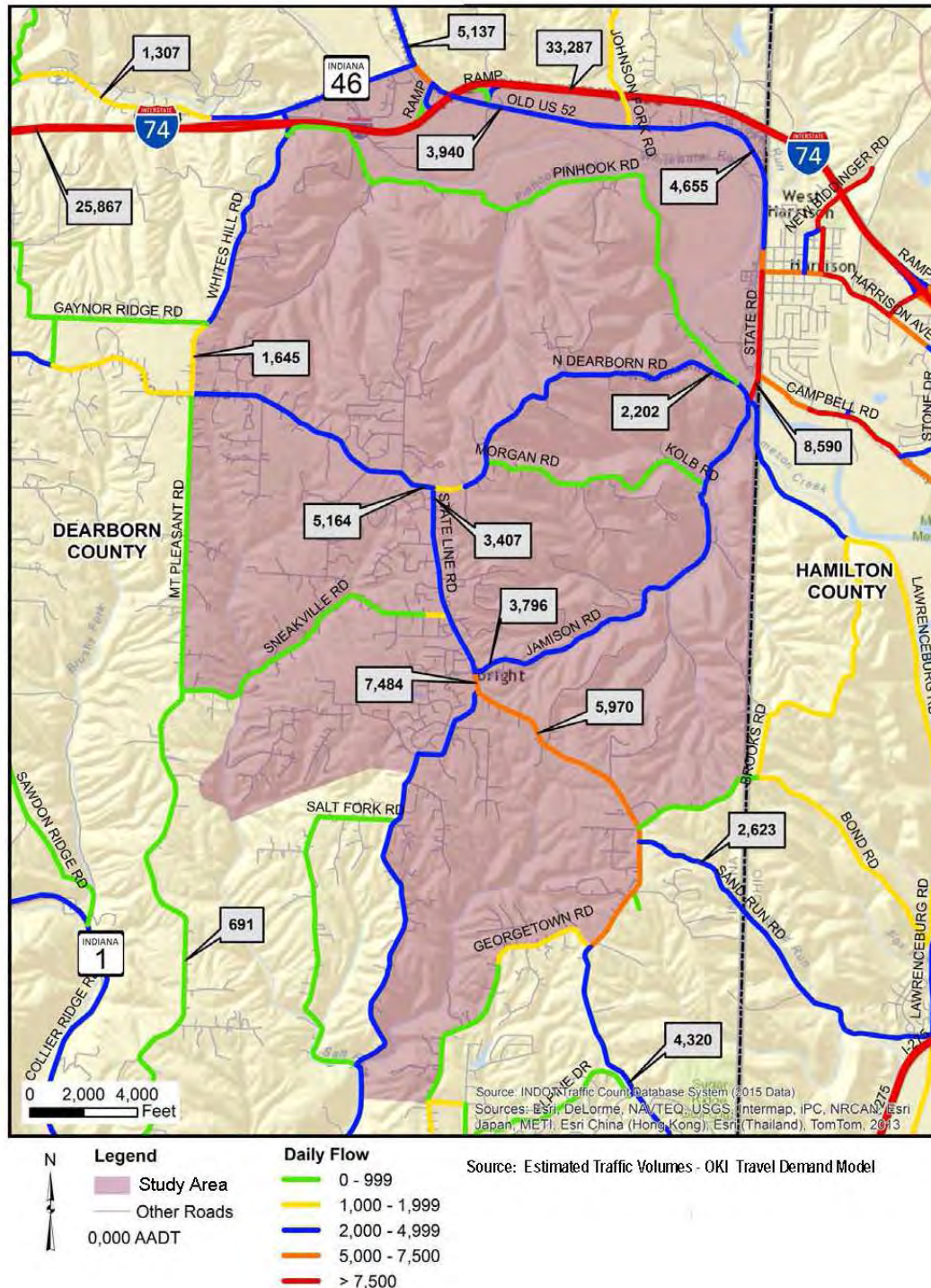
There are no significant bridge structures on the roads linking the Bright Area to Interstate 74 with the exception of SR 46 over the Whitewater River. The bridge is in fair condition and structurally sound, however it is considered functionally obsolete due to substandard shoulders and roadside barriers. The bridge's current sufficiency rating is 59 of 100. While not an immediate need, the bridge is a candidate for replacement at the end of the Study horizon.

Existing and Future Traffic

Traffic volumes for selected functionally classified roadways in Dearborn County were provided by the Dearborn County Engineer's office and obtained from the INDOT Traffic County Database System. The traffic volume data is generally from 2012 to 2015.

There are no known significant congestion issues within the Study Area on routes connecting to Interstate 74 (See Figure 3).

Figure 3: 2015 Estimated Traffic Volumes

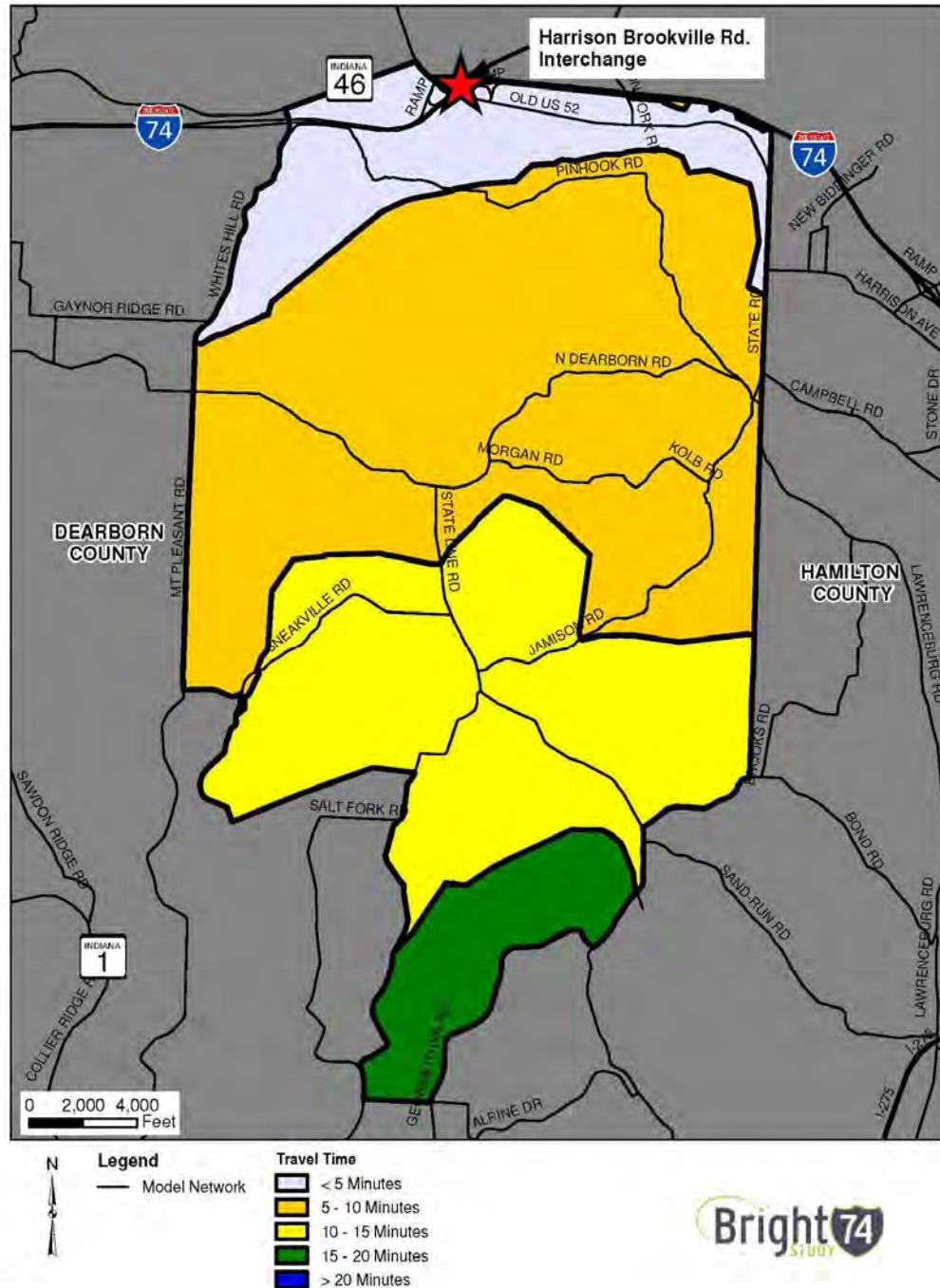


Travel Demand Model

A study specific small area travel demand model was created to estimate future 2040 traffic volumes which are generally within 10% of the current 2015 volumes shown in Figure 3.

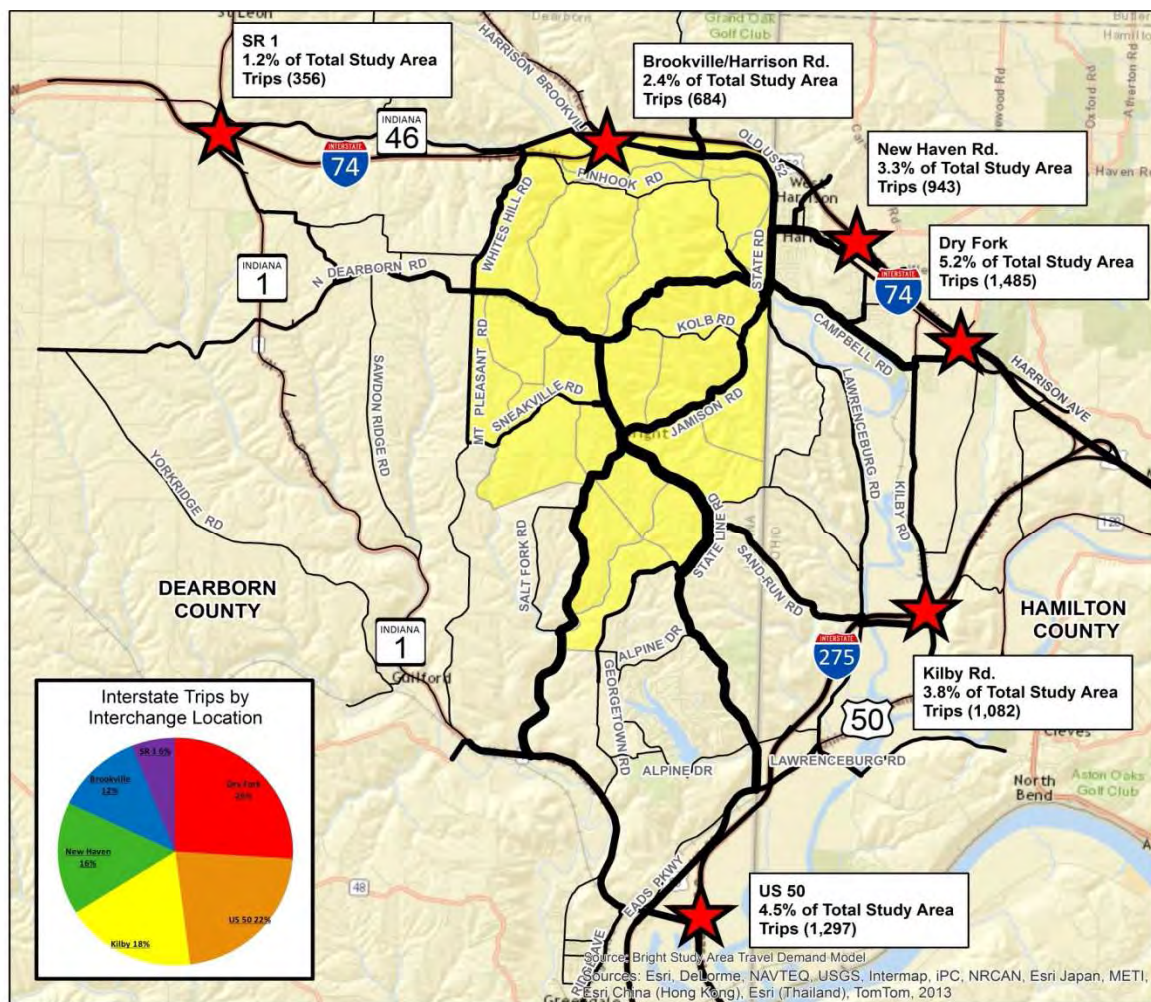
Current travel time between Bright and the I-74 Harrison/Brookville Road interchange is approximately 8 to 10 minutes using North Dearborn Road, Whites Hill Road, SR 46 and US 52 (See Figure 4).

Figure 4: 2015 Estimated Travel Time to Harrison/Brookville Interchange



The model was also used to estimate the distribution of trips to and from the Study Area to the surrounding interchanges. Residents utilize several routes to access Interstate 74 from the Study Area. There are approximately 700 daily trips using the I-74 Harrison/Brookville Road interchange from the Study Area. The model distribution indicates that the majority of trips utilize the interchanges in Hamilton County rather than the I-74 Harrison/Brookville Interchange (See Figure 5).

Figure 5: Forecasted Study Area Trips by Interchange



Crash Data

Dearborn County crash data for 2009 to 2013 was provided by OKI. The crash data was geo-referenced to determine the approximate location of the crash. The crashes located within the Study Area were then extracted using GIS for further evaluation. The crash data provides the following summary information: numbers of property damage, injuries as well as fatalities, weather conditions, lighting and nature of the crash (head on, angular rear end or leaving the

road. Based on the available information, there were approximately 515 crashes within the Study Area during the four year period excluding the Interstate 74 mainline. The interstate has not been included since modification or mitigation of existing interstate conditions is outside the scope of this Study. Of these crashes, approximately 120 were injury accidents and two fatalities.

Several thematic maps based on crash characteristics were produced to identify potential concentrations of crashes that could be attributable to existing roadway conditions or traffic operations (refer to the *Data Collection Summary Report* for additional information).

The rate of crashes per million vehicle miles traveled was compared with statewide crash rate averages based on functional classification to identify potential high crash rate roadway segments. The crash rates during the analysis period are near statewide averages.

The predominant safety issues identified within the Study Area are crashes associated with vehicles leaving the roadway. This can be caused by roadway geometrics, driver error, surface conditions, etc. Six head-on collisions and 19 accidents with cars leaving the roadway were reported on North Dearborn Road. No intersection had more than four reported crashes in the last three years.

While spot improvements in the Study Area may be needed to mitigate off-the-road crashes in some locations, it does not appear that there are safety issues associated with congestion or conflicting movements. Congestion and safety concerns do not appear to be significant contributors to the purpose and need for transportation improvements in the Study Area.

Red Flag Summary and Environmental Overview

Phase One of the Study included the development of a *Red Flag Summary and Environmental Overview Report* for the Study Area with a focus on potential corridors for roadway improvements. Field environmental investigations are not included in the scope of this Study. Likewise, NEPA documentation, permitting and federal, state or local agency coordination were not conducted as part of this Study. These tasks may be initiated on a project specific basis in future phases of project development after this study is concluded.

The *Red Flag Summary and Environmental Overview* utilized readily available information to identify existing conditions of affected environment, human environment, cultural and historic resources, natural environment, air quality, noise, hazardous materials, Section 4(f) and Section 6(f), geology, permits, and agency coordination.

The following potential issues and red flags were noted in the Study Area. These resources have been mapped and concepts to improve travel between Bright and Interstate 74 were developed to avoid or minimize impacts to identified resources to the extent possible. Some impacts (particularly to water resources) are unavoidable.

- The Study Area is split between a growing suburban residential and industrial land uses and a longstanding rural setting.
- The Study Area includes areas of Prime Farmland in the Whitewater River floodplain.

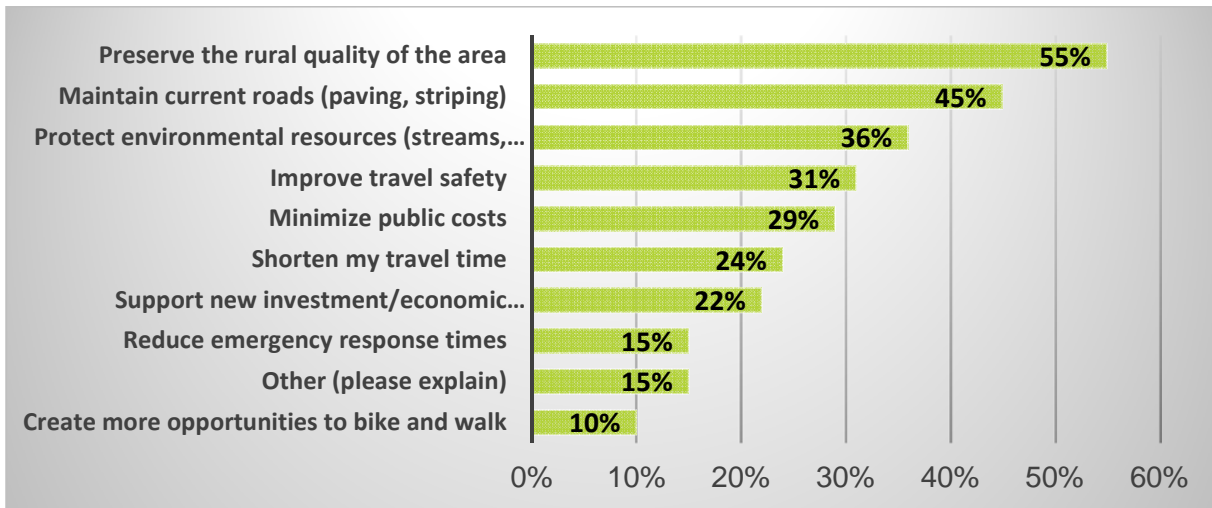
- Several cemeteries are located within the Study Area; however, they are generally small features and are scattered. Avoidance should be achievable.
- There were no sites, features, or districts currently listed as National Historic Landmarks, or included on the National Register of Historic Places within the Study Area. However, many historical features have been identified throughout the Study Area and additional cultural resource investigations should be conducted as recommendations from the Bright 74 Study are advanced. Development of the conceptual solutions was conducted to avoid impacts to historical features to the extent feasible.
- The Study Area includes many water resources, including wetlands, streams, rivers, and ponds. Resources also include the floodplain for the Whitewater River. It is likely that some water resources will be impacted by each of the four conceptual solutions. Development of concepts was undertaken to minimize the impact to water resources where possible, however some stream and floodplain impacts will be unavoidable.
- The Whitewater River is classified as outstanding state resources water and as an impaired stream. Concepts 3 and 4 would require new crossings of the Whitewater River.
- Several wetlands were identified within the Study Area. Transportation improvements that impact wetlands will require permitting and potential mitigation.
- Threatened and endangered species are listed within Dearborn County by the Indiana Department of Natural Resources and the U.S. Fish and Wildlife Service. The scope of work did not include a field investigation of habitat within the Study Area. Additional investigations will be necessary during future phases of project development.
- Multiple water wells were identified within the Study Area, some of which were identified as significant withdrawal wells. The conceptual solutions developed during the Study do not impact the identified well locations.
- Sensitive noise receptors are located within the Study Area. Multiple hazardous materials concerns were identified within the southern portion of the Study Area. The conceptual solutions do not impact these sites.
- One Section 4(f) feature (Bright Meadows Community Park) was identified within the Study Area. The conceptual solutions do not impact the park.

Public Comments

Comments regarding the environmental data collected during Phase 1 of the Study were minimal. While most residents of the Study Area agreed that existing roadways have deficiencies, the primary desire expressed during the public comment period was to preserve the rural quality of the area and maintain existing roadways (see Figure 6). Some members of the Advisory Committee and the general public noted that other interchanges serving the Study Area are more

heavily used than the Harrison/Brookville interchange and that other corridors should be evaluated (see Figure 12). This Study was focused on travel between Bright and the I-74 Harrison/Brookville interchange; however, in response to public and Advisory Committee input, this Study has included a recommendation for future evaluation of other interstate connectors in the area.

Figure 6: Study Goals in Order of Importance



Phase 2 Conceptual Solutions

Draft Purpose and Need

At the conclusion of Phase 1, the Study Team in coordination with the Advisory Committee established the following Draft Purpose and Need for the Study:

“Provide improved travel between the Bright area and Interstate 74 that meets INDOT’s design criteria, reduces travel time, and enhances connectivity and traffic safety while preserving the rural quality.”

The following major goals were identified during the first phase of the Study:

- Preserve rural quality of the area
- Minimize environmental impacts
- Improve travel safety
- Enhance roadway connectivity and economic vitality

Conceptual Solutions

Four conceptual solutions were developed to improve travel between Bright and the I-74 Harrison/Brookville interchange. These concepts were developed based on information collected during Phase 1. The conceptual solutions were not intended to address capacity or congestion, but were focused on reducing travel time, improving accessibility, safety and travel time reliability. All concepts had forecasted average daily traffic counts (ADTs) between 1,000 and 3,000 vehicles per day.

Concept 1 improves existing portions of North Dearborn and Whites Hill Roads while Concepts 2 through 4 provided alternate routes via new roadway connectors linking North Dearborn Road to SR 46 or Old US 52 (see Figures 8 through 10). Concepts 2 and 3 also included improving portions of North Dearborn and/or Whites Hill Roads in addition to proposed new roadway.

The concepts were developed to allow for an estimation of travel time and forecasts of subsequent changes the distribution of traffic volumes using the subarea travel demand model developed for this Study. The Study travel demand model was run for each of the new roadways to estimate the traffic volumes on the new route and changes to distribution on the existing roadways. While improvements to the existing roads in Concept 1 are intended to eliminate most restrictive geometry, the overall travel time and distribution of traffic volumes is not anticipated to change significantly. New connectors were forecasted to attract daily traffic ranging from 1,500 to 2,500. This shift in traffic was forecasted to reduce traffic volumes on North Dearborn and Whites Hill Roads as well as some other routes in the Study Area. Property and environmental impacts for each of the concepts have been estimated based on the conceptual geometry and construction limits described in more detail below.

The overall number of trips in the Study Area and vehicle miles traveled (VMT), as well as vehicle hours traveled (VHT) was anticipated to increase slightly.

The new off-alignment concepts (Concepts 2, 3 and 4) reduce travel time from the Bright area to the Harrison /Brookville interchange ranging from three to six minutes. Concept 4 “State Line Connector” results in the greatest reduction in travel time and does provide an overall time savings traveling to the east compared with existing routes using the New Haven Road interchange in Harrison (refer to the *Conceptual Solutions Report* for additional information).

To the extent possible the concepts have been located away from existing sensitive noise receptors and concepts for new connectors are anticipated to reduce traffic volumes on existing roadways in the Study Area. The recommended improvements to improve existing roads are not anticipated to have a significant effect on existing traffic volumes or noise levels.

Design Criteria

The geometric design criteria used to develop the conceptual solutions (both new and existing roads) are based on the current *INDOT Design Manual* for a local agency rural collector. Concept 1 “Improvements to Existing Roads” assumes a Resurfacing, Restoration, and Rehabilitation “3R” improvement of the existing North Dearborn and Whites Hill Roads. The applicable geometric design criteria is provided in Chapter 55 and summarized on *Figure 55-3C* (see Table 1). For new alignments (Concepts 2, 3 and 4) the applicable criteria is provided in Chapter 53 and summarized on *Figure 53-4* (see Table 2). All concepts have assumed an ADT between 1,000 and 3,000 vehicles per day.

Table 1: INDOT 3R Design Criteria Local Agency Rural Collector

Design Element			Manual Section	2-Lane				
Design Controls	Design Year AADT		40-2.01	< 400	400 ≤ AADT < 1000	1000 ≤ AADT < 3000	3000 ≤ AADT < 5000	≥ 5000
	Design Forecast Period		55-4.01	20 Years (2)				
	*Design Speed (mph)		55-4.01	See Section 55-4.01 (3)				
	Access Control		40-5.0	None				
	Level of Service		40-2.0	Desirable: B; Minimum: D				
Cross-Section Elements	Travel Lane	*Width (4)	55-4.05	Des: 10 ft Min: 9 ft (4a)	Des: 11 ft Min: 10 ft (4b)	Des: 11 ft Min: 10 ft (4b)	Des: 12 ft Min: 11 ft	Des: 12 ft Min: 11 ft.(4c)
		Typical Surface Type	Ch. 304	Asphalt / Concrete				
	Shoulder (5)	*Width Usable	55-4.05	Des: 4 ft Min: 2 ft	Des: 6 ft Min: 2 ft	Des: 6 ft Min: 3 ft	Des: 8 ft Min: 6 ft	Des: 10 ft Min: 8 ft
		*Width Paved	55-4.05	Des: 2 ft Min: 0 ft	Des: 2 ft Min: 0 ft	Des: 4 ft Min: 2 ft	Des: 6 ft Min: 2 ft	Des: 8 ft Min: 2 ft
		Typical Surface Type	Ch. 304	Asphalt / Aggregate / Earth				
	Cross Slope	*Travel Lane (6)	55-4.05	2%-3%				
		Shoulder (7)	55-4.05	Paved Width ≤ 4 ft 2% - 3%; Paved Width > 4 ft: 4%-6% Asphalt; 6%-8% Aggregate; 8% Earth				
	Auxiliary Lane	Lane Width	55-4.06	Des: 10 ft; Min: 9 ft	Des: 11 ft; Min: 10 ft	Des: 12 ft; Min: 10 ft	Des: 12 ft; Min: 10 ft	Des: 12 ft; Min: 10 ft
		Shoulder Width		Des: Same as Next to Travel Lane; Min: 2 ft				
	Obstruction-Free-Zone Width		55-5.02	See Section 55-5.02				
	Side Slopes	Cut	55-4.05	2:1 or Flatter (8)				
		Foreslope		(8)				
		Ditch Width		2:1 or Flatter (8)				
Bridges	New or Reconstructed Bridge	*Structural Capacity	Ch. 403	HL-93				
		*Clear-Roadway Width (9)	55-6.03	Travelway +4 ft	Travelway +6 ft	Travelway +8 ft	Travelway +8 ft	Full Paved Appr. Width
	Existing Bridge to Remain in Place	*Structural Capacity (10)	Ch. 72	HS-15				
		*Clear-Roadway Width (11)	55-6.02	22 ft	22 ft	24 ft	28 ft	28 ft
	*Vertical Clearance, Collector Under	New or Replaced Overpassing Bridge (12)	55-6.0	14.5 ft				
		Existing Overpassing Bridge		14.0 ft				
	Vertical Clearance, Collector Over Railroad (13)		Ch. 402-6.01	23.0 ft				

Des: Desirable; Min: Minimum.

Table 2: INDOT Design Criteria New Route LPA Rural Collector

Design Element			Manual Section	2 Lanes			
Design Controls	Design-Year Traffic, AADT		40-2.01	< 400	400 ≤ AADT < 1500	1500 ≤ AADT < 2000	≥ 2000
	Design Forecast Period		40-2.02	20 Years			
	*Design Speed, mph (3)	Level	40-3.0	35 – 55	50 - 55	50 - 55	60
		Rolling		30 - 55	35 - 55	35 - 55	50 - 55
	Access Control		40-5.0	None			
Cross-Section Elements	Level of Service		40-2.0	Desirable: B; Minimum: C			
	Travel Lane	*Width (4)	45-1.01	10 ft (4a)	11 ft	11 ft (4b)	12 ft
		Typical Surface Type	Chp. 304	Asphalt / Concrete			
	Shoulder	*Width Usable	45-1.02	Des: 4 ft Min: 2 ft (5)	Des: 6 ft Min: 4 ft	Des: 8 ft Min: 6 ft	Des: 10 ft Min: 8 ft
		*Width Paved, optional	45-1.02	2 ft	4 ft	6 ft	8 ft
		Typical Surface Type	Chp. 304	Asphalt / Aggregate / Earth			
	Cross Slope	*Travel Lane (6)	45-1.01	2%			
		Shoulder (6A)	45-1.02	Paved Width ≤ 4 ft: 2%; Paved Width > 4 ft: 4% - 6% Asphalt; 6%-8% Aggregate; 8% Earth			
	Auxiliary Lane	Lane Width	45-1.03	10 ft	Desirable: 11 ft Minimum: 10 ft	Desirable: 12 ft Minimum: 10 ft	
		Shoulder Width		Desirable: Same as Next to Travel Lane; Minimum: 2 ft			
	Clear-Zone Width		49-2.0	(7)			
	Side Slopes (8)	Cut	45-3.0	Des: 6:1; Max: 4:1 (9)			
				4 ft (10)			
				4:1 for 20 ft; 3:1 Max. to Top (11)			
		Fill	45-3.0	Des: 6:1 to Clear Zone; Max: 3:1 to Toe			
Bridges	New or Reconstructed Bridge	*Structural Capacity	Chp. 403	HL-93			
		*Clear-Roadway Width (12)	45-4.01	Travelway + 4 ft	Travelway + 6 ft	Travelway + 8 ft	Full Paved Approach Width
	Existing Bridge to Remain in Place	*Structural Capacity	Chp. 72	HS-15			
		*Clear-Roadway Width (13)	45-4.01	22 ft	22 ft	24 ft	28 ft
	*Vertical Clearance, Collector Under	New or Replaced Overpassing Bridge (14)	44-4.0	14.5 ft			
		Existing Overpassing Bridge		14 ft			
	Vertical Clearance, Collector Over Railroad (15)		Chp. 402-6.01	23 ft			

Des: Desirable; Min: Minimum.

It should be noted that the preferred 6:1 slopes shown in Table 4 were not used for Concepts 2, 3 and 4 given the rolling topography of the Study Area. Maximum slopes were used to minimize earthwork to the extent possible. Guardrail may be necessary in some locations where slopes exceed standards.

A maximum grade of nine percent was used for Concept 1 on Whites Hill Road and a maximum of seven percent was used for Concepts 2, 3 and 4.

As is the case today, one lane in each direction with potential turn lanes at intersections provides sufficient capacity to accommodate the forecasted traffic volumes for the existing and new roads. Given the relatively long grade to climb from the vicinity of Pinhook Road to North Dearborn Road, it may be beneficial to include a south bound truck climbing lane for the new roadways however the estimated costs and impacts developed for each of the alternatives did not include the additional lane. The warrants for a truck climbing lane were not evaluated during this study.

Maintenance Items

Based on available information there are several items which could improve safety, operations and driver experience on North Dearborn and Whites Hill roads that can be implemented at

relatively low cost. These maintenance items can also be classified at a “Partial 3R” improvement and are defined in *Chapter 56* of the *INDOT Design Manual*.

The location and limits of specific maintenance items will need to be identified during a detailed field survey of existing conditions. The field survey will result in the establishment of a strip map showing all existing details including, but not limited to, intersecting roads, drives, and, pipe structures, headwalls, curbs, manholes, survey monuments, guardrail, pavement markers, bridge piers, mailboxes and utility poles signs, raised pavement markers, areas of grading, patching, milling, utilities in the area, or other specialty items. All items shown in the field survey should have a station and offset reference. The detailed field survey is beyond the scope of this Study.

In general, pavement conditions along existing North Dearborn, Whites Hill, SR 46 and US 52 are in good to fair condition. There are locations where the shoulders do show signs of stress and may require base repair or subgrade stabilization.

The following maintenance items could be implemented on a corridor wide basis following more detailed inventory of site specific conditions. These items can be implemented in phases or separate projects as funding permits and could be combined with other County routes inside or outside of the Study Area.

- **Widen for shoulders where possible** – Most roadway segments along North Dearborn and Whites Hill Roads have little or no shoulder. Based on INDOT 3R design criteria, the preferable usable shoulder width should be six feet with a two foot paved width minimum. At a minimum, any two lane rural road with the traffic volumes in the Study Area should have a one foot shoulder. Existing obstructions and roadside conditions would require regrading and potential utility relocations to provide a consistent six foot usable shoulder; however it appears that providing a two foot paved shoulder should be feasible in most locations with minimal grading. The ability to widen for adequate shoulders varies by parcel and will be evaluated in more detail in the final phase of the Study. It should be noted that the typical roadway cross sections for a Rural Arterial included in the Dearborn County Subdivision Regulations include twelve foot lanes and eight foot or ten foot paved shoulders depending on traffic volumes.
- **Remove Roadside Obstructions** (trees, poles, fences etc.) -- Similar to the existing shoulders there are some locations where obstacles are located within the obstruction-free-zone. The obstruction-free-zone is defined as the roadside area next to the travel way which should be free from hazards or obstructions. Each obstacle within the obstruction-free-zone limits should be removed, made breakaway or shielded with guardrail. The obstruction-free-zone width for a local agency rural collector is eight feet. It may not be feasible to remove all obstructions (particularly existing overhead utilities) depending on costs associated with the relocation.
- **Add Mailbox Turnouts** -- As noted previously, mailboxes are generally located within the obstruction-free-zone. Depending on the construction, mailbox supports can pose a hazard

to errant vehicles. Each new mailbox installation should be placed in accordance with the *INDOT Standard Drawings*, *INDOT Standard Specifications*, and *INDOT Design Manual Section 51-11.0*. If additional spacing is required for mailbox placement mailbox turnouts can be provided to allow for mail carrier and resident access. Mailbox turnouts also provide additional clearance to avoid interaction between passing vehicles and mail carriers during delivery.

- **Repair, Replace or Add Guardrail as Needed** -- There are several locations where existing guardrail may not meet current INDOT design criteria such as at the northern end of White Hill Road where it may not be feasible to provide adequate clear zone. It is recommended that a comprehensive inventory of existing guardrail be done to determine if it is in accordance with the current safety performance and design criteria provided in the *INDOT Design Manual, Chapter 49* and the *INDOT Standard Drawings*. It may be necessary to acquire right-of-way from the abutting property owners to install required guardrail. The minimum guardrail offset distance is four feet from the edge of travel way.
- **Address Drainage or Slippage** -- Based on visual observation and comments from stakeholders and the public there are areas that have experienced roadside slippage or drainage issues. Most commonly, road side slopes and ditches have experienced either erosion or deposition of debris and materials leading to inadequate capacity to convey runoff during rain events. The resulting slippage or wet weather flows across roadways or into adjacent property can present hazards to motorists and result in potential damage to private property. As noted previously, some culverts or ditches can result in obstructions or roadside hazards. Site specific drainage inventories or hydraulic analysis has not been conducted as part of this Study. It is recommended that an inventory of existing culverts and roadside ditches be done to evaluate the need for ditching, culvert repairs or other maintenance to improve drainage and roadside safety.
- **Improve Signage** -- It is recommended that a comprehensive inventory and condition assessments be developed for the existing regulatory signage on the County roadways within the Study Area. Reflectivity for some signs appears to be substandard. A sign should be used only where it is warranted by the *Indiana Manual on Uniform Traffic Control Devices (IMUTCD)* criteria, accident history or field studies. A sign should provide information for a regulation, a hazard which is not self-evident, or a highway route, direction, destination, or point of interest.

To improve wayfinding and accessibility, installation of Interstate 74 directional signs at critical intersections (State Line and North Dearborn, North Dearborn and Whites Hill, Gaynor Ridge and Whites Hill and Whites Hill at SR 46, should be considered given that these routes carry an appreciable percentage of interstate-bound traffic. Likewise, guide signs for Bright could be installed at the same intersections in the opposite directions to guide travelers from the Interstate.

Existing Roads

It is assumed that the maintenance items listed above would be performed on the existing roads in addition to the geometric improvements included in Concept 1 described below. Concept 1 is subject to refinement during future phases of project development. Generally, the state maintained roads meet current design criteria. This Study did not evaluate changes to existing interstate access.

Concept 1 - Improve Existing Roads

This concept includes a “3R” project to correct existing geometric deficiencies generally along the existing alignment of North Dearborn Road between State Line Road and Whites Hill Road, as well as Whites Hill Road from its intersection with North Dearborn Road to its terminus at SR 46. The proposed improvements include widening to provide 12 foot travel lanes with a minimum two foot shoulder, straightening horizontal curves in deficient locations, flattening or lengthening of substandard vertical curves and intersection realignments at Carr and at Gaynor Ridge Roads (See Figures 13 and 14 for details).

- Straighten the reverse curves located between State Line Road and Carr Road including minor realignment of the intersection of Carr Road and North Dearborn Road. These curves currently have an advisory speed of 25 mph and have limited sight distance especially from some adjacent driveway locations.
- Straighten the horizontal curve in the vicinity of the intersection of Henderson Road and Bright Leaf Road including realignment of the intersection to eliminate the offset of the two side road approaches. Some pavement stress was noted in this area. Complete pavement reconstruction may be beneficial within the limits of the reconstructed curve.
- Straighten the horizontal curve located east of the intersection with Kling Lane.
- Straighten the reverse horizontal curves and flatten vertical curves located approximately 1,500 feet east of the intersection of North Dearborn and Dole roads.

From south to north along Whites Hill Road the following improvements have been included in Concept 1.

- Straighten the horizontal curve located approximately 1,000 feet south of the intersection of Gaynor Ridge Road and Whites Hill Road.
- Realign Gaynor Ridge Road to reduce the skew at its intersection with Whites Hill Road.
- Realign an approximately 2,000 foot long section of Whites Hill Road south of Price Lane to eliminate reverse curves and flatten grades to a nine percent maximum. The realigned roadway will be located west of the existing alignment. The proposed alignment and profile will be refined during future phases of project development to avoid an overhead electrical

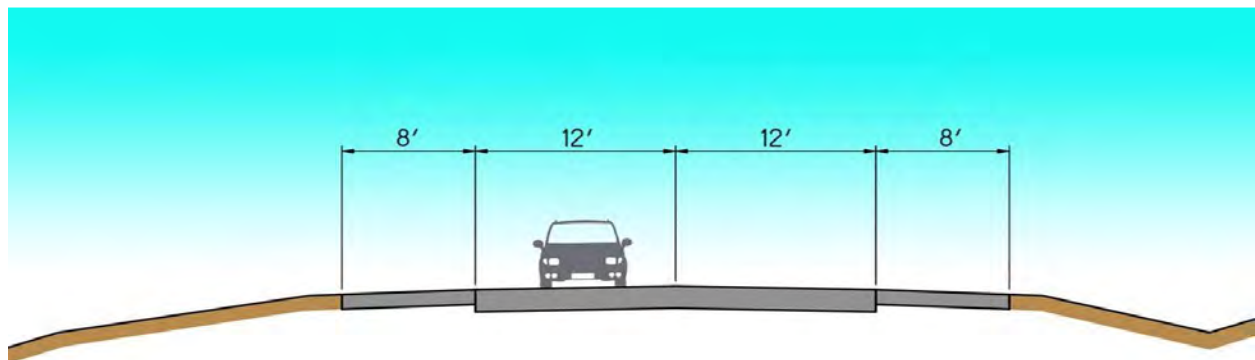
transmission line, sanitary force main, provide revised access to adjacent property as well as to coordinate with potential phasing of Concept 2 - Whites Hill Connector more fully described below.

New Construction

Three concepts were developed on new alignments which would link North Dearborn Road to SR 46 (Concept 2 - Whites Hill Connector) or old US 52 (Concepts 3 - Carr Connector or Concept 4 - State Line Connector). As noted previously, the geometric design criteria from *INDOT Design Manual Chapter 53* (Table 4) were used with a forecasted ADT of 2,500 vehicles per day. Stop controlled intersections were assumed at either end of the new connectors. The new connectors were also assumed to be limited access facilities (with the exception of existing Carr Road for Concept 3 - Carr Connector) between the Whitewater River and North Dearborn Road. The concepts were not developed with intersecting roadways or driveway connections.

Pavement depth, composition, super-elevation and roadway drainage were not evaluated during the Study. Major bridge crossings of Pinhook Road and the Whitewater River were identified, however the location, length and size of smaller bridge structures or culverts were not determined, pending a decision to advance the concepts for further evaluation.

Figure 7: New Connectors Pavement Cross-Section



While it may be beneficial to include a climbing lane in the southbound direction for trucks, a climbing lane was not included in estimated costs and impacts for any of the conceptual solutions. No separate bicycle or pedestrian facilities were proposed. If necessary, pedestrians and bicyclists could utilize the proposed roadway shoulders. See the *Conceptual Solutions Report* for additional information.

A summary of the three concepts are described in the following sections.

Concept 2 - Whites Hill Connector

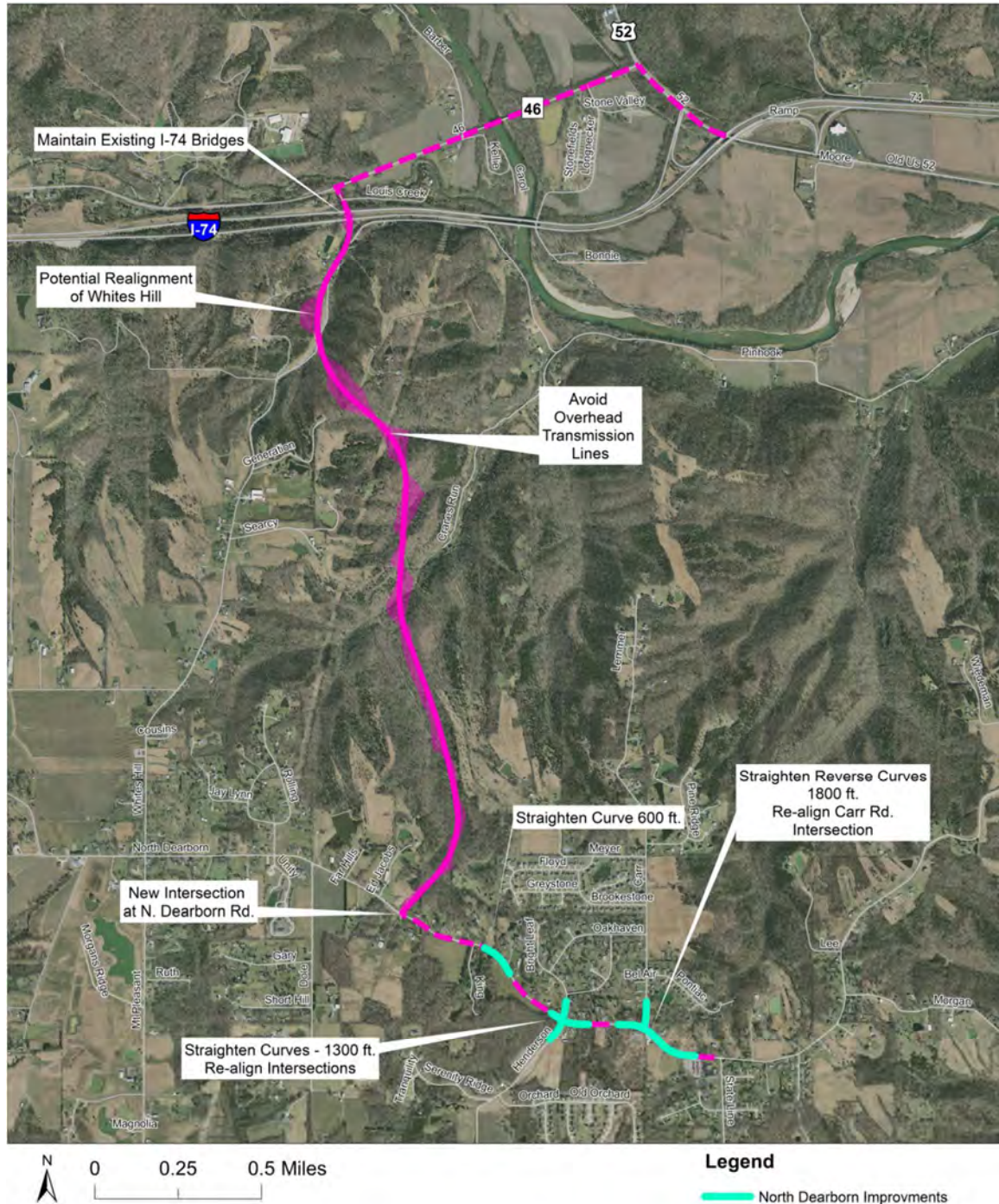
This concept would provide an alternative route linking North Dearborn Road to Whites Hill Road from the east. The route would start at a new intersection with North Dearborn Road approximately 4,300 feet east of the exiting intersection of Whites Hill Road and would tie into existing White Hill Road approximately 2500 feet south of the intersection of Whites Hill Road

and SR 46 (See Figure 8). The total length of new construction would be approximately 2.6 miles. The new connector would reduce both the overall distance from State Line Road to the Harrison/Brookville interchange by approximately 0.7 miles and travel time by approximately two minutes. The forecasted ADT is 1,500.

This concept was less costly and has less environmental impacts when compared with the Carr and State Line Connectors since it uses existing SR 46 to cross the Whitewater River negating the need for a major new bridge structure and impacts to the floodplain. The existing Interstate 74 overpass was also maintained.

While less costly compared with the other two connectors, this concept would have required significant earthwork and avoidance of existing aerial electrical transmission lines and force main sanitary sewer running generally parallel to and west of Whites Hill Road.

Figure 8: Concept 2 – Whites Hill Connector



Concept 3 - Carr Connector

This alternative makes use of existing Carr Road for its connection with North Dearborn Road. The concept would slightly widen and reconstruct Carr Road with an urban cross section including curb, gutter and sidewalks from North Dearborn Road to Pine Ridge Lane.

The connector would turn to the northwest following a new alignment to a terminus near the intersection of Moore Lane and Old US 52 (See Figure 9). The overall length of new construction would be approximately 3.6 miles including a proposed bridge spanning over both Pinhook Road and the Whitewater River. The new connector would reduce both the overall distance from State Line Road to the Harrison/Brookville interchange by approximately 1.6 miles and travel time by approximately four minutes. The design speed on existing Carr Road would be 35 mph and on the new connector 55 mph.

This concept could provide new roadway access to commercially-zoned property located between the Whitewater River and Old US 52. The alignment north of the Whitewater River could be refined to avoid floodplain and other environmental impacts and to accommodate potential future industrial/commercial development in the area as needed.

Earthwork would be somewhat less than the Whites Hill Connector or State Line Connector. Residential relocations were not anticipated, however, frontage strip takes would be needed along the affected portion of existing Carr Road. Specific bridge types, pier locations and other design elements were not developed during the Study. Costs for the bridge crossing are significant and have been estimated on a square foot basis. The conceptual limits of the bridge were set to provide a waterway opening similar to that identified in the current Dearborn County FEMA Flood Insurance Study.

Figure 9: Concept 3 - Carr Connector



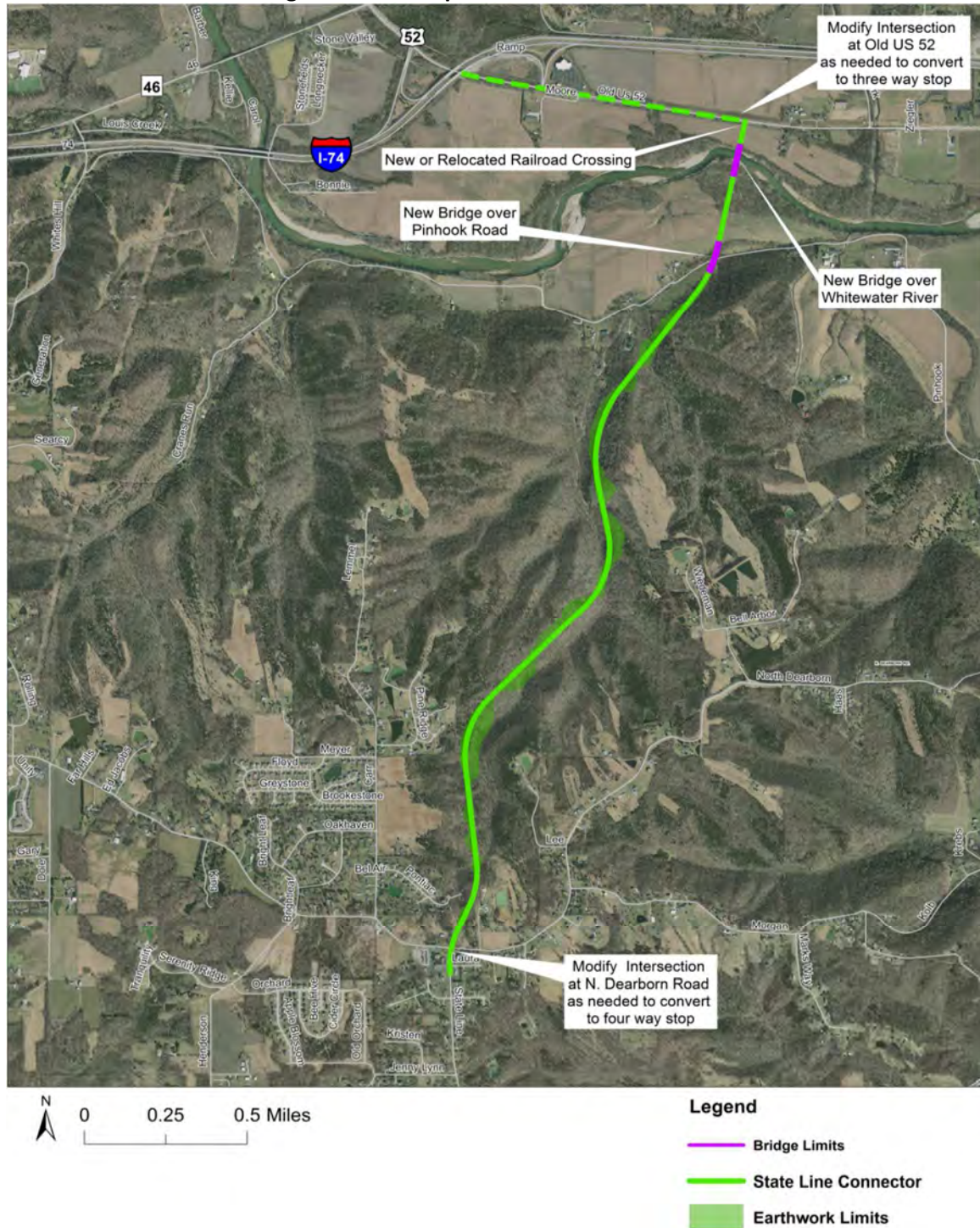
Concept 4 - State Line Connector

The State Line Connector would begin at the existing intersection of State Line and North Dearborn Roads and proceed north through largely undeveloped property with two new grade separations over Pinhook Road and the Whitewater River. North of the River the new connector would end at a new intersection on Old US 52 located approximately 2,700 feet east of the existing intersection with Moore Lane. (See Figure 10). This concept would function as an extension of State Line Road and would result in the most significant travel time savings compared to existing conditions. The overall length of new construction would be approximately 3.6 miles. The new connector would reduce both the overall distance from State Line Road to the Harrison/Brookville interchange by approximately 1.7 miles and travel time by approximately 4.5 minutes. The forecasted ADT is approximately 2,700.

It was assumed that the existing at-grade railroad crossing of the Indiana and Ohio Railroad on Moore Lane would be relocated to the new State Line Connector. An extension of Moore Lane to the east may be required to consolidate grade crossings to one location. The elevation of the existing track at the new location is approximately three feet above Old US 52. To maintain the existing track profile in this area, it would be necessary to raise the profile of Old US 52 in the vicinity of the new intersection.

Concept 4 includes two new bridge crossings at Pinhook Road and the Whitewater River. It should be noted that this area is located within the FEMA floodplain of the Whitewater River. However, it was assumed that the waterway openings provided by the two bridges would be sufficient to pass the regulatory flood volume without a rise in the base flood elevation where the connector would cross the River. The conceptual limits of the bridge were set to provide a waterway opening area similar to that identified in the current Dearborn County FEMA Flood Insurance Study.

Figure 10: Concept 4 - State Line Connector



Public Comments

During the second 30-day public comment period, the Advisory Committee and general public were asked how well the four concepts addressed the primary goals established during Phase 1.

A comparison table of the estimated travel time, environmental, property impacts and a range of estimated construction costs were presented at the second public meeting in June 2016 and made available on the OKI Bright I-74 Study website. See Table 3 for a comparison of the conceptual solutions. This table was developed to assist the Study Advisory Committee and general public with completing a survey to assess how well each of the concepts met the purpose and need and secondary goals of the Study.

Table 3: Conceptual Solutions - Comparison Table

Category	Units	Concept 1: Improve Existing Roads	Concept 2: Whites Hill Connector	Concept 3: Carr Connector	Concept 4: State Line Connector
Total Route Length*	Miles	5.5	4.8	3.9	3.8
Length of New Roadway	Miles	0.75	2.56	3.64	3.56
Earthwork Area	Acre	15	55	59	65
Parcels Effected	Each	89	20	54	26
Wetlands/Ponds Impacted	Each	2	0	5	4
Stream Crossings	Each	1	21	21	18
Flood Plain Construction	Linear Feet	0	0	1,700	1,800
Average Daily Traffic	Number of Vehicles	Varies	1,500	2,200	2,700
Travel Time	Minutes	8.9	6.6	4.8	4.4
Earth Cut	Cubic Yards	75,000	840,000	380,000	500,000
Earth Fill	Cubic Yards	15,000	1,070,000	800,000	1,210,000
Bridge Area	Square Feet	0	0	53,000	48,000
Estimated Costs (2016 dollar value)	\$ Millions	\$10-20M	\$20-30M	\$35-55M	\$30-50M

A survey conducted in-person at the public meeting and online through OKI's Study website provided an opportunity to submit specific comments on each of the concepts. Additionally, the survey gauged the relative importance of, and how well each of the concepts met, four major goals of the study.

- Preserve rural quality of the area (80% of respondents felt this is important).
- Minimize environmental impacts (74% felt this was important)

- Improve travel safety (40% felt this was important).

Enhance roadway connectivity and economic vitality (16% felt this was important). Responses indicated that most felt that Concept 1 - Improve Existing Roads met the Study's goals while the proposed new connectors (Concepts 2, 3 and 4) did not (See Table 4).

Table 4: Input on Conceptual Solutions

Concepts	Preserve Rural Quality of the Area			Minimize Environmental Impacts			Improve Travel Safety			Enhance Roadway Connectivity & Economic Vitality		
	No	Somewhat	Yes	No	Somewhat	Yes	No	Somewhat	Yes	No	Somewhat	Yes
1 - Improve Existing Roads	20%	16%	64%	21%	18%	62%	19%	29%	52%	39%	33%	27%
2 - Whites Hill Connector	60%	24%	17%	61%	25%	14%	44%	32%	24%	52%	32%	16%
3 - Carr Road Connector	79%	14%	7%	79%	15%	6%	62%	24%	14%	61%	22%	17%
4 - State Line Connector	77%	13%	10%	78%	14%	8%	56%	23%	21%	56%	20%	24%

Concept 3 (Carr Connector) and Concept 4 (State Line Connector) provided the most significant travel time savings and were forecasted to attract the most new trips. The relative total time savings of five minutes or less was judged by the public to be inconsequential when compared with the lower relative cost and impacts of Concepts 1 and 2.

Phase 3 Preliminary Alternatives

Evaluation of Conceptual Solutions

The Study Team developed a comparison matrix with a composite scoring system to quantitatively screen the concepts for evaluation during the final phase of the Study. The matrix (See Table 5) used the four primary goals of the study with a score of “1” for negative (red), “2” for neutral (yellow), and “3” for positive (green) assigned to sub factors for each goal. The subtotals for each goal were then weighted according to the degree of importance taken from the public survey. The scores were tallied to arrive at an overall composite score. Concept 1 is the clear preference followed by Concept 2.

Based on this input the Study Team recommended that Concept 1 - Improve Existing Roads and Concept 2 - Whites Hill Connector be advanced for additional refinement and evaluation. Following review and input from the public and the Advisory Committee, Concepts 3 and 4 were not advanced for further consideration.

Table 5: Conceptual Solution Evaluation Matrix

Evaluation Category		Concept 1 Improve Existing Roads	Concept 2 Whites Hill Connector	Concept 3 Carr Connector	Concept 4 State Line Connector	Public Survey Degree of Importance
Preserve Rural Character	Minimize traffic volumes and noise in residential areas	3	2	2	2	
	Minimize the number of properties impacted	3	2	2	2	
	Minimize impact to existing land uses	3	2	2	2	
	Subtotal	15	25	5	25	81%
Minimize Environmental Impacts	Minimize area impacted	3	2	2	2	
	Minimize impact to water resources (wetlands, etc.)	3	2	2	2	
	Minimize impact to cultural resources and ecological habitats	3	2	2	2	
	Minimize amount of cut/fill	3	2	2	2	
	Subtotal	40	10	10	0	74%
Improve Travel Safety	Minimize negative impact of weather-related conditions	3	2	2	2	
	Improve sight distance especially at intersections and driveways	3	2	2	2	
	Improve roadway deficiencies (shoulder and lane widths, etc.)	3	2	2	2	
	Provide accommodations for pedestrian and bicycle travel	3	2	2	2	
	Subtotal	20	30	35	35	39%
Enhance Roadway Connectivity and Economic Vitality	Maintain consistent travel at posted speed limits	3	2	2	2	
	Minimize travel time (including emergency response time)	3	2	2	2	
	Encourage economic stability and growth by providing access in accordance with County land use plans and zoning	3	2	2	2	
	Subtotal	5	10	25	25	15%
Minimize Costs	Estimated Costs	10	5	0	0	100%
Total Points Score		60.3	45.9	28.9	37.7	

Additional Evaluation of Concepts 1 and 2

Based on input from the public survey as well as the Advisory Committee, the Study Team performed additional evaluation of Concepts 1 and 2. The initial development of these concepts was focused on the horizontal alignment for each with a basic profile developed for Concept 2. Similarly, the right-of-way impacts were not previously evaluated on a parcel-by-parcel basis for Concept 1 since the vertical profile for the roadways was subject to refinement. Dearborn County provided property information for parcels west of Whites Hill Road which were located outside the original Study Area but would be impacted by the proposed improvements to Whites Hill Road as part of Concept 1.

The design team developed refined alignment, profile and construction limits for both concepts using the same topographic basemapping, red flag environmental data and INDOT design criteria developed during Phase 1 of the Study. Using the new geometric information for the respective roadways allowed for the development of more detailed information on earthwork, right-of-way impacts, utility impacts, culverts and stream impacts. The estimated construction costs were revised for each concept based on the updated information.

The impacts and construction costs associated with Concept 2 - Whites Hill Connector, while comparable with those provided at the second public meeting, are significantly higher than that for Concept 1 as shown in Table 6. Given the disparity in impacts and costs between Concepts 1 and 2 and the relatively minimal differences in travel time savings, safety and forecasted changes in traffic, as well as the public's preference for Concept 1, the Study Team concluded that only Concept 1 - Improve Existing Roads would be carried forward as part of the Study recommendations.

Table 6: Concepts 1 and 2 Refined Comparison

Category	Units	Concept 1: Improve Existing Roads	Concept 2: Whites Hill Connector
Total Route Length	Miles	5.5	4.9
Length of New Roadway	Miles	0.8	2.3
Earthwork Area	Acre	43	61
Parcels Affected	Each	147	67
Wetlands/Ponds Impacted	Each	1	0
Stream Crossings	Each	10	15
Stream Channel Impacts	Linear Feet	2,780	5,345
Average Daily Traffic	No. of Vehicles	Varies	1,500
Travel Time	Minutes	8.9	6.6
Earth Cut	Cubic Yards	290,000	920,000
Earth Fill	Cubic Yards	110,000	740,000
Bridge Area	Square Feet	0	0
Estimated Costs	\$ Millions	\$15-20M	\$35-45M

Concept 1: Geometric Improvements

The Study Team refined the horizontal alignment and vertical profile of Concept 1 using INDOT 3R design criteria. See Figures 13 and 14 for additional information and an illustration of the proposed improved geometry. The proposed geometric improvements would improve stopping and passing sight distance and are intended to eliminate current design exceptions to the extent possible. Advisory speeds on the existing curves would be removed, allowing for consistent travel at the current posted speed limits. The posted speed limits would not change.

Approximate construction limits were identified based on a cross section consisting of two, 12 foot lanes and six foot shoulders. The design team in coordination with the County Engineer's office assumed six foot paved shoulders in part to accommodate pedestrians and bicyclists and confirm to the County's current Subdivision Regulations. Given the concern expressed by residents and potential conflicts with existing overhead utilities, it may be more practical to provide a two foot paved shoulder with a four foot usable shoulder in most locations.

Details for curve widening or super elevation of the roadway were not evaluated during the Study. Side slopes were assumed to be a minimum of 2:1. Retaining walls could be utilized in

selected locations to minimize impacts to existing structures, utilities or roadside landscaping. Specific locations for potential walls have not been evaluated.

The number and length of potential culverts or culvert extensions was estimated to determine the number and length of stream channel impacts. It was assumed that no new bridge structures would be required and existing culverts are of adequate size. This would need to be confirmed during future phases of project development. No enclosed storm sewer networks were proposed.

The vertical profiles of both roadway segments were developed with the intent to minimize impacts to existing structures and private driveways. In some cases the profiles of existing driveways would need to be adjusted. Where a portion of Whites Hill Road is relocated to the west, existing driveways will be extended to the new pavement and reconnected.

There would be an estimated surplus of 180,000 cubic yards of earthwork resulting from the proposed improvements primarily from the partial relocation of the lower portion of Whites Hill Road. It was assumed that this material could be used as fill on adjacent or nearby properties in cooperation with land owners and would not need to be hauled significant distances. There is an existing overhead electrical distribution line and sanitary force main located in the vicinity of the proposed improvements on Whites Hill Road. Allowances for utility relocation are assumed to be included in the contingency for Whites Hill Road. Formal coordination with the affected utilities to determine the nature of potential relocations has not been conducted at this time.

Phasing

The reconstruction of North Dearborn and Whites Hill Roads has been assumed to occur in phases as shown by the varying colors on Figures 13 and 14. Two phases have been assumed for North Dearborn Road and three phases for Whites Hill Road. The number and location of future phases will be dependent on available funding, County priorities and maintenance of traffic.

Cost Estimates

A summary of estimated costs for North Dearborn and Whites Hill Roads (with the intersection improvements at Gaynor Ridge Road separately) is shown in Table 6. For more detailed cost estimate breakdowns please see Appendix B. The estimated costs are based on 2013 INDOT average unit bid prices with a 30 percent contingency and adjusted to comparable 2016 values given the uncertainty with the future phasing and implementation timeline.

Table 7: Cost Estimate Summary

Roadway	Estimated Cost	
Whites Hill	\$	10,920,000
Gaynor Ridge	\$	310,000
N Dearborn	\$	4,950,000
Total	\$	16,180,000

Public Comments

During the third and final public comment period, participants were surveyed as to their views regarding the importance of the proposed enhanced maintenance and geometric improvements to Whites Hill and North Dearborn roads. The results of the survey indicate that the majority do not feel that the proposed improvements are important at this time. Therefore, geometric improvements have been recommended for long-term implementation while enhanced maintenance is retained as a short-term recommendation. The Advisory Committee supported these recommendations.

The public was also asked about future evaluation and consideration of roundabouts within the Study Area as well as county-wide. The results of the survey indicate that less than one in five support potential use of roundabouts as an intersection design solution at the present time. Therefore, the recommendations do not include evaluation of roundabouts at this time. It is recommended that the County monitor implementation of roundabouts in other locations in the Cincinnati metropolitan area and southeastern Indiana, share this information with Dearborn residents for future roundabout consideration.

Final Recommendations

The Study's final recommendations include several elements with a focus on short-term maintenance and long-term geometric improvements of the existing roadway network connecting Bright to the Harrison/Brookville Interchange. Based on the analysis conducted by the Study Team, as well as input from the Study Advisory Committee and general public, the development of a new roadway facility is not needed or desired at this time.

Other recommendations were derived from issues identified during the Study process. These proposals are not limited to the Study Area specifically and relate to other corridors in the Bright area or county-wide initiatives which could apply to the entire county roadway network.

Short-Term Recommendations

Enhanced Maintenance

Conduct a detailed field inventory of existing conditions and perform the following maintenance activities on North Dearborn Road (CR 26) between State Line Road and Whites Hill Road and Whites Hill Road (CR 203) between North Dearborn Road and SR 46.

- Address drainage or slippage
- Repair, replace or add guardrail
- Remove roadside obstructions
- Widen shoulders
- Add lighting at key intersections
- Add mailbox turnouts
- Improve signage

Site specific details and costs have not been determined during this Study and will require a detailed field inventory. The recommended maintenance items can be done in a systematic fashion for the entire corridor or separately as funding and resources permit. Right of entry agreements with adjacent property owners may be required where dedicated right-of-way does not exist.

Long-Term Recommendations

Within the Study Area

Geometric Improvements to North Dearborn Road and Whites Hill Road

Plan for the long-term geometric improvements to North Dearborn Road and Whites Hill Road to remove deficient horizontal vertical curvature and to provide at least minimal lane and shoulder widths as shown on Figures 13 and 14 in Appendix A. The geometric details will be determined during future phases of project development. The recommended improvements will require external sources of funding to supplement the County's annual capital improvement budget for roadways. Given the costs and impacts of the projects, it will likely be necessary to phase

construction as noted previously. The limits and costs of the phased implementation will be determined during future phases of design development.

It is anticipated that the work will be done over several years and not during a single construction season. The timing of the respective phases will be dependent on maintenance of traffic, available funding and the ability to acquire the needed rights-of-way. Future phases of project development will require completion of one or more NEPA documents depending on phasing. It is not anticipated that there will be substantial environmental impacts based on the current construction limits and the project could potentially be cleared under a Categorical Exclusion document.

Improvements to the initial recommended segment of North Dearborn Road should be done in the context of long-term strategies to evaluate and improve geometry for the entire North Dearborn roadway corridor to enhance east-west mobility from SR 1 to Jamison Road.

Coordination with INDOT for Improvements to SR-46 and US-52

- The use of SR 46 and US 52 is necessary for travelers from Bright to the Harrison/Brookville Road Interchange. The County should monitor and coordinate with INDOT regarding the long-term replacement of the current SR 46 Bridge over the Whitewater River (See Figure 11).

Figure 11: INDOT Improvements

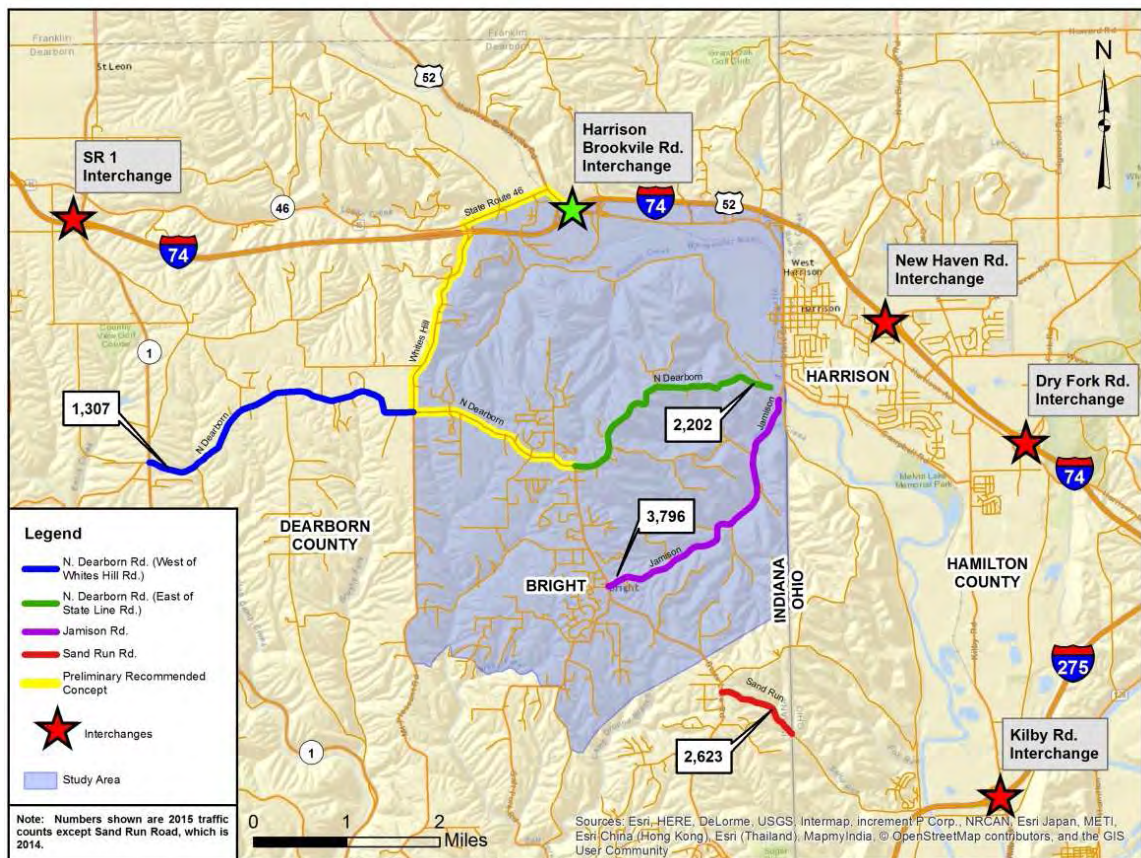


- During the course of the Study, the Advisory Committee and the general public also noted problems with limited sight distance on SR 46 west of Whites Hill Road and along US 52 east of SR 46. Others also noted challenges merging from the existing entrance ramp on US 52 to eastbound Interstate 74. Representatives from INDOT have indicated that they will investigate these conditions to determine what actions may be required to address these concerns.

County-Wide System

- Conduct field inventories and study potential improvements to Jamison Road and Sand Run Road to improve mobility to Hamilton County and connections with I-74 and/or I-275.
- Cooperate with Hamilton County Engineer to study the Sand Run Road corridor from State Line Road to Lawrenceburg Road (See Figure 12).

Figure 12: Other Interstate Connectors



- Given the public's stated lack of interest in near-term use of roundabouts in the Study Area or the county in general, monitor implementation of roundabouts in other locations in the Cincinnati metropolitan area and southeastern Indiana. Provide public education on the benefits of roundabouts where they may be applicable for use in Dearborn County in the future.
- Explore the creation of a sustained program to map crash data on county/local roadways to identify or monitor potential safety locations where roadway improvements may mitigate reoccurring crashes. Prioritize improvements based on continual monitoring of crash data. This program could be done in the context of other county-wide GIS needs and priorities.

- Inventory the existing dedicated right-of-way along North Dearborn and Whites Hill Roads in the Study Area, as well as the right-of-way potentially needed to provide the width specified in the Dearborn County zoning ordinance. This approach could be expanded to other areas of the county as well. The right-of-way inventory could be maintained in a sustained GIS enabled right-of-way management system similar to the crash data program recommended above.

OKI Adoption

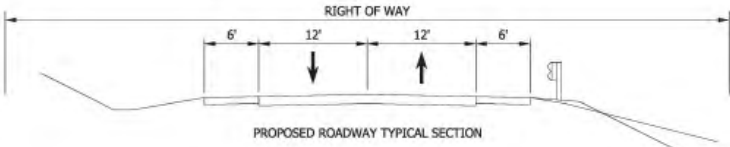
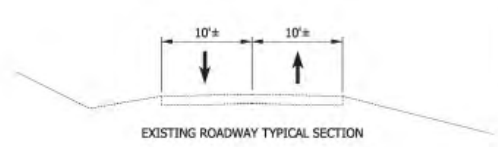
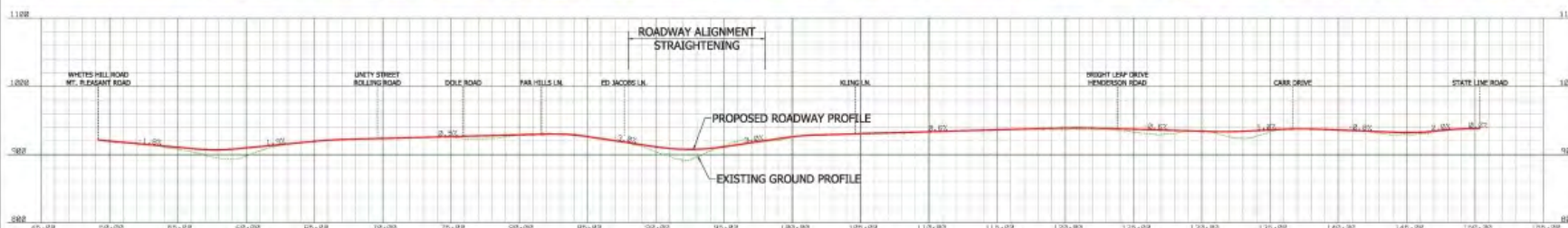
The Bright 74 Study's Executive Summary was shared with members of the OKI Intermodal Coordinating Committee (ICC) and Executive Committee in their November 2016 mailings. A presentation summarizing the Bright 74 Study was provided to the ICC on November 8 and Executive Committee on November 10. The Resolution included as Appendix C was recommended to the Executive Committee by the ICC and formerly adopted by the OKI Executive Committee on November 10, 2016.

APPENDIX A

IMPROVEMENTS TO NORTH DEARBORN AND WHITES HILL ROAD



Concept 1 - Component 2 : North Dearborn Road Improvements

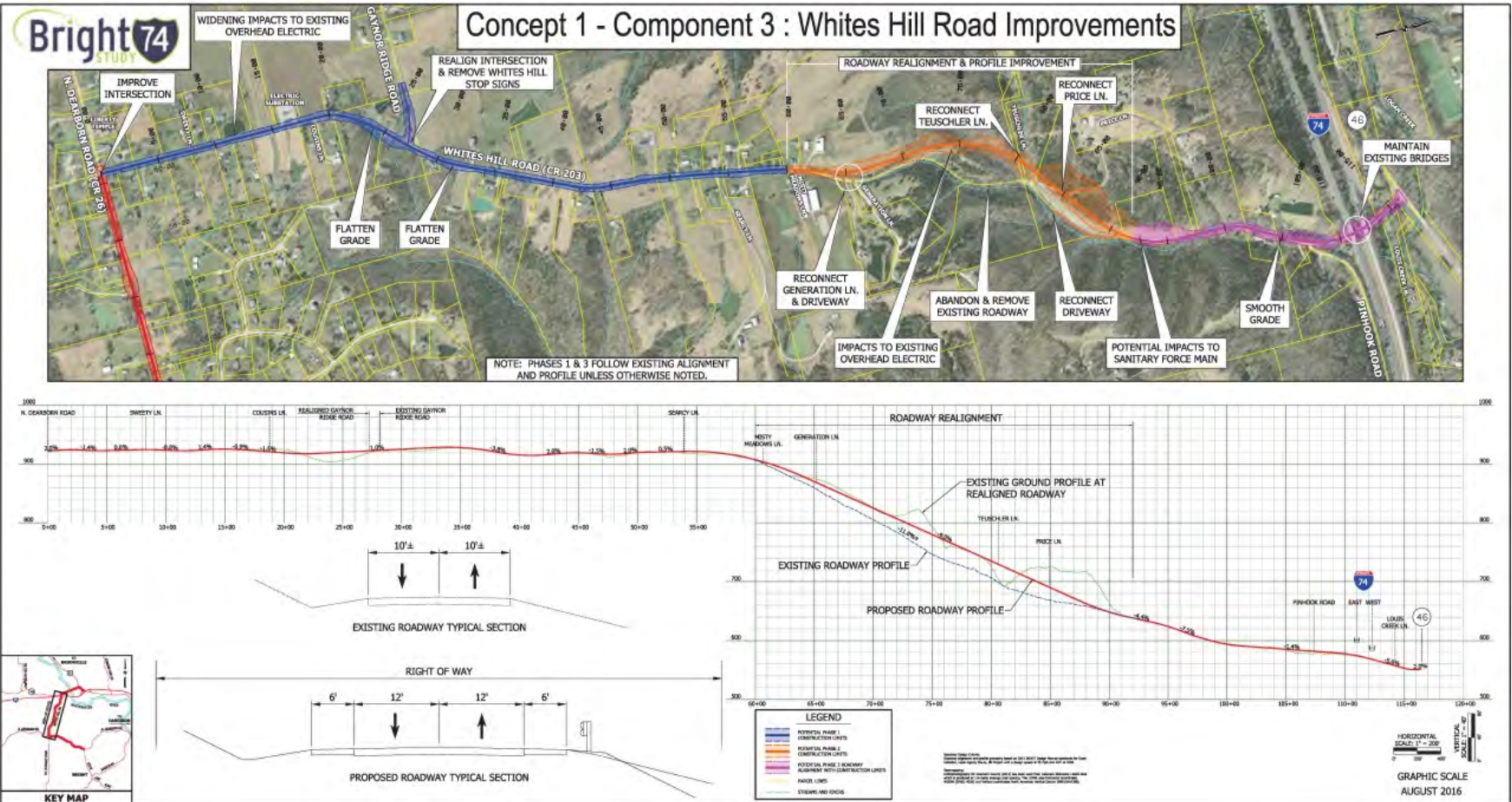


LEGEND

	POTENTIAL PHASE 1 CONSTRUCTION LIMITS
	POTENTIAL PHASE 2 CONSTRUCTION LIMITS
	PROPOSED LIMITS
	STRAIGHTENED ROADWAY

As shown on the map, the proposed roadway improvements are shown in red. The existing roadway is shown in black. The proposed roadway improvements are shown in red. The existing roadway is shown in black. The proposed roadway improvements are shown in red. The existing roadway is shown in black.





APPENDIX B

COST ESTIMATES

NORTH DEARBORN ROAD AND WHITES HILL ROAD IMPROVEMENTS



CONCEPT 1 NORTH DEARBORN ROAD

11/19/2016

Begin	49+15			
End	150+35			
Length	10,120	ft		
	1.9	mi		
Lane Width	12	ft		
Shoulder Width	4	ft	Unit Cost Year	2013
Number of lanes	2		Current Year	2016
Pavement Width	32	ft	Years to escalate	3
			Annual inflation	0.03
Pavement Area	35,982	sq yd	Rate of increase	1.09

Estimated Costs

Description	Quantity	Unit	2013 Unit Cost	2016 Unit Cost	Estimated Cost
Asphalt Pavement	35,982	Sq Yd	\$45	\$49	\$ 1,770,000
Excavation	16,526	Cu Yd	\$8	\$9	\$ 150,000
Embankment	45,770	Cu Yd	\$9	\$10	\$ 460,000
Culverts <5'	540	ft	\$350	\$382	\$ 210,000
Culverts 5'-10'	0	ft	\$550	\$601	\$ -
Precast Box Culverts*	0	ft	\$1,800	\$1,967	\$ -
Total Construction Estimate					\$ 2,590,000
Professional Services				20%	\$ 520,000
Right of Way cost	8.1	acres		\$50,000	\$ 405,000
Right of Way fees	75	parcels		\$5,000	\$ 375,000
Contingency				30%	\$ 1,060,000
Total Estimate (2016 dollars)					\$ 4,950,000



CONCEPT 1 WHITES HILL ROAD (including Gaynor Ridge Intersection)

11/20/2016

Begin	00+00			
End	116+50			
Length	11,650	ft		
	2.2	mi		
Lane Width	12	ft		
Shoulder Width	4	ft	Unit Cost Year	2013
Number of lanes	2		Current Year	2016
Pavement Width	32	ft	Years to escalate	3
			Annual inflation	0.03
Pavement Area	43,314	sq yd	Rate of increase	1.09

Estimated Costs

Description	Quantity	Unit	2013 Unit Cost	2016 Unit Cost	Estimated Cost
Asphalt Pavement	43,314	Sq Yd	\$45	\$49	\$ 2,130,000
Excavation	274,757	Cu Yd	\$10	\$11	\$ 3,010,000
Embankment	64,165	Cu Yd	\$9	\$10	\$ 640,000
Culverts <5'	635	ft	\$350	\$382	\$ 250,000
Culverts 5'-10'	280	ft	\$550	\$601	\$ 170,000
Precast Box Culverts*	0	ft	\$1,800	\$1,967	\$ -
Total Construction Estimate					\$ 6,200,000
Professional Services				20%	\$ 1,240,000
Right of Way cost	17	acres		\$50,000	\$ 850,000
Right of Way fees	86	parcels		\$5,000	\$ 430,000
Contingency				30%	\$ 2,490,000
Total Estimate (2016 dollars)					\$ 11,210,000

APPENDIX C

OKI EXECUTIVE COMMITTEE BRIGHT I-74 STUDY RESOLUTION

RESOLUTION
OF THE EXECUTIVE COMMITTEE OF THE
OHIO-KENTUCKY-INDIANA REGIONAL COUNCIL OF GOVERNMENTS
CONCERNING ADOPTION OF THE BRIGHT 74 STUDY

WHEREAS, the Bright 74 Study has been prepared by the Ohio-Kentucky-Indiana Regional Council of Governments for the Dearborn County Commissioners; and

WHEREAS, the Bright 74 Study is a multi-modal plan that has been prepared under the direction of an Advisory Committee representing diverse perspectives in the public and private sectors and included an extensive public involvement effort; and

WHEREAS, the Bright 74 Study accounts for other planning initiatives at the municipal, county, regional and state levels; and

WHEREAS, the Bright 74 Study has identified the short- and long-term transportation improvement recommendations to existing roadways: Now, therefore,

BE IT RESOLVED that the Executive Committee of the Ohio-Kentucky-Indiana Regional Council of Governments at its regular public meeting of November 10, 2016 adopts the Bright 74 Study; and

BE IT FURTHER RESOLVED that the OKI 2040 Regional Transportation Plan will be amended to reflect an update of the Dearborn County project list subject to air quality and fiscal constraint requirements.


KEVIN J. LYNCH, PRESIDENT

RB
11/10/16