2045 Metropolitan Transportation Plan

The Future of Mobility

The Area Plan Commission of Tippecanoe County

June 2017

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2045 Metropolitan Transportation Plan

Area Plan Commission of Tippecanoe County

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Gerry Keen, President
Sallie Dell Fahey, Executive Director

Adoption:

Jurisdiction	Resolution	Date
MPO Policy Board	T-17-08	June 8, 2017
APC		
Lafayette		
West Lafayette		
Tippecanoe County		
Battle Ground		
Dayton		
Clarks Hill		

Prepared by the Metropolitan Planning Organization Staff in cooperation with Tippecanoe County, Lafayette, West Lafayette, Battle Ground, Dayton, Clarks Hill, Purdue University, Indiana Department of Transportation, Federal Highway Administration and the Federal Transit Administration.

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EXECUTIVE SUMMARY

The Metropolitan Transportation Plan (MTP) is one of the cornerstones of the adopted Comprehensive Plan for Tippecanoe County; it supports, and is supported by its other components. Formal transportation planning began in the 1960's when initial studies culminated in the first adopted Plan in 1978 which documented the needs through the year 2000. The 2045 Metropolitan Transportation Plan is the seventh since the original and documents community needs to the year 2045. This Plan continues the emphasis started in the 2040 MTP of incorporating a broader definition of transportation planning; one that acknowledges the increased use of transit and non-motorized forms of travel.

METHODOLOGY

The 2045 MTP builds closely on the analysis and recommendations of the community's previous transportation plans. The Plan is a product of significant cooperative effort by the general public, elected officials and agency staffs. The recommendations are based on historic trends, current and future needs, and updated forecasts of traffic volumes, dwelling units and employment growth. The list of highway projects in this Plan comes from project recommendations from previous plans, results of an updated traffic forecasting computer simulation model as well as recommendations from the Citizen and Technical Committees. This plan continues to emphasize the increased role of transit, bicycling and walking and requires their consideration in all federally funded highway projects under the MPO Complete Streets Policy.

As part of the effort to forecast traffic volumes in 2045, estimates of future population and employment growth were developed by the Area Plan Commission (APC). Staff reviewed the Comprehensive Plan, Census data, past and other current forecasts, and consulted with community leaders (Table 1, Socioeconomic Data Summary). Overall current growth and trends are expected to continue. There will be two new employment and residential growth areas: on the west side of Purdue University campus and along the Hoosier Heartland highway. The historical residential and industrial growth patterns in the community will continue. Future growth is consistent with and has been directed by the long established Comprehensive Plan for Tippecanoe County and is able to accommodate the projected growth.

Table 1, Socioeconomic Data Summary

	1970	1980	1990	2000	2010	2045
Total Population	109,378	121,702	130,598	148,955	172,780	242,500
Total # of Dwelling Units	34,197	43,130	48,134	58,343	71,096	98,200
Number of Households	32,320	40,681	45,618	55,266	65,532	92,800
Persons per Household	3	2.59	2.5	2.42	2.42	2.38
Total Employment	52,015	64,915	80,290	99,143	94,911	140,500

Source: U.S. Department of Commerce: Bureau of the Census, Census of Population and Housing, and Bureau of Economic Analysis, Regional Economic Information Systems; Division of Housing and Food Services, Purdue University, APC Land Use Survey; and APC Staff Analysis,

THE PLAN

The community has been very successful in the last 45 years and has built most of the major roads that were initially conceived in the 1970s. The 2045MTP documents that the community now desires more than just roads and prefers to focus on diversifying our transportation options by developing other modes of travel as well. This plan continues the emphases from the 2040MTP that identifies the steps needed to ensure our highways truly work for all users: bicyclists, walkers, automobile drivers, transit users and freight deliveries. It recommends 175 highway projects, 94 sidewalk projects, 128 trail projects and 57 bike lane and shared lane projects. The Plan further recommends; continuing the 10% set-aside of Federal STP funds for independent trails, the development of a tree replacement policy for all Federal Aid projects, the community identifies a sustaining source of funds for safety and education awareness programs and the establishment of a multi-jurisdictional bicycle coordinator position. It also acknowledges that we can't

build our way out of congestion and places greater importance on the efficiency and sustainability of our highway system.

The Plan is a joint effort by the staffs of the APC, Tippecanoe County, the cities of Lafayette and West Lafayette, with input from local citizens, Purdue University, the local transit provider (CityBus) and the Indiana Department of Transportation (INDOT). The Plan was reviewed by the MPO's Citizen Participation Committee and recommended by the Technical Committee and adopted by the Policy Board.

COSTS AND FEDERAL FUNDING

Obtaining the financial resources to implement the projects in the Plan will be the greatest challenge facing the community. The plan documents the need for more than $1.7 billion in highway improvements by 2045 with state highways accounting for 58% and local roads 42% ($699,139,000) of the total. However, there are insufficient funds to address all these needs. While there are many uncertainties about future

Table 2, Total Project Costs

	Cost	Percentage
Lafayette	$206,705,000	(12%)
West Lafayette	$83,975,000	(5%)
Tippecanoe County	$403,440,000	(24%)
INDOT	$987,516,000	(58%)
Dayton	$10,700,000	(0.6%)
Battle Ground	$8,000,000	(0.5%)
IDNR	$11,300,000	(0.1%)
Grand Total	$1,711,636,000	
Local Need Total	$699,139,000	

Federal funding beyond the Fixing America's Surface Transportation (FAST) Act, we estimate the community will receive approximately $168,000,000 in Federal road funds over the next 28 years. This is less than 25% of the total local need. The list of locally sponsored highway projects has been financially constrained to reflect what this community might reasonably expect to receive from the Federal Highway Trust Fund (Table 28). Local and other sources of funding will be used to meet many of the needs not covered by Federal funding.

The 2045 Metropolitan Transportation Plan

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I. Introduction

The 2045MTP is a guide for the development and maintenance of the transportation system in our community. It is an integral part of the Comprehensive Plan for Tippecanoe County and builds on 40 years of experience starting with the completion of the original transportation plan in 1978. The 2045MTP represents the seventh update to the transportation plan and becomes part of the comprehensive, coordinated and continuous process of planning and implementing needed transportation improvements.

This Plan is the product of a cooperative effort involving public officials, agency staffs and citizens of the community. It has been discussed and evaluated in open forums facilitated by the staff of the Area Plan Commission of Tippecanoe County. We have attempted to present the information in a clear and concise way using maps, graphics and other methods to visualize information and better communicate the process and its recommendations.

The APC web site currently provides a wealth of additional information about the overall transportation planning program that supports the 2045 MTP. There is specific information about projects, traffic volumes, crash analysis, corridor studies, site analysis and other transportation related information that increasingly takes advantage of GIS functionality.

A. Reasons for Transportation Planning

Transportation planning is important to the community for a number of reasons:

- It helps the community prioritize their needs and make difficult funding decisions to ensure that scarce resources are allocated where they are most needed. The cost of our transportation system can best be managed by sound planning and fiscal programming.
- It helps the community coordinate projects and funding from more than a dozen sources. It is crucial that all funding agencies participate so that decisions are made in a coordinated and informed way.
- It provides comprehensive information on which transportation facilities will be implemented in the future. This provides residents, developers, existing and prospective businesses as well as the general public with information about the community's direction and future.
- It fulfills the federal requirement for transportation planning. To be eligible for Federal financial assistance for transit, highway, airport and railroads a community must have an comprehensive, coordinated and continuing planning process that meets federal criteria.

The community's transportation planning process provides an ongoing and effective way to jointly agree on where and how limited finances will be spent.

B. Local Transportation Planning Process

The Area Plan Commission of Tippecanoe County is designated by the Governor as the official "Metropolitan Planning Organization" (MPO) for the community to conduct transportation planning. Thus, in addition to local and state mandated functions related to planning and zoning, the agency is responsible for local transportation planning and for review of all federal highway and transit related projects and programs within the County. The Executive Director and planning staff carry out a variety of technical tasks that support the transportation planning functions.

The MPO's has three standing committees created to oversee the planning process and to provide advice on important decisions. Each was involved in the process culminating in this Plan update.

- The Policy Committee provides the counsel of elected and appointed officials involved with policy, administrative and fiscal decisions. Members of this committee ultimately have important responsibilities for implementing the plan's recommendations. The committee meets monthly in open advertised public meetings.

- The Technical Transportation Committee provides the advice and knowledge of various local agency engineers, planners, police, transit operator, Purdue University, Purdue Airport, and INDOT. Members are responsible for designing, operating, and maintaining the transportation system. The Committee meets monthly in open advertised public meetings.
- The Citizen Participation Committee provides ideas and comments from representative groups and individuals throughout the community. These citizens provide important insights and observations about programs and projects. The goals and objectives for the 2045MTP and the Comprehensive Plan were generated through the efforts of the Citizen Participation Committee. The specific transportation related goals and objectives are in Chapter IV. The Committee meets bi-monthly and has a mailing roster of over 50 recipients which includes neighborhood organizations, minority organizations, League of Women Voters, all local media and other interested individuals.

Review and adoption of the 2045MTP was accomplished during the spring of 2017 through input by the Policy, Citizen, and the Technical Transportation Committees as well as meetings with individuals and community groups. Suggestions and comments throughout the review period were incorporated in the Plan where appropriate.

C. Major Local Transportation Issues

For the last 40 years the community has been planning major highway improvements. Most have been constructed yet more are needed. The recent completion of the: Hoosier Heartland, relocation of US 231, McCarty Lane Extension, Cumberland Avenue Extension and Veterans Memorial Parkway will continue to fundamentally transform our community. Our travel patterns will continue to change and make new demands on our roads and land uses.

To maintain this community's quality of life, the next chapter for this community's transportation planning needs is to:

- Continually improve our transportation network. This includes new road construction such as Lindberg and Klondike Roads, the perimeter parkway around Purdue, extending US 231 north of Sagamore Parkway and roads in areas of new development. It also means updating our older roads to better accommodate all users.
- Address bottlenecks that cause delay at intersections and in road corridors. This includes US 52, Sagamore Parkway, South Street, and around Purdue's campus. Previous efforts to develop circumferential routes that provide relief to congested streets need to continue.
- Make safety improvements that are aimed at fatal and severe crash locations as identified through crash analysis, such as around Purdue, Sagamore Parkway, US 52 (Teal Road), Creasy, Main and State/South Streets.
- Provide more sustainable transportation options, such as CityBus, bicycle facilities, sidewalks and trails. This includes retrofitting roads in several urban growth areas with curb, gutter and sidewalk to keep pace with development.
- Be more efficient in managing our roads with up-to-date inventories, advanced traffic signal coordination, control of access and road maintenance.
- Find ways to adequately fund needed improvements. The needs identified in the 2045MTP exceed the available funding options and if we desire to decrease delay or improve safety additional funding sources will be needed.

D. The Federal Role – Fixing America's Surface Transportation (FAST)

This plan has been prepared to comply with laws governing eligibility requirements for federal transportation funding. The US Department of Transportation has provided guidance for communities conducting transportation planning and the MPOs compliance with specific requirements, such as the ten

planning factors, seven National performance goals and Environmental Justice, is documented in the Appendices.

II. CURRENT TRENDS

A. Demographics

Understanding how and where the community has grown is the starting point to determine where future growth will occur and its effect on future road congestion and safety. Since 1978 the Comprehensive Land Use Plan has guided where utilities are located and where future residential, commercial and industrial growth will occur. Over the last forty five years Tippecanoe County has experienced strong growth in both population and housing.

Table 3. Historical Socioeconomic Data

Component	1970	1980	1990	2000	2010
Total Population	109,378	121,702	130,598	148,955	172,780
Household Population	96,901	105,271	114,138	133,829	158,317
Group Quarter Population	12,477	16,031	16,460	15,126	14,463
Total Housing Units	34,197	43,130	48,134	58,343	71,096
Occupied Housing Units	32,320	40,681	45,618	55,226	65,532
Person per Household	3.00	2.59	2.50	2.42	2.42
Vacant Housing Units	1,877	2,449	2,516	3,117	5,564
Percent of Housing Units Vacant	5.5%	5.7%	5.2%	5.3%	7.8%
Total Employment (number of Jobs)	52,016	64,824	79,949	98,426	94,911

Source: U.S. Department of Commerce: Bureau of the Census, Census of Population and Housing, and Bureau of Economic Analysis, Regional Economic Information Systems.

1. Population

The 2010 Census counted 172,780 persons in Tippecanoe County and estimated 185,826 in 2015. This is a significant increase when compared to previous census data. Our County grew by 23,825 persons between 2000 and 2010 (16%) and by 13,046 in the next 5 years. The general location, density and change in our population are shown in Figure 1, 2 and 3.

158,317 persons lived in households which consist of single-family homes, apartments, duplexes, and condominiums. They accounts for 92% of our county's population, with the other 8% (14,463) living in group quarters. The majority of those (12,162) were students in dormitories, with 1,065 persons living in nursing homes and the remaining population primarily in jails.

2. Housing

A key variable used in developing the *2045MTP* is the location and number of housing units. The 2010 Census counted 71,096 housing units in Tippecanoe County. This was an 18% increase from the 2000 Census and a gain of almost 13,000 new units. The Census data is available at the block level, and thus the Traffic Zone level (Figure 4), so we have a very good idea where all of the housing units are located. Additionally, local building permits show that between 2010 and 2016 an additional 4,700 housing units were built for an estimated total of 75,804 housing units in Tippecanoe County by 2016 (Figure 5).

Not all of the housing units were occupied. There are always vacancies due to new units not yet occupied, sold or abandoned. With the exception of the 2010 Census, vacancy rates have been relatively stable (5.2% to 5.7%) and the MPO estimates the 2016 rate has come back down to approximately 5.5%.

The housing growth experienced over the previous ten years is primarily concentrated to the north and west of West Lafayette and to the east and south of Lafayette. This distribution confirms that our county Land Use Plan is still guiding development. The average number of persons living in households has noticeably decreased since 1970 but leveled off in 2000 and 2010.

3. Employment

Employment data utilized in the *2045MTP* came from the U.S. Department of Commerce Bureau of Economic Analysis and from InfoGroup that was purchased by INDOT. The information includes not only the number of non-farm jobs for each business but also their location, allowing us to map the location of jobs in Tippecanoe County. Farm employment was based on historical employment data from the U.S. Department of Commerce Bureau of Economic Analysis. Over the last decade, farm employment has been stable, averaging 800. The number of farm employees was added to the employment estimate and distributed throughout the County with assistance from the Tippecanoe County Commissioners and their knowledge of the farming community. Both data sets and current land use were used to update the number of jobs in the County. It estimated 108,400 jobs in the Tippecanoe County in 2016 (Figure 6).

4. Public Health

Over the last several years the community has become increasingly concerned about how transportation options affect our health. In the summer of 2014 the MPO sponsored an Active Living workshop with the Indiana Department of Health and Health by Design that attracted over 40 participants for the day long workshop. The summary report documents the top priorities by identifying the most important action steps:

1. Develop Safe Routes to School Plans for Lafayette and Tippecanoe County.
2. Educate and promote walking, biking and use of transit.
3. Expand community wide school participation in bicycle rodeos and safety education.
4. Develop maps of trails and critical sidewalk connections.
5. Provide bicycles and helmets to qualifying children.
6. Make the Active Living program sustainable.

Additional priorities were developed for walking, biking, schools, parks and greenspace, land use and public space and transit. In addition to sharing technical knowledge, one of the most lasting outcomes was the new contacts made among participants that do not normally interact. There was a wide cross section of interest groups and people represented who realized they had more in common than anticipated. The results of the workshop provided guidance to new goals, objectives and performance measures for the 2045 MTP.

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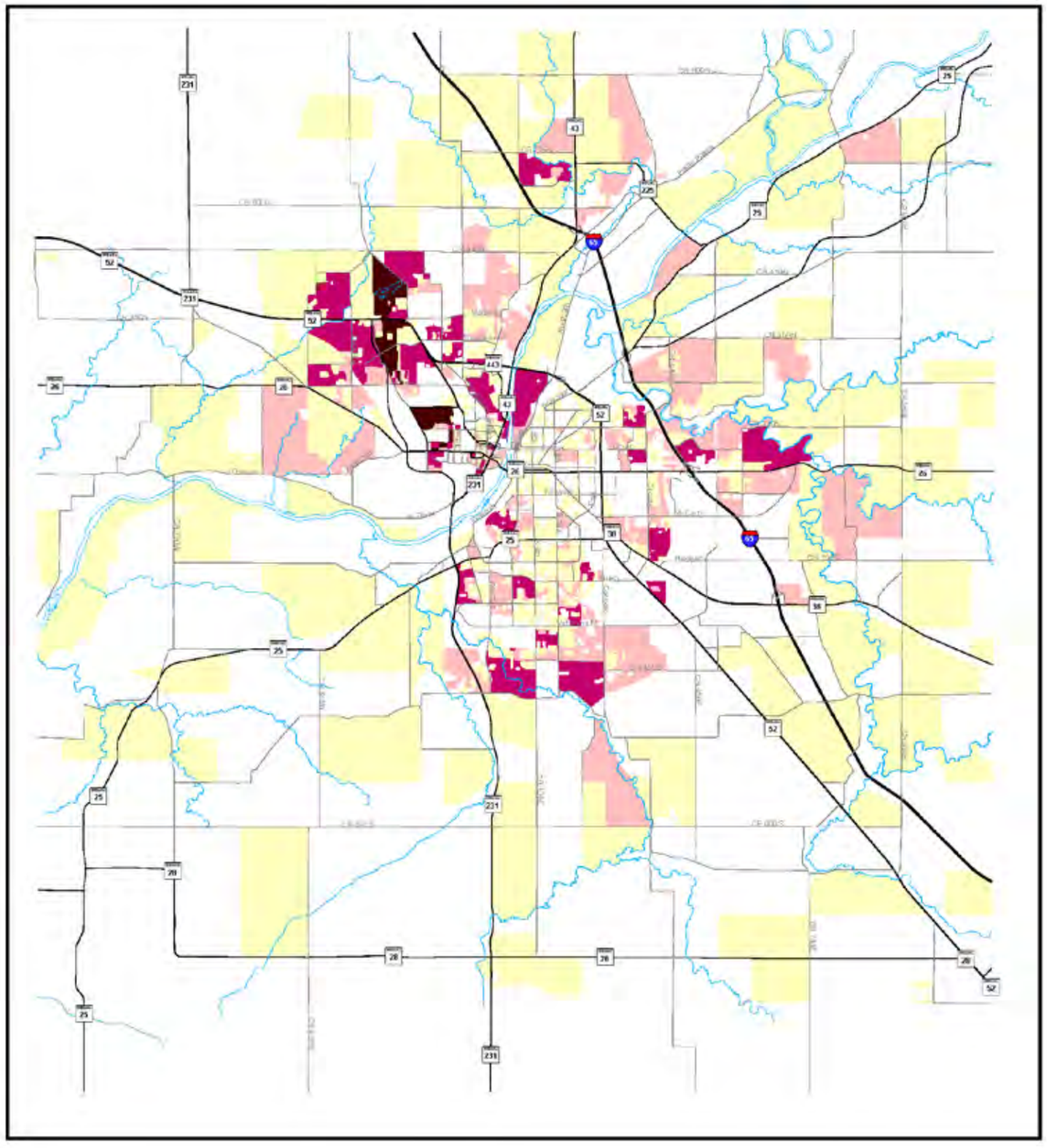

Figure 1

Population Distribution 2010 Census

Population Distribution

0 to 50 Persons
51 to 170 Persons
171 to 439 Persons
440 to 1299 Persons
1,300 or more Persons

0 1.5 3 4.5
Miles

Prepared by the Area Plan Commission of Tippecanoe County, May 25, 2012

Source: US Bureau of the Census

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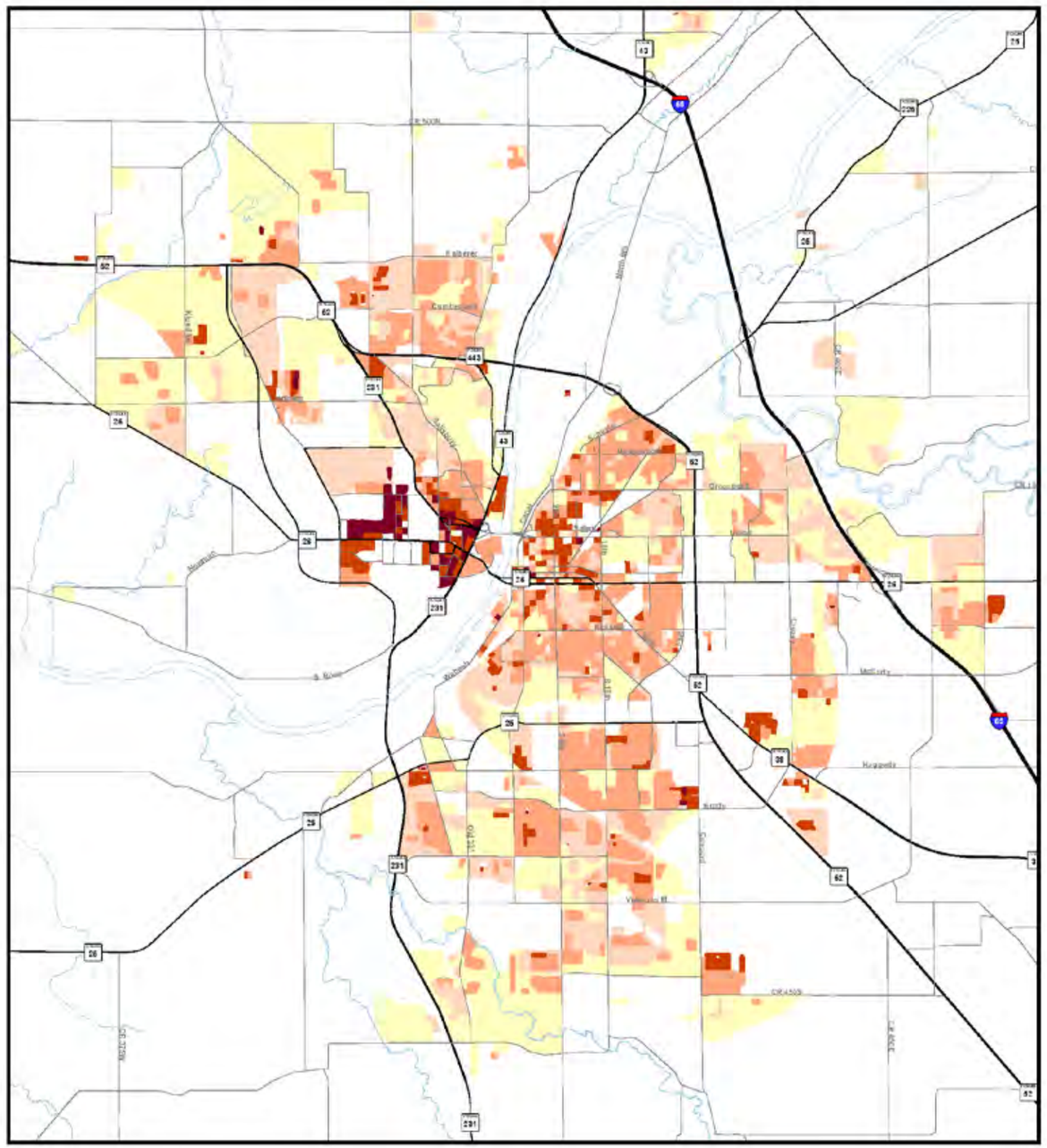
Figure 2

Population Density 2010



Number of Persons per Square Mile
0 to 1,000 Persons
1,001 to 3,000 Persons
3,001 to 5,000 Persons
5,001 to 10,000 Persons
10,000 to 25,000 Persons
25,000 to 100,000 Persons
0 .5 1 1.5
Miles

Prepared by the Area Plan Commission of Tippecanoe County, May 25, 2012

Source: US Bureau of the Census

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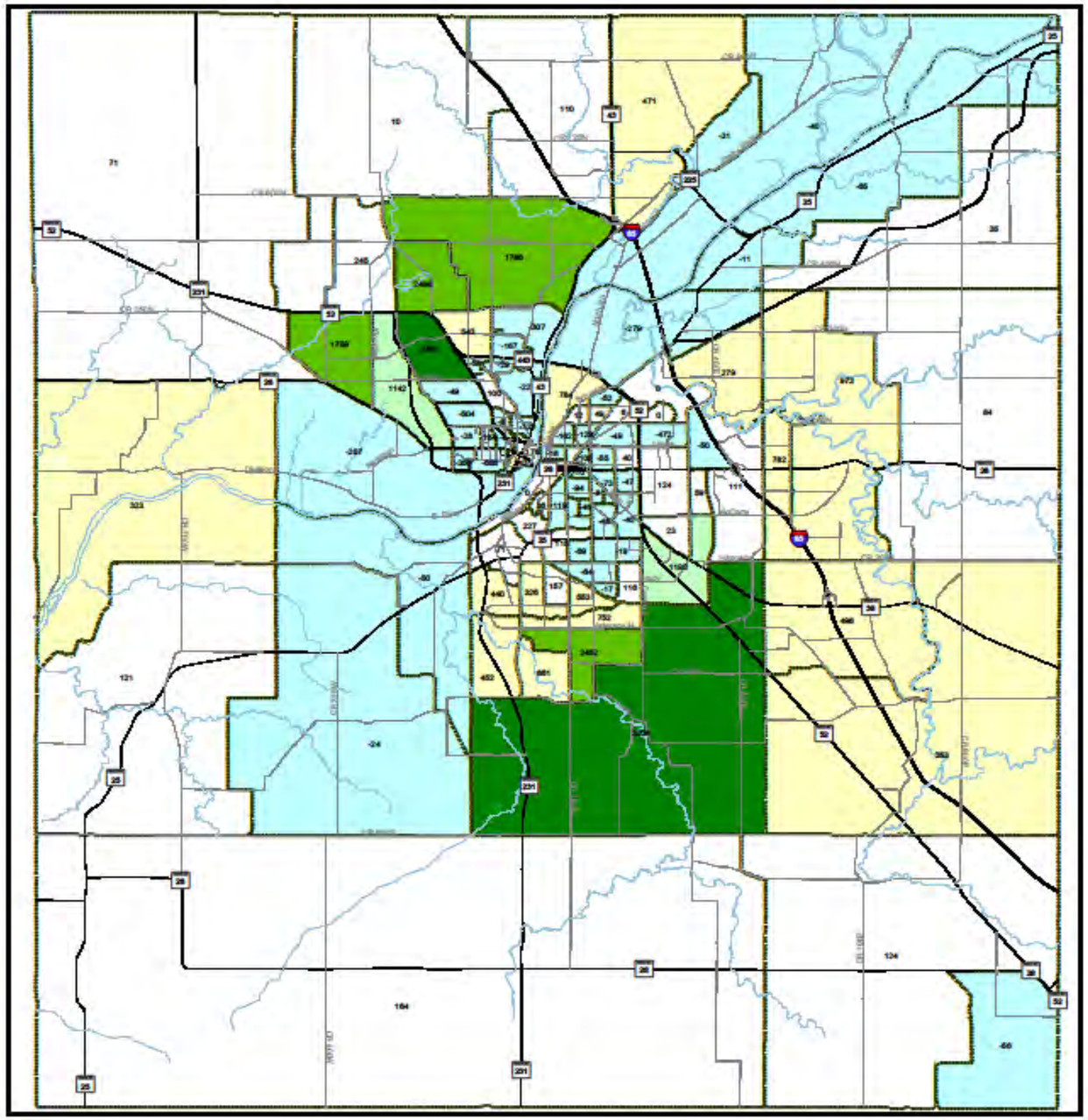

Figure 3

Population Change 2000 to 2010

Population Change

- Decrease in Population
- 0 to 249 Persons Increase
- 250 to 999 Persons Increase
- 1,000 to 1,499 Persons Increase
- 1,500 to 2,999 Persons Increase
- 3,000 to 10,000 Persons Increase

0 1.5 3 4.5

Miles

Prepared by the Area Plan Commission of Tippecanoe County, May 25, 2012

Source: US Bureau of the Census

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Figure 4. 2016 Dwelling Units

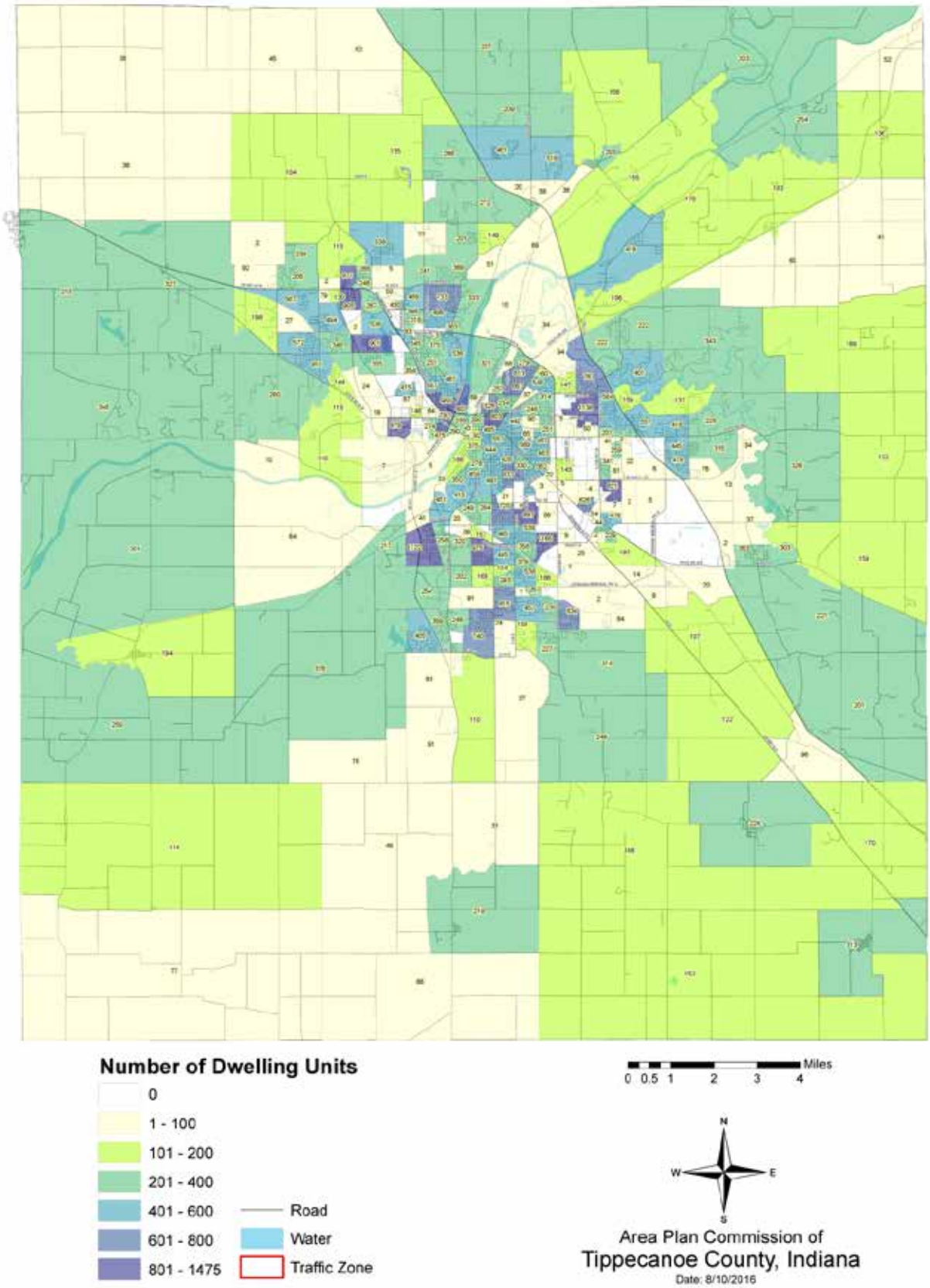

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Figure 5. Building Permits 2010-2016

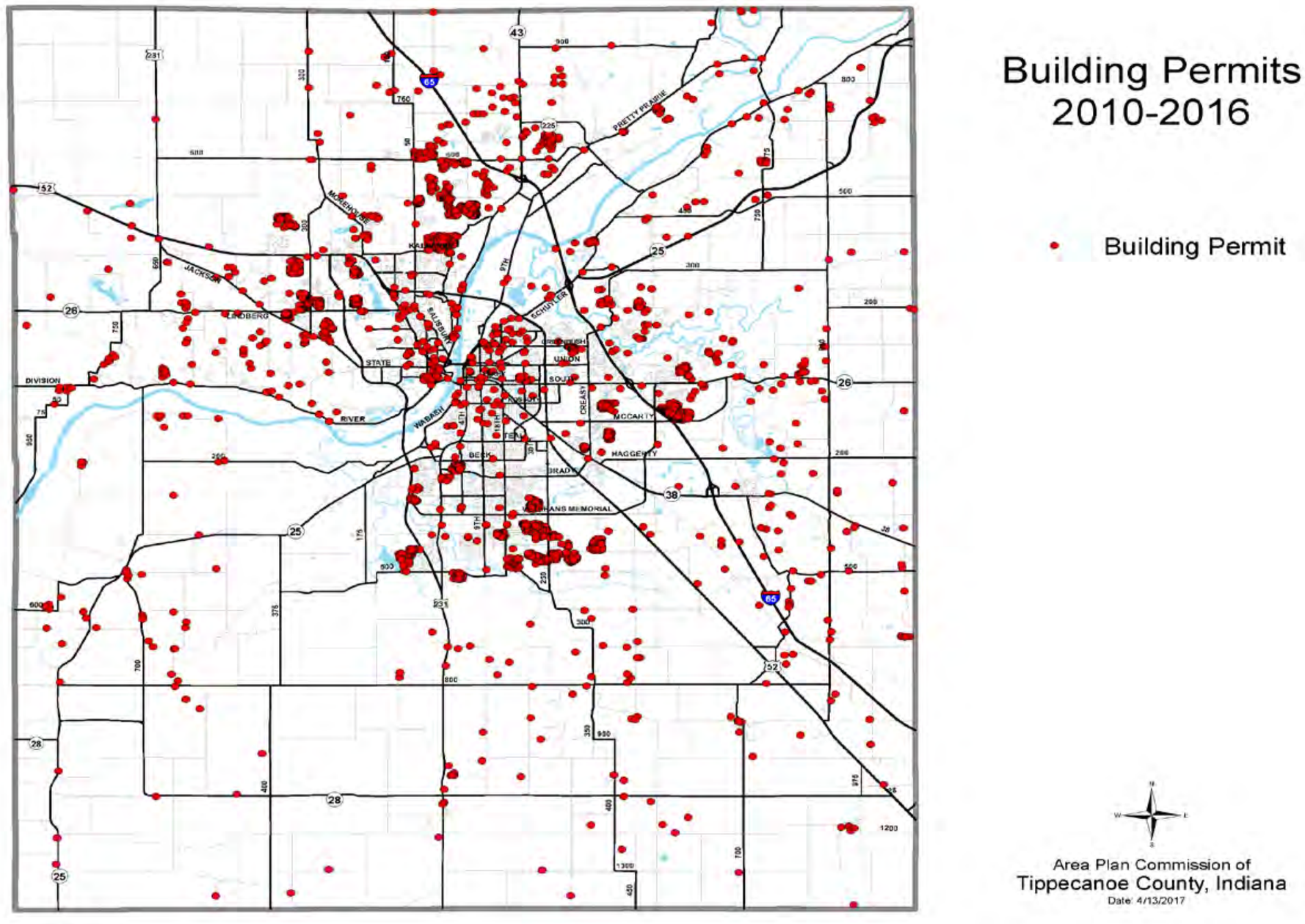

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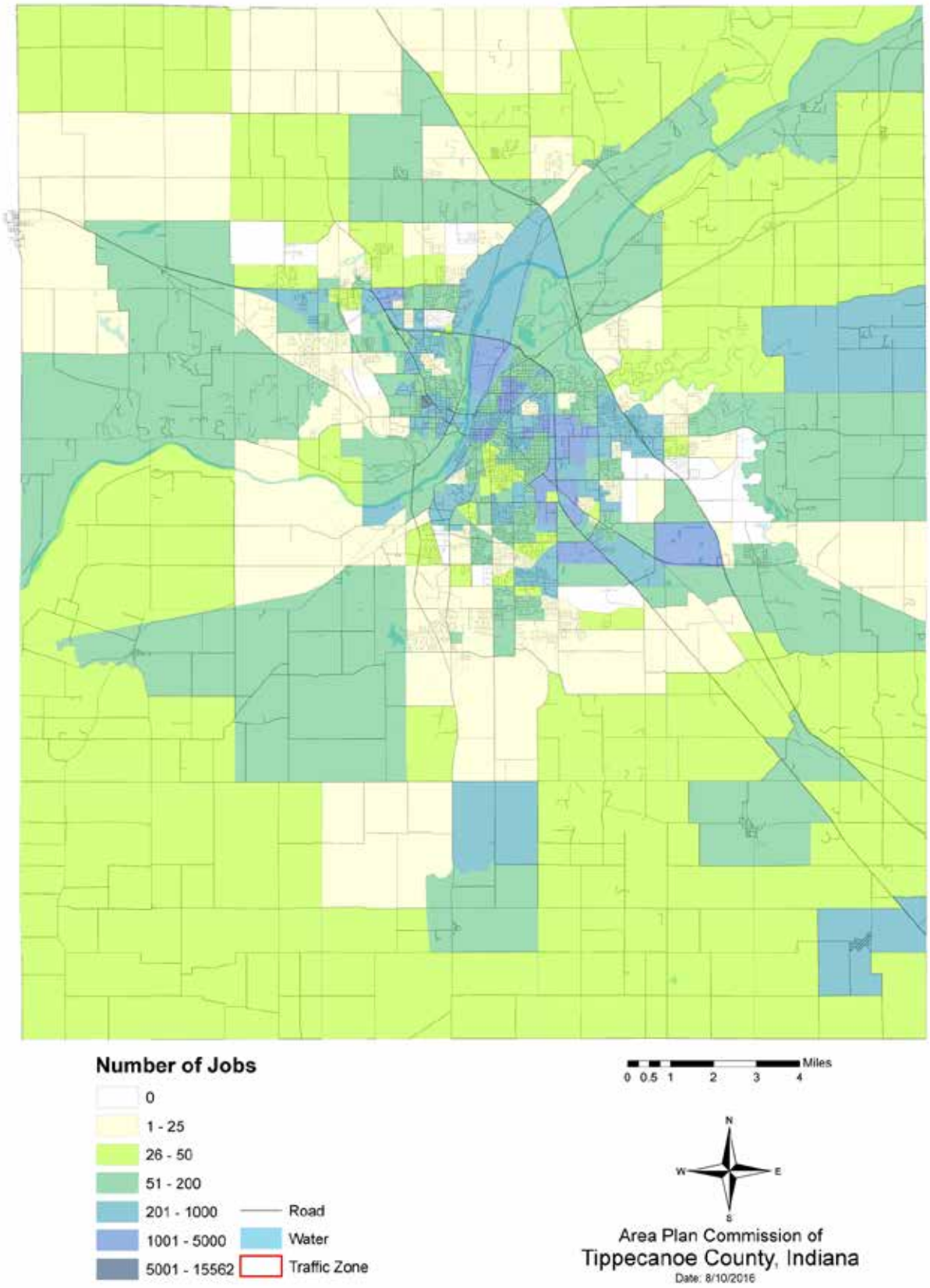
Figure 6. 2016 Employment



B. Roads-Our Assets to Manage

Our transportation system is a significant asset that needs to be well managed and maintained to prolong its life. Without needed maintenance, roads, sidewalks, trails and equipment quickly deteriorate. Funding both operations and maintenance is necessary to keep the system in a state of good repair and to provide the greatest service at the least cost to all users.

1. Asset Management Financing

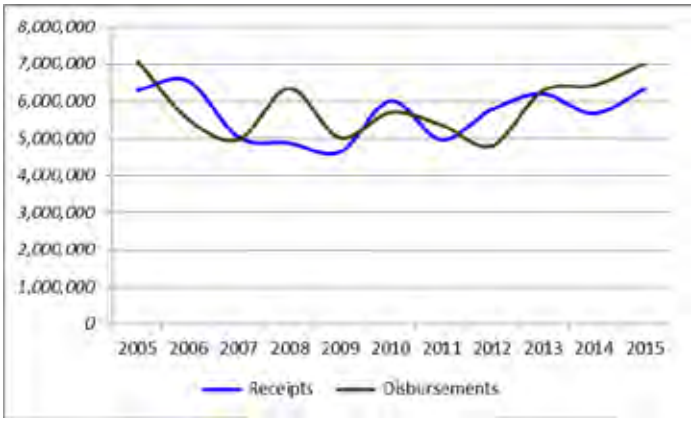
Keeping roads in a state of good repair requires the investment of a significant amount of financial resources. Local jurisdictions use a variety of funding sources for operations and maintenance (Table 4). Funding includes state gas taxes that are returned to our community through the Local Road and Street (LRS) funding program and the Motor Vehicle Highway Account (MVH). Local funding also includes the Local Option Highway User Tax (LOHUT) and the Cumulative Bridge Fund. Both of which are locally adopted revenue sources. CityBus supports its operation and maintenance through its fare box revenues and a dedicated local property tax. State support to CityBus is provided by the Public Mass Transportation Fund (PMTF) and pass-through Federal funds are available for operating assistance.

Each jurisdiction receives funds from the above three primary sources: MHV, LRS and LOHUT, with Tippecanoe County also receiving Cumulative Capital Bridge funds. Over the past ten years the amount of funding received has fluctuated from year to year.

Table 4. Local Highway Receipts and Disbursements

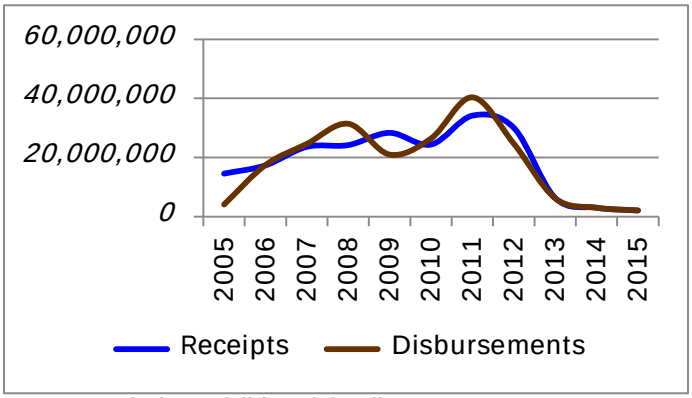
Lafayette
MVH, LRS and LOHUT

Year	Receipts	Disbursements
2005	6,296,771	7,101,271
2006	6,556,475	5,532,575
2007	5,040,067	4,973.955
2008	4,884,715	6,348,876
2009	4,636,187	5,019,152
2010	6,017,375	5,699,097
2011	4,966,290	5,367,485
2012	5,784,541	4,816,350
2013	6,203,085	6,284,325
2014	5,672,575	6,430,601
2015	6,325,015	7,009,299



West Lafayette:
MVH, LRS, LOHUT and other taxes

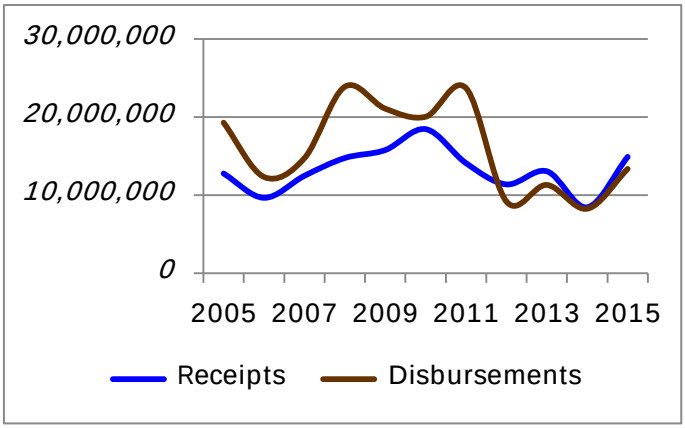
Year	Receipts	Disbursements
2005	14,547,087	4,100,419
2006	17,343,570	*17,445,999
2007	23,622,777	*24,613,572
2008	24,203,959	*31,418,157
2009	28,350,579	*20,996,157
2010	24,383,422	*26,424,124
2011	34,168.015	*40,359,527
2012	30,056,654	*24,697,147
2013	6,308,320	6,191,023
2014	3,000,000	3,000,000
2015	2,065,604	2,086,647



*Includes additional funding sources, e.g. TIF

Tippecanoe County:
MVH, LRS, Cum Bridge and other taxes

Year	Receipts	Disbursements
2005	12,757,209	19,272,461
2006	9,645,545	12,313,839
2007	12,465,046	14,723,157
2008	14,745,576	23,877,337
2009	15,762,287	21,062,301
2010	18,440,895	20,026,501
2011	14,079,563	23,690,999
2012	11,364,921	9,161,867
2013	13,041,018	11,293,325
2014	8,432,397	8,247,734
2015	14,888,961	13,347,869



Even well maintained highways have a limited useful life. The goal is to preserve and extend that life which requires a systematic program of maintenance. "The worst first" maintenance philosophy is being supplanted with the "Fix it first" pavement preservation strategy. This involves a greater emphasis on monitoring the condition of pavement and doing minor repairs earlier such as sealing cracks. Roads require resurfacing periodically and often involve grinding off a layer of the road and adding new asphalt. Concrete streets can also be patched to prolong their useful life. In rural areas the economical chip and seal process is often used to expend the life of the road surface. Each local jurisdiction has a budget for the management and maintenance of its infrastructure, whether it is roads, bridges and trails. All supported through multiple funding sources.

Maintenance extends the useful life of facilities for only a limited number of years. Eventually replacement is needed. Reconstruction costs can include the complete replacement of pavement and is often coupled with minor changes to improve the facility's design (to meet ADA or Complete Streets requirements). These are expensive projects and can require significant time and planning. Often federal funds or special appropriations at the local level are needed for these improvements. Figure 7 documents the highway improvements that have been made in the community over the last 25 years. The map documents that the majority of our arterial road network has received the maintenance and investment it needed. The map also helps identify roads that have not received the attention they may need.

2. Pavement Management

Each jurisdiction that participates in the MPO has a pavement asset management program. Essential to that management is having a road inventory, monitoring road condition and using that data to decide which improvements are made. There are over 1,441 miles of roads in Tippecanoe County that are maintained by nine jurisdictions, excluding Purdue University:

Recent efforts to expand pavement inventories and condition ratings across the state have been very successful and now provide additional data to better identifying needed improvements and drive decisions. As shown below, 64% of the community's roads were rated good or better.

Using the same rating system, Purdue's Local Technical Assistance Program has summarized pavement conditions for 312 local jurisdictions based on recommended pavement management treatment strategies. Again, this community's roads are in better condition than the statewide averages (78.2% and 68.3%respectively).

Table 5. Road Mileage by Local Jurisdiction

Jurisdiction	Mileage
INDOT	163.852
Tippecanoe County	853.419
Battle Ground	10.235
Clarks Hill	4.289
Dayton	7.429
Lafayette	265.478
Otterbein	3.108
Shadeland	34.587
West Lafayette	98.845
Total	**1,441.24**

Table 6. Summary of Local Pavement Rating

Ratings	Miles	Percent
10 Excellent	28.3	2.3
9 Excellent	39.1	3.1
8 Very Good	225.9	18.1
7 Good	211.4	16.9
6 Good	289.7	23.2
5 Fair	182.6	14.6
4 Fair	85.8	6.9
3 Poor	74.8	6.0
2 Very Poor	108.8	8.8
1 Failed	3.7	0.3

Table 7. Local and State Comparison of Pavement Ratings

Ratings	Statewide	Local
8-10– Good	14.3	23.5
5-7 – Fair	54	54.7
1-4 – Poor	31.2	21.8

Bridges are an important part of our highway infrastructure. Failure of a bridge structure can have catastrophic consequences. INDOT and the Tippecanoe County Highway Department are charged with managing bridges. Each bridge must be inspected every three years. Inspections include analysis of the support structure, spans and surface. When necessary, bridges are painted, rehabilitated or replaced according to conditions found during inspections.

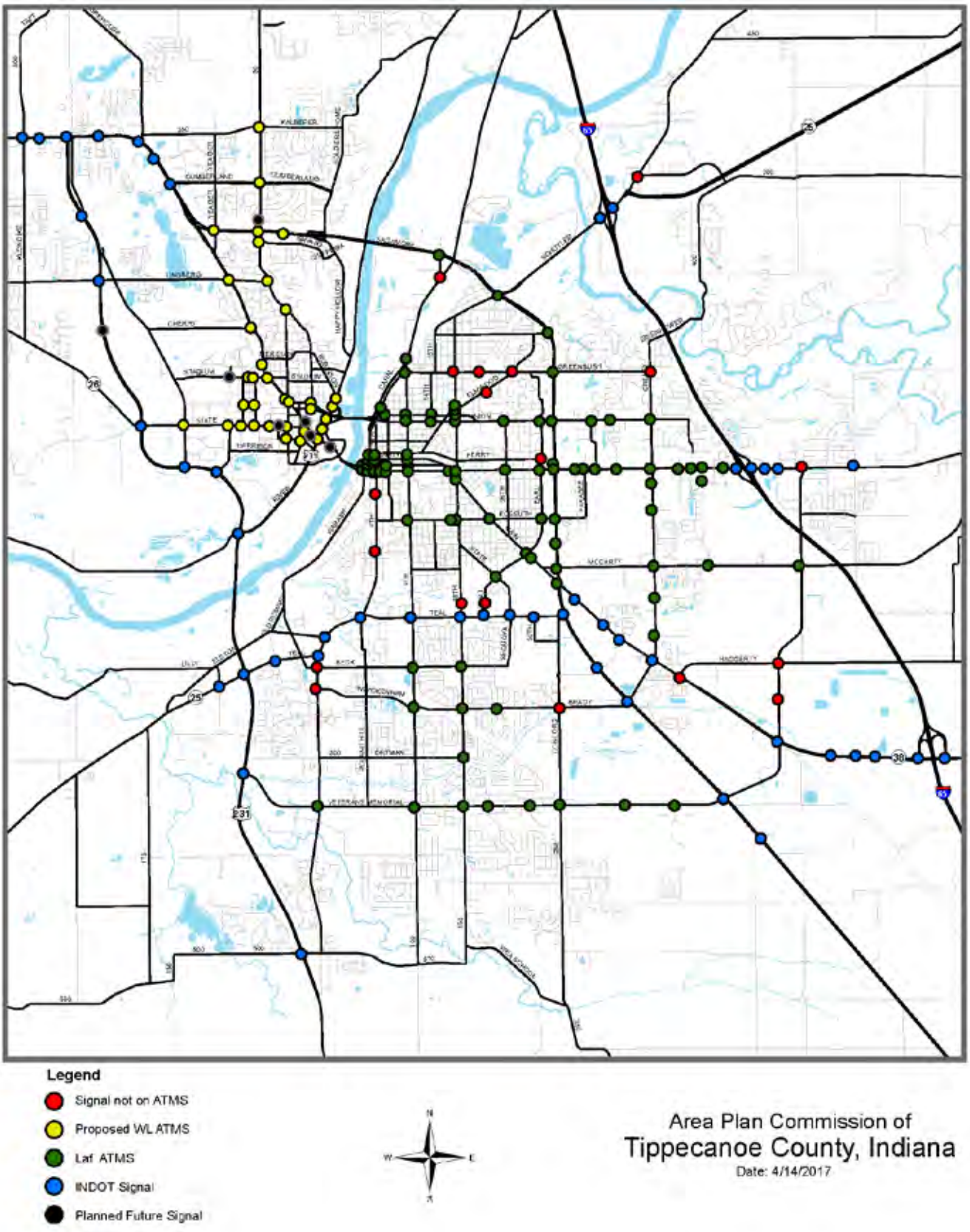
All railroad crossings in our community are owned by the railroad companies. In most cases, railroads owned the right-of-way prior to urban development and construction of the street network. Railroad crossings require periodic maintenance to keep the surfaces smooth. Crossings are protected in the built up urban areas with 2 and sometimes 4 quadrant gates. Lafayette has successfully built several "Quiet Crossings" (with median barriers and dual gates) in the south side of Lafayette. In rural areas, rail crossings at low volume roads are typically posted with just warning or stop signs. Grade separation is desirable when highway volumes are high. Once built, the bridges that carry traffic over the tracks are maintained as part of the bridge inventory.

Figure 7. Historic Highway Improvements

3. Traffic Management and Operations

How well our roadways function increasingly depends on how well traffic signals perform. There are currently over 200 traffic signals in our community: 45 are owned by INDOT, 108 by Lafayette, 30 by West Lafayette and one by Tippecanoe County. Lafayette has centralized the control of their signals with an Advanced Traffic Management System (ATMS) and West Lafayette will have in the near future (Figure 8). ATMS is one form of Intelligent Transportation Systems that is designed to improve traffic flow and safety. They provide real-time traffic data that enables real-time adjustments to the signal system. However, driving patterns change, software gets outdated and hardware can malfunctions. Because of this, the signals should be re-timed often, the equipment maintained to ensure proper functioning and the software and hardware updated regularly.

Figure 8. Traffic Signal Locations



C. Walking and Bicycling

Local jurisdictions have been active in building pedestrian and bicycle facilities for several years. West Lafayette has well-developed trail and bike lane systems with a commuter emphasis to Purdue. Lafayette has recently built several trails and completed a Trail and Greenway Plan as well as a Bicycle and Pedestrian Plan. Tippecanoe County has incorporated sidewalks and trails in its road construction projects in the urban area. Additionally it has been developing the Wabash Heritage Trail for over 40 years. While INDOT has been slow in accommodating pedestrians and bicyclists, they now including those facilities in many of their projects. Many of the facilities for bicyclists and walkers have been built as part of road improvements, others have been standalone projects and some have been built in conjunction with private developments. Both cities have long had active sidewalk replacement programs.

1. West Lafayette

The City of West Lafayette has been developing trails since the early 1990's (Figure 9). It continues to be very active in constructing trails, bike lanes, and sidewalks and now has almost 32 miles of trails, over 3 miles of footpaths, more than 28 miles of bike lanes and sharrows and 168 miles of sidewalks. There is approximately two-thirds of a mile of trail per 1000 residents, and according to the City that ratio is one of the highest in the State.

Table 7 Major Trails in West Lafayette

Paved Trails Name	Length (mi.)	Footpaths Name	Length (mi.)
Cattail Trail*	6.80	Celery Bog	1.88
Northwest Greenway*	8.43	Michaud-Sinninger Woods	0.43
Wabash Heritage Trail*	4.28	Northwest Greenway	0.87
Nighthawk Trail	0.50	Hollowood Footpath	0.80
Village Fitness Trail	1.86	Ravine Footpath	0.27
Westway Trail (US 231)	6.90		

* Designate as National Recreation Trails

West Lafayette also has a fitness trail through several older neighborhoods that is nearly 2 miles long (1.86 miles). It was opened in 2010 as an urban trail intended primarily for walking.

The Salisbury Street bicycle lanes, from Kalberer Road to Stadium Avenue, allow bicyclist to travel almost the entire length of West Lafayette. Feeder routes connect from Grant Street, Lindberg Road, and Kalberer Road. There are bike lanes also along a portion of Soldier Home Road.

Sidewalks are primarily located in the oldest and the more recent parts of town (south of Leslie Avenue and north of Sagamore Parkway). The areas in-between are residential subdivisions build in the 1950s and 1960s and have sidewalks only along the major roads but few on the local streets.

Bike Sharing

Purdue University, partnering with the Alcoa Foundation, brought the Zagster bike sharing program to the University in the fall of 2015. Stations were placed in close proximity to resident halls, bus stops, parking garages, bike lanes and parking lots. The program was well received by students, faculty, staff and the community with over 20,000 trips taken in the first year. To date the program is about to surpass 50,000 trips Service was extended to include the Levee area and downtown Lafayette in August of 2016. Currently there are 21 stations with 101 bikes.

Purdue University

Walking and bicycling are probably the most frequent means of travel around campus for students, faculty and staff; with transit a close second. The University has recently developed a bicycle and pedestrian infrastructure plan that proposed a network of designated bicycle facilities to help provide a safer environment for all modes of travel on campus. It includes recommendations for organization, education, enforcement, encouragement,

evaluation and planning. The university subsequently created and filled the position of Alternative Transportation Coordinator.

Figure 9, West Lafayette Trails Guide

Purdue currently has three bicycle "fix-it" stations on campus. Two are located on the east side and one on the west side of campus. The fix-it stations include all the tools necessary to perform basic bicycle repairs and maintenance tasks, including tires, brakes and derailleurs.

Purdue was designated a bronze level bicycle friendly university in 2015 by the League of American Bicyclists. In 2016 the University was recognized at the silver lever. Indiana University is the only other university designated and they are recognized at the bronze level.

ReState Street – The State Street Redevelopment Project

The ReState Street project will transform State Street from the Wabash River to US 231 and create a true main street for West Lafayette and the University (Figure 10). It is designed to be a more attractive and functional place for residents, students, business owners and visitors. It is a joint project between Purdue University, the Purdue Research Foundation and the City of West Lafayette. Its scope includes:

1) Converting State Street to a two-way, two-lane road through campus and expanding it to four travel lanes west of Airport Road and east of River Road. It constructs major components of the Perimeter Parkway Project that have been part of the Plan since 2004.

2) A cycle track on the north side and sidewalks on both sides.

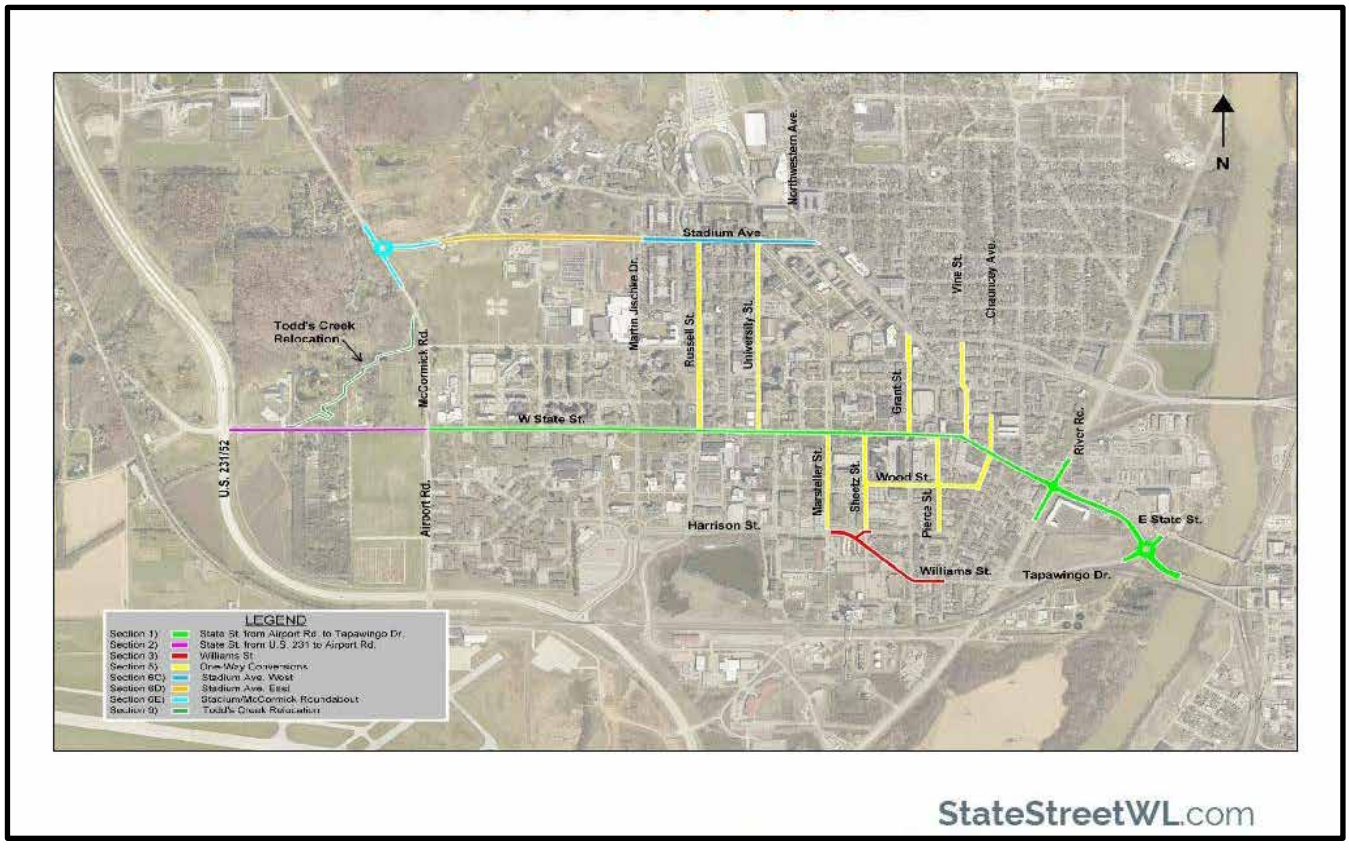
3) Constructing new gateways into West Lafayette and the campus,

4) Providing streetscape and pedestrian amenities to enhance community and campus resident cohesiveness, and

5) Expanding transportation infrastructure to accommodate planned and future growth of West Lafayette and the University.

The project will cost over $120 million and is a public-private partnership where a developer/operator have been selected to finance, design, construct, operate and maintain the improvements for over 20 years. West Lafayette and Purdue University will then make annual payments to the firm over the same period of time.

Figure 10 State Street Corridor Improvements



2. Lafayette

The City of Lafayette continues to expand its system of trails and bicycle facilities. Most of the trails have been constructed in parks and connecting parks, as well as in conjunction with road improvements. Connecting trails are also being constructed linking adjacent neighborhoods and commercial areas. There are many trails located on separate rights-of-way as well as within the road right-of-way. There are a total of 20 miles of trails.

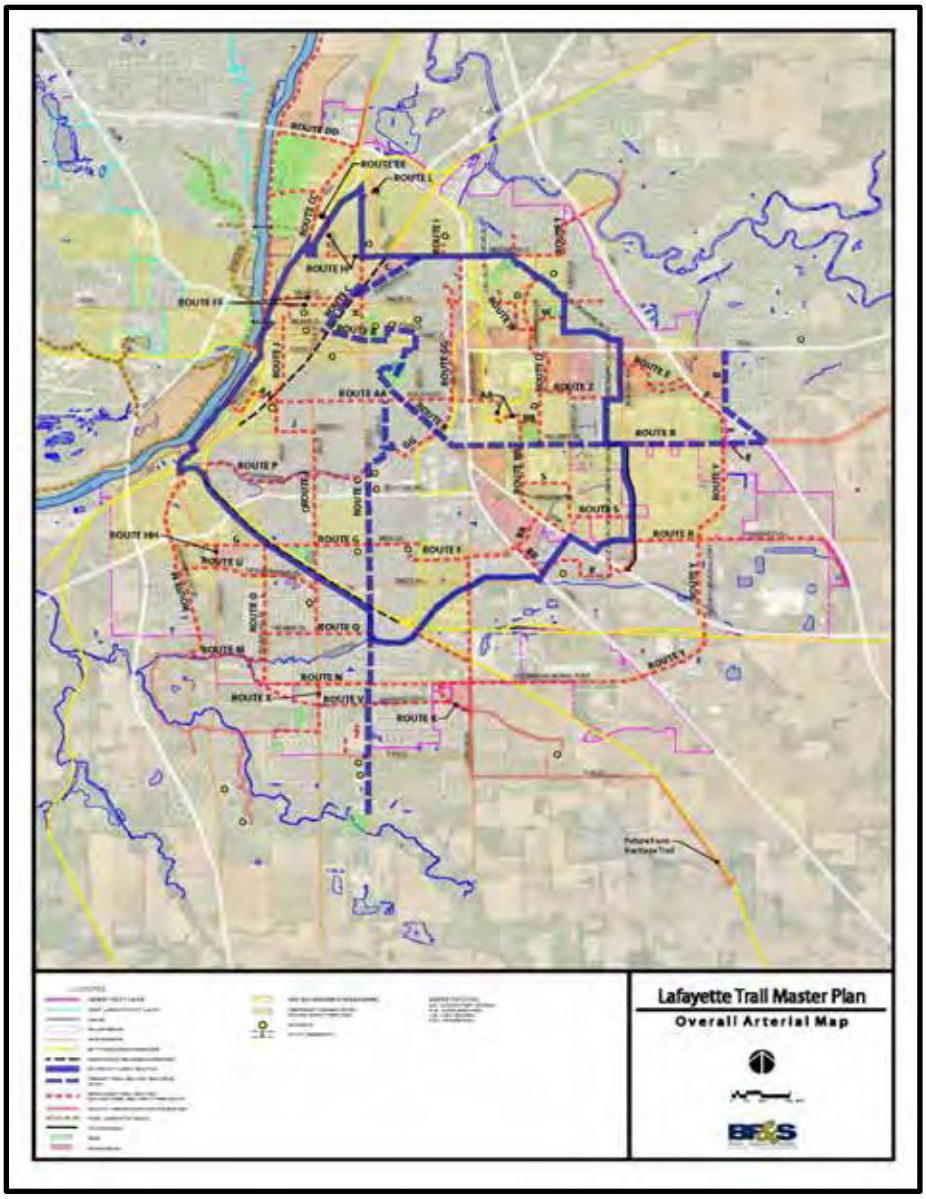
Additionally, the number and miles of on-road bicycle facilities (bike lanes and sharrows) in the City continue to increase with now over 8 miles of on-road facilities.

There is an extensive system of sidewalks throughout the city (350 miles) with most neighborhoods and arterials having sidewalks. The City has long had a sidewalk replacement program to update existing facilities and all new road construction includes sidewalks and often trails. Most notable is the inclusion of a complete sidewalk system in the reconstruction of Sagamore Parkway. While the sidewalk network is extensive there are noticeable locations, mostly outside the older urban core, without sidewalks including: South Street east of Sagamore Parkway, SR 38, around the Tippecanoe Mall area and a few pockets in residential neighborhoods.

Trails Master Plan

The *Lafayette Trails Master Plan* was adopted on December 3, 2012. Its goals included connecting all of the schools and major city parks so that every citizen lives within a ½ mile of a trail. The Plan contains three principal routes: a loop around the city and a major north/south and east/west trail (Figure 11). It then identifies thirty-three multi-use trails connecting residential neighborhoods, employment centers, retail centers, points of interest and everyday destinations. The system will also connect to trails in West Lafayette, the County and the region.

Figure 11, Lafayette Trails Master Plan



Bike and Pedestrian Plan

Following the adoption of the *Trail Plan* the City developed a *Bicycle and Pedestrian Master Plan*. Its goal is to improve the quality of daily trips for recreational users as well as students walking to school. The Plan recommends numerous bicycle lanes and sharrows and three specific sidewalk improvements (Figure 12). Additional recommendations include programs and policies focusing on education, encouragement, enforcement, engineering and evaluation.

3. Tippecanoe County

Most trials in the County were constructed by the County Highway Department and the Parks Departments with some constructed by non-governmental organizations. There are almost 30 miles of trails with the most notable being the Wabash Heritage Trail that goes from the Tippecanoe Battlefield Park to Fort Ouiatenon. The urban portion of the trail is paved and allows all non-motorized modes, but the rural sections are just a footpath and only walkers are permitted. There are several other trails throughout the county, mostly in parks. The Hoosier Mountain Bike Association has developed trails at the Tippecanoe County Amphitheater as well as McCormick Woods. Another trail in the county connects to the West Lafayette trail system and approaches Hadley Lake. All recent highway projects in the rural areas include wider shoulders to accommodate cyclists as well as provide greater safety for all road users.

Not surprisingly, sidewalks in the county are not as prevalent as in the cities. The local development codes require sidewalks be installed only in Major Subdivisions in the "urban area," thus sidewalks are primarily found in larger subdivisions on the suburban fringe. There are 116 miles of sidewalk in the unincorporated portions of Tippecanoe County excluding the unincorporated and incorporated towns. All recent roads projects have included sidewalks, some even extending out beyond the urban area and some including trails.

4. The State of Indiana

The Indiana Department of Transportation has moved toward including walking and bicycling facilities in their road construction projects over the last ten years. In 2014 INDOT adopted a Complete Street Policy and more recently adopted a Common Paths initiative which further advances transportation of all modes. INDOT is planning to construct trails on two bridges in West Lafayette and sidewalks on most of the reconstruction of US 52 (Teal Road).

In 2014, INDOT published a bicycle suitability map for state roads. Cyclists were classified into two groups: Advanced Adult bicyclists and basic adult rides. State roads were divided into three categories: Suitable, Moderately Suitable and Non Suitable (Figure 13) based on 12 factors.

In 2006, Indiana adopted it first trails, greenways and bikeways plan through a partnership between INDOT and the Indiana Department of Natural Resources. The report was recently updated (2016) and became the 2016-2020 Statewide Comprehensive Outdoor Recreation Plan. The main goal is to have a trail within five miles of all Indiana residents by 2020.

The largest State trail system in Tippecanoe County is located within Prophetstown State Park. There are over 13 miles of hiking trails and over one mile of sidewalk. The paved trail system continues to be extended as funds become available and now connects the gate house to the overlook at the Tippecanoe River. Eventually the bike/hike trail will connect to Pretty Prairie Road in Battle Ground.

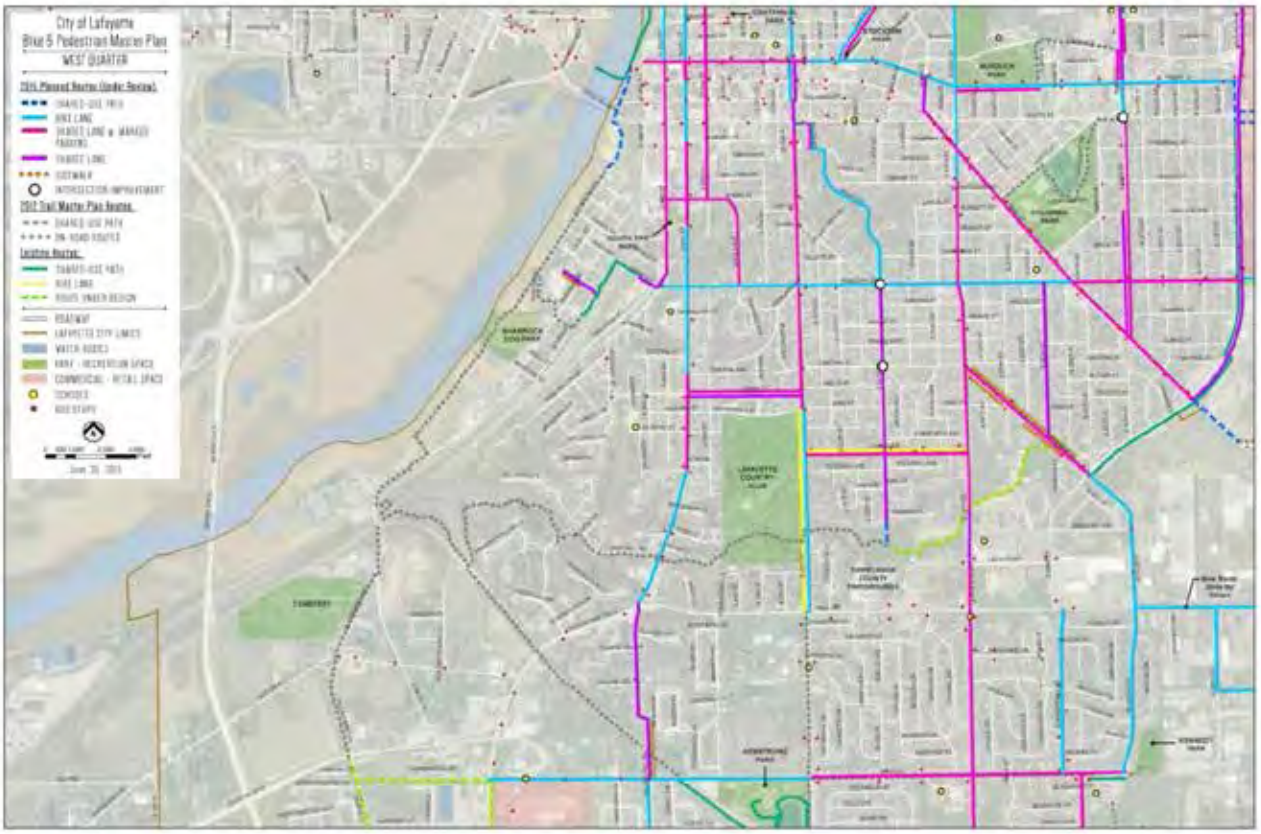
5. Regional and National Routes/Trails

There are several routes and trails in northern Indiana (Figure 14). Some are part of a cross country system and some are regional routes that connect the Greater Lafayette area to a larger network of state and national routes.

Farm Heritage Trail

The Farm Heritage Trail, or The Big 4 Trail, is a multi-use trail along the former Big Four railroad corridor. When completed, it will connect Prophetstown State Park to the Cultural Trail system in Indianapolis and it will be over sixty miles in length. The sections of the trail between Thorntown and Lebanon, through Whitestown and Zionsville are constructed and open. The trail is planned to pass through Lafayette, Stockwell, Clark's Hill, Colfax, and Battle Ground.

Figure 12, Lafayette's Bike and Pedestrian Plan



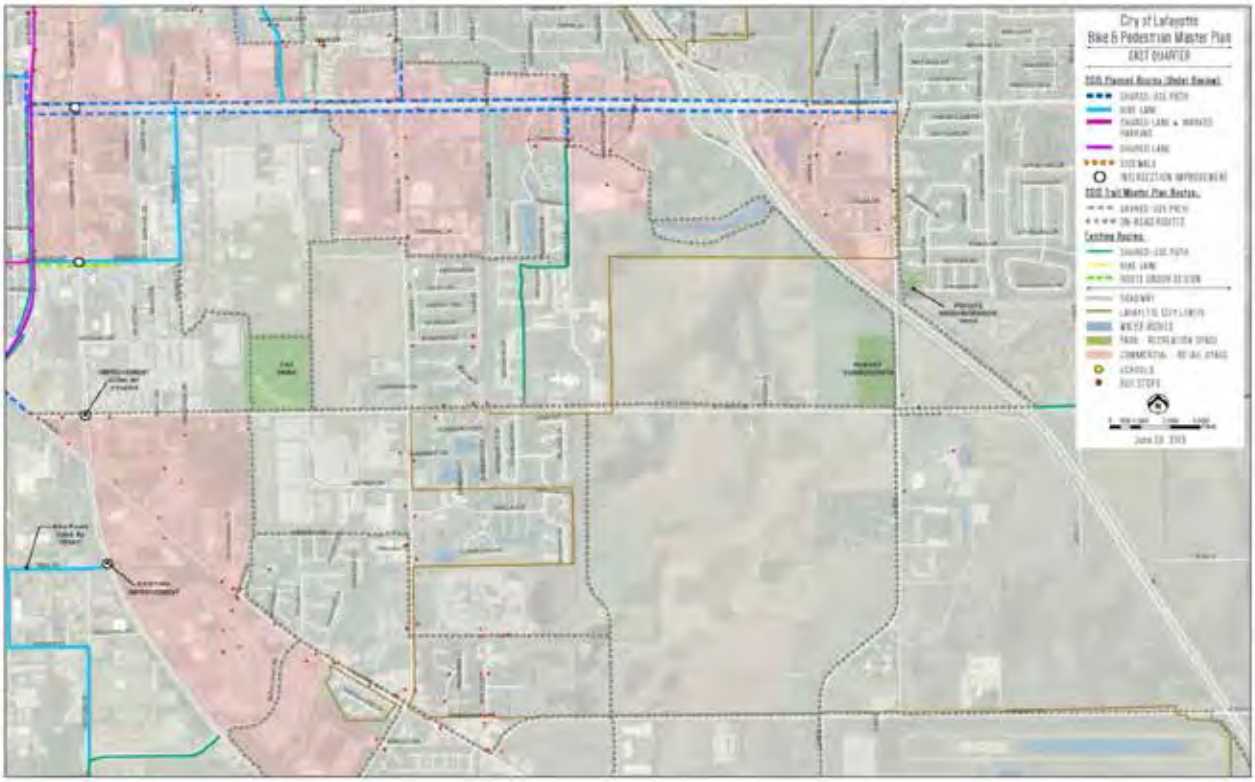


Figure 12, Lafayette's Bike and Pedestrian Plan

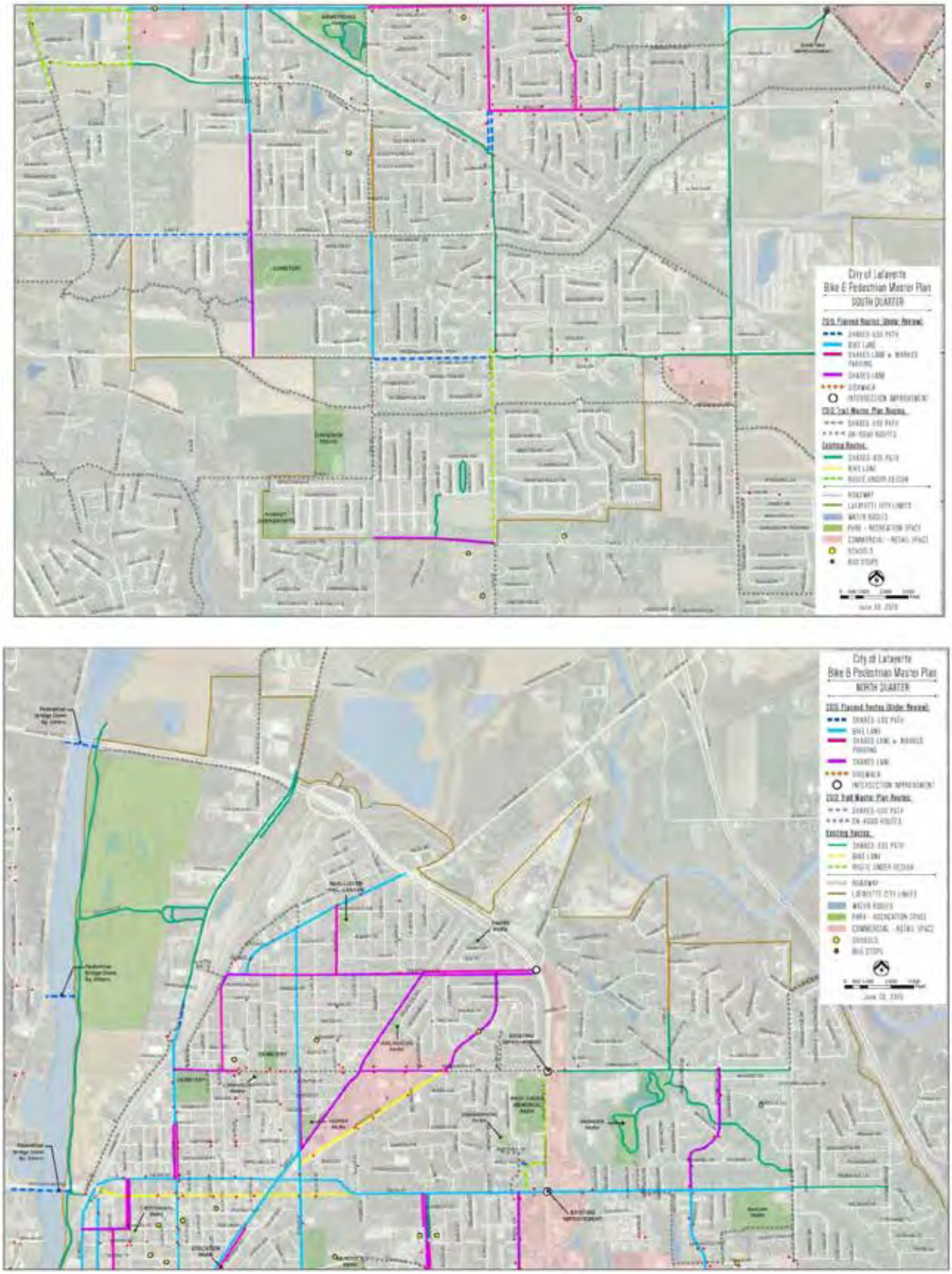


Figure 13. Indiana Bicycle Suitability Map

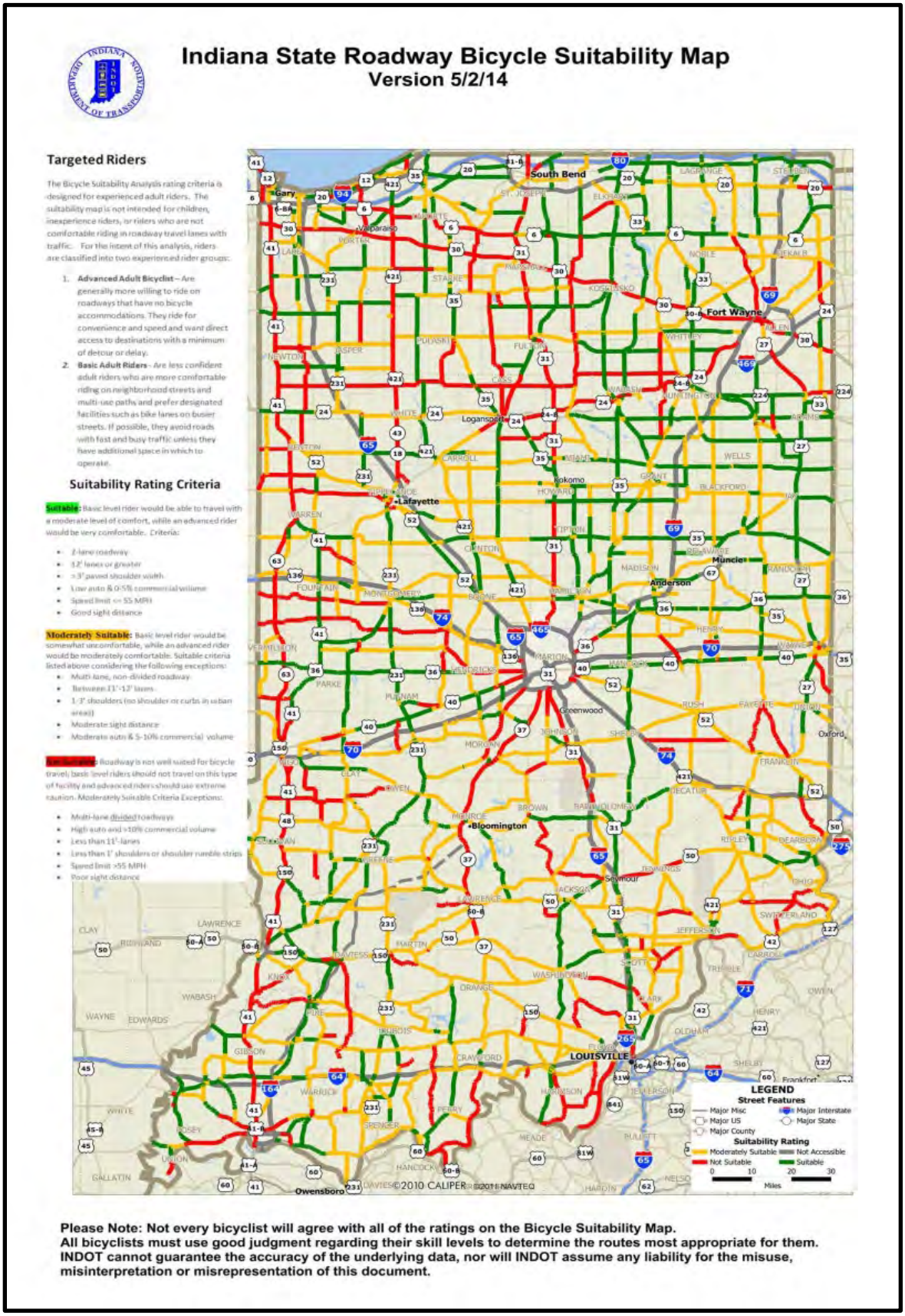
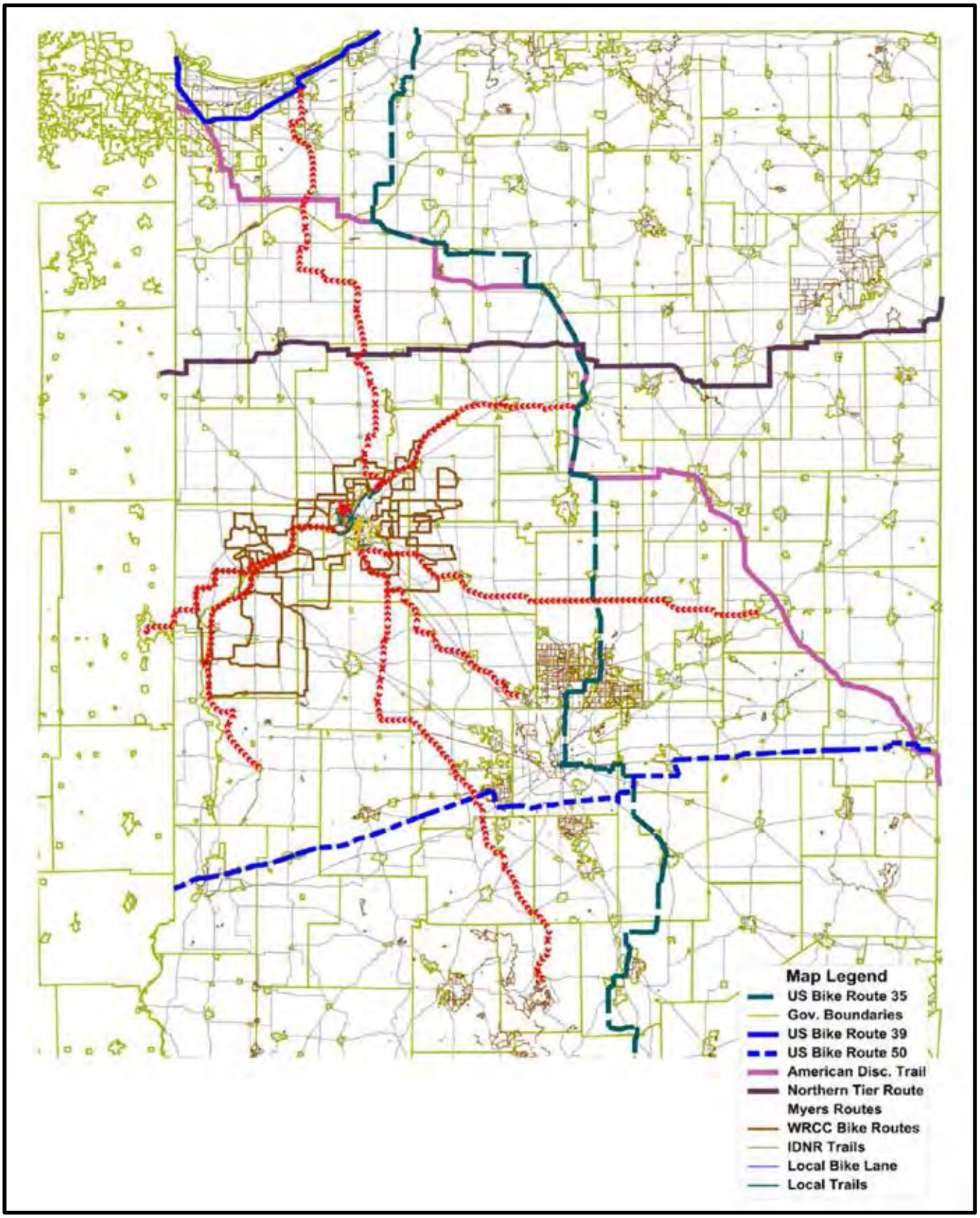


Figure 14. Routes and Trails in Northern Indiana



Wabash River Cycle Routes

The Wabash River Cycle Club offers ride opportunities for cyclists of all levels and ages and has identified 27 routes of various lengths and destinations as well as mapping paved roads for riders to explore outside the urban area.

Charlie Myers Routes

Mr. Charlie Myers has assembled and published maps for every county in the State showing paved roads and suggested routes for cyclists. Typically the routes use low volume rural paved roads but occasionally use higher volume secondary highways to connect the county roads when necessary.

Northern Tier Route

The Adventure Cycling Association's, and its predecessor Bikecentennial, is a national nonprofit organization that has been developing national bicycle routes since 1975. Its main focus is to delineate a system of low volume rural roads, encourage people to travel by bicycle and sponsor guided rides throughout the country. They have conceptually identified the Northern Tier route that goes north of Tippecanoe County and crosses through White County just north of the Town of Monon.

U.S. Bicycle Routes

In 1978, AASHTO formally recognized the U.S. Bicycle Route system and in 1982 the first two national routes were established. It was not until several years later when the Adventure Cycling Association offered staff support to the project were additional routes designated. A national corridor plan is being developed that will encompass 50,000 miles of low volume primarily rural roads. Currently there have been 11,563 miles designated in 24 states including Indiana. The routes in Indiana are numbered and signed as US Bike Routes 35, 39 and 50. The closest route to Tippecanoe County is Route 35, just east of Kokomo.

The Adventure Cycling Association has identified and established one of the largest cycling route networks in the world with over 45,000 miles. There are 28 trails though out the country which include two in Indiana: the Northern Tier Route mentioned above and the North Lake Trail that enters Indiana by New Buffalo and terminates at Denver, Indiana. Adventure Cycling is also the lead organization working with the American Association of State Highway and Transportation Officials (AASHTO) to create an official U.S. cycling route network: the U.S. Bicycle Route System.

American Discover Trail

This trail will be the nation's first coast-to-coast multi-use trail. The trail connects 14 national parks, 16 national forests, a multitude of state parks and it travels through 15 states. The trail will go from Delaware to San Francisco and will be over 6,800 miles in length. It has a northern and south route, both traverse Indiana with one following the Ohio River and the other crossing the state diagonally from Richmond to Crown Point. This latter route is the closets to Tippecanoe and just north of Kokomo.

6. Trail Management and Operation

Pedestrian and bicycle trails are relatively new assets in the community. Maintenance and management of trail pavement is a primary concern for local governments. Both cities and the County have facilities that need maintenance. Most often it is the responsibility of the Park Departments, not the Street Departments, to maintain these assets. Operational expenses related to trails include on-going cleaning, crack sealing, patching and vegetation control in the right of way.

D. Safety

The safety of our roadways is paramount. Many safety improvements have been made over the years, but much more needs to be done to approach Vision Zero. A key to improved safety is evaluating crashes that involve injuries and fatalities. Those take the largest toll on society and their analysis is needed to obtain safety related federal transportation funding. The MPO has analyzed crash reports from all jurisdictions in Tippecanoe County for several years. The latest analysis shows that in the past four years there has been an average of over 1,300 injuries from crashes each year, or over 25 each week. Fortunately, incapacitating injury crashes occur on average a little over one a week and fatalities a little over one a month Tables 9, 10, and 11).

Table 9. Injury and Fatality Crashes in Tippecanoe County

Year	Injury Crashes	Number of Injuries	Incapacitating Injuries	Fatal Crashes	Number of Fatalities
2012	977	1349	41	15	20
2013	1002	1335	65	20	22
2014	972	1268	65	6	6
2015	971	1291	108	14	18
Average	980	1311	70	14	16

Bicyclists and pedestrians are the most vulnerable users on the road and average 3 injuries a month, with 2 incapacitating injuries and few fatalities per year.

Table 10. Bicycle Crash Injuries and Fatalities in Tippecanoe County

	Bicycle Crashes	Injuries Crashes	Incapacitating Injuries	Fatal Crashes
2012	45	38	3	0
2013	49	43	2	1
2014	37	25	2	0
2015	36	29	0	0
Average	42	34	2	

Table 11. Pedestrian Crash Injuries and Fatalities in Tippecanoe County

	Pedestrian Crashes	Injuries Crashes	Incapacitating Injuries	Fatality Crashes
2012	40	37	1	1
2013	48	49	5	4
2014	41	37	2	1
2015	24	24	3	1
Average	38	37	3	2

The top 40 intersection crash locations show that most were on the major higher volume roads, which is expected (Figure 15 and Table 12). Creasy and Sagamore Parkway have the top 7 intersections with the highest number of crashes. Historically, intersections of Sagamore Parkway had the highest number of crashes, however, of the top 4 crash intersections, 3 were now on Creasy Lane; part of that was due to increased traffic on Creasy because of construction on Sagamore Parkway. In addition to traffic volume there are a number of other reasons or causes for crashes.

The crash report form allows law enforcement officers to designate one contributing circumstance as the "primary factor" that led to the crash. These are typically the human component of a crash. The "crash type" also provides insight into how a crash occurred (Figures 16 and 17).

Figure 15, Top 40 Intersection Injuries and Fatalities, 2013 – 2015

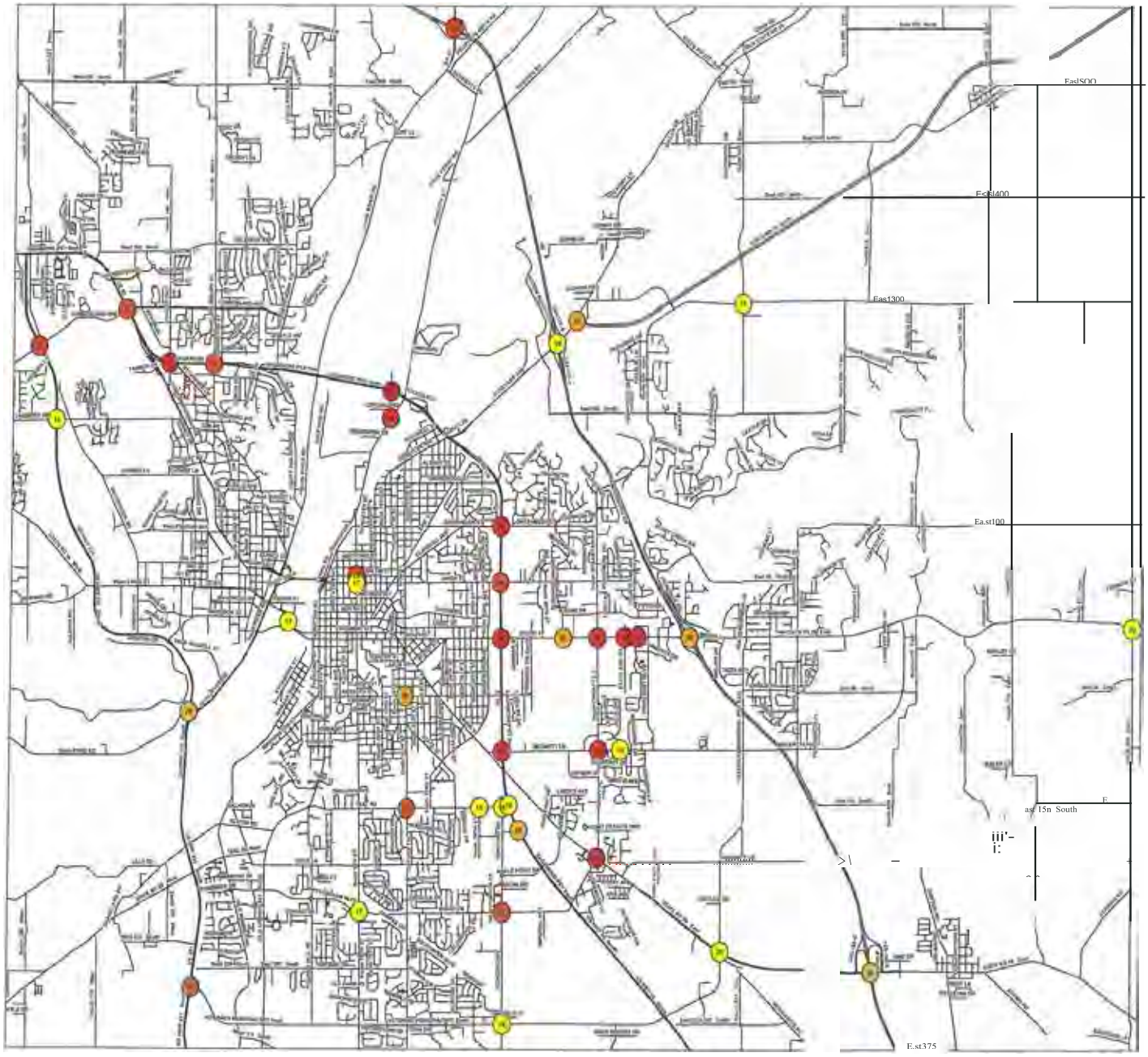


Table 12. Top 40 Intersection Injuries and Fatalities, 2013 - 2015

Rank	Intersection	Injuries	Incapacitating Injuries	Fatalities	Total
1	Creasy Lane and South Street	64	3	1	68
2	Creasy Lane and McCarty Lane	51	2	0	53
3	Sagamore Parkway and South Street	47	2	0	49
4	Creasy Lane and SR 38	48	0	1	49
5	Sagamore Parkway and Yeager Road	45	0	0	45
6	McCarty Lane and Sagamore Parkway	40	0	0	40
7	Duncan Road and Sagamore Parkway	37	0	0	37
8	Eastland Drive and South Street	34	2	0	36
9	Fairington Avenue and South Street	36	0	0	36
10	Greenbush Street and Sagamore Parkway	36	0	0	36
11	Sagamore Parkway and Union Street	35	0	0	35
12	Interstate 65 and SR 43	31	2	0	33
13	Cumberland Avenue and Sagamore Parkway	28	3	1	32
14	18th Street and Teal Road	32	0	0	32
15	Sagamore Parkway and Salisbury Street	30	1	0	31
16	9th Street and Salem Street	29	0	0	29
17	US 231 and Veterans Memorial Parkway	25	1	1	27
18	Cumberland Avenue and US 231	23	3	1	27
19	Brady Lane and Concord Road	27	0	0	27
20	9th Street and Duncan Road	23	3	0	26
21	18th Street and Kossuth Street	25	0	0	25
22	Interstate 65 and SR 38	24	1	0	25
23	Interstate 65 and SR 26	25	0	0	25
24	Shenandoah Drive and South Street	25	0	0	25
25	River Road and US 231	22	2	0	24
26	Calloway Drive and Sagamore Parkway	20	3	0	23
27	Old SR 25 and SR 25	19	2	1	22
28	County Road 900 E and SR 26	15	4	1	20
29	SR 38 and Veterans Memorial Parkway	19	1	0	20
30	Interstate 65 and State RR 25	19	0	0	19
31	Concord Road and Teal Road	18	0	0	18
32	Sagamore Parkway and Teal Road	18	0	0	18
33	Concord Road and Veterans Memorial Pkwy	18	0	0	18
34	State Street and Tapawingo Drive	16	1	0	17
35	9th Street and Union Street	17	0	0	17
36	9th Street and Twyckenham Boulevard	17	0	0	17
37	30th Street and Teal Road	16	0	0	16
38	McCarty Lane and Sickle Court	16	0	0	16
39	County Road 300 N and County Road 500 E	15	0	0	15
40	Lindberg Road and US 231	12	3	0	15

Figure 16. Primary Factors for Fatal and Injury Crashes in Tippecanoe County

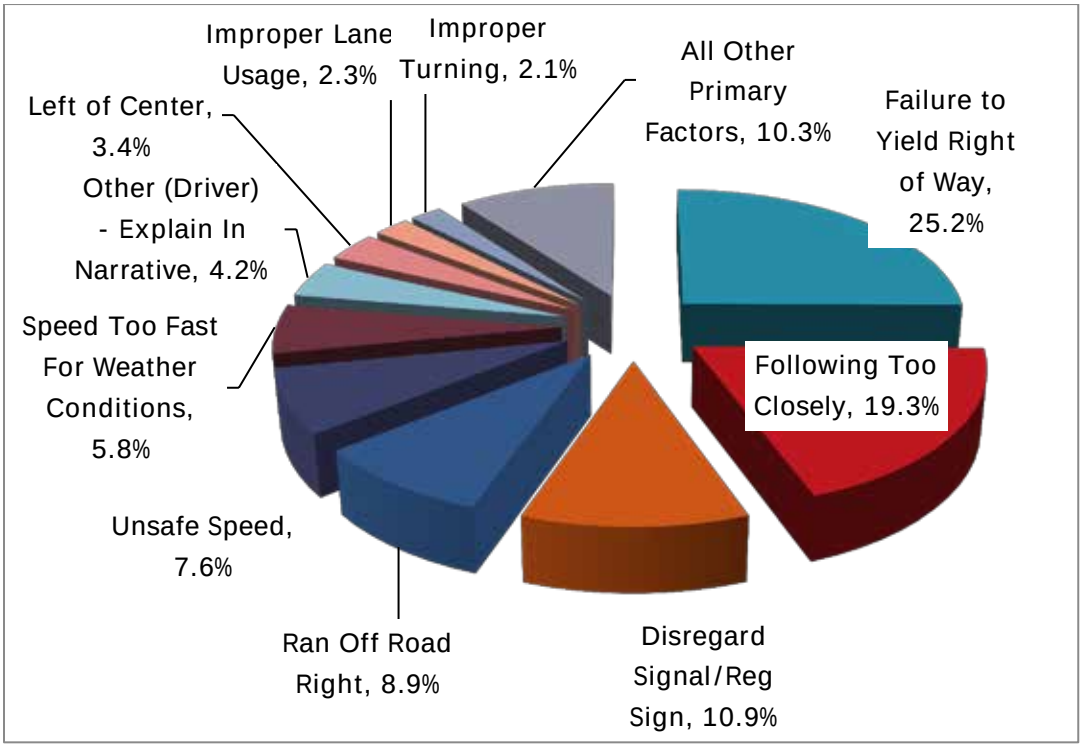
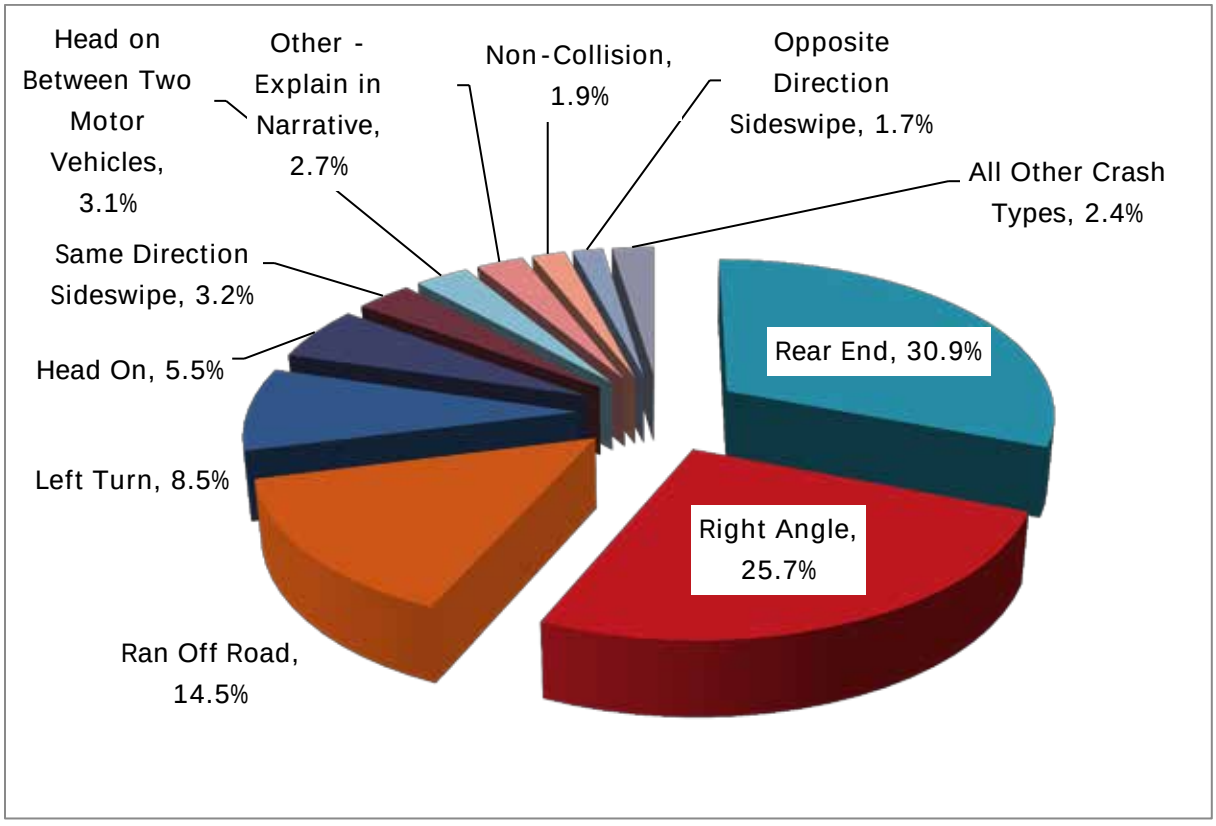


Figure 17. Crash Types for Fatalities and Injuries Crashes in Tippecanoe County



The ages of those involved in crashes (Table 13) provides additional insight into better understanding why a crash occurred. Crash data for Bicyclists and pedestrian is provided in Table 14 and 15.

Table 13. Injuries and Fatalities by Age in Tippecanoe County

Age	Percent of Total Population in Tippecanoe County	Fatalities	Incapacitating Injuries	Injuries	Total
>18	18.1%	4 (6.2%)	25 (9.0%)	623 (13.0%)	652 (12.7%)
18-24	25.4%	17 (26.2%)	68 (24.4%)	1176 (24.6%)	1261 (24.6%)
25-34	14.9%	13 (20.0%)	51 (18.3%)	914 (19.1%)	978 (19.1%)
35-44	11.0%	7 (10.8%)	35 (12.5%)	625 (13.1%)	667 (13.0%)
45-54	11.3%	6 (9.2%)	40 (14.3%)	615 (12.8%)	661 (12.9%)
55-64	9.5%	9 (13.8%)	32 (11.5%)	483 (10.1%)	524 (10.2%)
65+	9.8%	9 (13.8%)	28 (10.0%)	353 (7.4%)	390 (7.6%)
Total	100.0%	65	279	4789	5133

Table 14. Bicyclist Injuries and Fatalities by Age in Tippecanoe County

Age	Percent of Total Population in Tippecanoe County	Fatalities	Incapacitating Injuries	Injuries	Total
>18	18.1%	0	1	31 (25.4%)	32 (24.6%)
18-24	25.4%	0	4	52 (42.6%)	56 (43.1%)
25-34	14.9%	0	1	16 (13.1%)	17 (13.1%)
35-44	11.0%	0	1	8 (6.6%)	9 (6.9%)
45-54	11.3%	0	0	8 (6.6%)	8 (6.2%)
55-64	9.5%	1	0	6 (4.9%)	7 (5.4%)
65+	9.8%	0	0	1 (0.8%)	1 (0.8%)
Total	100.0%	1	7	122	130

Table 15. Pedestrian Injuries and Fatalities by Age in Tippecanoe County

Age	Percent of Total Population in Tippecanoe County	Fatalities	Incapacitating Injuries	Injuries	Total
>18	18.1%	0	1	19 (15.8%)	20 (14.5%)
18-24	25.4%	1	4	47 (39.2%)	52 (37.7%)
25-34	14.9%	2	2	18 (15.0%)	22 (15.9%)
35-44	11.0%	1	2	10 (8.3%)	13 (9.4%)
45-54	11.3%	2	0	16 (13.3%)	18 (13.0%)
55-64	9.5%	0	1	5 (4.2%)	6 (4.3%)
65+	9.8%	1	1	5 (4.2%)	7 (5.1%)
Total	100.0%	7	11	120	138

The Indiana Department of Transportation, Office of Traffic Safety has developed a Strategic Highway Safety Plan (SHSP) to help guide its safety program. It is a comprehensive effort to identify, analyze and prioritize proven countermeasures for reducing the greatest threats to highway safety. The MPO supports the goals, objectives and strategies of the SHSP and will use them to guide local efforts.

E. Transit

The Greater Lafayette Public Transportation Corporation, known as CityBus, provides public transit services throughout Lafayette, West Lafayette and to the suburban fringes of both cities. Founded in 1971, the system offers a mix of transit options including fixed route service, paratransit service, and a special free-fare service between Lafayette and West Lafayette.

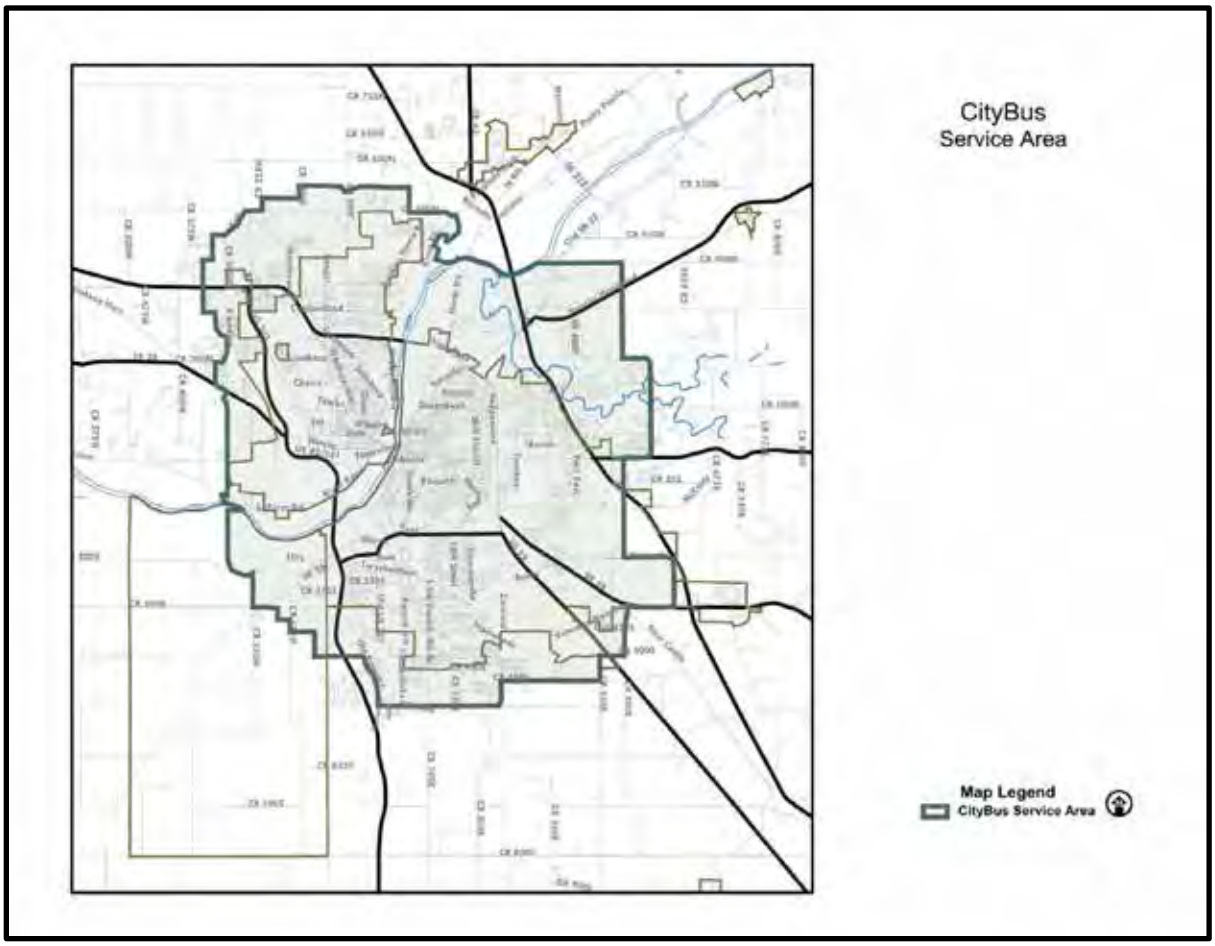
In 1976 CityBus became a Public Transportation Corporation (PTC) and thus a division of local government with authority to collect taxes. It also has the authority to purchase and own real property. It's governed by a board of directors who are appointed by the mayors and city councils of Lafayette and West Lafayette.

Intercity bus service is available through Greyhound and the Hoosier Ride with a total of 6 busses daily.

1. CityBus

CityBus's service area was established in 1976 when it became a PTC. It included both cities and the adjacent suburban area that extends two miles beyond the city boundaries. The service area encompasses approximately 74 square miles (Figure 18).

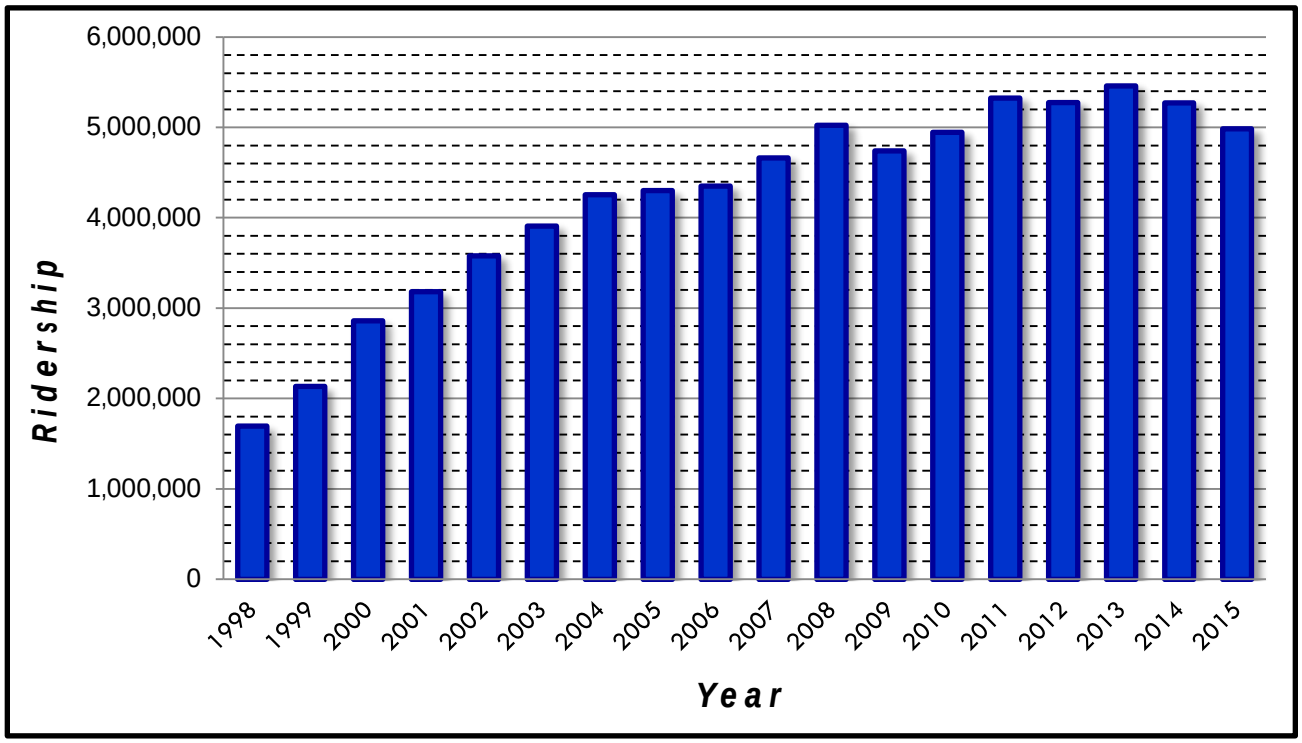
Figure 18. CityBus Service Area



Indiana state law does allow the service area to expand because of annexations and population growth (an additional mile for every 50,000 persons). When initially established, the population for Lafayette was 44,955 and for West Lafayette it was 19,157. According to the Census (2015 estimate), the population for Lafayette was 71,111 and West Lafayette was 45,550. While there have been numerous annexations since 1976 and the population has grown in both cities, the service area has remained the same.

Since the late nineties, ridership has increased at an average of 7.0% a year. Figure 19 shows annual ridership and its fluctuations over time. With the exception of a few years, growth has increased annually from one percent to over an impressive thirty percent. In 1998, 1,695,702 persons rode CityBus. Over the years, that number rose to a high of 5,459,000 in 2013. In the last two years ridership has slightly decreased.

Figure 19. Historical CityBus Ridership



a. Fixed Route Service

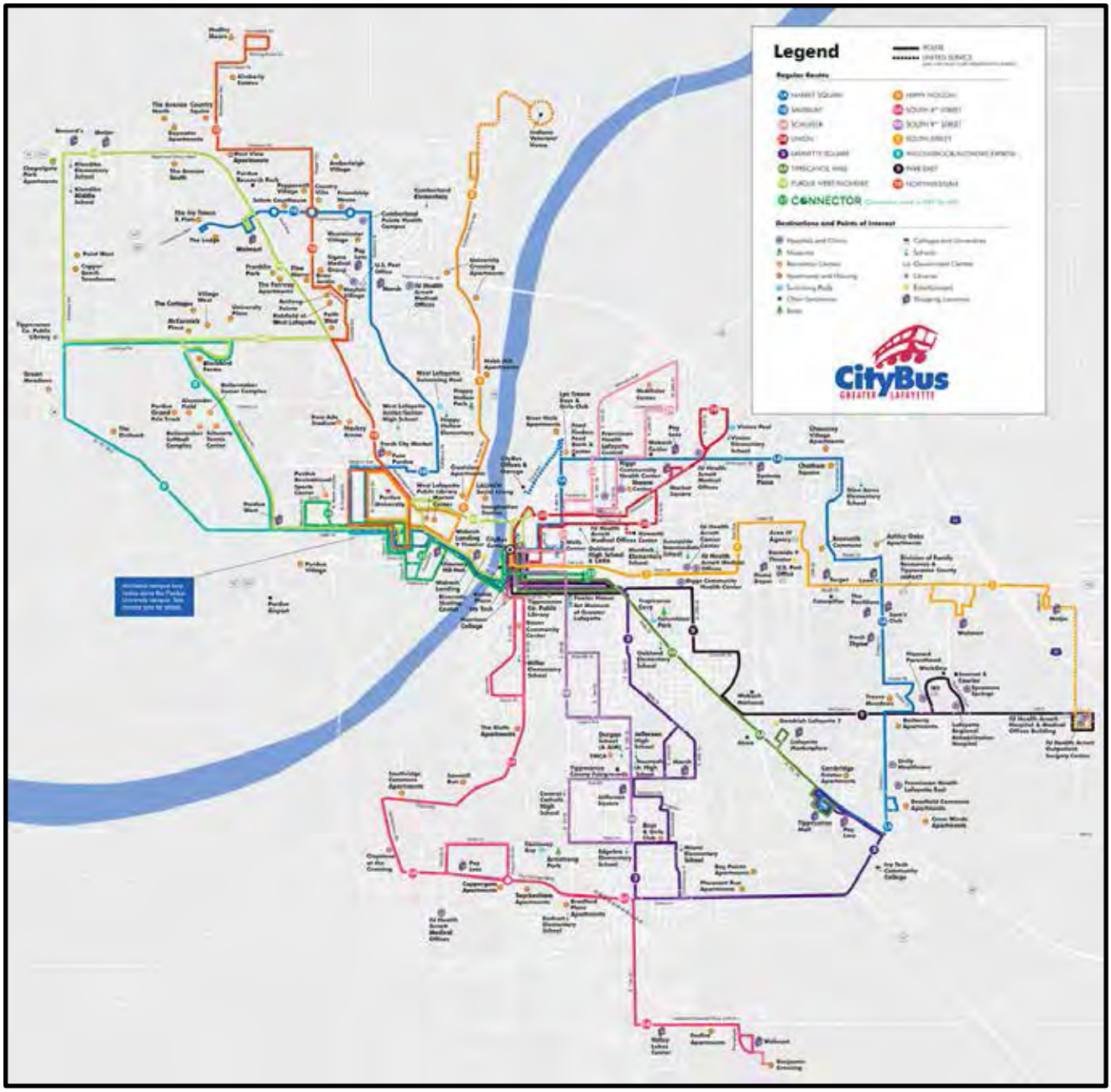
CityBus operates fifteen regular fixed routes. Based on a radial structure, nearly all of the routes come and go from its hub at the Downtown Transfer Center in Lafayette. Typically, nine routes serve Lafayette exclusively, five routes serve West Lafayette, and the Connector serves both cities (Figure 20). CityBus periodically changes routings to improve service coverage and ridership as well as ensure service to riders during periods of road construction. Service on all the routes is ADA accessible.

Bus frequency varies by time, day and route. Regular routes typically operate on 30-minute weekday headways and 60-minute weekend headways. The Connector operates a12 to 15 minute headway. Buses start as early as 6:40 in the morning and operate through 7:40 in the evening. Several routes operate to 12:30 in the morning. Limited service is also provided on Sunday.

The fixed route service transported 2,335,860 persons in 2015 (Figure 21) which is a significant number of trips when compared to other transit systems in Indiana. Fixed route service represents the large portion of CityBus' ridership compared to their other services. The transit system has transported over two million trips per year for the last nine years.

CityBus offers a special route, the Connector (Figure 22), that links downtown Lafayette (upper Main Street district to Wabash River), West Lafayette (Wabash Landing to Chauncey Village), and Purdue University. It is designed to provide an increased level of service (with a bus every 12 to 15 minutes) in an area of known high transit ridership. It is free to the general public and offers service to various destinations such as Purdue, hotels, restaurants, shops, cultural arts and entertainment venues. The Connector has always been a very successful route. Since its inception, it has transported over a quarter of a million trips every year (Figure 23). Ridership peaked in 2007 with over 340,000 trips and has recently declined because of improved service on other routes serving Purdue.

Figure 20. CityBus Routes, 2016



b, Purdue Service

With approximately 40,000 students attending Purdue University, transit plays an important role in their mobility. CityBus' Purdue Service is comprised of eight routes (Figure 24). The Purdue campus loops operate on 10-30 minute headways and are fare free for Purdue students, faculty and staff with Purdue identification. One route, the Black Loop, provides night service on campus. Campus Loops operate during both Purdue fall and spring semesters on days when classes are in session. The Purdue service has recorded over two million trips annually since its inception in 2003 (Figure 25). The highpoint was in 2011 when CityBus transported nearly 2.7 million trips.

Figure 21. Fixed Route Ridership

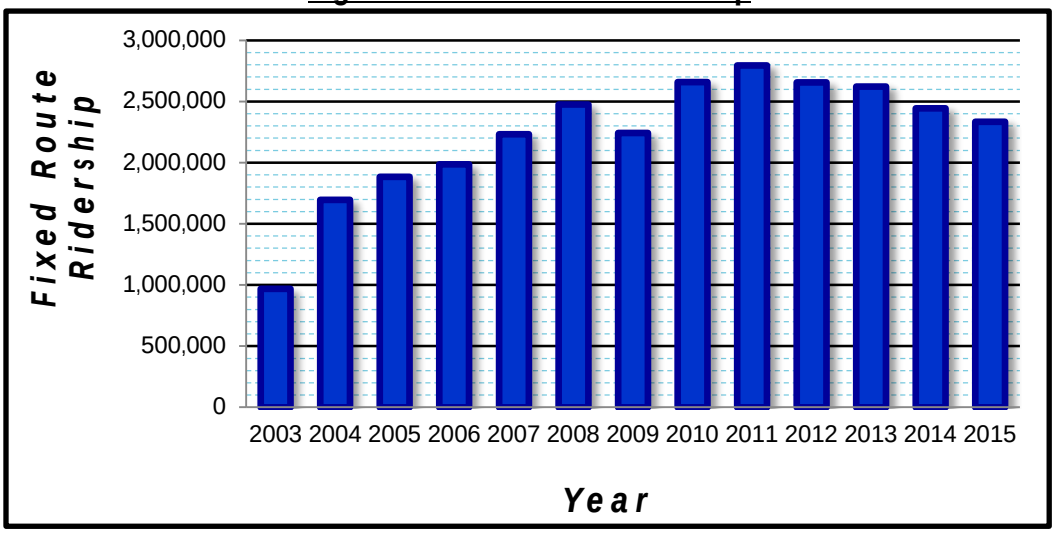


Figure 22. The Connector Route

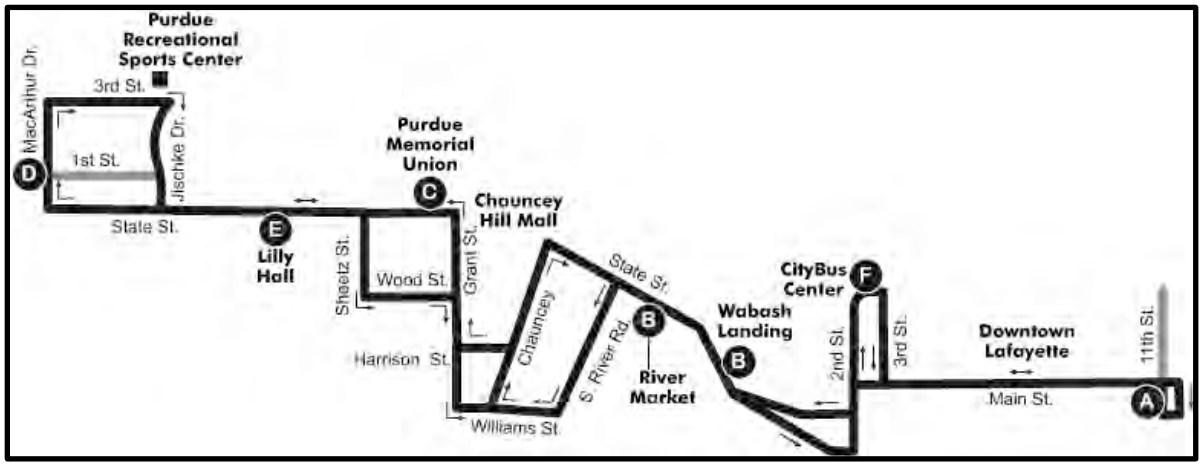
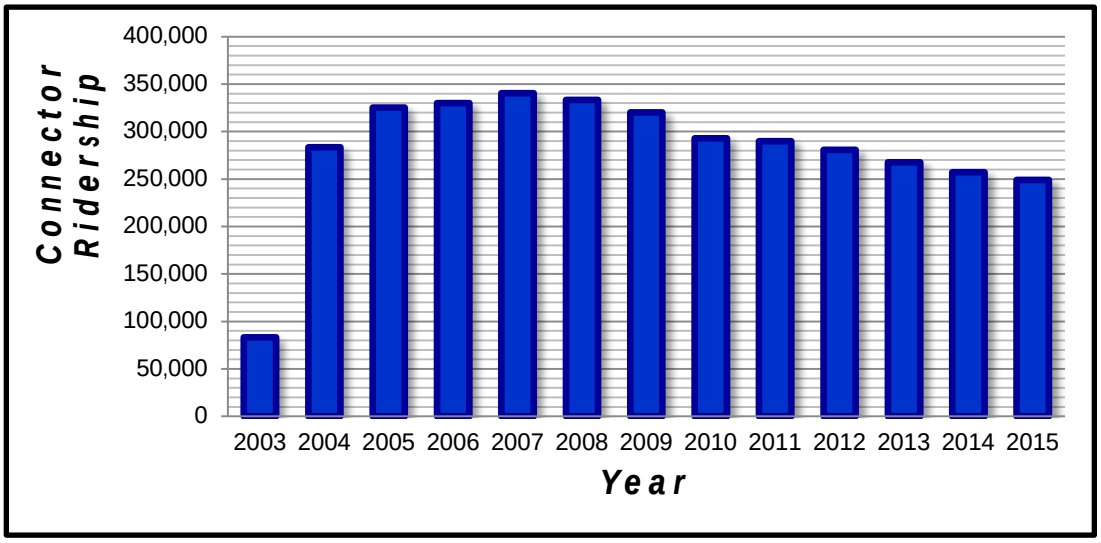


Figure 23. The Connector Ridership



CityBus operates a subscription express service between the University and four apartment complexes via two routes. One route, The Avenue North and South route, is named after the two apartment complexes it connects to: the Avenue North (formally Campus Suites) and the Avenue South (formally College Station). The other route, Lindberg Express, connects the University with the Cottages and Village West apartment complexes which are both located on Lindberg Road.

Figure 24. Express Service - Purdue

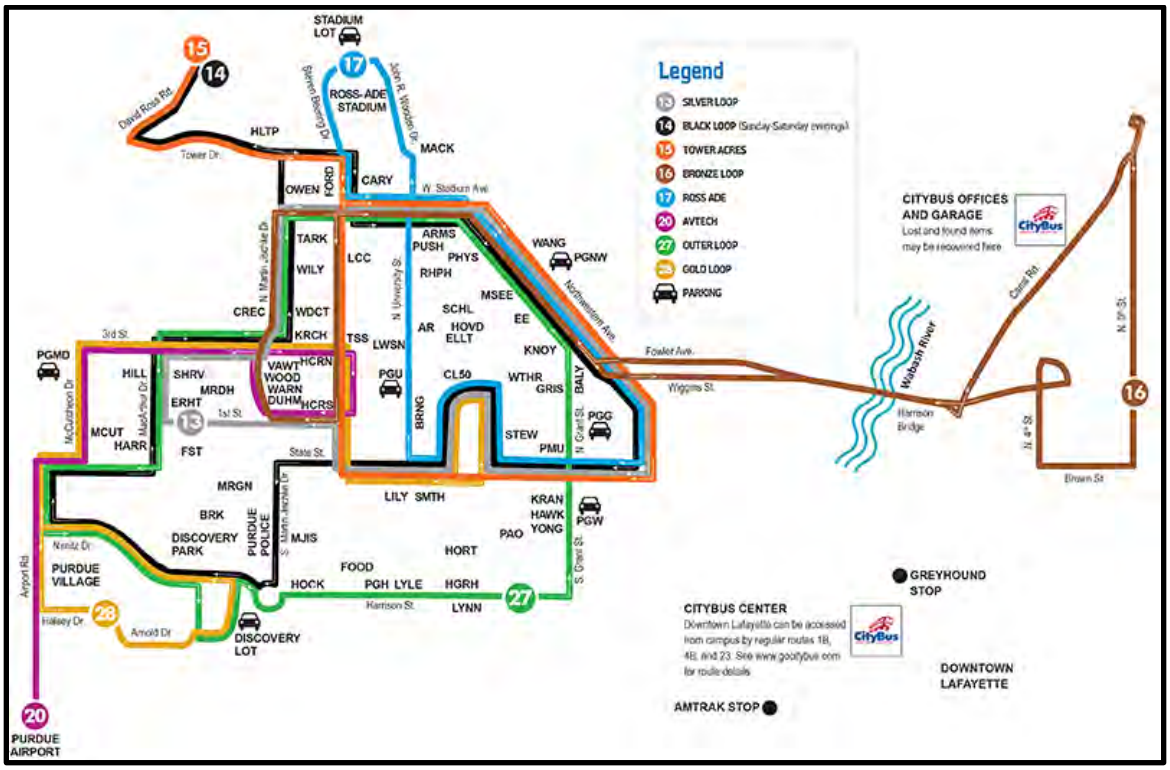
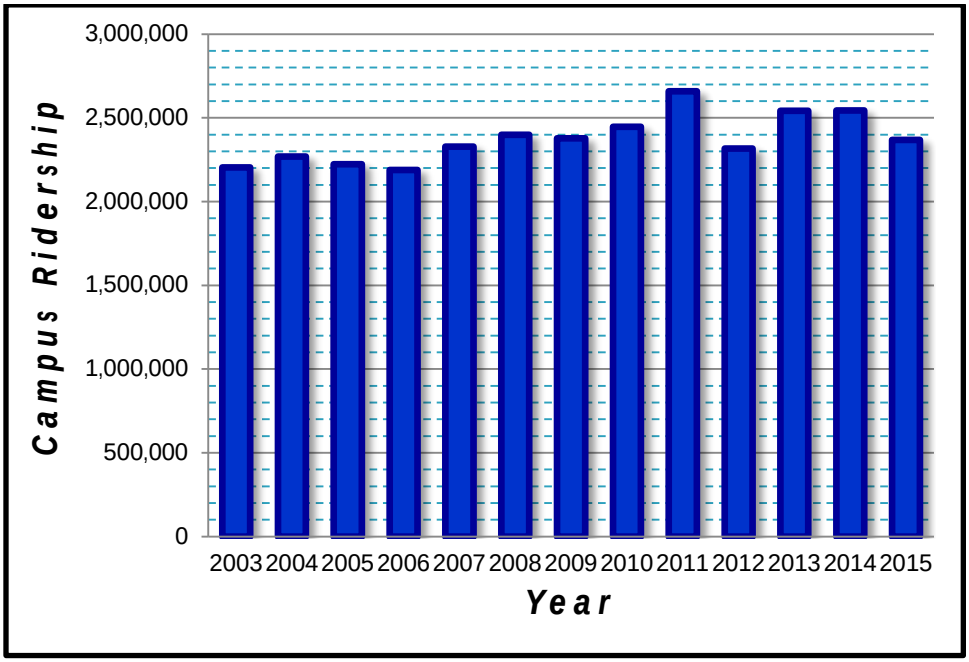


Figure 25. The Express Service Ridership



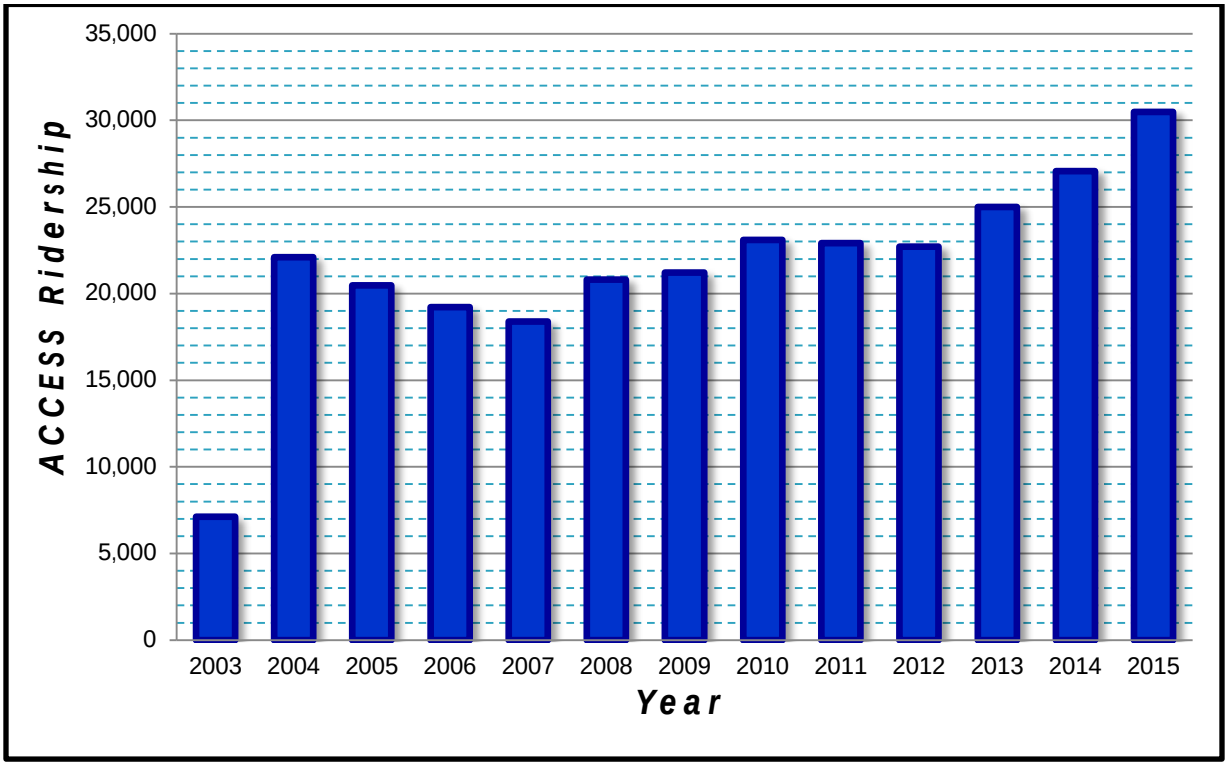
Designated stops are located on the Purdue campus. Operating costs are funded by the owner of the apartment complexes. While the service remains open to the general public, residents of both complexes are entitled to ride free. The service operates on 15 to 20 minute headways during the fall and spring semesters on days when classes are in session. The service starts just after seven in the morning and continues until the evening Monday through Wednesday and early in the morning on Thursday and Friday. They both provide late night service on Saturday.

c. ACCESS Service

ACCESS is the complementary ADA paratransit service for CityBus. ACCESS provides curb-to-curb paratransit service to origins and destinations within ¾ mile of CityBus fixed routes. ACCESS operates between the hours of 6:00am and 10:15pm Monday through Saturday, and 9:30am on 7:00pm on Sundays; however, because service hours mirror those of the fixed route system, service hours vary by location.

Ridership has been over 20,000 trips per year except for three years (Figure 26). Since 2012, ridership has steadily increased with its peak in 2015 with over 30,000 trips.

Figure 26. Access Ridership



d. Fares

CityBus offers a variety of different payment methods and pricing depending on the rider and how frequently they ride. Younger and older riders are offered special discounts, as are persons with a qualifying disability. Overall, CityBus strives to keep its fares low and affordable.

A bus ride cost only $1.00, and transfers to another bus are free. Children through the fourth grade ride free on CityBus. Youth who attend either middle school or high school can ride at a significantly reduced cost. A youth pass is available for $2.00 and it is valid for an entire school year plus the following summer break. Fares for the elderly and disabled riders are only fifty cents.

For frequent riders, tokens and monthly passes are available. Tokens reduce the cost to 75 cents. The $28 monthly pass allows riders the ability to travel to any part of the community as often as they desire. A daily pass is offered to those riders who are visiting the community for only a short period of time.

For ACCESS users a single one-way trip cost $2.00. An ACCESS pass is also available which gives the rider ten trips for the cost of $20.00. Riders who are per-certified and are eligible to ride ACCESS can also ride any of the regular routes for free.

CityBus has a special program with Purdue University (since 1999) and Ivy Tech (since 2004), to transport students through a student fee. This allows students, faculty and staff to travel to either school and to any destination in the community just by showing their school identification.

e. Facilities & Equipment

CityBus is one of the largest transit systems in the State and has a significant amount of capital investment in its facilities and equipment. While buses are the most visible other major investments including the office, storage and maintenance buildings, the downtown transfer center and two childcare facilities.

The office, storage and maintenance facilities are located on Canal Road. CityBus has built out the site adding a maintenance building and recently three wind turbines that generate electricity for the buildings.

The most recognizable facility that citizens see is the downtown transfer center, or what is commonly referred to as the CityBus Center or CBC. It is where most routes begin and end. It allows riders to easily transfer from one bus to another and travel to just about anywhere in the community. The CBC opened August of 2013 and features saw tooth angle bus parking which allows buses to arrive and departed independently. The design has assigned bus parking locations so a rider knows exactly where their bus will be.

CityBus also owns two childcare centers. One is located within a short walk from the CBC and the other is located in Wabash Landing in West Lafayette. Both are operated by the Tippecanoe County Childcare. These facilities enable riders to have a safe and convenient place for their children while at work.

CityBus has a fleet of 76 buses ranging in size from 35 feet to 60 feet long. The larger ones are articulated and carry a large number of passengers on peak routes. There are currently eight in the fleet and all operate on the Purdue Campus. All of the buses are low floor, handicapped accessible and have bicycle storage racks on the front.

CityBus has been transitioning to a greener and more fuel-efficient fleet by purchasing hybrid buses. Not only do these buses emit fewer pollutants, they also get better gas mileage and lower operating expenses. CityBus has 20 hybrid buses in its fleet.

The most recent effort to go greener involves buses that run on compressed natural gas, or CNG. The CNG buses were introduced into the fleet in April of 2015 and currently there are sixteen of them. The benefits of using CNG include: reduced fuel costs, it is domestically produced, an abundant supply, environmentally friendly and reduced maintenance cost. A CNG station was installed at the Canal Road property to allow easy access to refueling.

The remaining buses in the fleet are seven smaller busses used for the ACCESS program.

f. Management and Operations

CityBus utilizes many funding sources to keep its assets and services in a state of good repair. Assets include the buses, support vehicles, the downtown transfer station, a large maintenance facility on Canal Road and bus stop shelters, pads and benches. The most significant management cost for CityBus is the maintenance and replacement of vehicles. The largest operating costs include the bus drivers, maintenance of facilities and equipment and fuel for the vehicles.

g. Expenses and Budget

CityBus's budgeted expenses for 2017 are $11.9 million. The largest expense is for the 130 plus employees. Wages, benefits, and fringe benefits total $9.3 million. The second largest expense is fuel. CityBus will spend $525,000 for diesel fuel and $225,000 for Compressed Natural Gas (CNG). The remaining expenses include repair parts, liability and property insurance, legal fees, utilities, supplies, and services.

CityBus's budgeted revenues come from many sources. The most recognizable is from fares, which account for approximately 27% of revenues. Other local revenue sources include property and money from the County Option Income Tax. CityBus also receives 39% of its revenues from the state. Finally, CityBus receives funds from the Federal Transit Administration that account for approximately 12% of total revenue and eighty percent of capital investments.

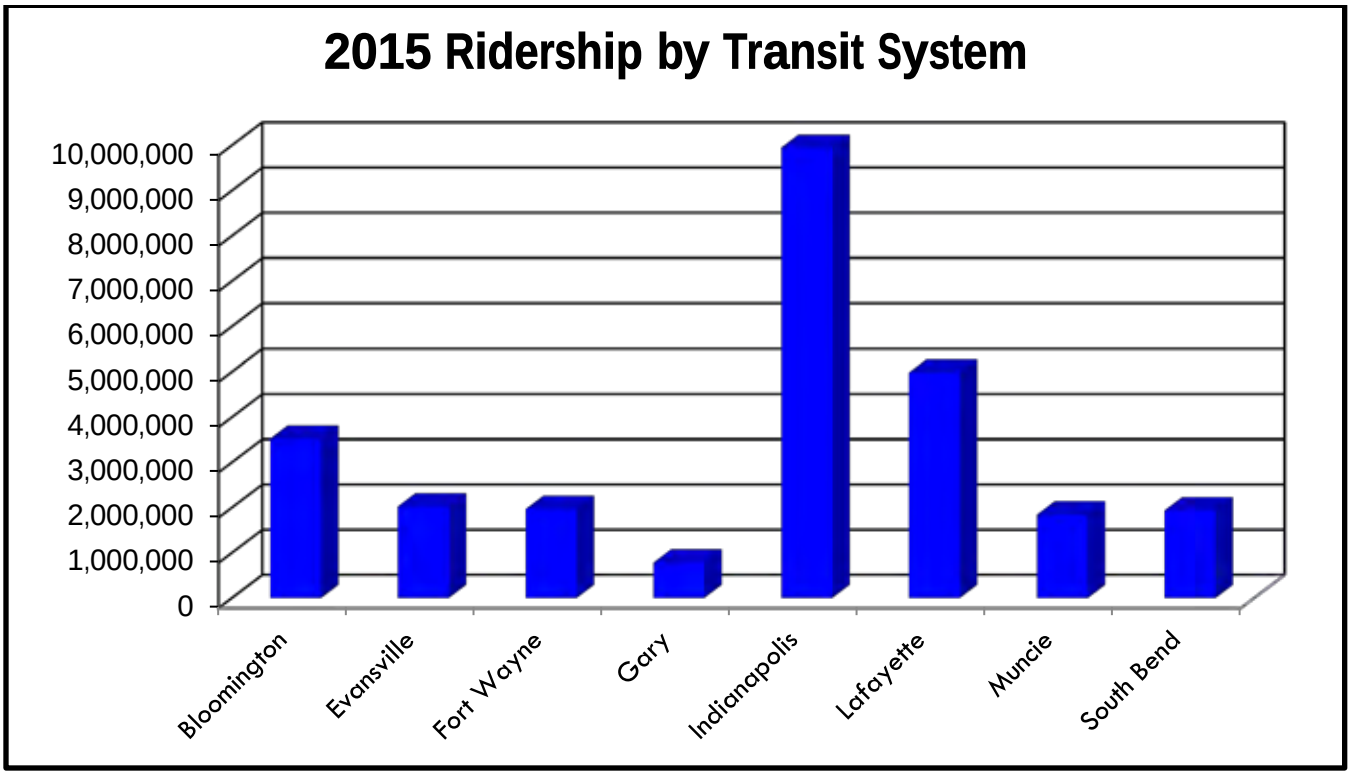
h. Transit System Performance

INDOT summarizes performance measures for all transit systems throughout the state. CityBus is categorized as a large fixed route system along with Bloomington, Evansville, Fort Wayne, Gary, Indianapolis, Muncie, and South Bend.

Ridership 2015

The primary performance measure for all transit systems is ridership. In 2015, CityBus carried 4,984,620 persons. CityBus carries more riders that any other major transit system in the state, except for Indianapolis (Figure 27). Ridership in our community is significantly more than the second, third and fourth largest cities: Fort Wayne (1,969,599); Evansville (2,025,496); and South Bend (1,939,770). While the Indianapolis transit system carried more people, the service area population is over six times larger than that of CityBus (918,977 persons compared to 147,725 persons).

Figure 27. Comparison of Ridership with Other Transit Systems



Operating Expenses per Passenger Trip

Another good measure is how much it costs to transport a passenger or operating expense per passenger trip. CityBus has one of the lowest in the state for large transit systems (Figure 28). In 2015, the cost per passenger trip on CityBus was $2.17. The state average for all of the large fixed route systems was $4.71. On average, it costs over twice as much to transport a passenger in other large Indiana cities and in Gary and Indianapolis it costs over seven and six dollars respectively.

Passenger Trips per Total Vehicle Miles

Comparing ridership to the number of miles buses travel a year is another way to gauge performance. If routes are designed properly and constantly monitored, citizens are more attracted to transit. In Figure 29 the larger the ratio the better the transit system is performing. CityBus has one of the best passenger trips to total vehicle miles traveled ratio in the state at 2.17. This is the second best ratio in the state behind the Bloomington transit system and the cities of Gary and Indianapolis had the poorest.

Figure 28. Comparison of Operating Expenses per Passenger Trip

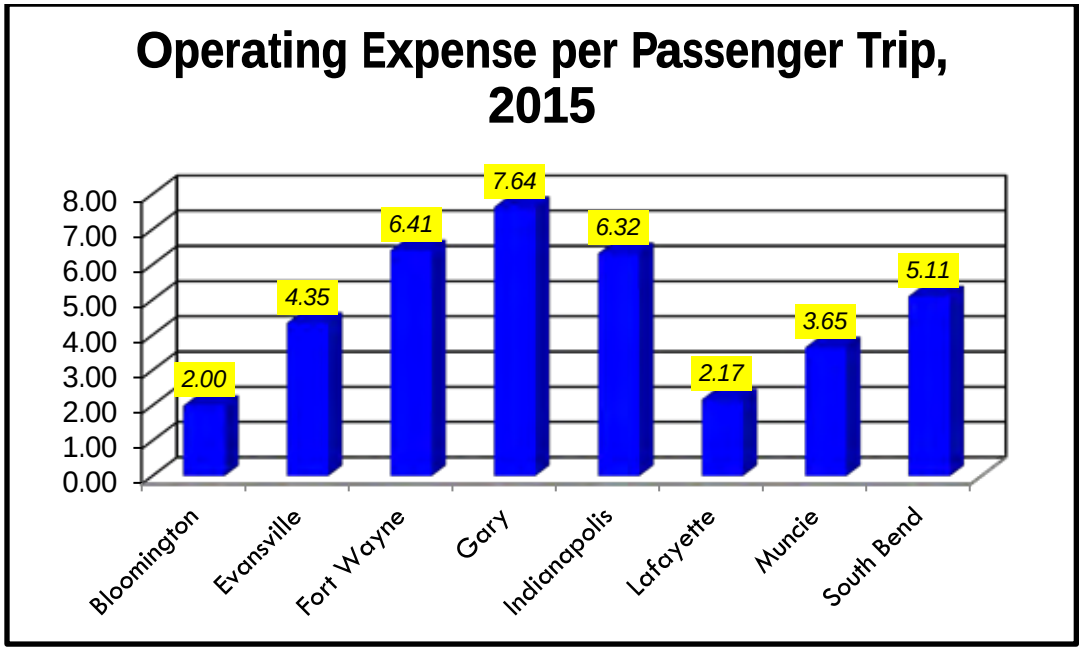
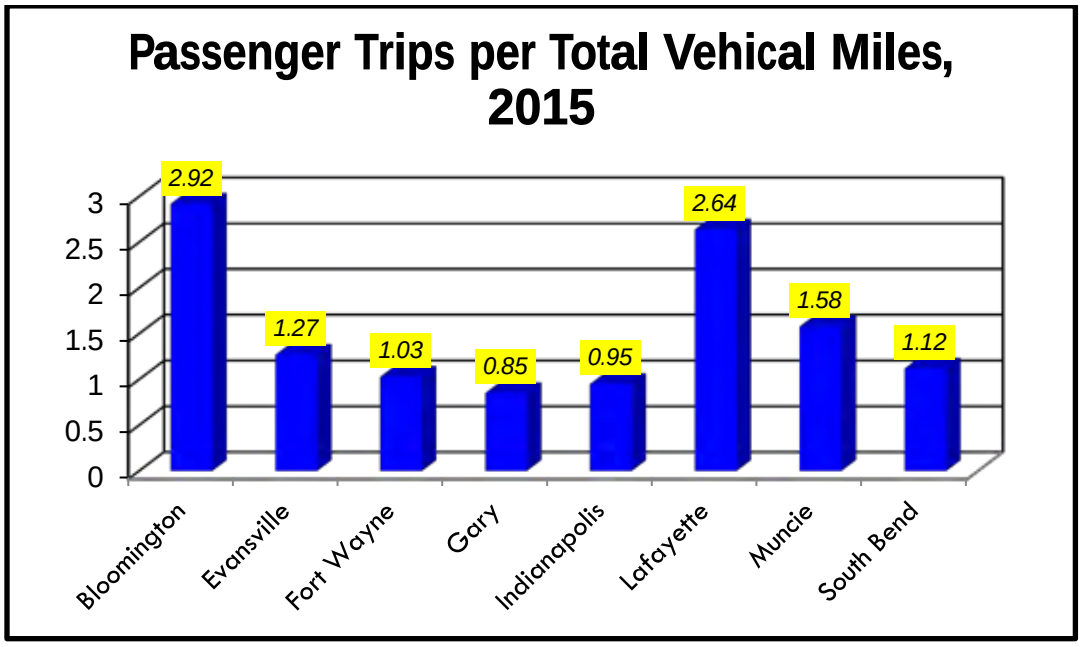


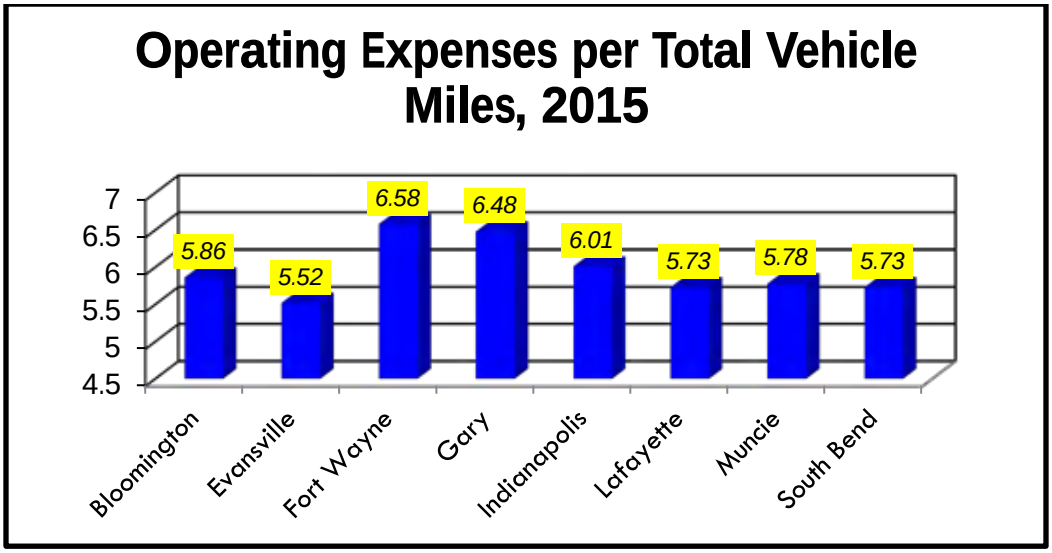
Figure 29. Comparison of Passenger Trips per Total Vehicle Miles



Operating Expenses per Total Vehicle Mile

In the transit industry, a good measure of cost performance is how much it costs a bus to travel a mile. Figure 30 shows the operating expenses per total vehicle miles for all of the large transit systems in the state. In 2015, it cost CityBus $5.73 to operate a bus per mile. Overall, CityBus is ranked second and better than the state average of $5.96.

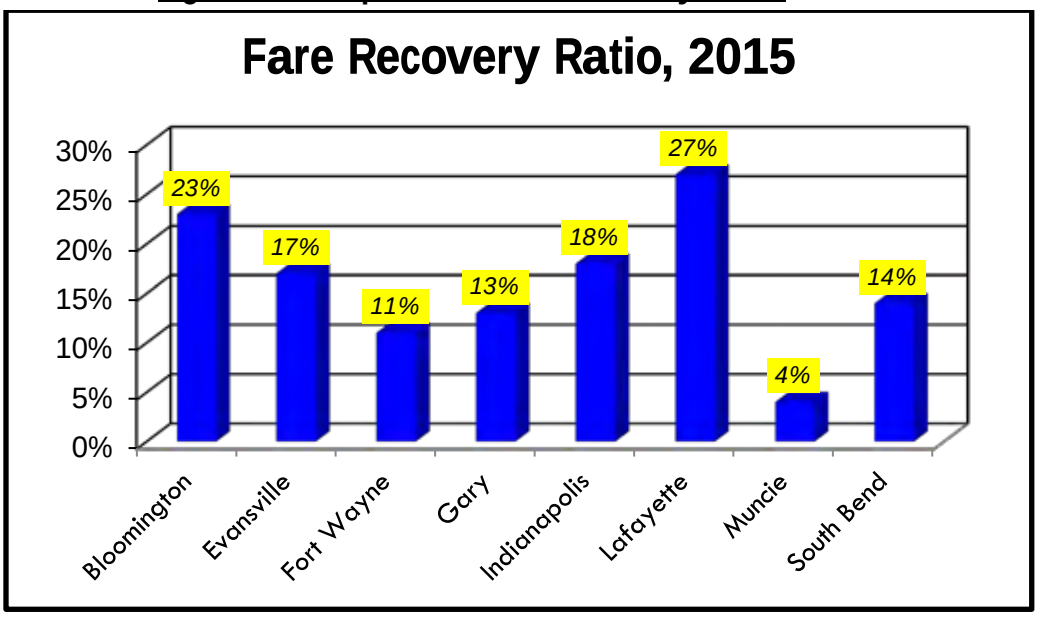
Figure 30. Comparison of Operating Expenses per Total Vehicle Miles



Fare Recovery Ratio

CityBus ranks the very best in Indiana for recovering operating cost through passenger fares (Figure 31). In 2015, CityBus recovered 27% of its operating costs from passenger fare revenues compared to the average of 16% for the largest transit systems. Bloomington was the only other transit system with a fare recovery greater than 20%. All of the other transit systems were less, especially the system in Muncie in which their recovery ratio was only four percent.

Figure 31. Comparison of Fare Recovery Ratios



Based on these performance measures, CityBus out performs all other peer transit systems in Indiana. CityBus keeps their operating costs low and service high which attracts a significant number of riders.

i. First and Last Mile Analysis

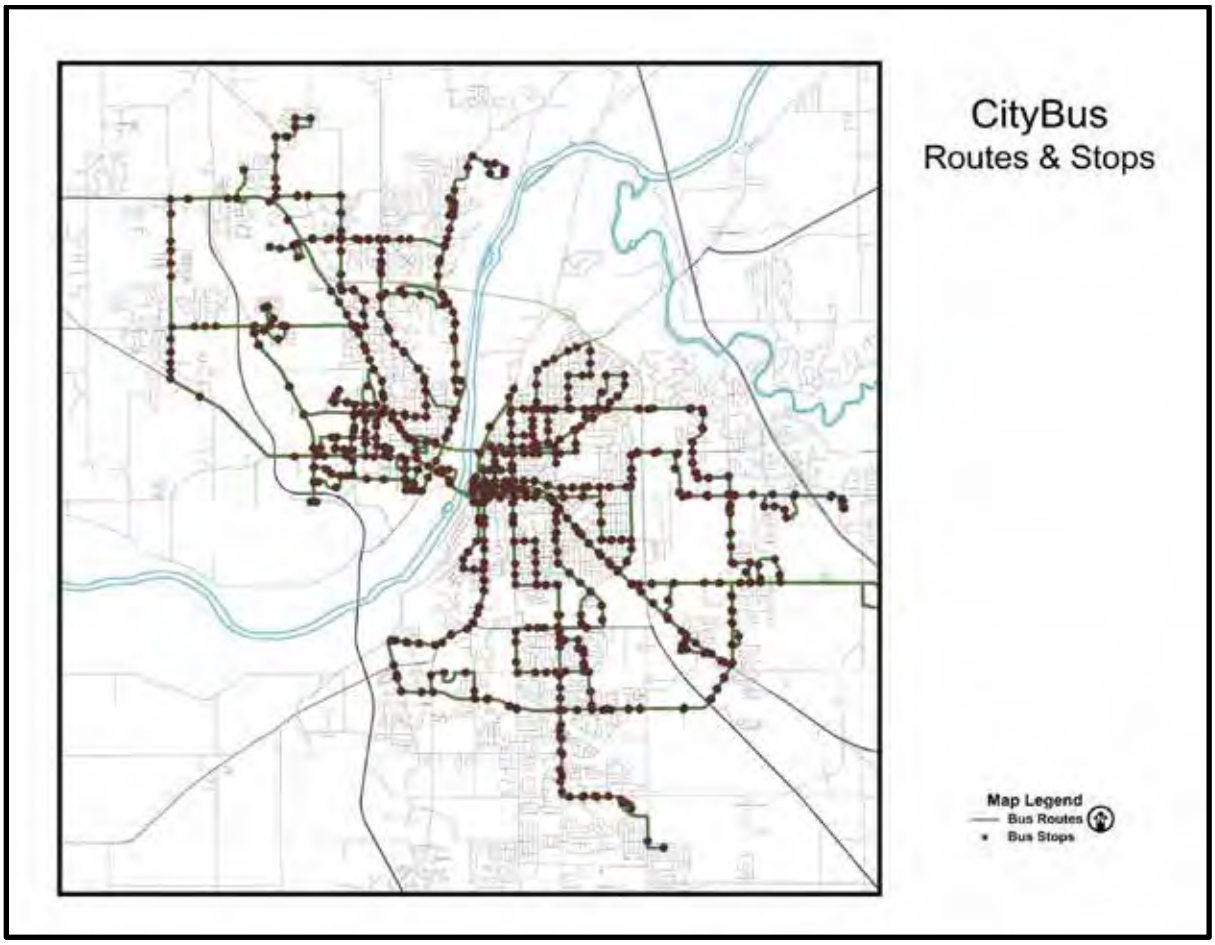
Every transit trip includes some non-transit at each end and is referred to as the "first-and-last mile." It is a crucial and important aspect of using transit and it needs to be safe, accessible and convenient. Too often, transit riders encounter numerous challenges while attempting to reach the closest bus stop. Disconnected and crumbling sidewalks, poor if any crosswalks, obstacles in the sidewalk such as utility poles, lack of curb ramps, inadequate

bike facilities and a lack of an Americans for Disabilities compliant connection between the sidewalk and bus stop can create real hurdles for riders.

Providing a high quality connection between the bus stop and the nearest sidewalk or trail is essential to enabling people, especially those with disabilities, to use fixed-route transit. It is part of the complete street focus. Unfortunately, accessible connections to and from bus stops are not always provided. Often this is because the transit agency does not have control over sidewalks or other parts of the right-of-way at bus stops. Planning for the First and Last Mile involves the infrastructure that makes it safer and easier for riders to get to the bus stops.

Lafayette and West Lafayette have made tremendous progress in constructing sidewalks, sidepaths, bike lanes and trails. While there have been many miles of new pedestrian and bicycle faculties constructed over the past decade, there are still many areas void of any even basic facilities. The MPO maintains an inventory of all bus stop locations (Figure 32) and sidewalks and bicycle facilities. Using basic GIS analytical tool those bus stops that are not served by sidewalks or trails were identified.

Figure 32. CityBus Routes and Stops

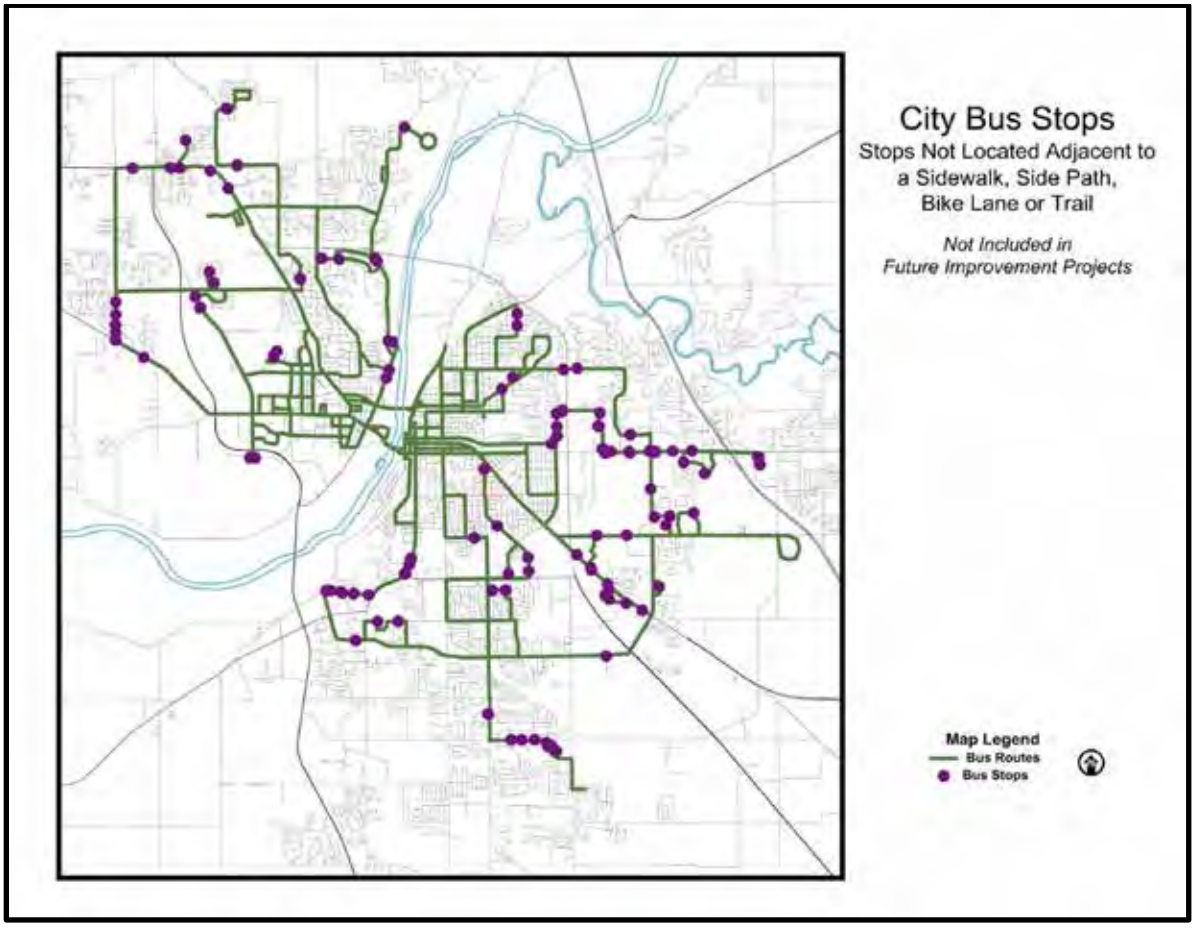


Currently there are 845 bus stops and approximately 20% (173) are not adjacent to any non-motorized facility. Most are located along streets maintained by the City of Lafayette (74 or 43%). Approximately 25% are located along streets maintained by the City of West Lafayette. There are 27 (16%) bus stops located on county maintained roads, 18 located on roads maintained by INDOT and 11 stops located within private develops.

Forty eight of the 173 non-connected bus stops are on roads that are programmed in the Transportation Improvement Program that will be provided with new connections as part of a highway project. Improvements planned by the City of West Lafayette will connect over half, Tippecanoe County's future improvements will connect 17 stops, five stops will be connected through INDOT's projects and one will be connected with the City of

Lafayette projects. The analysis identifies 125 stops needing connections to sidewalks or bicycle facilities (Figure 33).

Figure 33. Bus Stops Needing Connections to Sidewalks



To aid in determining which stops should be connected first, the following analysis identifies bus stop locations in areas with higher than average percentage of minorities (including the Hispanic population), in areas of higher poverty and finally in areas of concentrated employment.

Minority Populations

Comparing the location of the non-connected stops to Census Blocks with higher than average concentrations of different minorities groups, 59 stops were identified. The majority of them, 37, are located next to roads maintained by the City of Lafayette while ten were located next to roads maintained by the City of West Lafayette. Eight of the stops were located next to roads maintained by INDOT. Only three were located within private developments and one by Tippecanoe County. Table 16 shows the distribution of non-connected bus stops by ownership of the adjacent road. Figure 34 shows the location of the stops that are sized to the number of minority populations affected.

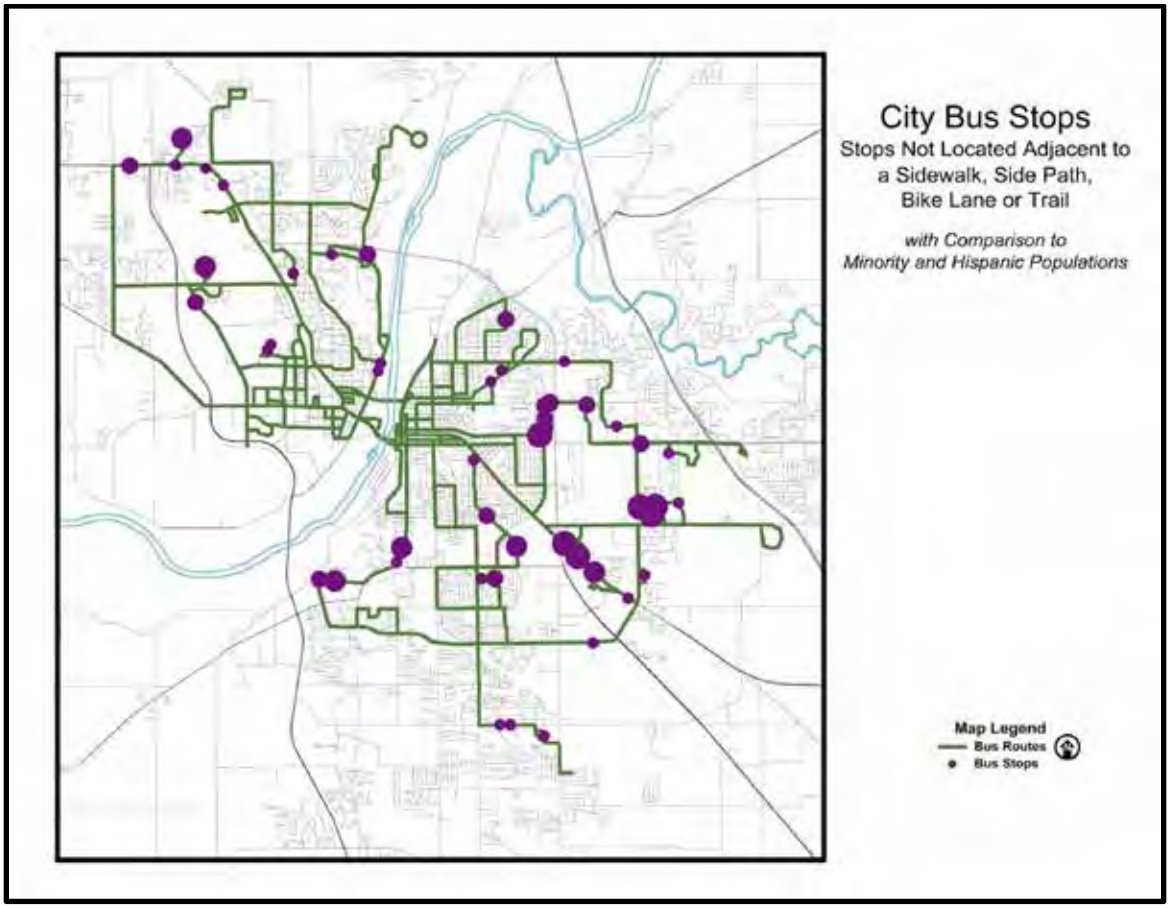
The minority population affected the most is the Hispanic population with 29 stops located in blocks with high Hispanic concentrations. There were 27 stops identified in areas with high black concentrations and 22 stops in areas of Other Minority Populations. The other three minority populations were: 17 Asian; 11 Indian and 0 for Hawaiian.

Another comparison is the number of stops by road. There were four roads with four stops (SR 38, South 4th Street, Elston Road and on US 52) and four roads with three stops (Julia Lane, Shoshone Drive, Earl Avenue, and David Ross). Union Street, McCormick, and Veterans Memorial South each have two stops and the remaining roads each had one stop.

Table 16. Bus Stops in Minority Areas

Jurisdiction	One or more Minorities
Lafayette	37
West Lafayette	10
Tippecanoe Co.	1
INDOT	8
Private	3
Total	**59**

Figure 34. Non Connected Bus Stops in Minority and Hispanic Areas



Poverty

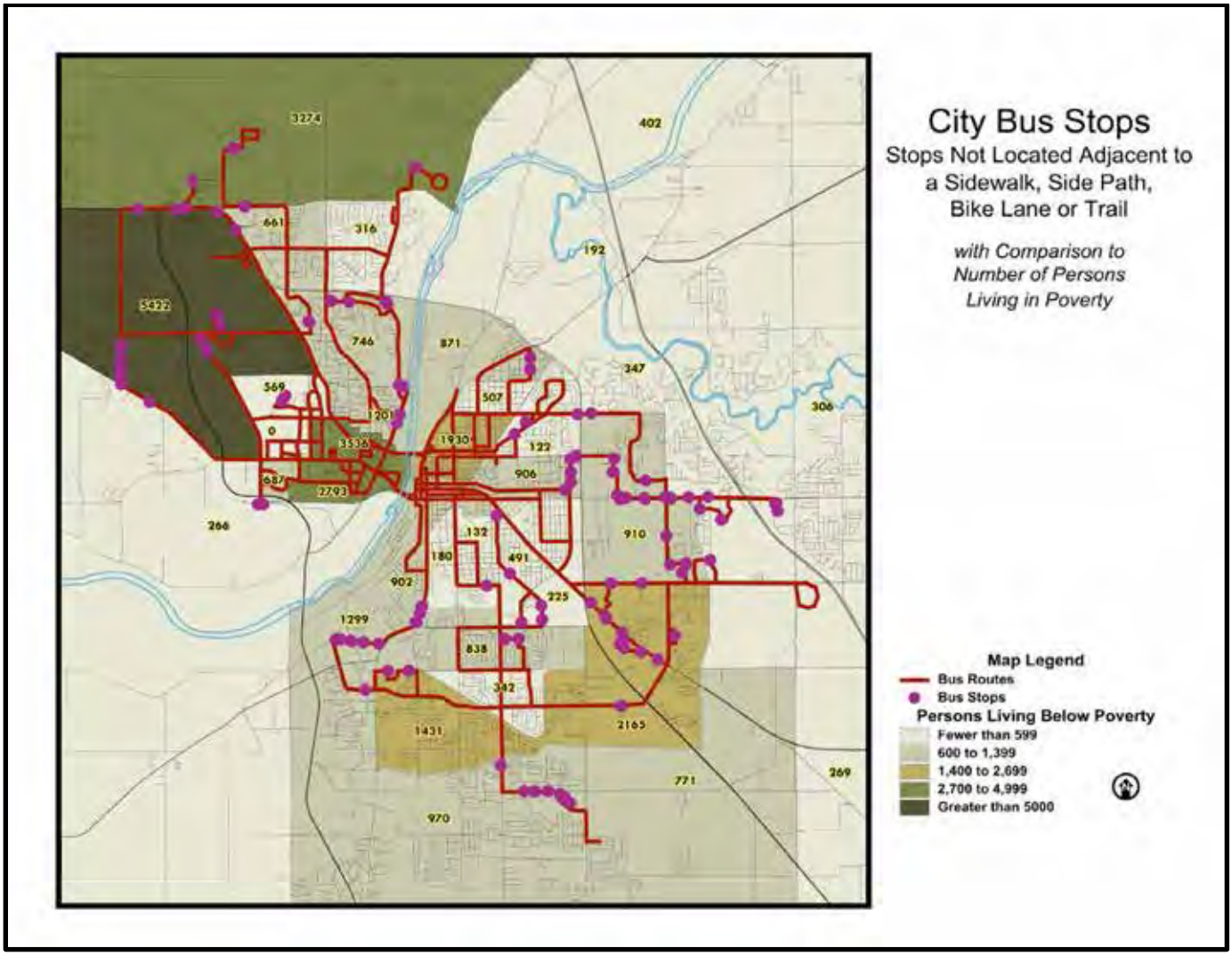
According to the Census Bureau's American Community Survey (2010-2014 five year estimates) nearly one quarter (23.7%) of all persons living in Tippecanoe County live in poverty. Figure 35 shows the number of persons who live in poverty by Census Tract as well as bus routes and non-connected bus stops. The Tracts with the largest populations are located west of West Lafayette, the Purdue Campus and north of Kalberer Road.

In Lafayette, the Tract with the largest population is located in the area around the Tippecanoe Mall. The Census reported over two thousand persons living in poverty in this Tract. There are numerous non-connected stops in that Tract, especially along SR 38.

Three other Tracts with large poverty populations are in the northern downtown area (1,930 persons), the area bounded by the NS Railroad, Elliott Ditch, and Old US 231 (1,431 persons) and the Elston area (1,299 persons).

While there are no non-connected stops in the Tract north of downtown, there are stops located in the other two Tracts especially along Elston Road.

Figure 35. Non Connected Bus Stops in Areas of People Living in Poverty

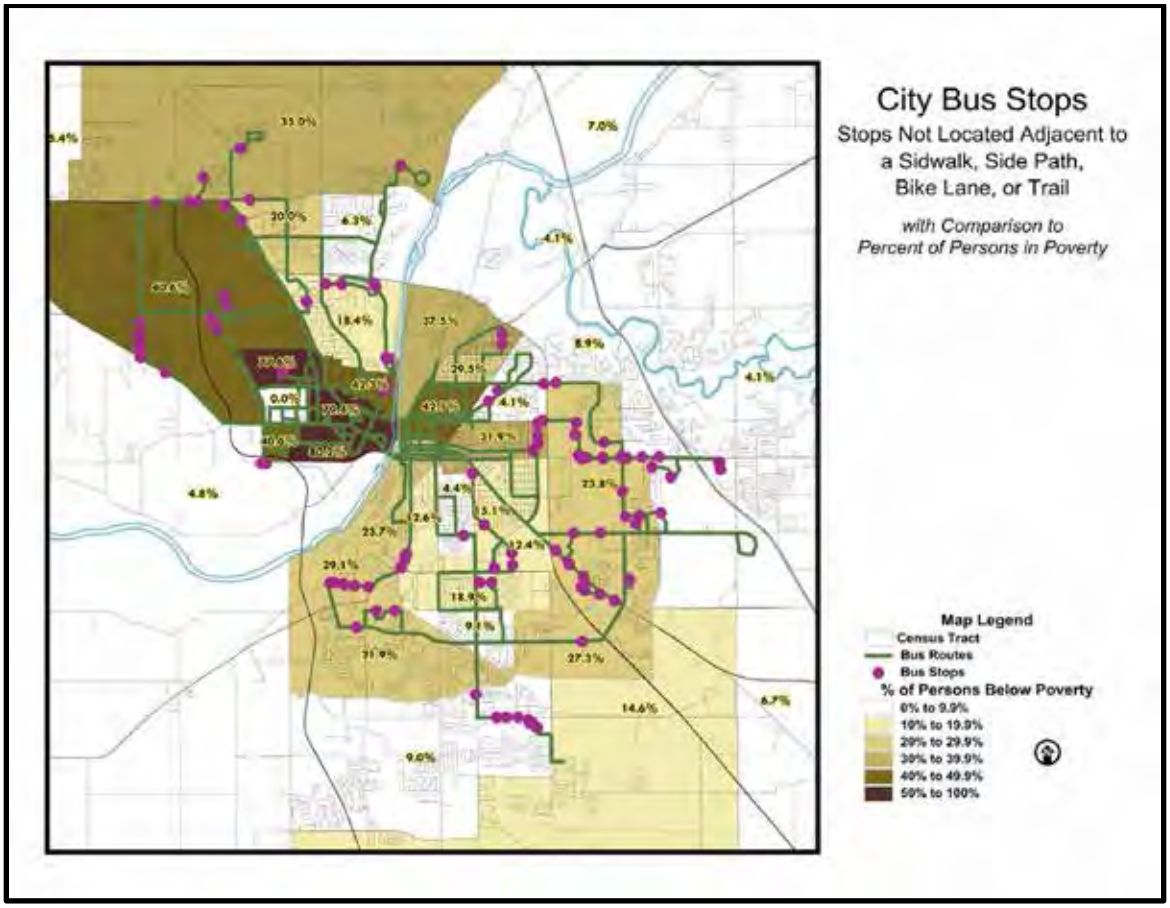


Another way to analyze the data is by the percentage of person living in poverty which takes into account the number of people living in the tract. Figure 36 shows bus routes, the non-connected stops and the poverty rate by Census Tract.

The Tracks with the largest poverty percentage are located on and next to the Purdue University campus where three tracks have greater than 75% of the population living in poverty. There are four tracks with greater than forty percent of the population lives in poverty. Two are either on or next to the Purdue Campus area and one is west of West Lafayette. In these areas, there are two corridors with a high number of non-connected stops: US 52 from Klondike Road to Cumberland Avenue and Klondike Road from Lindberg Road to SR 26. The fourth tract is located just north of downtown Lafayette but there are no non-connected bus stops located in this track.

There are a significant number of tracts in which twenty to thirty percent of the population lives in poverty. These tracts include non-connected stops on North 26th Street, the northern Earl Avenue area, along South Street (west of Sagamore Parkway), around the Mall, and the Elston/South 4th Area.

Figure 36. Non Connected Bus Stops in Areas with High Percentage of People Living in Poverty



Employment

The third analysis evaluates the relationship between non-connected bus stops and jobs. Figure 37 shows the location of non-connected stops to employment in traffic zones. Employment data is from InfoUSA and has been adjusted to 2016.

All the bus stops in the three traffic zones which have the largest employment have connected stops. They are on the Purdue Campus, SIA and Alcoa.

The employment map further shows that the South Street corridor between Sagamore Parkway and Veterans Memorial East is the one corridor with a significant concentration of employment and a high number on non-connected stops. The corridor stretches over nine traffic zones and within that area there are 9,139 jobs. Three of those traffic zones contain over 1,000 jobs each. The corridor has 21 bus stops that are not connected to any pedestrian or bicycle facility. The majority of them are location on South Street with some on 36th Street, Rome Drive, Farrington, next to Wal-Mart and on Meijer Drive.

The next corridor which has both a large number of jobs and a significant number of non-connected stops is the SR 38 corridor from Sagamore Parkway to Creasy Lane. Over four thousand jobs are located along this corridor. The Tippecanoe Mall traffic zone alone accounts for nearly 60% of the employment. Along this corridor there are 10 non-connected bus stops, most of them along SR 38. The sidewalk that was recently installed by the City of Lafayette provided a positive impact and connected a number of stops along the north side of the road.

The third corridor is the Elston Road and South 4th Street area. There are nearly one thousand jobs located in this area with 13 non-connected stops along Elston Road and on South 4th Street just north of Teal Road.

There are nearly a dozen other areas in the community that can be considered to have a concentration of jobs with non-connected stops. Four are located in West Lafayette while the other seven are located within the City of

Lafayette. Table 17 lists the additional locations, the number of jobs and the number of non-connect stops in those areas. The two areas that contained a significant number of jobs as well as a large number of non-connected stops are the North Earl Avenue area and Veterans Memorial South.

Figure 37. Non Connected Bus Stops in Major Employment Areas

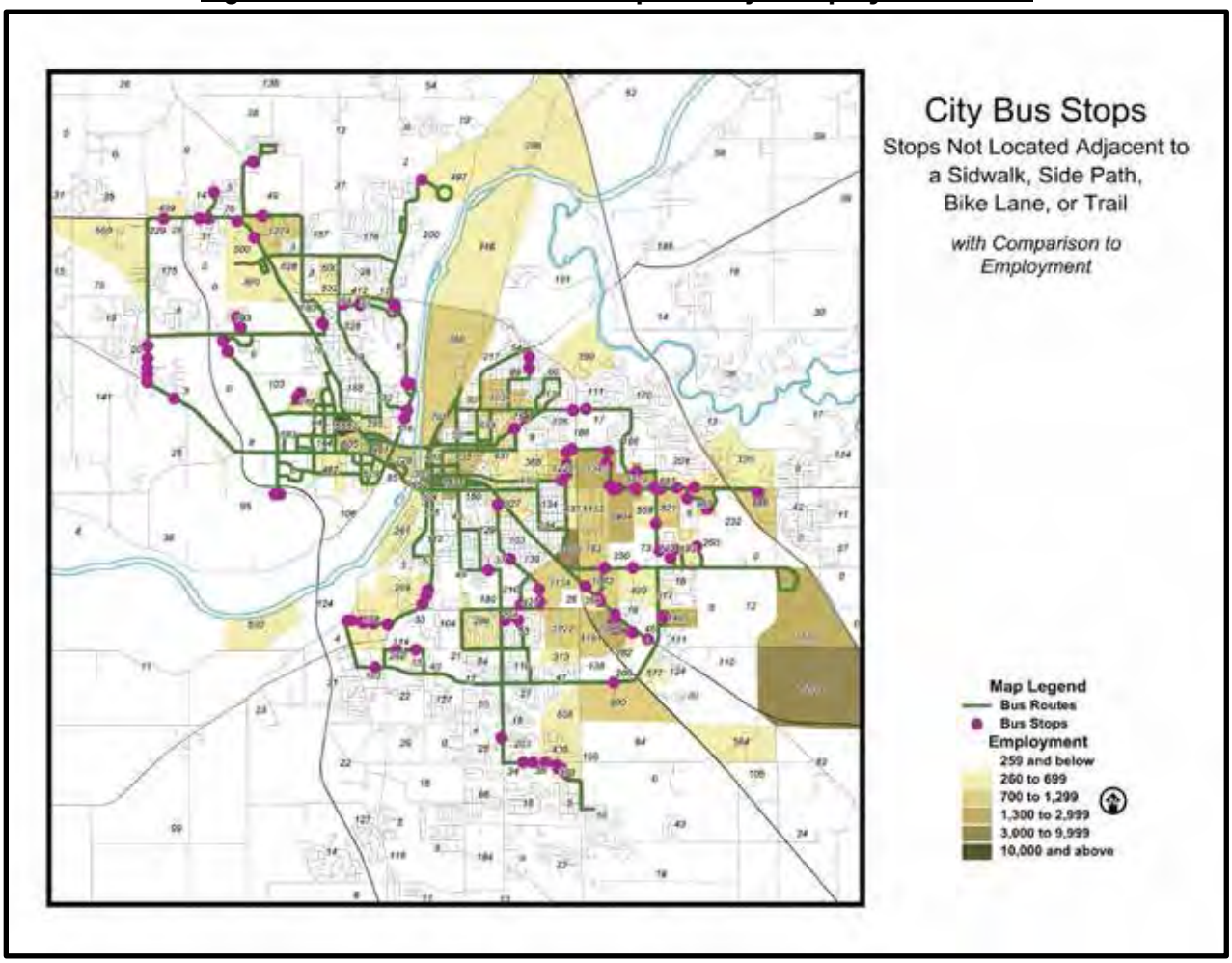


Table 17. Additional Non-Connected Stops in Employment Centers

Location	Jobs	Non-Connected Stops
Sagamore Parkway (Cumberland Area)	1,774	4
St. Elizabeth Hospital	1,485	1
North Earl Avenue Area	1,228	6
Brady Lane	1,136	1
Veterans Memorial South	808	5
Market Square	754	2
Park East	743	1
Navajo	600	2
Sagamore Parkway (Meijer Area)	499	1
Soldiers Home Road	497	1
Jefferson Square Area	427	3

j. Supply and Demand

System performance analysis traditionally looks at ridership by route over a certain period of time. Another methodology that can be used to assess the need for additional service is a comparison of supply and demand or gap analysis. Supply is the level of transit service provided and demand would be the number of persons who are transit dependent and need service. This assessment provides direction for creating additional ladders of opportunity for those in need of additional transit service.

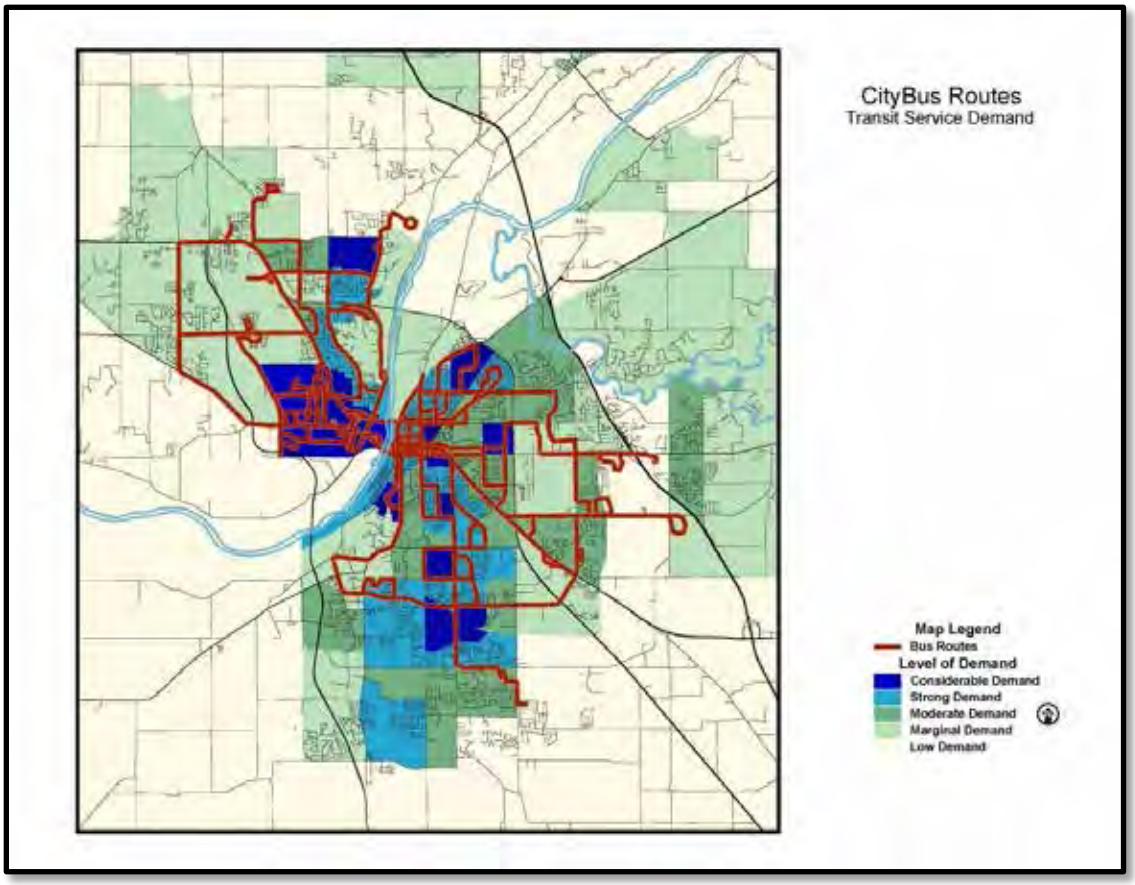
Calculating the demand, or the number of person who are transit dependent, uses a formula with six variables. The formula was developed by the U.S. Department of Transportation and it was slightly modified to better fit this community and the data available. The variables used were:

- The number of person who are 16 and older,
- The number of persons who are 12 through 15 years old,
- The number of household drivers,
- The number of vehicles available per household,
- Persons living in group quarters, and
- The number of non-institutionalized population living in group quarters

Once the number of transit-dependent persons was calculated, they were divided by the number of acres in each Block Group for a density value and then ranked.

The areas showing the greatest demand (Figure 38) are located in and around the Purdue campus, the far north side of Lafayette, the area around northern Earl Avenue and Ferry Street, the near east side of downtown Lafayette, the area just west of South 4th Street and south of Kossuth Street, the South Lea subdivision, and the area just south of Twyckenham between South 9th Street and NS Railroad and Elliott ditch.

Figure 38 Transit Service Demand



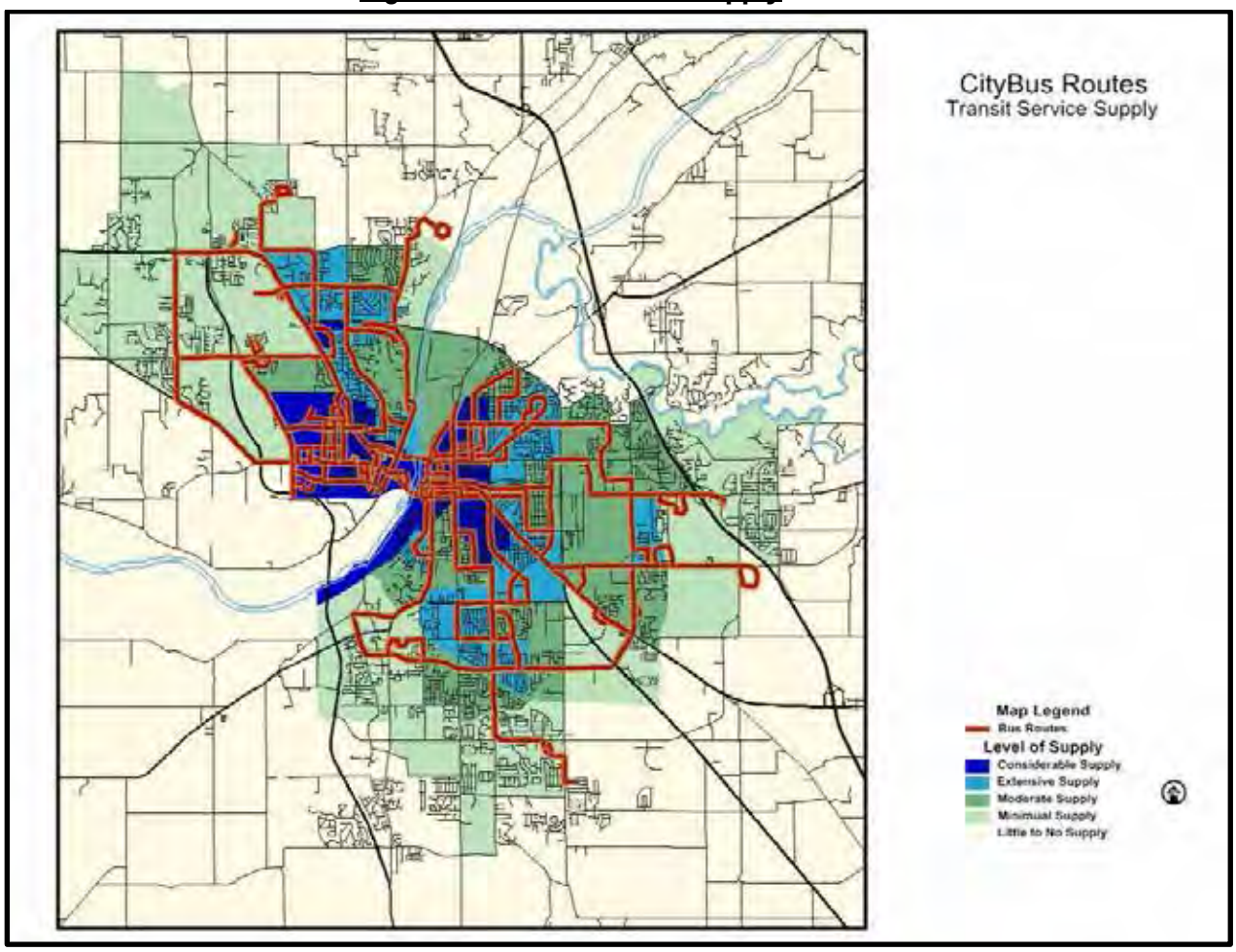
The supply calculation used four variables. Three of them focus on the level of transit service provided, and the fourth assesses the amount of infrastructure dedicated to pedestrians and cyclists. The variables were:

- The number of bus stops in each block group,
- The frequency of service for each bus stop per day,
- The number of routes in each block, and
- The length of bike routes and sidewalks.

Similar to the demand calculation, each variable was divided by acres to get a density value, the four were then summed and the individual scores ranked.

The areas showing the largest supply (Figure 39) are: around the Purdue campus, the entire downtown of Lafayette and areas immediately to the north, south and southwest as well as northern West Lafayette bounded by Sagamore Parkway, Yeager Road and Northwestern Avenue. The amount of service typically decreases the further you travel from the downtown area.

Figure 39. Transit Service Supply

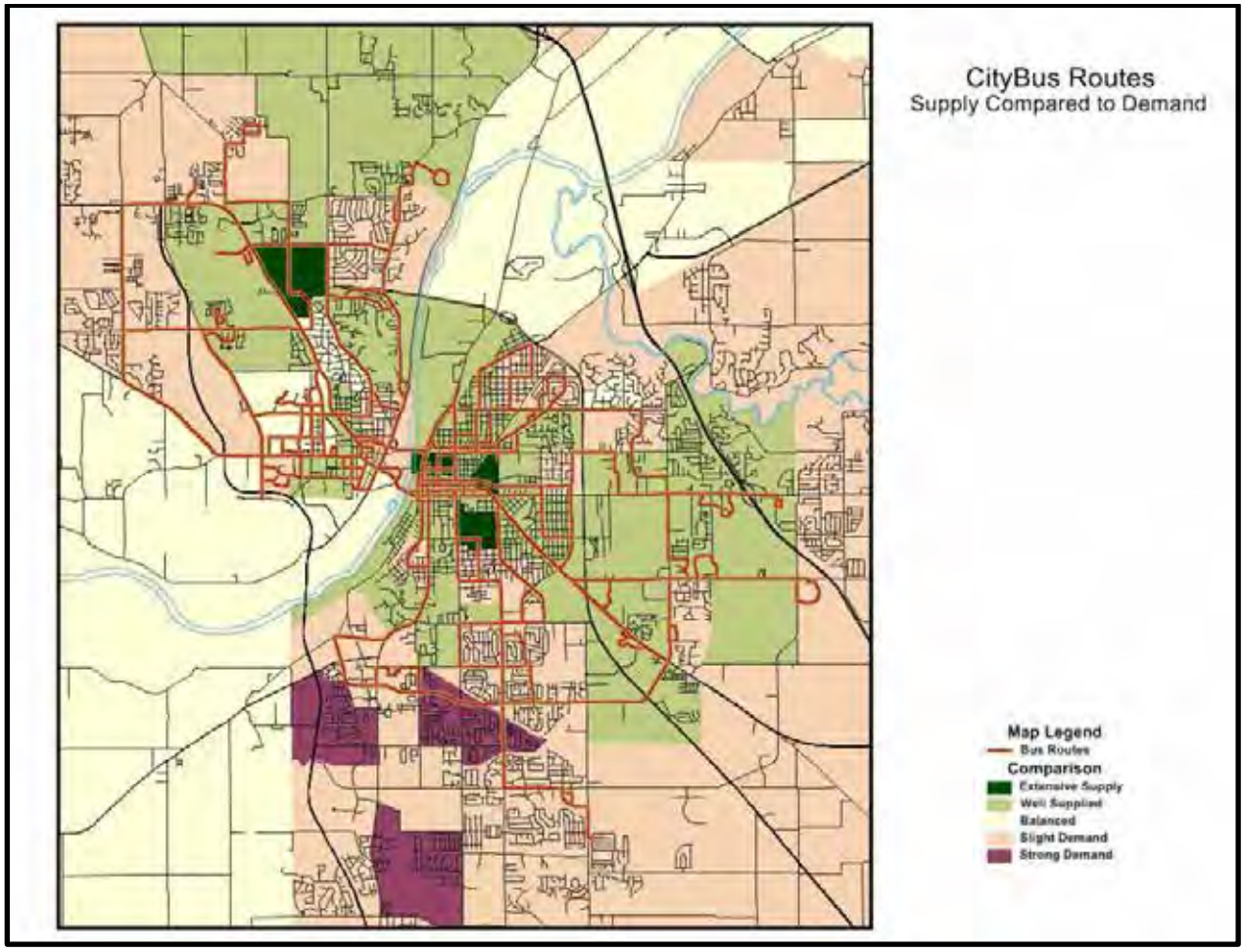


With both the supply and demand calculated, a simple comparison of the two shows where demand exceeds supply, and conversely, supply exceeds demand. Those block groups with the widest gap between the two rankings show where the demand is strongest and the supply inadequate.

There are three areas within the City of Lafayette, with a wide gap between demand and service provided (Figure 40). The first is bounded by US 52, Old US 231, Veterans Memorial West and the township boundary. This area is predominately residential with seven residential subdivisions. The second is roughly bounded by the NS railroad, Poland Hill Road and Ortman Lane. This area is also predominately residential with several residential subdivisions. The third area is further to the south and bounded by CR 375S/400S, South 9th Street,

CR 500S and Old US 231. There are four residential subdivisions along South 9th Street and CR 375S/400S and three along Old US 231.

Figure 40. CityBus Routes Supply and Demand



k. Coordinated Human Services Transit Plan

The first Coordinated Human Services Transit Plan (CHSTP) was completed in 2008 and updated annually through 2013. In 2014 a new CHSTP was developed and updated in 2016. The Plans address transportation issues experienced by the disabled, elderly and those with low incomes. The goal of the Plan is to create a more coordinated system of transportation services for these groups by developing solutions to address their needs, remove obstacles to their mobility and eliminate redundancy in services. The CHSTP furthers the ladders of opportunity for those in need. Those Plans are available on the APC website and have been well received by local human service providers whose clients need transportation.

2. InterCity Transit

The community is served by two intercity transit providers and three shuttle services. The intercity transit companies are Greyhound and the Hoosier Ride. Their boarding location is in downtown Lafayette on 3rd Street, just north of the CityBus Transfer Center. The only facilities for users are benches; there is no shelter available. Greyhound serves the community with 5 daily busses to and from Chicago, Ft. Wayne, Indianapolis and Bloomington. The Hoosier Ride Service is provided by Miller Transportation in collaboration between the Indiana Department of Transportation and Greyhound Lines. Miller Transportation received funding from the Federal Transit Administration and the Indiana Department of Transportation to link rural Indiana communities to Greyhound and the national intercity bus network. Miller Transportation has scheduled bus service in Indiana, Kentucky Michigan

and Tennessee, and in Lafayette provides 2 busses daily to Indianapolis and Merrillville/Chicago. There are current discussions with the providers on ways to improve facilities and services.

There are three shuttle services, all with destination to airports in Chicago and Indianapolis: Express Air Coach, Lafayette Limo and Reindeer Shuttle. Each has pick up locations throughout the community.

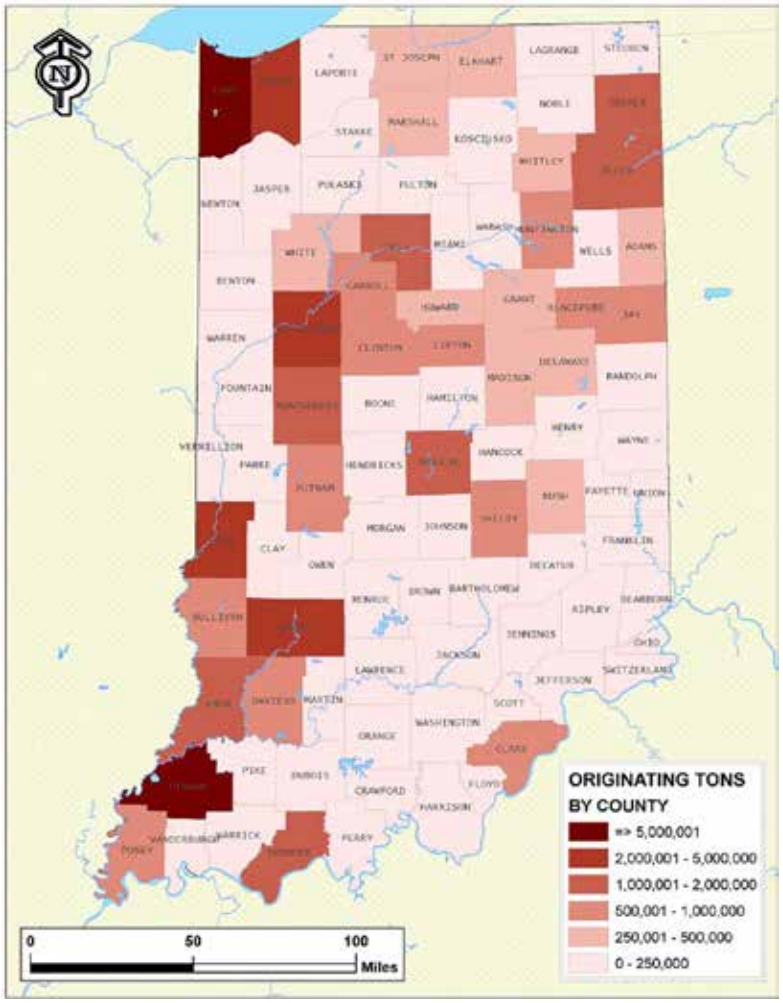
F, Hazardous Materials

In 2012 the MPO partnered with the Local Emergency Planning Committee to have a Hazardous Materials Commodity Flow Study conducted. Its purpose was to identify the types and amounts of hazardous materials that move through Tippecanoe County by all modes. Using surveys, questionnaires and interviews the study found that all 9 classes and 118 different types of hazardous material move through the community, including flammable liquids (50% of shipments), followed by gasses (25%) and corrosives (16%). On our highways almost 65% of shipments are gasoline, combustible and flammable liquids and propane. As expected the predominant threat is fire which has led to additional training by first responders. This provides a more robust and resilient community.

G. Freight Services

Tippecanoe County has benefited from the availability of multiple freight options. The community has good highway and rail networks that strengthen the local economy. The community is served by three railroad companies that generate significant economic activity in this community. Tippecanoe County is one of the top 5 shipping counties in Indiana based on tonnage (Figure 41).

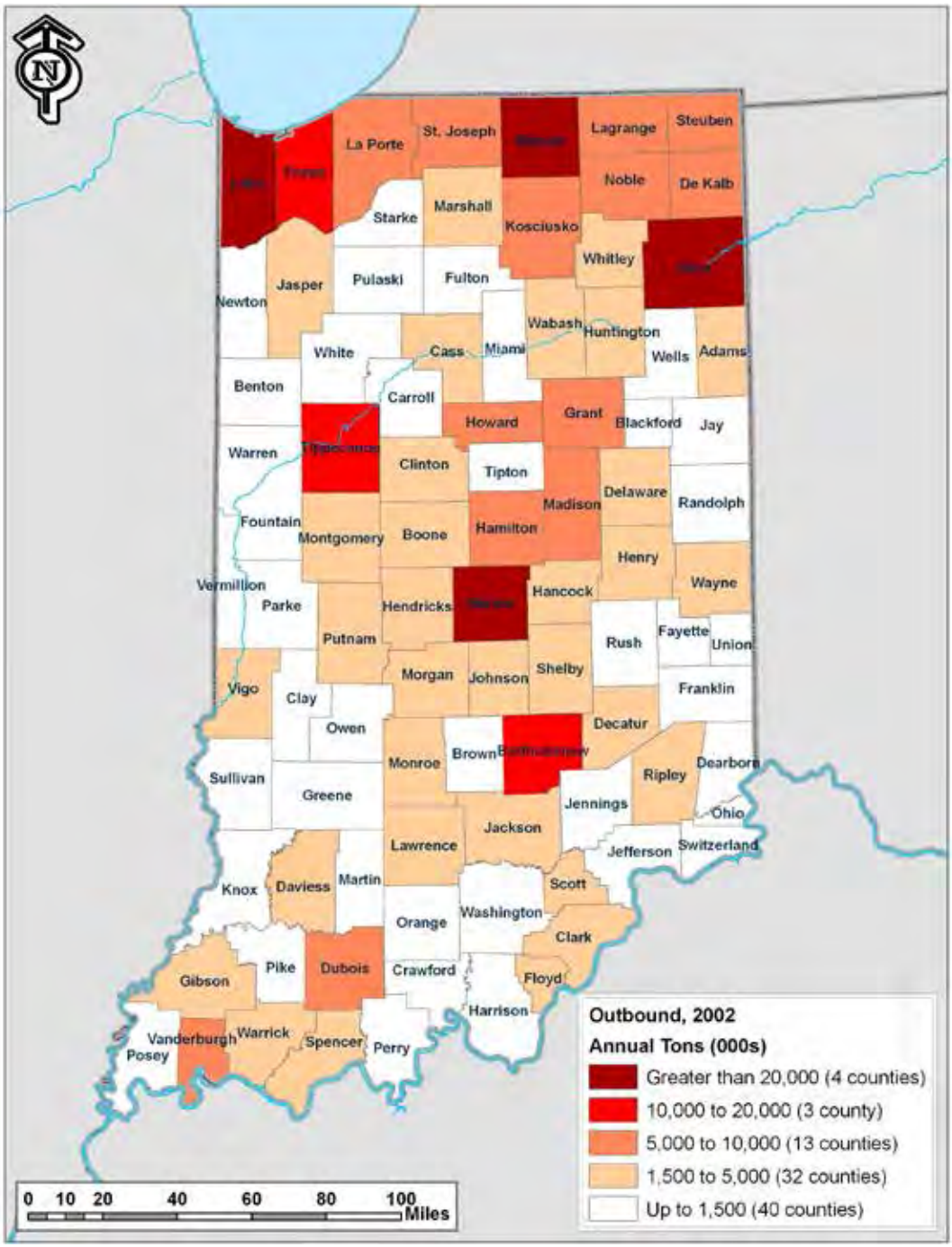
Figure 41. Indiana Total Rail Traffic Origins by County



Source: 2009 Indiana Rail Plan

The highway network provides access radiating in all directions from Lafayette with especially strong connections north, south and east. The community is served by Interstate 65, two U.S. highways (US 52 and 231), five state routes (SR 25, 26, 28, 38, and 43), and other primary and secondary arterials and local roads. Tippecanoe County is also one of Indiana's top shippers by truck (Figures 42).

Figure 42, Indiana Truck Commodity Flow Origins



Source: Indiana Multimodal Freight and Mobility Plan

There are currently 21 independent freight hauling trucking firms in Tippecanoe County. The MPO maintains this inventory as part of it's the review process for the Transportation Improvement Program. It does not include trucking firms or fleets maintained by local companies for their own use, warehousing businesses or outside contractors that may work for a local firm.

H. Air Services

The Purdue University Airport is a general aviation airport on 537 acres located south west of the West Lafayette campus. It is home to the Purdue Polytechnic School of Aviation and Transportation Technology, Purdue Aviation and a critical part of the new Purdue Research Park Aerospace District. With nearly 100,000 annual airport operations the airport consistently ranks as second busiest in the State of Indiana. There are two runways, an FAA operated control tower, an instrument landing system, a passenger terminal, several hangars, and numerous academic and research buildings.

Buildings

- One passenger terminal building
- Five hangars and two small buildings used for academic activities
- Two hangars used for commercial activities
- Seven "T" hangars used for private and corporate aircraft storage (58 units)

Activity

- 97,000 aircraft operations annually
- Second-busiest airport in Indiana

Runways

- Runway10/28 is 6600 feet long and 150 feet wide
- Runway105/23 is 4230 feet long and 100 feet wide

Lighting

- 10/28 - High intensity with approach aids, REIL 28, VASI 28, PAPI 10
- 5/23 - Medium intensity with approach aids, REIL 5/23, VASI 23, PAPI 5
- 10/28 - Medium approach lighting system (MALSR)

Instrument Approaches

- ILS
- VOR
- NDB
- RNAV
- GPS

The airport has an annual systematic capital improvement program to guide development and operations. Planned projects include a runway extension, an additional parallel taxiway and apron improvements. The Airport Master Plan was last updated in 2014. Some of the issues addressed in the update include preserving the airport through protective land purchases, mitigating potential noise issues, increasing security measures and minimizing the airport's environmental footprint.

I. Rail Service

Railroads have been an integral part of this community since shortly after its founding. To mitigate some of its negative impacts, Lafayette eliminated 42 at-grade crossings in the downtown with the Railroad Relocation Project and more recently developing quiet crossings in the south part of Lafayette. Additionally, INDOT eliminated an at-grade crossing on US 52.

The Amtrak's Hoosier State Train and Cardinal services combine to provide daily roundtrip passenger rail service between Indianapolis and Chicago, which includes intermediate stops in Crawfordsville, Lafayette, Rensselaer and Dyer. The service provides an additional alternative mode of travel to Indianapolis and Chicago and the greater Lafayette community has greatly benefited from the daily service. INDOT recognized this importance by designating the Riehle Plaza intermodal depot as an intermodal facility of statewide significance in its 2030 Long Range Transportation Plan. Since Congress voted to end federal support for the Hoosier State the State of Indiana has partnered with local governments along the line to fund the operating and capital costs not covered with ticket revenue. Currently there is not a secure funding source to ensure operation of the Hoosier State and continued local support is critical to preserving the service.

There are two additional regional efforts to enhance passenger rail service that affect this community: The Midwest High Speed Rail Association and the Midwest Regional Rail Initiative. Both will benefit the community and local support needs to continue.

Three railroad companies operate in Tippecanoe County: two Class I rail carriers and one short-line railroad (Figure 43). The Kankakee, Beaverville, and Southern is a well-established short haul operator, Norfolk Southern operates two main line routes, and CSX operates one core line.

According to the Federal Rail Administration there are currently 61 public crossings and 35 private crossings in Tippecanoe County (Table 18 and 19) which is ten less crossings than in 2012. From 2010 to 2015 there was an average of 2.6 highway-railroad crashes per year with twice as many cars involved as trucks.

Figure 43, Rail Lines in Indiana

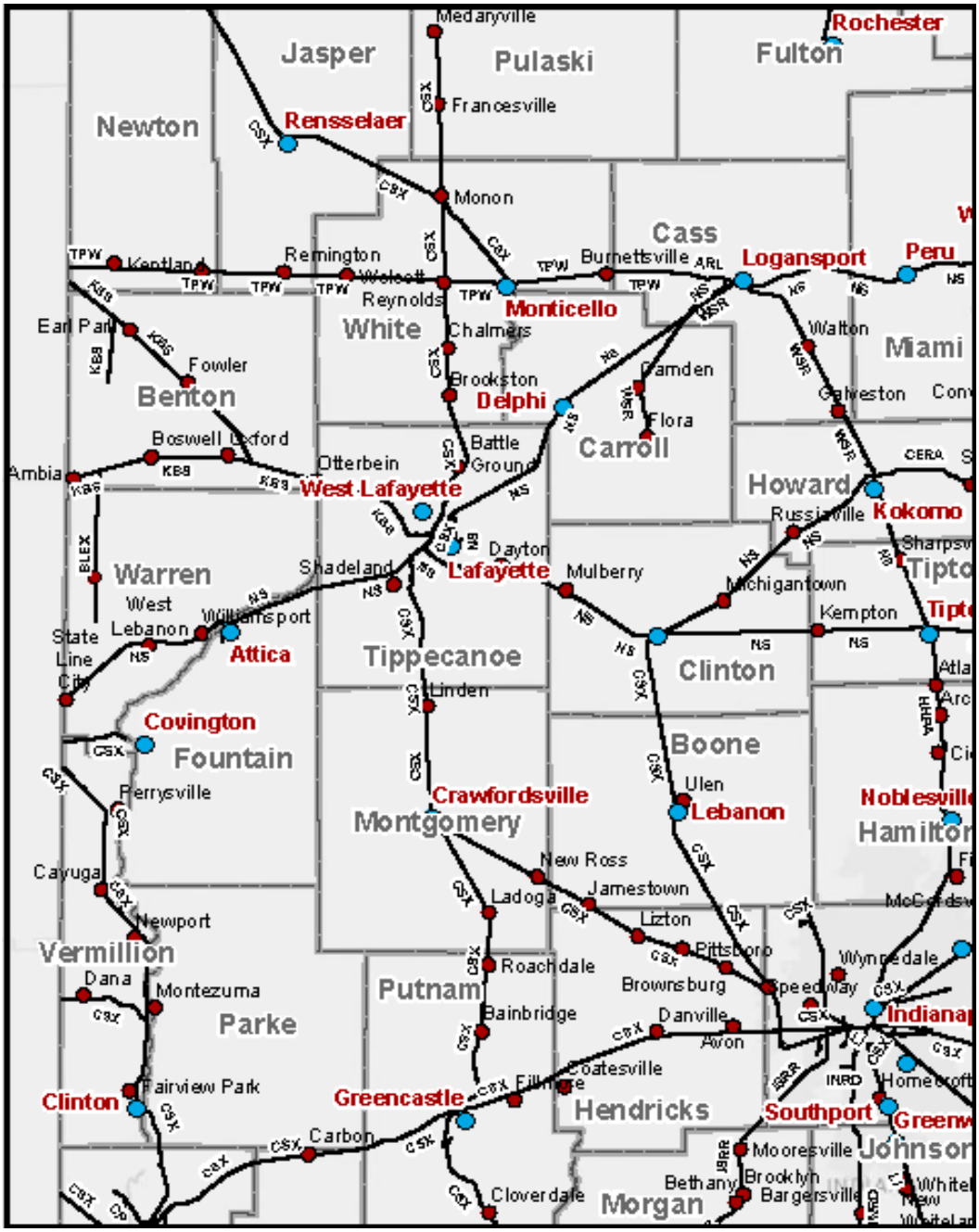


Table 18, Public At-Grade Railroad Crossings by Local Jurisdiction

City	Total	PRINCIPAL WARNING DEVICE						
		None	Cross bucks	Stop signs	Flashing lights	Gates	Four Quad Gates	Quiet Zone
Battle Ground - In	2	.	.	.	1	1	.	0
Battle Ground – Near	2	.	.	.	.	2	.	0
Buck Creek - In	2	.	.	.	1	1	.	0
Buck Creek - Near	3	.	.	.	1	2	.	0
Dayton - In	1	.	.	.	1	.	.	0
Dayton - Near	5	.	.	4	1	.	.	0
Lafayette - In	19	1	6	.	8	3	1	2
Lafayette - Near	9	.	2	.	3	4	.	3
Linden - Near	1	.	.	1	.	.	.	0
Montmorenci - In	1	.	.	.	1	.	.	0
Montmorenci- Near	2	.	.	2	.	.	.	0
Romney - Near	5	.	.	2	1	2	.	0
West Lafayette - Near	5	.	.	2	1	2	.	0
West Point - Near	4	.	.	1	.	3	.	0
Total	61	1	8	12	19	20	1	5

Table 19, Public At-Grade Railroad Crossings by Railroad

Railroad	Total	PRINCIPAL WARNING DEVICE						
		None	Cross bucks	Stop signs	Flashing lights	Gates	Four Quad Gates	Quiet Zone
CSX Transportation [CSX]	19	.	4	3	6	6	.	0
Kankakee, Beaverville & Southern	8	.	.	4	2	2	.	0
Norfolk Southern Railway Company	34	1	4	5	11	12	1	5
Total	61	1	8	12	19	20	1	5

III. The Future

A. Vision, Goals and Performance Measures

Goals and objectives for the Comprehensive Plan for Tippecanoe County were originally generated through an extensive effort by the Citizen Participation Committee in 1976. That effort reached hundreds of citizens and culminated in the adoption of goals and objectives that guided the original 1978 Transportation Plan, the 1981 Comprehensive Plan for Tippecanoe County and all subsequent APC plans. The Citizen Participation Committee updated the goals and objectives for the transportation plans in 2006, 2011 and again in 2016 and 2017.

In addition to local priorities the USDOT is introducing performance measures into the transportation planning process. The following six performance areas have been established and have rulemaking schedules:

- Safety
- Highway Safety Improvement Program
- Statewide, Metropolitan Planning and Non-Metropolitan Planning
- Pavement and Bridge
- Highway Asset Management Plan
- Performance of the National Highway System, Freight and Congestion Mitigation and Air Quality (SMAQ) measures

States and some MPOs are required to develop targets for each. The Area Plan Commission is working with INDOT and FHWA to identify what performance measures the APC will need to develop and adopt. For example, the greater Lafayette area meets air quality standards, thus the community will not need to adopt performance measures for CMAQ.

Each performance measure has a different deadline for implementation, but each follows the same development process. For each performance measure a specific set of data is selected that truly assesses progress toward the performance measure. The measures needs to be quantifiable and the data reasonably available. The performance measures for safety have already been determined and track fatalities and serious injuries. Indiana routinely collects crash data and the MPO routinely compiles and analyzes it. The next step is to use the data to help establish a target to measure progress toward. Over the next few years the performance measures will be fully developed and the 2045 MTP represents the MPO continuing effort to transition to compliance with USDOT's new requirements.

The Citizen Participation Committee developed the following Vision, goals and Performance Measures (Table 20)

Community Vision 2045

Develop a coordinated, safe, and interrelated transportation system, integrating thoroughfares, transit, airport facilities, passenger rail service, pedestrian and bicycle facilities, and freight movement to adequately serve the entire community, guided by the adopted Land Use Plan, and compatible with economic development, financial resources, and cooperative governmental and citizen action; linking Tippecanoe County, Lafayette and West Lafayette with each other and to the region, state and nation as well as the global economy.

Table 20. Goals and Performance Measures

Goal 1: **Improve Livability, Sustainability and Active Transportation Options**
(the long term maintenance of our economy, environment and social institutions)

Objectives	Possible Performance Measures	Tasks/Actions	Actions Already Implemented
Increase accessibility to transit	Install bus stop pads and adjacent sidewalks or trails	Review available data and set target	-Support and advance transit, passenger rail and non-motorized transportation options -Annually allocate all APC UPWP Section 5303 funds, when applicable to provide assistance to CityBus
		Work with CityBus and LPA's to ensure all bus stops have pads and served with a sidewalk or trail	
Improve bicycling and walking in the urbanized area and small towns for people of all abilities and socioeconomic groups	Increase the miles of bicycle and pedestrian facilities or increase population percentage within ½ mile of bike or pedestrian facility	Review available data and set target	-Allocate a minimum of 10% of the MPO's STP funds to bicycle and pedestrian projects that are not part of a larger road projects -Obligate all TAP funds allocated to the MPO -Require non-motorized facilities in all road projects thru the Complete Streets Policy
		Update the County wide Bicycle and Pedestrian Plan to unify and provide consistency with plans in West Lafayette and Lafayette	
		Coordinate, expand and unify the community's Complete Streets Policy.	-Adopted a Complete Streets policy in 2040 MTP
	Adopt policies and procedures that encourage non-motorized transportation	Assist in establishing a community wide reoccurring fund for programs that improve bicycle and pedestrian safety	-Allocate a minimum of 10% of the MPO's STP funds to bicycle and pedestrian projects that are not part of a larger road projects -Obligate all TAP funds allocated to the MPO
		Assist in establishing multi-jurisdictional public sector staff position of Bicycle/Pedestrian Coordinator	
Expand the ADA compliant sidewalk system	Increase the number of ADA compliant curb ramps	Review available data and set target	-Monitor implementation of Transitions Plans
Increased housing density and mixed-use development in appropriate areas	Increase density of dwelling units or population near: Purdue campus, CityBus downtown transfer station, and in developing areas	Review available data and set target	-Encourage higher densities in Planned Developments in the downtowns of Lafayette and West Lafayette

Goal 2: **Preserve Roadway Capacity and Minimize Traffic Congestion**

Objectives	Possible Performance Measures	Tasks/Actions	Actions Already Implemented
Keep existing infrastructure in state of good repair.	Improve the condition of on and off system bridges	Review Tippecanoe County asset management data and set target	-Quarterly Project Tracking -Keep project priorities current in TIP and 5 Year Production Schedule
	Improve roadway pavement conditions	Review each jurisdictions' asset management data and set target	
Improve efficiency of existing facilities	Reduce per-capita Million Vehicle Miles Traveled, or measures of reliability, or number of vehicles or people moving through/around the community)	Review available data and set target	-Traffic counting program in cooperation with local jurisdictions
		Ensure all scheduled traffic counts are taken and information published within 30 days of receiving count data from local jurisdictions	
		Preserve and expand the Advanced Traffic signal Management System by reviewing timing every 2-3 years and funding annual equipment and software maintenance and upgrades	
Timely Delivery of projects	Minimize delay and ensure funds are available when needed	Review available data and set target	-Quarterly Project Tracking -Keep project priorities current in TIP and 5 Year Production Schedule -Red Flag Investigation
		Update the Thoroughfare Plan by 2020	

Goal 3: **Improve the Safety and Security of all Road Users**

Objectives	Possible Performance Measures	Tasks/Actions	Actions Already Implemented
Reduce fatalities and serious injuries for all road users.	Reduce the number of fatalities	Review available data and set target	-Accelerate new projects by minimizing delay and ensuring funds are available when needed. -Work with local public safety agencies to address high severe and fatal crash locations. -Clean crash data and create annual crash analysis report
	Reduce the fatality rate (per Million Vehicle Miles Traveled, MVMT)	Review available data and set target	
	Reduce the number of serious injuries	Review available data and set target	
	Reduce the serious injury rate (per MVMT)	Review available data and set target	
	Reduce the number of non-motorized serious injuries and fatalities	Review available data and set target	
		Establish a reoccurring fund for programs that improve bicycle and pedestrian safety	

Goal 4: **Enhance Mobility and Accessibility**

Objectives	Possible Performance Measures	Tasks/Actions	Actions Already Implemented
Improve bicycling and walking in the urbanized area and small towns for people of all abilities and socioeconomic groups	Increase percentage of population within a half mile of a bicycle or pedestrian facility	Review available data and set target	-Allocate a minimum of 10% of the MPO's STP funds to bicycle and pedestrian projects that are not part of a larger road projects- Obligate all TAP funds allocated to the MPO -Require non-motorized facilities in all road projects thru the Complete Streets Policy
		Update the County wide Bicycle and Pedestrian Plan to unify and provide consistency with plans in West Lafayette and Lafayette	
Increase Transit Capacity	Increase percentage of population within a quarter mile of a transit route	Review available data and set target	Annually allocate all APC UPWP Section 5303 funding resources, when applicable, to provide program assistance to CityBus
		Install bus stop pads and adjacent sidewalks or trails	
	Increase geographic area served, hours of operation and accessibility	Review available data and set target	Transit deserts analysis
		Install bus stop pads and adjacent sidewalks or trails	
Provide transit services to underserved, essential services, and employment opportunities		Select Performance Measure, review available data and set target	Transit deserts analysis
		Better engagement minority communities	
Increased housing density and mixed-use development in appropriate areas	Increase density of dwelling units or population near: Purdue campus, CityBus downtown transfer station, and in developing areas	Review available data and set target	Continue to encourage higher densities in Planned Developments in the downtowns

Goal 5: **Reduce the Effects of Climate Change**

Objectives	Possible Performance Measures	Tasks/Actions	Actions Already Implemented
Continue Hazard Mitigation Planning	Implement ongoing and proposed mitigation projects	Update plan every 5 years	-Adopted Hazard Mitigation Plan
		Elevate roadways w/o increasing upstream flooding	-Participate in Local Emergency Planning Committee
		Develop evacuation routes and procedures	-conducted Hazardous Materials Commodity Flow Inventory and Analysis
Protect vulnerable assets		Select Performance Measure, review available data and set target	-Adopted Hazard Mitigation Plan
Improve stormwater management on public infrastructure projects		Select Performance Measure, review available data and set target	-Use of rain gardens, pervious pavement, on site retention and detention
Promote non-motorized transportation	Increase percentage of population within a half mile of a bicycle or pedestrian facility	Review available data and set target	-Allocate a minimum of 10% of the MPO's STP funds to bicycle and pedestrian projects that are not part of a larger road projects -Obligate all TAP funds allocated to the MPO -Require non-motorized facilities in all road projects thru the Complete Streets Policy
		Update the County wide Bicycle and Pedestrian Plan to unify and provide consistency with plans in West Lafayette and Lafayette	
Promote greater use of transit as a viable means of Transportation for the general public	Install bus stop pads and a sidewalk or trail connection to all bus stops	Review available data and set target	-Annually allocate all APC UPWP Section 5303 funds, when applicable to provide assistance to CityBus -Support and advance transit, passenger rail and non-motorized transportation options -Provide assistance and needs analysis to CityBus
		Install bus stop pads and adjacent sidewalks or trails	
	Increase percentage of population within a quarter mile of a transit route	Review available data and set target	
Increased housing density and mixed-use development in appropriate areas	Increase density of dwelling units or population near: Purdue campus, CityBus downtown transfer station, and in developing areas	Review available data and set target	Continue to encourage higher densities in Planned Developments in the downtowns
Advocate for greater landscape plans on public highway projects and within subdivisions			Work with LPA's and develop policies and procedures
Develop a basic tree replacement program for all federally funded projects.			Work with LPA's and develop policies and procedures

B. Demographics

The earlier chapter on historic socioeconomic trends provides a good starting point to look to the future and seeing what the community will be in 2045. In order to ensure our transportation systems will meet those future needs we need to know where people will live, work and shop. All forecasting in this community is guided by the adopted *Comprehensive Land Use Plan for Tippecanoe County* which identifies where future growth will occur. The socioeconomic forecasts for the year 2045 (Table 3) are based on where *The Comprehensive Land Use Plan* shows residential, commercial and industrial is planned, how the community has grown and developed in the past, current trends and existing development plans.

1. Population Forecast

Population forecasts are derived from basically two components: household population and people in group quarters. Household population forecasts are based on the number of dwelling units, or the number of households, and the average number of persons per household (Table 21). We expect the number of persons living in households to grow from 158,317 persons in 2010 to 220,871 persons in 2045 (40% increase).

Table 21 Socioeconomic Forecasts

	2010	2020	2030	2040	2045
Total Population	172,780	196,665	215,545	232,347	242,449
Household Population	158,317	179,181	196,503	213,673	220,871
Group Quarter Population	14,463	17,484	19,043	18,674	21,578
Total Housing Units	71,096	79,004	87,004	95,004	98,204
Occupied Housing Units	65,532	74,659	82,219	82,779	92,803
Person per Household	2.41	2.40	2.39	2.38	2.38
Vacant Housing Units	5,564	4,345	4,785	5,225	5,401
Percent Housing Units Vacant	7.8%	5.5%	5.5%	5.5%	5.5%
Total Employment	94,911	112,976	124,416	135,856	140,432
Retail Employment	18,205	20,336	22,395	24,454	25,278
Non-Retail Employment	72,636	92,640	102,021	111,402	115,114

The average number of people per household is expected to follow historical trends and be stable with a slight downward trend which means there will be fewer people living together. In 2010, the Census reported an average of 2.41 persons per household, and by 2045 the rate is anticipated to decrease slowly to 2.38 persons.

The other component used in forecasting population is the number of people in group quarter (e.g., dorms, jails and nursing homes). Factors that affect the number of people living in group quarters in this community include: future enrollment and the number of beds available at Purdue, our aging population, and disabled veterans.

In the past Purdue University has not significantly expanded its housing capacity on-campus. Recently the decision was made to change that direction and provide more on-campus housing. Purdue currently plans to build an additional 5,000 dorm rooms in the near future.

The number of people in jails has remained relatively constant in the last several years and we assume that will continue at slightly over 1,200 people.

The National Nursing Home Survey from the Centers for Disease Control shows that the majority of residents in nursing homes are 85 and older. The 2010 Census data show there were 1,056 persons in nursing home in Tippecanoe County and 2,506 persons 85 and older. The future nursing home population is calculated by the ratio of persons living in nursing homes to the number of persons who are 85 and older (42.5%) applied to the population projections from the Indiana Business Research Center for persons who are 85 and older.

In addition to the elderly, many people in nursing home are military veterans. Discussions with local social service agencies and the County's Veterans Service Office revealed that the number of living veterans from previous wars is decreasing while the number of veterans from recent wars is increasing. The net effect appears to be that the number of veterans living in group quarters (nursing homes and rehabilitation centers) will remain approximately the same into the future as in the past.

Combining these groups provides an estimate of the number of people who will live in group quarters and they are expected to increase from 14,463 persons in 2010 to 21,578 persons by 2045.

Historically, the population in Tippecanoe County reached 100,000 just before the 1970 Census. Over next thirty years, to 2000, the county grew by 50,000, or about 1% per year. The population forecast for *2045* assumes a similar trend that in the next 35 years, by 2045, the population will grow by almost 70,000, or about 1% per year. The community will surpass 200,000 people in the early 2020s and reach almost a quarter million (242,449) by 2045.

2. Housing Forecast

Housing forecasts are based on new building starts, vacancies and persons per household estimates. From building permit data, this community has seen over 4,200 new dwelling units since 2010. Over the past eleven years, the average number of new dwelling units per year was approximately 800 and that number of new dwelling units was used an annual basis for the 2045 forecasts.

The vacancy rates used in these forecasts were based on historical data, which have averaged 5.5% over the last forty years. During the recession starting in 2008, the rate was higher, 7.8% in 2010. Since then, the vacancy rate has decreased and again reached our typical historical average in 2015. The historical rate of 5.5 % was used an annual basis for the 2045 forecasts.

3. Employment Forecast

This community is blessed with a strong economy and low unemployment. Information on the number of jobs per housing unit is tracked and useful in forecasting future employment. In the 1970s and 1980s, the ratio was around 1.50 jobs per housing unit. In the 1990s and 2000s the ratio increased to 1.66 and 1.69. The effects of the 2008 recession significantly reduced the number of jobs and the ratio for 2010 dropped to 1.33 jobs per housing unit. Since then the rate has increased and is back up to 1.43. The historical ratio of 1.43 was used on an annual basis for the 2045 forecasts. Thus, 140,432 jobs are forecast for 2045.

A key component used in traffic forecasting is the type of employment, specifically the number of people working in the retail and the non-retail sectors. Information from the Bureau of Economic Analysis shows the historical rate of retail employment is 18%. The historical rate of 18% was used on an annual basis for the 2045 forecasts.

4. Geographic Distribution

To forecast future traffic volumes the software used requires the above future socioeconomic data to be distributed to small geographic areas called traffic zones (Appendix 10). The adopted *Comprehensive Land Use Plan* was used as to guide to distribute all dwelling units and employment.

Areas of the highest future residential growth (Figure 44 and 45**)** will continue to be to the south and east of Lafayette, to the north and west of West Lafayette and west of the Purdue campus. These growth areas are on the edges of both cities and contiguous to existing development. A new area of residential growth, that is dependent upon new utilities, will be along the Hoosier Heartland Highway to the north east of Lafayette.

Figure 44. 2045 Dwelling Units to be Added

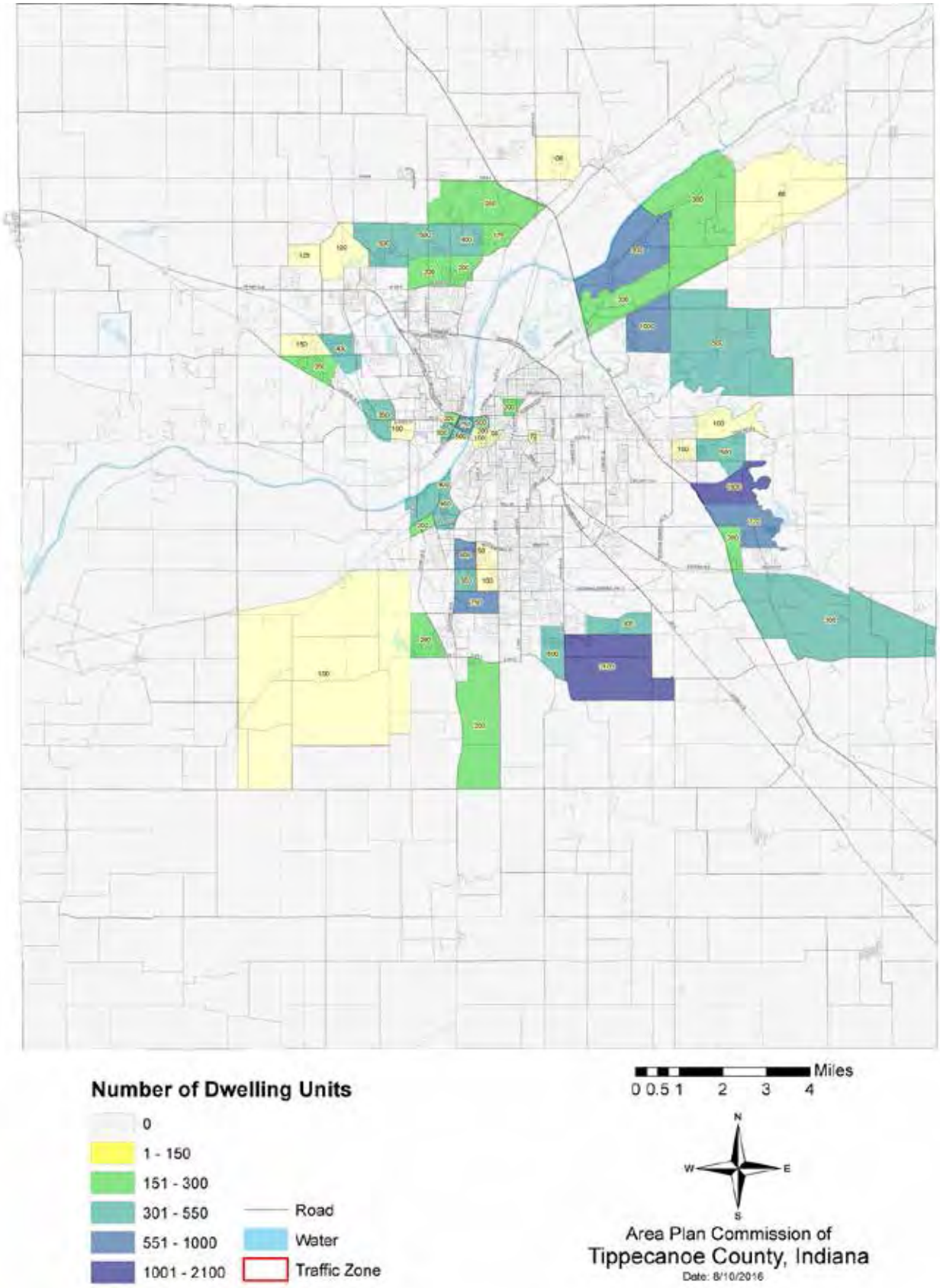
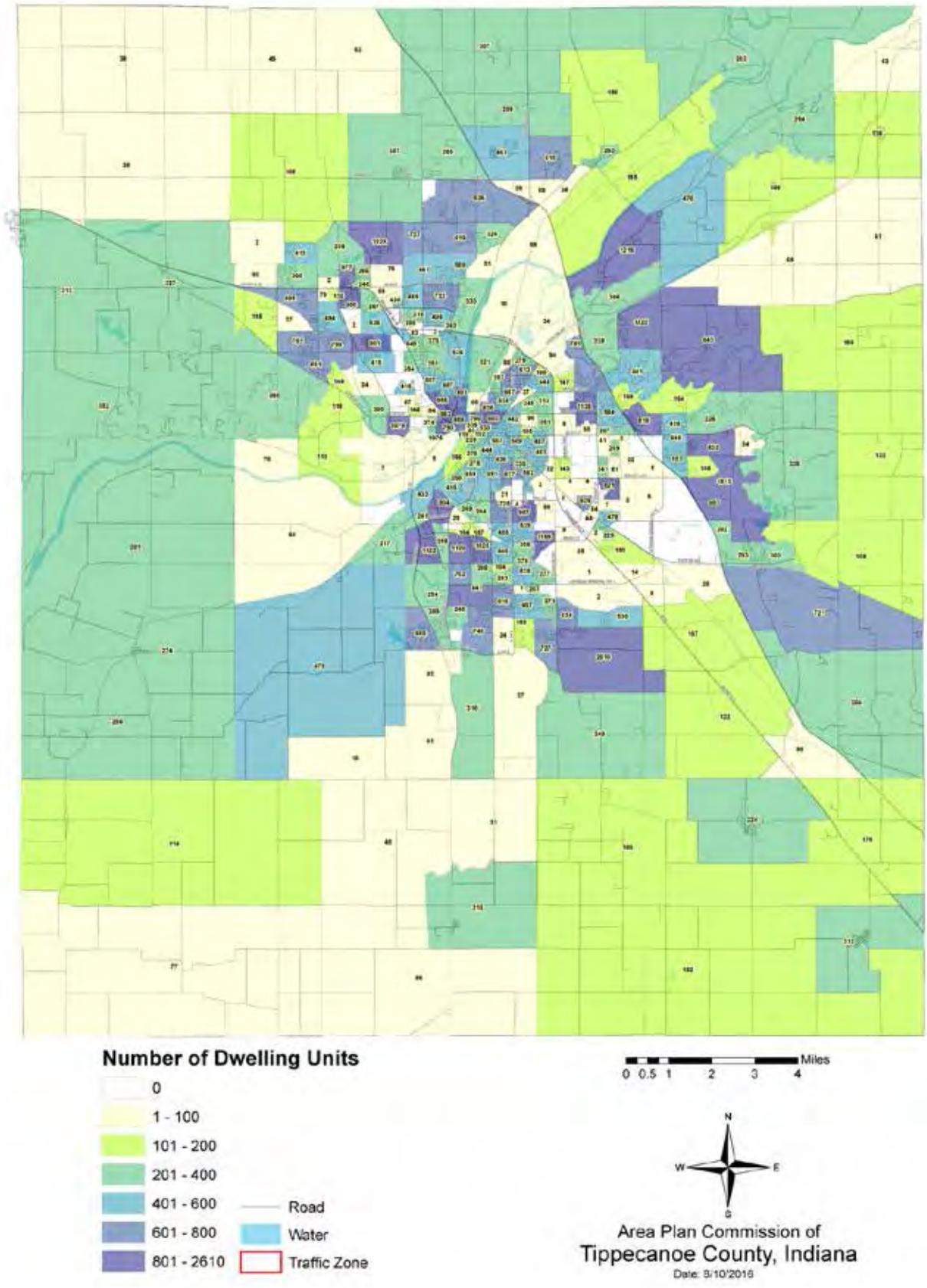


Figure 45. 2045 Total Dwelling Units



The areas that will experience the largest increase in new jobs **(**figure 46and 47**)** will continue to be to the south east of Lafayette. Additional areas of high job growth will be to the north and north west of West Lafayette. Two new areas of job growth are west of the Purdue campus and among the Hoosier Heartland to the north east of Lafayette. The downtowns of Lafayette and West Lafayette will also experience a healthy increase in job growth.

Figure 46. 2045 Employment to be Added

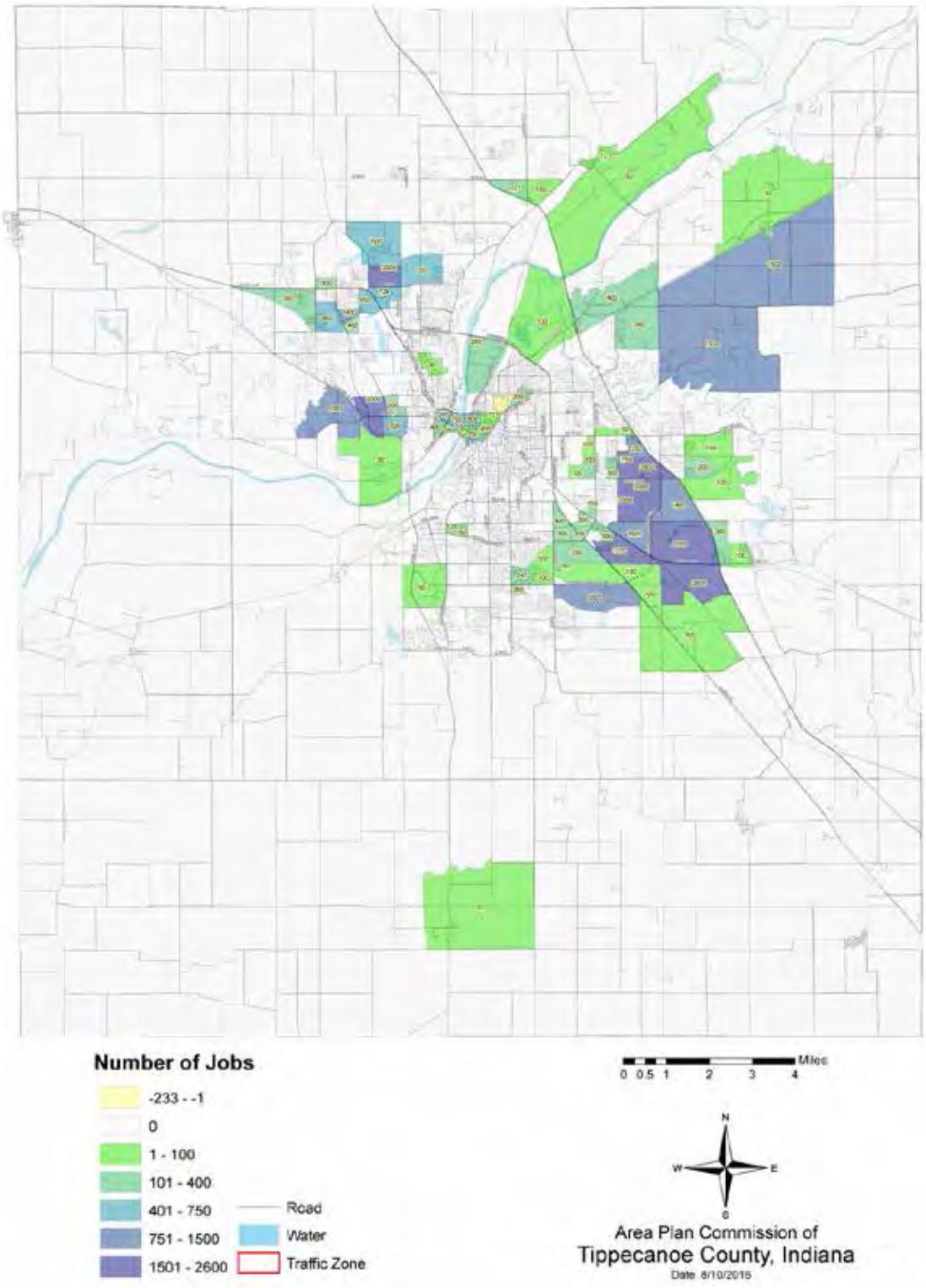
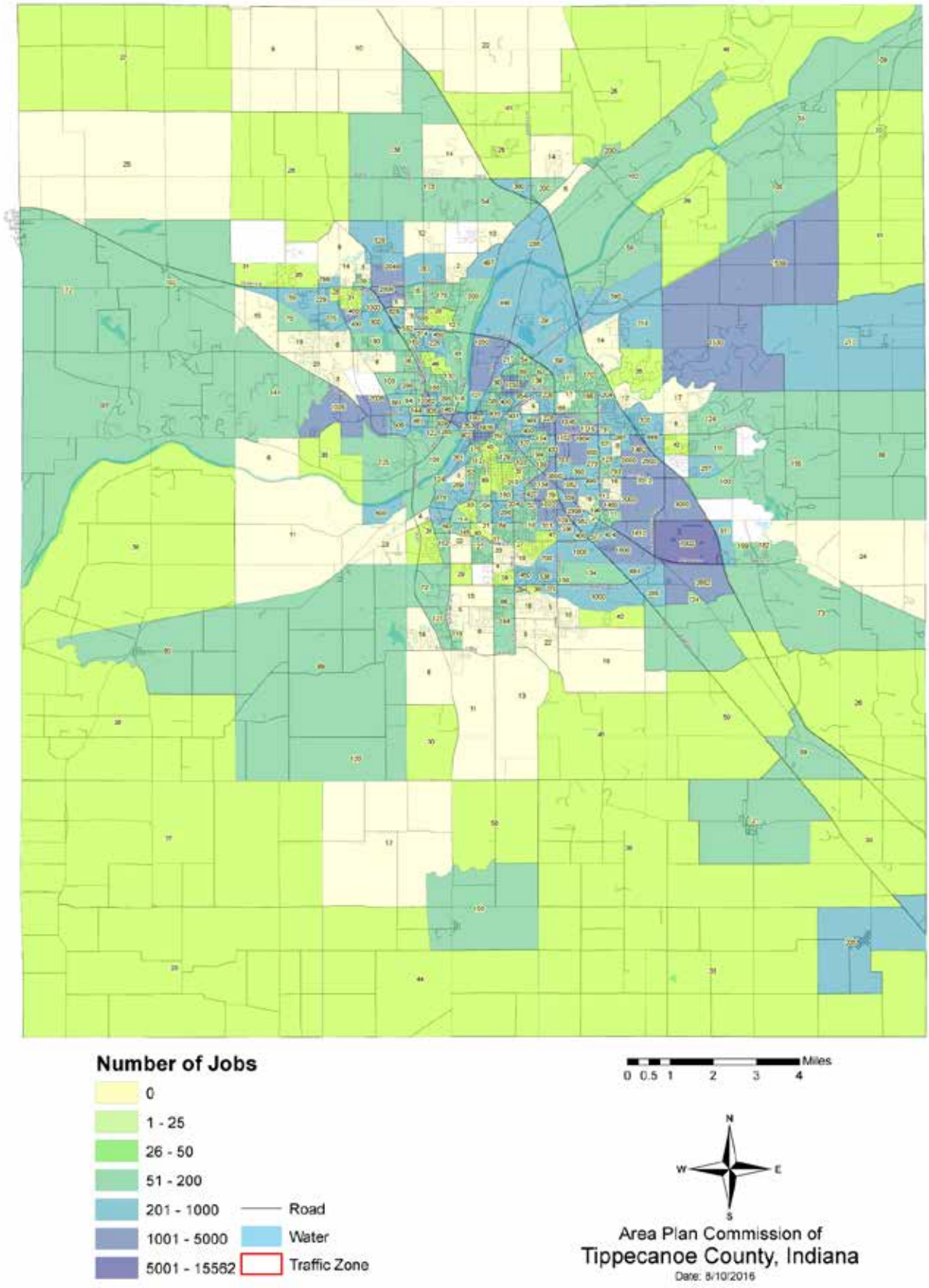


Figure 47. 2045 Total Employment



5. Comparison to Previous Plans

The socioeconomic projections in the *2045MTP* are similar to those of the 2040 and 2030 Plans, with only slight variations in forecasted population and employment. The primary differences are in the assumptions of the number of jobs per housing unit and the changing persons per household.

The *2045MTP* forecasts 215,545 persons in Tippecanoe County by 2030. The forecasts from the 2030 Plan are close at 216,832, but the 2040 Plan forecasted more with 227,268 persons. Thus, the 2045 forecast returns to a more cautious level. Different assumptions about the average persons per household, from 2.25 in the 2030 plan and 2.38 in the *2045 MTP* account for most of the change.

Finally, the forecasted number of jobs is nearly identical. This Plan forecasted 124,416 jobs in 2030. The 2040 MTP forecasted 125,585 jobs (less than a 1% difference) and the 2030 Plan, forecasted 120,000 jobs (less than 4% of our most recent forecast).

The adopted Comprehensive Land Use Plan has guided growth patterns in the community for the last 35 years and roads needed to service that growth are well documented by the past six transportation plans. Each transportation plan has consistently identified a similar set of needs and the community has been successful in implementing the projects identified in the plan. As was shown in previous Transportation Plan, the Comprehensive Land Use Plan can accommodate all growth forecasted by the 2045 MTP.

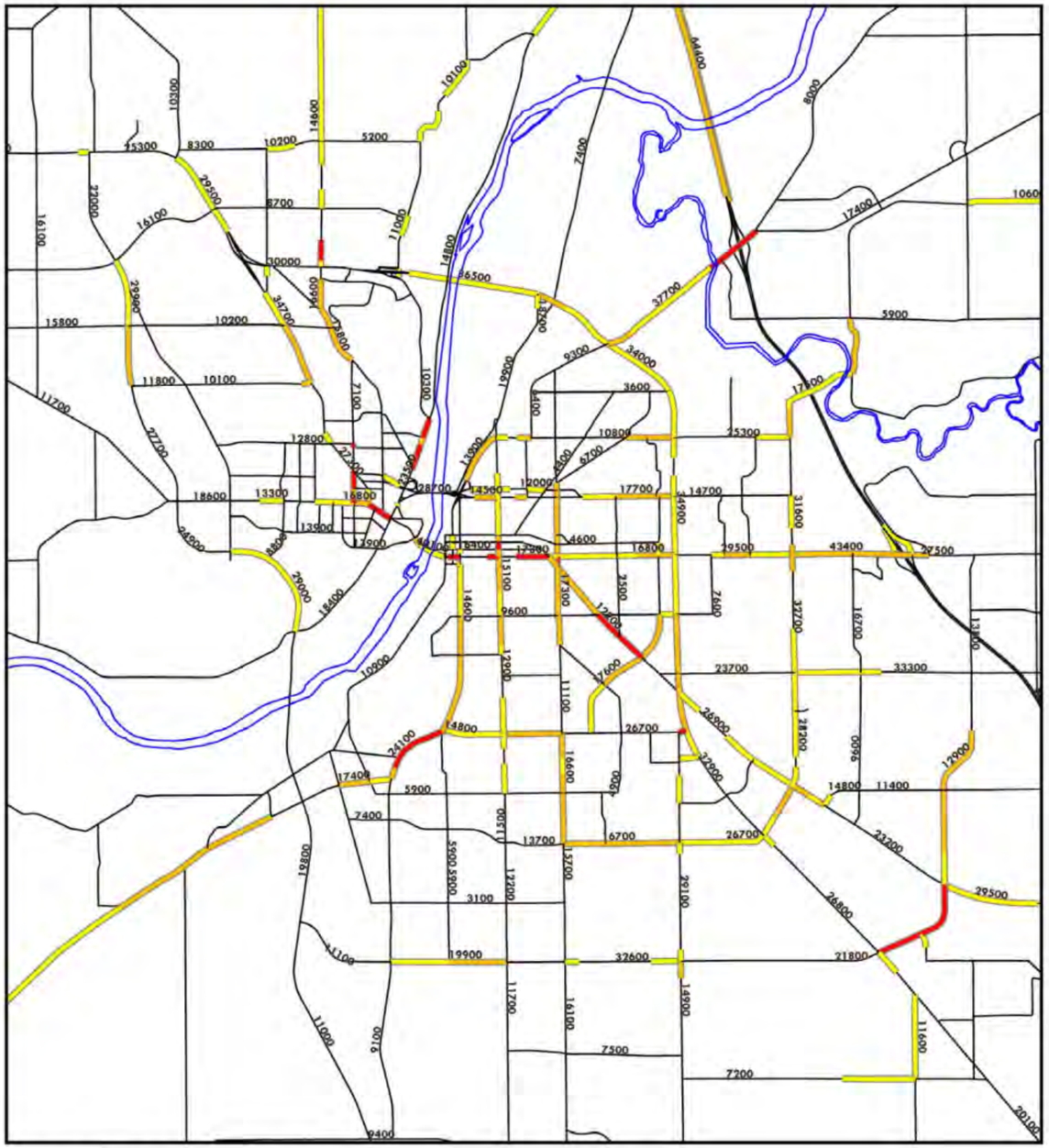
C. Traffic Volumes and Congestion

Predicting future road congestion began with the MPO updating its traffic forecasting model (TransCAD) for the 2045 MTP. The initial model testing used an updated road network and the updated population, employment and land use inputs for 2015. The model was then tested, or calibrated, to match current traffic volumes to show that it could mathematically recreate the number of vehicles on today's roadways. Once the model was calibrated a future scenario was created using the 2045 estimates for population, employment and land use and a roadway network that reflected current and funded roadway projects. Future traffic volumes were forecasted for 2045 and translated to levels of congestion to show which roads were the most congested and experienced the most delay; that showed where improvements need to be made (Figure 48).

D. Changing Technology

When planning new transportation facilities to the year 2045 there are things we can anticipate and things we cannot. Forecasting future traffic volumes is well documented and based on established and accepted methodologies. Technology has always played a role in transportation and it will continue to reshape our future is ways that aren't yet well understood. There is no question that the sharing economy, the electrification of transportation, autonomous and connected vehicles will profoundly change the future. Current technology already provides: Automatic Emergency Braking, Blind Spot Detection, Forward Collision Warning, Lane Keeping Support, and Pedestrian Automatic Emergency Braking. Undoubtable some of the new technologies will have a positive impact and some will be negative. Driverless cars and connected vehicles have the potential to increase vehicle miles traveled but also increase safety and the capacity of our roads. Platooning of trucks and cars may reduce the need for wide road lanes, and the sharing economy may decrease the need for parking. At this time there are too many unknowns to make accurate predictions about the potential impact of changing technology on our transportation system. The MPO staff will continue to monitor those changes and reflect them in future updates to the Metropolitan Transportation Plan.

Figure 48. 2045 Model Generated Traffic Volumes



*Note: 2016-2019 Transportation Improvment Program
Prepared by the Area Plan Commission, October 17, 2016

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IV. The Plan

The 2045MTP recommends improvements for: highways, bicycle facilities, sidewalks and trails, and is based on over 40 years of transportation planning in this community. The list of projects was a joint effort by the staffs of the MPO, Tippecanoe County, Lafayette, and West Lafayette, Purdue University, CityBus, INDOT and the public. The Plan has been reviewed and approved by the MPO Policy Board after recommendation by its Citizen Participation and Technical Committees. Projects were prioritized and assigned implementation time ranges to provide flexibility.

The proposed improvements in the 2045MPT will be implemented over time when the financial resources become available. Most projects will take a considerable length of time to implement. Depending on a project's complexity it can take years to design, purchase right-of-way, secure funding and then construct.

A. Highway Recommendations

The *2045MTP* recommends the projects shown in Figure 49, listed in Table 22 and summarized in Table 23. Meeting the communities transportation infrastructure needs is estimated to cost $1.7 billion. Tippecanoe County needs $408,440,000 for roadway infrastructure, Lafayette needs $206,705,000, West Lafayette needs $83,975,000, and INDOT needs $987,516,000. The list of projects recognizes existing needs and address the population and economic growth this community anticipates. It was generated by the results of recent traffic forecasting, input from the Technical Transportation Committee and recommendations from several recent and previous community Plans. It continues the previous planning emphasis on improving circulation by upgrading the road network with alternative routes and targeted safety and congestion improvements. This focus on providing a network of alternatives has built redundancy and resiliency into the road system. Highway project costs are estimated for the probable year of construction. One of the primary, and historically the most stable, funding sources is the Federal Highway Trust Fund and the list of the highest priority projects that anticipate using those funds is found in a following section entitled Financing Plan.

The traffic forecasting model was updated for the 2045MTP and confirmed the needs identified in previous long range transportation plans. This is the 7th long range transportation plan since 1981 and the community's future road needs have been very consistent. The lists of recommended improvements from older plans have not changed and are well documented. Since the needs have not changed and the urban development has been predictable and that the community has been successful in building new roads, the model was not used to test what effect different roadway improvements would have on future congestion. In other words, since additional alternative testing would not provide any new and useful information additional model testing was not conducted.

INDOT maintains its own list of needed improvements and the Plan supports those projects. However, the 2045MTP also includes recommendations for projects on State roads. INDOT has concurred with the list, both funded and unfunded, and the list is included to properly identify future needs as well as financial limitations.

Functional Classification of our roads is one tool to ensure that scarce federal highway funding is allocated to roads that are most important. The proposed Functional Classification of recommended future roads is shown in Appendix 5. Short project descriptions are included in Appendix 4 for each of the recommended projects.

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Figure 49. 2045 Recommended Highway Projects

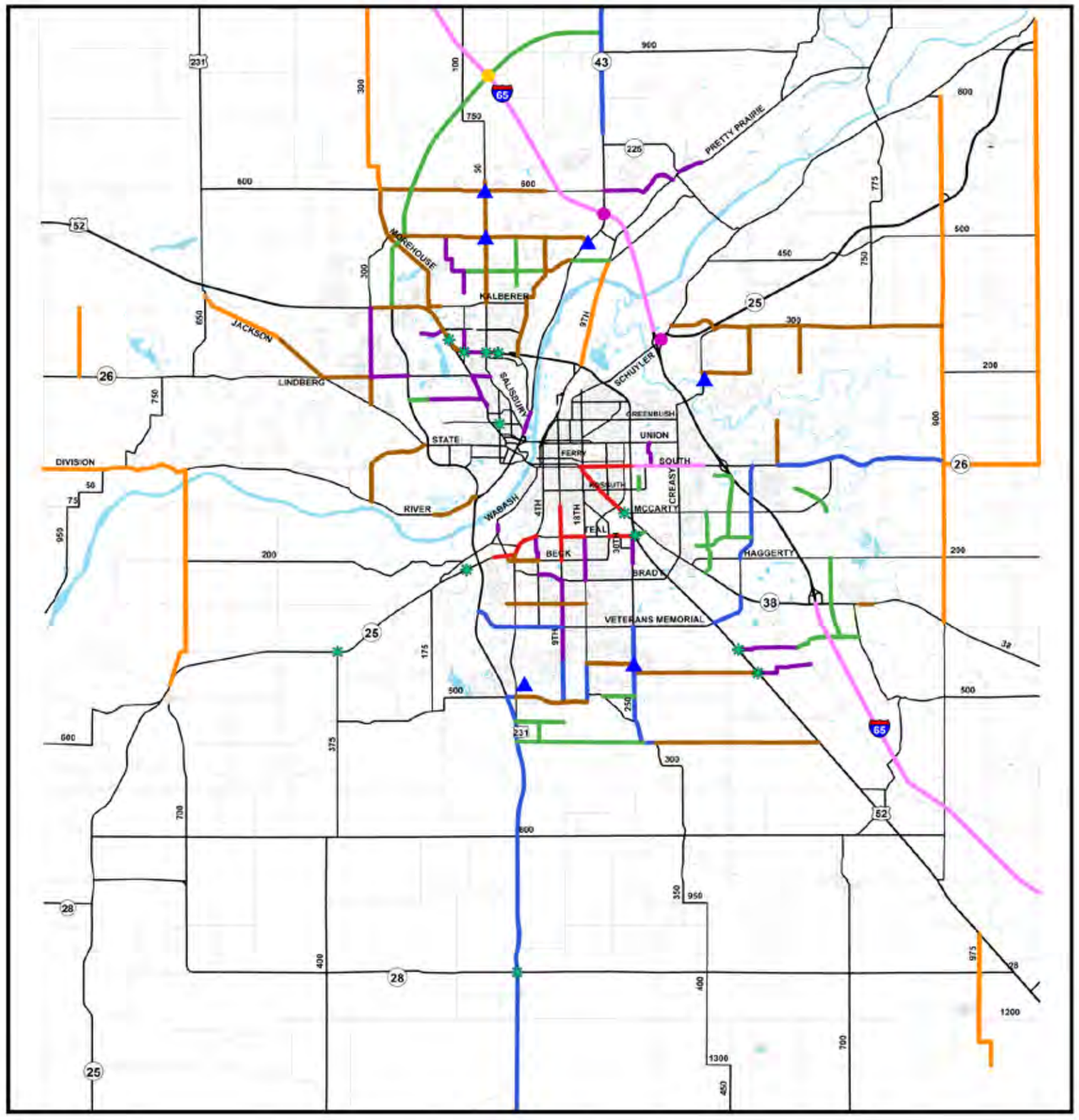

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Figure 50, 2045 Recommended Highway Projects – Lafayette

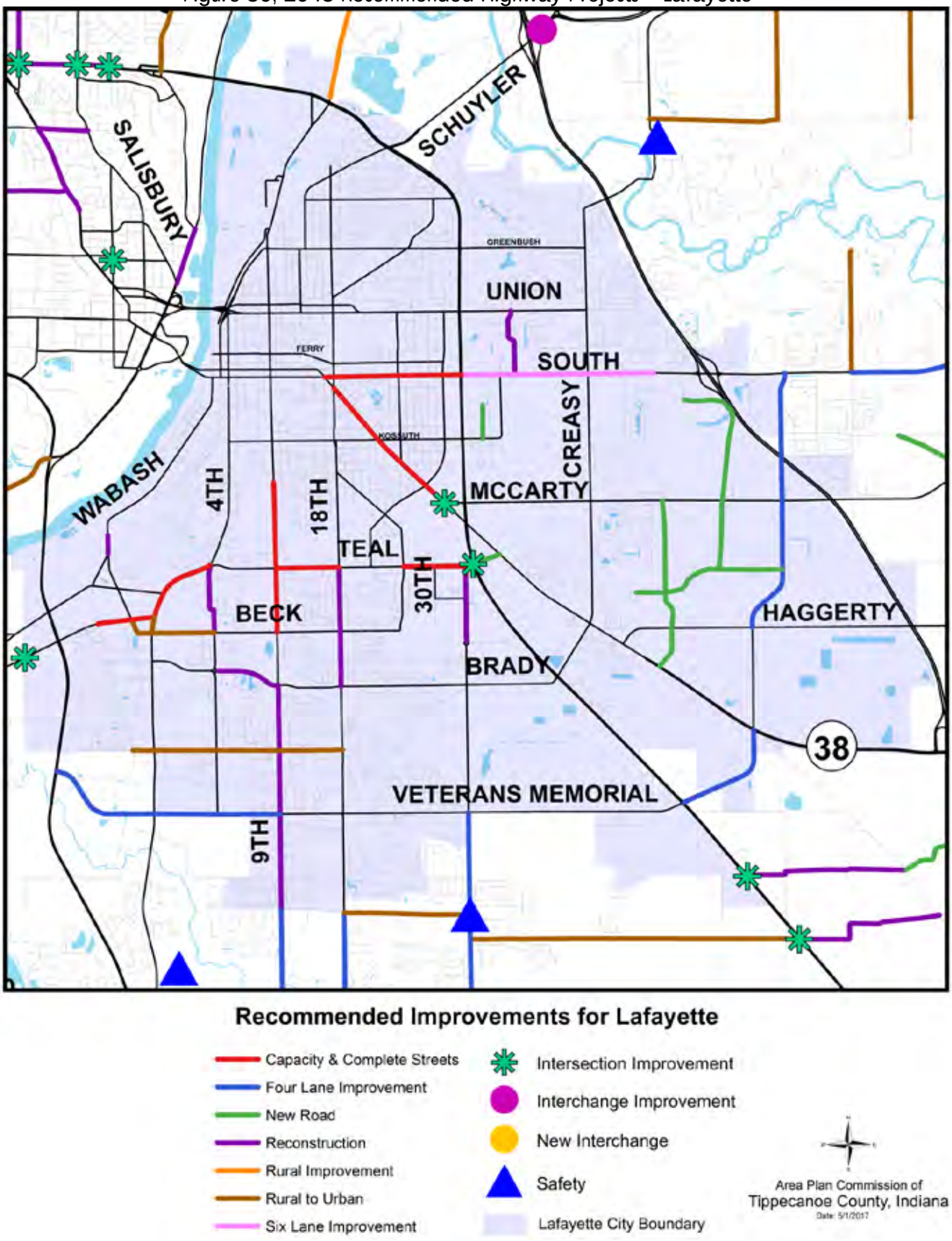


Figure 51, 2045 Recommended Highway Projects – West Lafayette

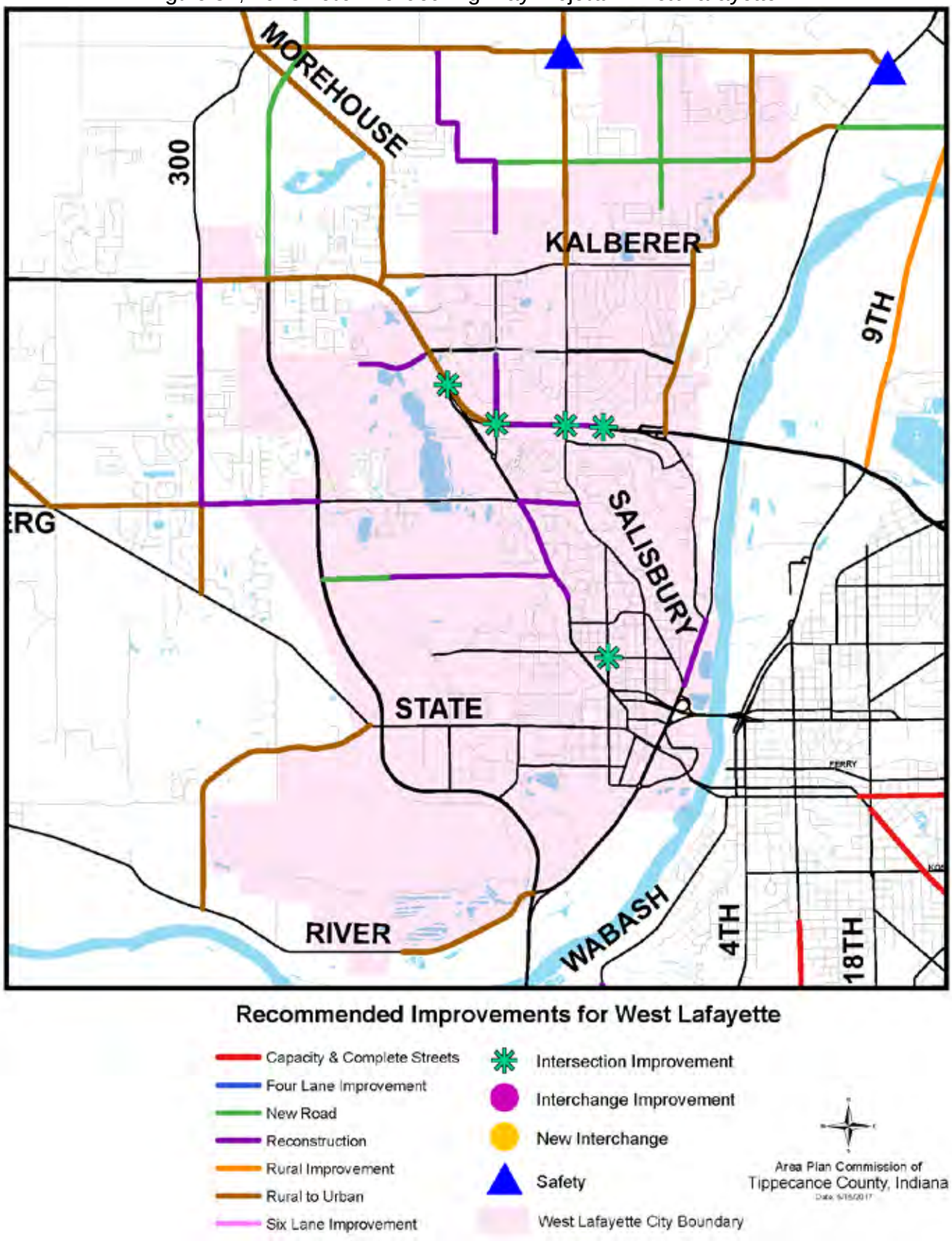


Table 22, Recommended Highway Projects in the 2045 Metropolitan Transportation Plan

Project	Location	Priority	Type of Improvement	Cost
Lafayette				
Twyckenham Blvd	Poland to 9th	In Tip	Reconstruction	3,7 00,000
Park East Blvd	Haggerty Lane to SR 38	In TIP	New Road	2,300,000
Bike/Ped	All jurisdictions in MPO	In TIP	Safety Education Program	30,000
Twyckenham Trail	Old Romney Rd to Old US 231	In TIP	New Trail Construction	275,000
South 9th St	Twyckenham Blvd to Vet. M P	High	Reconstruction	7,600,000
South 9th St	Veterans M. P. to CR 430S	Med	Reconstruction	13,000,000
36th Street	Union St to South St	Med.	Reconstruction	2,800,000
South Beck Lane	CSX RR to Old Romney	Med	Reconstruction	1,500,000
Poland Hill Rd	Teal Rd to Beck Ln	Med	Reconstruction	4,000,000
Beck Ln	Old US 231 to Poland Hill Rd	Med	Rural to Urban	2,000,000
McCarty Ln	At Main St	Med	Intersection Improvement	1,000,000
South 18th St	Teal Rd to Brady Ln	Med	Reconstruction	450,000
Veterans M. P.	US 52 to SR 38	Med	Four Lane	14,000,000
Veterans M. P.	Haggerty Ln to SR 26	Med	Four Lane	25,500,000
South St	Sag. Pkwy. To Park East Blvd	Med	Six Lane	23,000,000
Hamman St	Hamman to Kossuth St	Low	New Road	2,400,000
Main St	18th to McCarty Ln	Low	Capacity & Complete. Streets	19,000,000
Park East Blvd	McCarty Ln to Haggerty Lane	Low	New Road	18,000,000
Concord Rd	Teal Rd to Maple Point Rd	Low	Reconstruction	8,500,000
South 9th St	Owen St to Teal Rd	Low	Capacity & Complete. Streets	10,200,000
South 9th St	Teal Rd to Beck Ln	Low	Capacity & Complete. Streets	7,500,000
Old US 231	US 52 to Beck Ln	Low	Rural to Urban	650,000
South Beck Lane	US 52 to Old US 231	Low	Rural to Urban	1,200,000
Veterans M. P.	US 231 to South 9th St	Low	Four Lane	29,000,000
Ortman Ln	Old Romney Rd to 18th St	Low	Rural to Urban	8,000,000
South Street	Main to Earl	Low	Capacity & Complete. Streets	4,800,000
Lafayette Total				**$206,705,000**
West Lafayette				
Cherry Ln Ext.	McCormick Ln to US 52/231	In TIP	New Road	4,500,000
Soldiers Home Rd	Sag. Pkwy. To Kalberer Rd	In TIP	Rural to Urban	9,100,000
Lindberg	Northwestern to Salisbury	In TIP	Reconstruction	2,000,000
Happy Hollow Tr	Adjacent to realigned Entrance	In TIP	New Trail Construction	675,000
Sag. Pkwy. Trail	Happy Hollow to Wabash Ri Br	In TIP	New Trail Construction	1,600,000
Soldiers Home Rd	Kalberer Rd to City Limits	High	Rural to Urban	11,000,000
Cherry	McCormick to Northwestern	High	Reconstruction	4,700,000
Yeager Rd	US 52 to Cumberland Ave	High	Reconstruction	2,700,000
Northwestern Ave	Lindberg Rd to Cherry Ln	Med	Reconstruction	2,000,000
CR 75E	Soldiers Home Rd to CR 500N	Med	Rural to Urban	7,700,000
CR425N	CR 75 at Soldiers Home Rd to Yeager Road	Med	New Road	9,300,000
Cumberland, Ph 4	Blue Ivy Ln to Sag. Pkwy.	Med	Reconstruction	5,700,000
North River Rd	Robinson St to Happy Hollow Rd	Low	Reconstruction	2,300,000
Stadium	At Grant	Low	Intersection Improvement	1,200,000
Salisbury	Kalberer to City Limits	Low	Rural to Urban	5,000,000

Table 22, Recommended Highway Projects in the 2045 Metropolitan Transportation Plan (continued)				
Project	**Location**	**Priority**	**Type of Improvement**	**Cost**
South River Rd	US 52/231 to City Limits	Low	Rural to Urban	3,700,000
Newman Rd	SR 26 to South River Rd	Low	Rural to Urban	5,100,000
Westmorland	Existing North End to CR 500N	Low	New Road	5,700,000
West Lafayette Total				**$83,975,000**
Tippecanoe County				
Klondike Road	US 52 to Lindberg Road	In TIP	Rural to Urban w/ Trail	5,700,000
Lindberg Road	Klondike to US 231	In TIP	Rural to Urban w/ Trail	2,600,000
North Yeager Rd	WL City Limits to CR 500N	In TIP	Reconstruction	4,800,000
Morehouse Road	Sag Pkwy/SP52 to CR 600N	In TIP	Rural to Urban w/ Trail	13,000,000
North River Road	At CR 500N	In TIP	Safety Improvements	940,000
McCutcheon Ped	McCutcheon HS & Mayflower ES	In TIP	Safety Improvements	600,000
Concord Rd.	At CR 430S	In TIP	Safety Improvements	1,600,000
CR 50W	At CR 500N & CR 600N	In TIP	Safety Improvements	1,500,000
CR 600N	Morehouse to CR 75E	High	Rural to Urban	15,000,000
CR 450S/430S	US 52 to New Castle	High	Reconstruction	6,000,000
North 9th St	Sagamore Pkwy to Swisher Rd	High	Rural Improvement w/ Trail	7,500,000
South 18th St	CR 430S to CR 510S	High	Four Lane w/ Trail	9,500,000
South 9th St	CR 430S to CR 510S	High	Four Lane w/ Trail	10,000,000
CR 450S	Concord Rd to US 52	High	Rural to Urban w/ Trail	11,600,000
CR 430S	South 18th to Concord Rd	High	Rural to Urban w/ Trail	4,300,000
Concord Rd	S of Veterans M. P. to CR 450S	High	Four Lane w/ Trail	9,900,000
CR 50W	WL City Limits to N of CR 600N	Med	Rural to Urban	10,000,000
Klondike Rd	Lindberg Rd to SR 26	Med	Rural to Urban w/ Trail	2,000,000
Lindberg Rd	Klondike Rd to SR 26	Med	Rural to Urban	9,300,000
Division Rd	CR 700W to County Line Rd	Med	Rural Improvement	9,800,000
CR 700W	SR 25 to Division Rd	Med	Rural Improvement	15,000,000
Concord Rd	CR 450S to CR 600S	Med	Four Lane Improvement	21,000,000
CR 500E	CR 200N to CR 300N	Med	Rural to Urban	4,300,000
CR 900E	SR 26 to SR 38	Med	Rural Improvement	10,900,000
CR 900E	SR 26 to CR 300N	Med	Rural Improvement	9,300,000
CR 900E	CR 300N to CR 800N	Med	Rural Improvement	15,800,000
CR 500N	North River Rd to CR 50W	Med	Rural to Urban	9,700,000
CR 500N	CR 50W to Rel. 231	Med	Rural to Urban	7,700,000
Soldiers Home Rd	City Limits to North River Rd	Med	Rural to Urban	3,700,000
CR 350N	Morehouse Rd to City Limits	Med	Rural to Urban	900,000
CR 400S	US 52 to New Castle	Med	Reconstruction	5,000,000
CR 500S	Old US 231 to CR 150E	Med	Rural to Urban	6,000,000
Jackson Highway	SR 26 to Urban Area Boundary	Low	Rural to Urban	7,500,000
Jackson Highway	Urban Area Bound. To CR 650W	Low	Rural Improvement	4,700,000
CR 925W	SR 26 to CR 350N	Low	Rural Improvement	5,900,000
CR 975E	US 52 to CR 1300S	Low	Rural Improvement	8,500,000
CR 600S	Wea School Rd to US 52	Low	Rural to Urban	24,000,000
CR 500S	New US 231 to Old 231	Low	Four Lane w/ Trail	3,000,000
CR 375S & 400S	New Castle Rd to Dayton Rd	Low	New Road / Rural Imp.	13,500,000
CR 550E	SR 26 to CR 100N	Low	Rural to Urban	5,000,000

Table 22, Recommended Highway Projects in the 2045 Metropolitan Transportation Plan (continued)				
Project	**Location**	**Priority**	**Type of Improvement**	**Cost**
CR 600E	CR 200N to CR 300N	Low	Rural to Urban	5,500,000
CR 200N	CR 400E to CR 500E	Low	Rural to Urban	5,600,000
CR 300N	Old SR 25 to CR 750E	Low	Rural to Urban	23,000,000
CR 300N	CR 750E to CR 900E	Low	Rural to Urban	8,000,000
East Co. Line Rd.	SR 25 to SR 26	Low	Rural Improvement	32,500,000
Morehouse Rd	CR 600 N to County Line	Low	Rural Improvement	16,300,000
CR 400E	At Clegg Garden	Low	Safety Improvements	500,000
Tippecanoe County Total				**$408,440,000**
Town of Dayton				
Yost Drive	SR 38 to Haggerty Ln	Med	New Road	10,700,000
Town of Battle Ground				
Main St	SR 225 to High School Ave	High	Reconstruction	2,000,000
CR 600N	SR 43 to Prophets Rock Rd	Med	Reconstruction	3,000,000
Prophets Rock Rd	CR 600N to Railroad St	Med	Reconstruction	3,000,000
Battle Ground Total				**8,000,000**
INDOT Candidate List of Projects(unfunded and illustrative unless noted by *)				
SR 38*	Phase II, east part of Dayton	High	Rural to Urban	1,500,000
US 52 (Teal Rd)*	East of US 231 to East of 26th	High	Reconstruction	7,200,000
US 231 Connector	US 231/52 to I-65	High	New Road	75,000,000
I-65	E County Line to SR 38	High	Six Lane Widening	170,000,000
I-65	North of SR 25 to SR 43	High	Six Lane Widening	290,000,000
I-65	SR 43 to New US 231	High	Six Lane Widening	59,000,000
I-65	New US 231 to North Co Line	High	Six Lane Widening	15,000,000
US 52/Teal Rd	At Sagamore Pkwy	High	Intersection Improvement	7,700,000
US 52 South	At CR 400S & at CR 450S	High	Left Turn Lanes in Median	500,000
Special US 52	Klondike Rd to Morehouse Rd	High	Rural to Urban	16,000,000
Special US 52	Morehouse Rd to Yeager Rd	High	Rural to Urban	23,000,000
Special US 52	Yeager to Nighthawk	High	Per US 52 Corridor Study	18,000,000
SR 43A	I-65 to SR 43	Med.	New Road	35,000,000
US 231	CR 500S to South County Line	Med.	Four Lane Improvement	104,000,000
US 231	At SR 28	Med.	Intersection Improvement	5,000,000
SR 43	CR 725N to County Line	Med.	Four Lane Improvement	42,000,000
Special US 52	At Northwestern	Med.	Intersection/Bridge Improv.	9,500,000
I-65	At new US 231	Med.	New Interchange	28,000,000
I-65	At SR 25	Med.	Interchange Improvement	10,000,000
SR 26	CR 550E to CR 900E	Med.	Four Lane & Super Two	13,500,000
SR 25	CR 100W and CR 375W	Low	Intersection Improvement	3,700,000
SR 26	CR 900E to County Line	Low	Rural Improvements	12,800,000
I-65	At SR 43	Low	Interchange Improvement	25,000,000
SR 38	US 52/Teal Rd to SR 38	Low	New Road	2,200,000
US 52/Teal Rd W	S Beck to Old Romney	Low	Capacity & Complete. Streets	2,000,000
US 52/Teal Rd W	4th St to South of Elston Rd	Low	Capacity & Complete. Streets	3,000,000
US 52/Teal Rd	9th to 18th	Low	Capacity & Complete. Streets	5,000,000
US 52/Teal Rd	26th St to US 52	Low	Capacity & Complete. Streets	4,000,000
INDOT Total				**$987,516,000**

Table 22, Recommended Highway Projects in the 2045 Metropolitan Transportation Plan (continued)				
Project	**Location**	**Priority**	**Type of Improvement**	**Cost**
Indiana Department of Natural Resources				
Prophetstown Park	N River Rd to North 9th	Low	New Road	11,500,000
Private Development				
Stable Dr	CR 50S to McCarty Ln	As Dev.	New Road	
Stable Dr	McCarty Ln to CR 650E	As Dev.	New Road	
Yost Dr	SR 38 to CR 375S	As Dev.	New Road	
E-W Collector (Laf)	St. Francis Way to Park East Blvd	As Dev.	New Road	
E-W Collector (Laf)	Park East to Commerce Dr	As Dev.	New Road	
E-W Collector (Laf)	Commerce Dr to Vet. Mem. Pkwy.	As Dev.	New Road	
Commerce Dr	Existing to McCarty Ln	As Dev.	New Road	
Commerce Dr	McCarty Ln to E-W Collector	As Dev.	New Road	
CR 500S	Wea School Rd to CR 250E	As Dev.	New Road	
CR 550S	US 231 to CR 50E	As Dev.	New Road	
CR 600S	US 231 to CR 250E	As Dev.	New Road	
N-S Collector (Co)	CR 550S to CR 600S	As Dev.	New Road	

Table 23. Summary of Project Costs

Indiana Department of Transportation	$987,516,000
Tippecanoe County	$408,440,000
Lafayette	$206,705,000
West Lafayette	$83,975,000
Town of Battle Ground	8,000,000
Town of Dayton	10,700,000
Indiana Department of Natural Resources	11,300,000
Grand Total	**$1,716,636,000**
Total Local Costs	**$699,139,000**

B. Non-motorized Recommendations

1. Local Bicycle and Pedestrian Improvements

Choosing to walk or bicycle provides many community benefits including reduced traffic congestion, improved health and fitness and better quality of life. Helping motivate people to walk or bicycle requires developing safe, convenient and attractive facilities. Our community has come to recognize that walking and bicycling are viable modes of travel not only for recreation but also for commuting, health and shopping. A comprehensive network of bicycle and pedestrian facilities has several benefits:

- Allows people of all ages and abilities an alternative to the car.
- Promotes a quality of life that attracts economic development and tourism.
- Provides a safer place for people of all ages and abilities.
- Encourages people to be more active and healthy.

While this plan primarily focuses on facilities it recognizes that facilities by themselves will not provide the full benefit of bicycling and walking. It needs to be accompanied by education, encouragement, enforcement and evaluation as well. The MPO has recently funded, and the community has begun to develop the educational component.

One of the goals of the *2045MTP* is the creation of a comprehensive network of non-motorized facilities throughout our community. Priorities for implementing the proposed improvements focus on accessing key destinations and connecting gaps between existing facilities. The recommendations in the *2045MTP* are not the only facilities that will be constructed. The MPO's Complete Streets Policy that was adopted as part of the *2040MTP* requires all federally funded road improvements to accommodate all modes of travel. Additionally, the Plan continues to recommend the 10% set-aside of this community's Federal Surface Transportation Program funds for independent non-motorized projects that are not a part of a larger highway project.

The *2045MTP* recognized and considered the different abilities of pedestrians and bicyclists. Bicyclists gravitate toward certain facilities depending on their skill level and their perception of its safety. Some cyclists prefer facilities separated from the road while others prefer to ride with traffic in the travel lane no matter what road they are on. However, mixing pedestrians and cyclists on narrow sidewalks creates conflicts. The proposed network seeks to accommodate all users and recommends a variety of facility designs depending on location and use.

The lists of recommended bicycle and pedestrian facilities in this plan are based on the City of Lafayette's 2012 *Master Trail Plan* and *Bike and Pedestrian Master Plan*, the City of West Lafayette's trail plan, recommendations from the transit First and Last Mile review, sidewalk gap analysis and other planning reports. They are also based on recommendations from individual citizens, local groups, the staffs of Lafayette, West Lafayette and Tippecanoe County; The Citizen Participation Committee, the Technical Transportation Committee, the MPO Policy Board and private organization. The projects are organized by facility type: sidewalks, trails and on road bicycle facilities (Figures 52, 53 and 54, and listed in Tables 24, 25 and 26). Maps from Lafayette's *Bike and Pedestrian Master Plan* are included in Figure 12, and West Lafayette's Plan is shown in Figure 9.

Figure 52. Recommended Sidewalk Projects

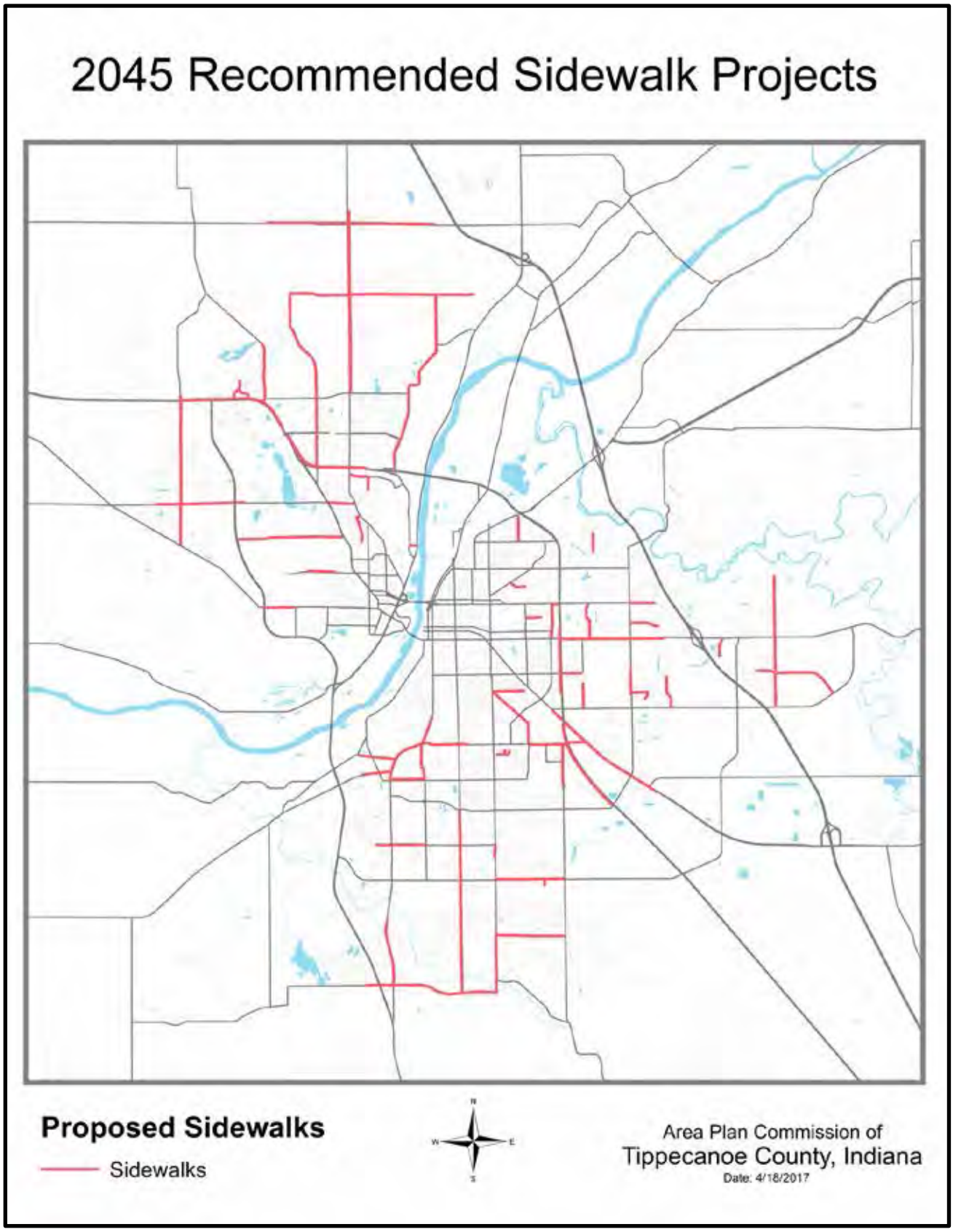


Table 24, List of Recommended Sidewalk Projects

Road/Street	Location
Lafayette	
24th Street	Schuyler to Underwood
Pine Street	Mulberry to River Oaks
Rainbow	Elmwood to Snowy Owl
Brown	26th to 30th
Union	Earl to Sagamore Parkway
Union	Creasy Lane to Courtland
Earl Avenue	Union to South
36th Street	Union to South
Rome	Creasy to Courtland
Sagamore	Railroad Xing to McCarty
South Street	Sagamore to Park East
Kossuth	Sagamore to Farabee
Farabee	Kossuth to McCarty Lane
Creasy Lane	Harper to Fortune
Harper	Creasy Lane to Julia
Julia	Sickle to Harper
Park East	Kettle to McCarty Lane
Meijer Drive	SR 26 to Tazer
Elston	South Beck Lane to US 52
Old 231	Beck to US 52
Beck Lane	Old 231 to Poland Hill
Poland Hill	US 52 to Beck Lane
South 4th Street	Montifiore to US 52
Central	18th to 25th
State	18th to US 52
Main Street	McCarty Lane to Sagamore
Shoshone	18th Street to Osage
Shoshone	Shoshone to dead end
Osage	Shoshone to dead end
Concord	US 52 to Maple Point Ext.
Teal Extension	US 52 to SR 38
Sagamore	Main Street to US 52
Ortman	Cromwell to Old 231
Ortman	Old 231 to Poland Hill
S. 9th Street	Twyckenham to Veterans M.
S. 9th Street	Veterans M. to Wagonwheel
S. 18th Street	Ortman to Newsom
Veterans Memorial	S. 18th Street to Concord
Promenade	Veterans to existing sidewalk

Table 24, List of Recommended Sidewalk Projects (cont.)	
Road/Street	Location
West Lafayette	
Catherwood	Happy Hollow to River Road
Woodland	Ravinia to Lindberg
Ravinia	Woodland to Hillcrest
Riley	Ravinia to Salisbury
Lindberg	Northwestern to Salisbury
Huron	Navajo to Indian Trail
Navajo	Salisbury to Huron
Soldiers Home Rd	Sagamore Pkwy to Cumberland
Soldiers Home Rd	Cumberland to Kaberer
Soldiers Home Rd	Kalberer to CR 75 E
Soldiers Home Rd	CR 75E to River Road
Yeager	Sagamore to City Limits
County Farm Rd	Kalberer to City Limits
CR 75E	Soldier Home Road to CR 500N
Klondike	Sagamore to Menard access Rd.
Klondike	Sagamore to Lindberg
Klondike	Lindberg to SR 26
Lindberg	Cousteau to Klondike
Lindberg	Klondike to McCormick
Cherry Lane	US 231 to Northwestern
State	US 231 to Airport Rd
Stadium	David Ross to Jischke
Tippecanoe County	
CR 550E	Black Berry to SR 26
CR 550E	SR 26 to Stable Drive
CR 550E	Stable Drive to McCarty Lane
Stable Drive	Brookfield to CR 550E
Stable Drive	CR 550E to McCarty Lane
Old 231	Creekview Ct. to CR 500S
CR 500S	Admirals Point to Old 231
CR 500S	Old 231 to Sage
CR 500S	Sage to S. 9th Street
CR 500S	S. 9th Street to S. 18th Street
S. 9th Street	Wagonwheel to CR 510S
S 18th Street	CR 450S to CR 510S
CR 430S	S 18th Street to Concord
County Farm Rd	City Limits to Sinclair
Yeager	WL City limits to CR 500N
Morehouse	Sagamore to N. of Mason Dixon
Genoa	Paramount to Sagamore
Paramount	Ledyard to Sagamore
CR 500N	Shootingstar to Yeager (CR 140W)
CR 600N	Augusta to CR 150W

Table 24, List of Recommended Sidewalk Projects (cont.)	
Road/Street	Location
INDOT	
US 52	Old Romney to Old 231
US 52	Old 231 to South 4th
US 52	South 4th to Crestview
US 52	Teal Road to Creasy Lane
SR 38	Sagamore to Kingsway
SR 38	Kingsway to Creasy Lane
SR 38	Creasy Lane to Lighthouse
SR 38	SIA to Dayton
Sagamore Pkwy	Klondike to US 231
Sagamore Pkwy	US 231 to Morehouse
Sagamore Pkwy	Morehouse to Cumberland
Sagamore Pkwy	Cumberland to Yeager
Sagamore Pkwy	Yeager to Salisbury
Sagamore Pkwy	Salisbury to Nighthawk

Figure 53. Recommended Trail Projects

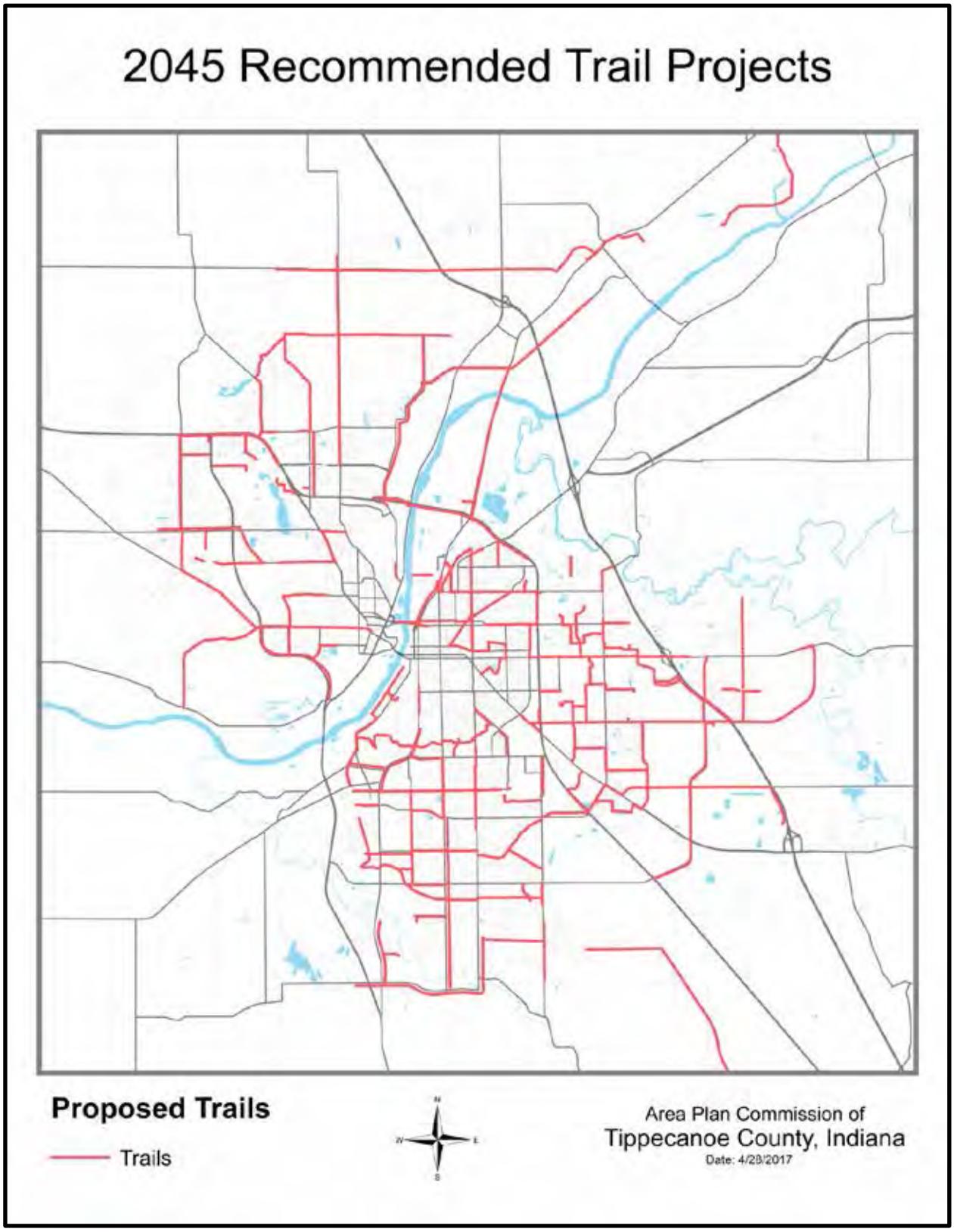


Table 25. List of Recommended Trail Projects

Route/Road	Location
Lafayette	
Ross Gear Trail	Duncan Rd to N 9th
Sagamore Pkwy	Wabash River Bridge to WHT
Sagamore Pkwy	Wabash River Bridge to Duncan
Sagamore Pkwy	Duncan to Schuyler
Sagamore Pkwy	Schuyler to Darby
24th Street	Schuyler to Underwood
Schuyler	18th to 20th
18th Street	Monon St to Greenbush
18th Street	Greenbush to Union
18th Street	Union to Ferry
Monon	18th to 15th
Monon	15th to Greenbush
CR 400S	Fiddlesticks to 9th Street
9th Street	CR 430S to Veterans Memorial
9th Street	Veterans Memorial to Twyckenham Boulevard
Concord Road	South of Promenade to Veterans Memorial
Promenade	Concord to Veterans Memorial
New Trail L1	Promenade to Ensley
Kirkpatrick Ditch	Veterans Memorial to Promenade
Kirkpatrick Ditch	Old Romney Road to Veterans Memorial
Veterans Memorial	Kirkpatrick Ditch to 9th Street
New Trail L2	Kirkpatrick Ditch to Poland Hill Road
Poland Hill Road	Veterans Memorial to Beck Lane
Ortman Lane	Cromwell to 18th Street
Old Romney Road	Kirkpatrick Ditch to Twyckenham Boulevard
Elliot Ditch	18th Street to US 52
NS Tracks	Elliot Ditch to Concord Road
Twyckenham Boulevard	Old Romney Road to Old US 231
Twyckenham Boulevard	Poland Hill Road to 18th Street
Beckenham Trail	Old Romney Road to Old US 231
Beck Lane	Old US 231 to Miami Elementary School
Beck Lane	Miami Elementary School to Park
Trail L1	Miami Elementary School to Concord
Concord Road	Teal to Maple Point Extension
9th Street	Teal Road to Twyckenham
18th Street	Russell Hyatt to NS Railroad Tracks
US 52	Beck Lane to South 4th Street
Old Romney Road	South Beck Lane to US 52
Elston Road	Old Romney Road to US 52
South 4th	Teal to Montifiore Street
Durkee's Run	Wabash Avenue to State Street

Table 25. List of Recommended Trail Projects (continued)	
Route/Road	Location
14th Street Extension	14th Street dead end to Teal
State Street	18th Street to 22nd Street
State/26th Street	Earl Avenue to Teal Road
Wabash Avenue	South Beck to just north of Walnut
Elm Street	From Wabash Ave Trail to pedestrian bridge
Main Street	Earl Avenue to Sagamore Parkway
Scott St/Columbia Park	Main Street to South Street
South 4th Street	North of Kossuth to Owen
26th Street	Cason Street to South Street
Cason Street	22nd Street go 26th Street
22nd Street	Cason Street to Ferry Street
Ferry Street	Eire Street to 22nd Street
Erie Street	Ferry Street to 18th Street
Union Street	Harrison Bridge to 6th Street
Union Street	Salem Street to Sagamore Parkway
Salem Street	Harrison Bridge to Erie Street
Elmwood	Greenbush to 18th Street
Greenbush	9th Street to 10th Street
Greenbush	13th Street to Sagamore Parkway
Canal Drive	Harrison Bridge to North 9th Street
29th Street	Greenbush to Elementary School
13th Street	Monon Trail to Greenbush
North 9th Street	Just north of Canal Drive
Monon Spur	Monon Trail to North 9th Street
Pine Lane	Mulberry to River Oaks
Eisenhower	Creasy Lane to Center
Creasy Lane	Eisenhower to Greenbush
Shenandoah	Redondo to South Street
Union	Creasy Lane to Courtland
Creasy Lane	North of Courtland to south of Rome Drive
Trail L2	Park to Union
Union	Trail L2 to Trail L3
Trail L3	Union to Target
Rome Extension	Trail 3 to east of Shenandoah
Trail L4	Shenandoah to Creasy Lane
Trail L5	Creasy Lane to South Street
Trail L6	Trail L5 to Rome Drive
Earl Avenue	Union to South Street
South Street	Earl Avenue to Meijer Drive

Table 25. List of Recommended Trail Projects (continued)	
West Lafayette	
Route/Road	Location
Airport Road	State Street to Relocated US 231
McCormick	Stadium to State Street
State Street	US 231 to Tapawingo
Happy Hollow	Connect existing trail on Happy Hollow Rd
HH Neighborhood Trail	Along Relocated Park Entrance to Existing trail
Lindberg Road	Northwestern to Salisbury
Soldiers Home Road	Sagamore Parkway to City Limits
Sagamore Parkway	Soldiers Home Road west to existing trail
Salisbury	Cumberland Avenue to City Limits
Kent Avenue	Existing trail to Yeager Road
Yeager Road	Sagamore Parkway to City Limits
Kalberer Road	Yeager to existing trail
CR 75E	Soldiers Home Road to CR 500N
Wal-Mart Trail	Northwestern to existing trail west side of WM
Jischke/Harrison	US 231 to Existing Trail on Harrison
Stadium	David Ross Rd to Jischke
Cherry	Existing Trail to Northwestern
Northwestern	Lindberg to Cherry
Tippecanoe County	
Harrison Bridges	Over Wabash River and N. River Rd
Soldiers Home Road	W.L. City Limits to River Road
Yeager Road	W.L. City Limits to CR 500N
CR 350N	Morehouse Road to existing trail
Morehouse Road	Sagamore Pkwy to North of Mason Dixon Street
Hadley Lake Trail	Morehouse Road to Yeager Road
CR 550E	McCarty Lane to Dunbar Drive
CR 50S/Stable Dr	Veterans Memorial Pkwy to McCarty Lane
CR 500 North	Yeager to CR 75E
CR 600 North	CR 150W to Prophet's Rock Road
Prophet's Rock Road	CR 600N to Railroad Street
County Farm Road	W.L. City Limits to Sinclair Drive
Klondike	US 52 to SR 26
SR 26	Klondike to US 231
Lindberg Road	Cousteau to Old McCormick
Farm Heritage Trail	County Line to CR 450S
CR 450S	Farm Heritage Trail to existing trail
CR 430S	18th Street to Concord Road
Concord Road	Existing Trail to CR 500S
18th Street	CR 510S to existing trail
CR 500/510S	Admirals Pointe to 18th Street
South 9th Street	CR 510 S to CR 430S
Old US 231	CR 500S to Creekview Court
N. 9th St.	Sagamore Parkway to Prophetstown Park

Table 25. List of Recommended Trail Projects (continued)	
INDOT	
Route/Road	Location
US 52/231	SR 26 to S. River Road
US 52/231 & SP 52	Klondike Road to Cumberland Avenue
US 52/231	Near Bethel to US 52
Private Trails	
New Ivy Town Trail (WL)	Sag Pkwy to existing trail in Ivy Town and Flats
New Franciscan Trail (WL)	Cumberland to US 231 Trail (w/ County)
New Krause Trail (WL/Co)	US 231 to Klondike
The Orchards Connections	To Cherry Lane, Lindberg and Pine

Figure 54, Recommended On-Road Bicycle Lanes and Shared Lanes

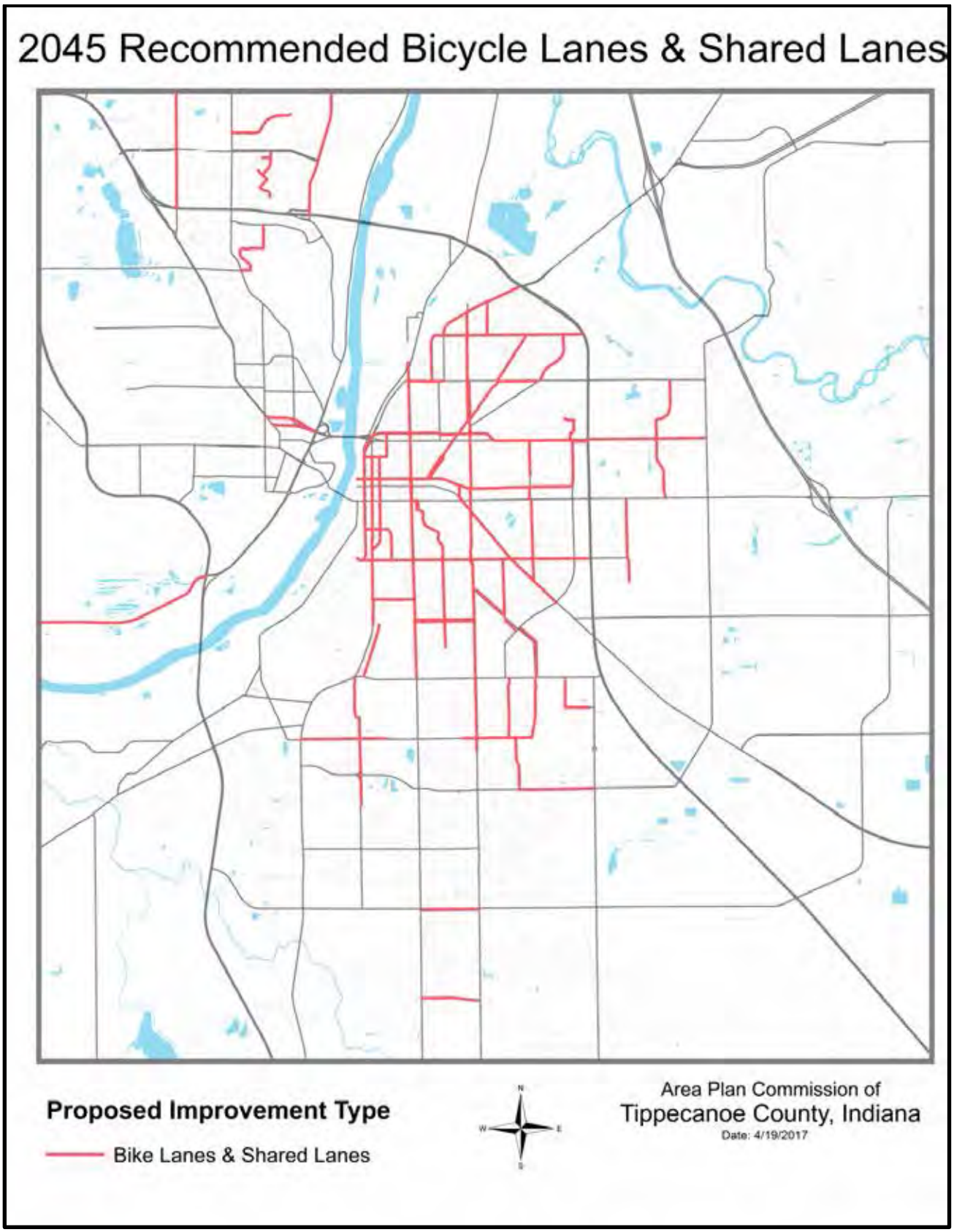


Table 26, List of Recommended On Road Bicycle Lanes and Shared Lanes

Route/Road	Location
Lafayette	
Schuyler	Underwood to Sagamore Parkway
Underwood	13th Street to Sagamore Parkway
Greenbush	9th Street to 15th Street
Greenbush	Erie Street to Elmwood
Salem Street	Harrison Bridge to Union Street
Union Street	Salem Street to Creasy Lane
Cincinnati Street	3rd Street to 6th Street
Beverly Lane	Berkley Road to Hedgewood
Ferry Street	2nd Street to Earl Avenue
Romig Street	3rd Street to 6th Street
Kossuth Street	Railraod tracks to Sagamore Parkway
Owen Street	4th Street to 9th Street
Logan Avenue	9th Street to 18th Street
Summer Street	30th Street to Concord Road
Beck Lane	Old US 231 to Armstrong Park
Beck Lane	Meadow Drive to Sequoya Drive
Brady Lane	Commanche Trail Concord Road
Veterans Memorial South	9th Street to 18th Street
3rd Street	Salem Street to Kossuth Street
4th Street	Cincinnati Street to Teal Road
5th Street	Cincinnati Street to 4th Street
Poland Hill	Teal Road to Kensal Court
6th Street	Salem Street to Cincinnati Street
Lingle Drive	Romig Street to Kossuth
9th Street	Canal Road to Teal Road
Valley Street	South Street to Kossuth Street
14th Street	Kossuth Street to Warren Drive
15th Street	Underwood to Greenbush
18th Street	Schuyler to Linear Trail
20th Street	Schuyler to Underwood
26th Street	Union Street to Cason Street
26th Street	Ferry Street to Main Street
26th Street	State Street to Teal Road
22nd Street	Kossuth Street to State Street
Summerfield	Teal Road to Beck Lane
Commanche	Beck Lane to Brady Lane
30th Street	Teal Road to Summer Street
Hedgewood	Beverly Lane to Union Street
Earl Avenue	Union Street to Ferry Lane
Farabee Drive	South Street to Kossuth Street
Farabee Court	Kossuth Street to end of road

Table 26, List of Recommended On Road Bicycle Lanes (cont.)

Route/Road	Location
Shenandoah Drive	Greenbush to South Street
Elmwood Avenue	Underwood to Greenbush
Erie Street	Underwood to Ferry
Asher Street	Ferry to Main Street
Main Street	Asher Street to Earl Avenue
State Street	18th Street to 26th Street
CR 430S	9th Street to 18th Street
West Lafayette	
Soldiers Home	Happy Hollow to City Limits
Salisbury	Kalberer to WL City Limits
South River Rd	US 231 south to WL City Limits
Fowler	Harrison Bridge to Northwestern
Wiggins	Harrison Bridge to Northwestern
Yeager	Sagamore Pkwy to City Limits
Tippecanoe County	
CR 75E	WL City Limits to CR 500N
Salisbury/CR 50W	WL City Limits to Sinclair Drive
Yeager/CR 140 W	WL City Limits to CR 500N

The Wabash Heritage Multi-Use Trail

This trail is currently the longest in Tippecanoe County and is located in both cities and in the county. Most of the trail is used for both walking and bicycling. However, bicycling is not allowed on the portion of the trail north of Sagamore Parkway to the Battlefield National Monument and south of West Lafayette.

This Plan recommends a multi-use trail that would start at the existing trail at McAllister Park and use the existing trail in the Park and along North 9th Street to Sagamore Parkway where the trail stops. The new multi-use trail would parallel North 9th Street to Swisher Road and then follow Swisher Road to the trail system within Prophetstown State Park. Near the camp sites, the trail would follow an old road/driveway up to Main Street in the Town of Battle Ground. The trail would then follow Main Street to downtown and follow Railroad Street to the Battlefield National Monument (Figure 55).

Following the visionary recommendation of the State (Figure 56), the Wabash Heritage Trail would extend to the northeast and connect to the City of Delphi and its extensive trail system. The trail would follow Pretty Prairie Road (Main Street), Grant Road and follow Bicycle Bridge Road to SR 39/421 where it would connect to the Underhill Towpath Trail.

Connections from our community to regional trail and bicycle facilities are also recommenced. This includes the Farm Heritage Trail and links to the US bicycle Route System.

Figure 55. Proposed Wabash Heritage Trail Extension

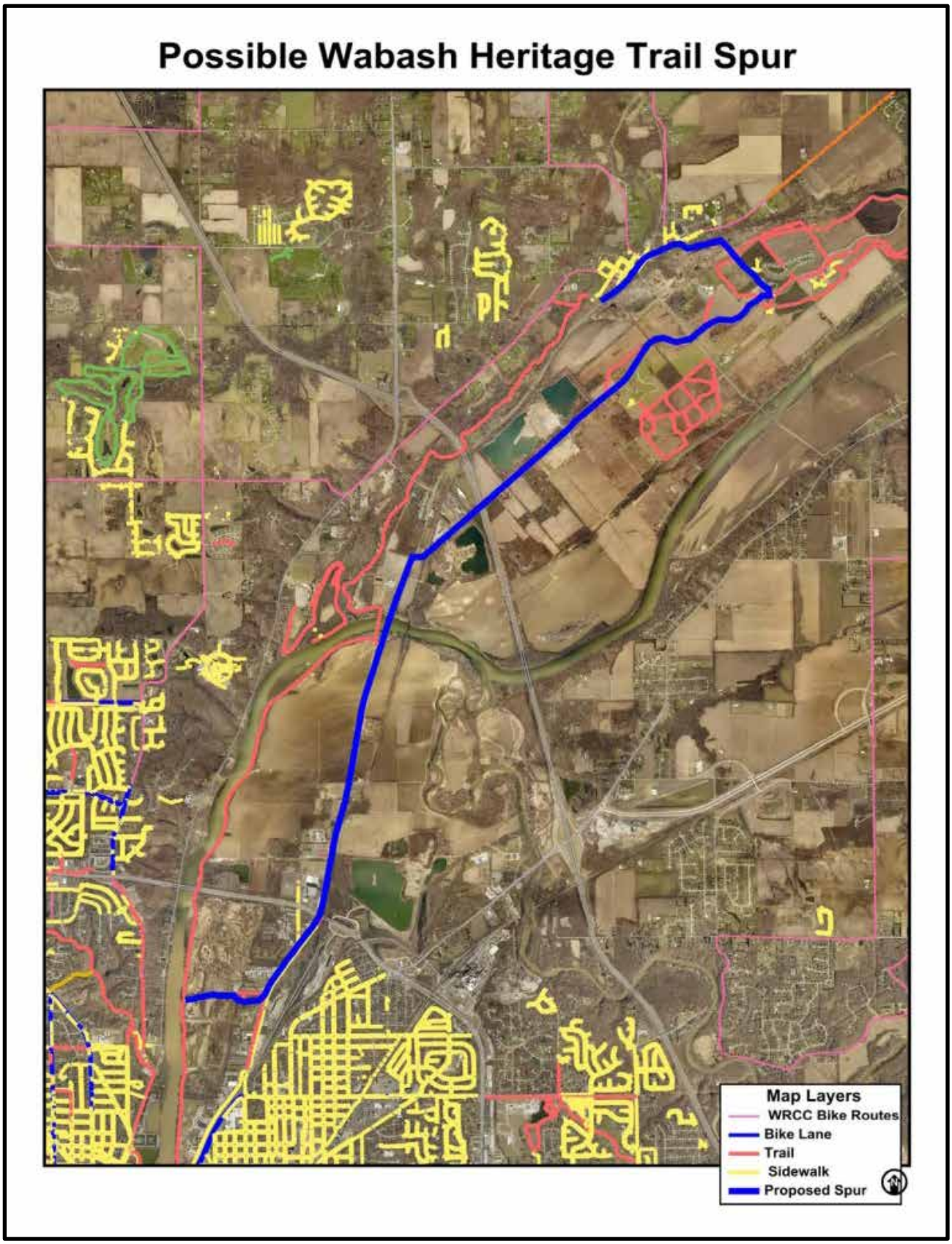


Figure 56. 2016 Visionary Trail System Map

2. Regional and National Bicycling Routes

Farm Heritage Trail

The State's Visionary Trail System Map shows the Farm Heritage Trail following the former Big Four rail corridor between Lafayette and Zionsville (Figure 57). Several portions of the Trail outside of Tippecanoe County have overcome land ownership issues, have been constructed and are being used. In Tippecanoe County, the trail would connect to the existing/planned trails on Concord Road and CR 450S. The trail would follow CR 450S to the former Big 4 railroad corridor. It would then follow the old rail line to the existing trail just north of Thorntown. In conjunction to this proposed trail, a connecting trail is proposed in the Town of Stockwell to the James Cole Elementary School

Northern Tier Route/U.S. Bike Routes

The American Association of State Highway and Transportation Officials, in conjunction with Adventure Cycling, have adopted the US Bicycle Route System. US Bike Route 35 is a north-south National Bicycle route whose

preliminary location is to the east of Kokomo (Figure 58). The *2045MTP* recommends at a minimum developing a proposed route to link to USBR 35. The MTP proposes an alternate route starting in Carmel Indiana, through Zionsville, Lebanon, Thorntown, Colfax, Clarks Hill, Stockwell, Lafayette, Battle Ground, Delphi, Lockport, Georgetown, Logansport and Wabash.

AASHTO and the Adventure Cycling Association have proposed, but not designated, a new USBR 40 as an east-west route north of Lafayette. This Plan recommends using the Northern Tier Route as US Bicycle Route 40 and also recommends a connecting route from north of the Town of Battle Ground to Route 40. The route would travel through or adjacent to the towns of Brookston, Monticello and Monon. Several of the regional and national bicycling routes mentioned earlier are part of the communities' future and need additional facilities and routing options to better serve the greater Lafayette area.

Figure 57. Farm Heritage Trail

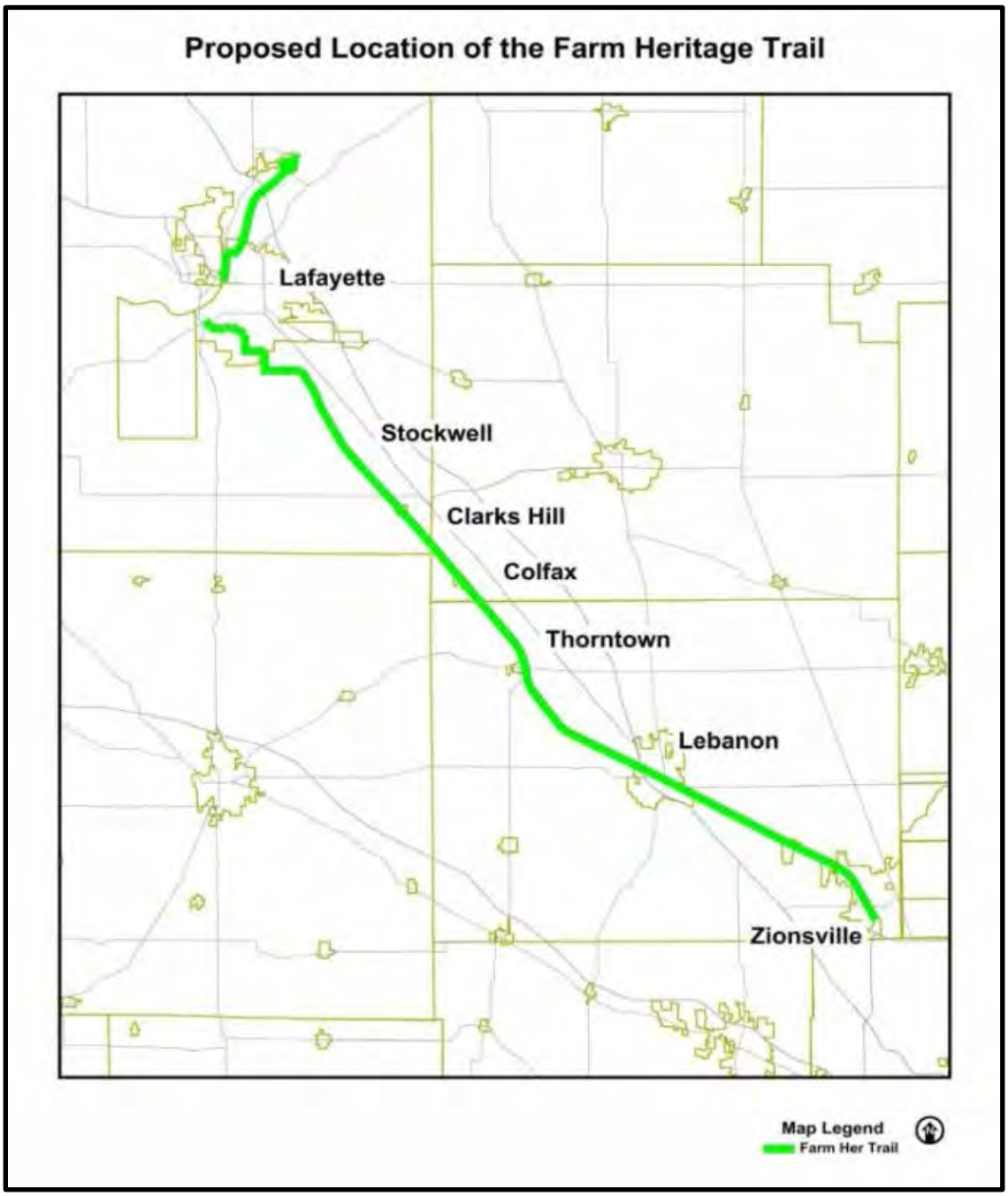
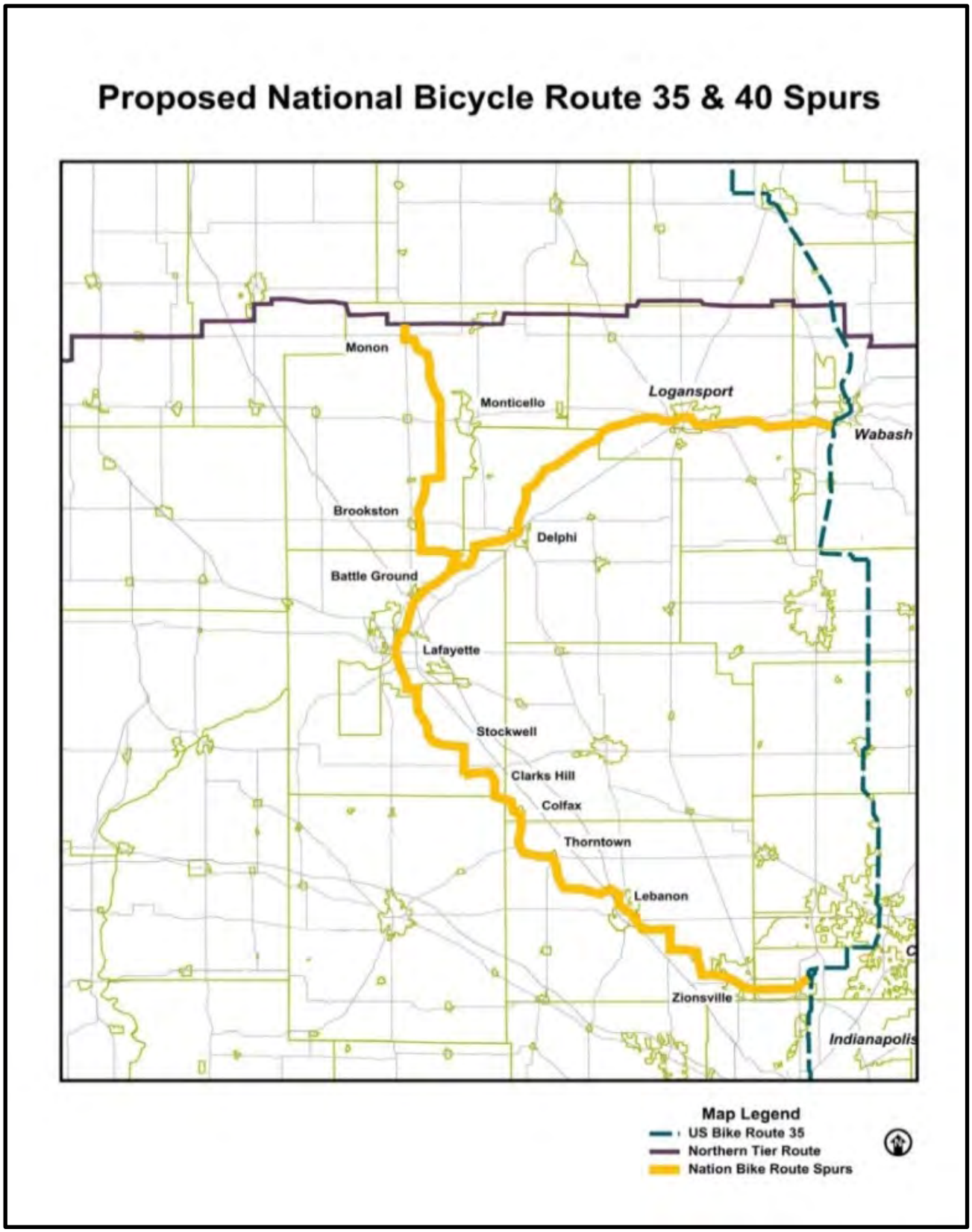


Figure 58. Proposed National Bicycle Route Connections



C. Transit Recommendations

Transit planning is very different than planning other transportation projects. It is more short-term focused. Transit projects can be implemented quickly compared to the time is takes to design, buy right-of-way and construct a road project. While it generally takes a year to procure buses, it takes five to ten years to design and reconstruct a road.

CityBus' approach to planning, development and implementation occurs at two levels. The near term planning involves route changes and small capital investments requiring less than a year to implement. Many route changes are accomplished in less than a month or two. Short range planning looks out over a five year period and includes larger capital projects that may require funding outside of what is received annually.

Near term planning is continually performed at CityBus. Staff constantly monitors ridership and information to determine how effectively the system is operating. Routes adjustments are constantly made to provide better service and staff constantly monitors fuel prices to take advantage of lower costs. Capital investments, whether they are at the office, garage, transfer station, or childcare facilities, are made in order to keep them in a state of good repair (keep the facilities up-to-date, well maintained and performing at their peak). Bus maintenance is constantly monitored to make sure there are no ongoing problems with specific parts.

The larger projects and policies that require more time to develop and implement are addressed in a short-range or strategic plan. These plans address a variety of issues and their focus can change with each plan. Projects are typically those that require funding above what is normally received annually and include major route restructuring, new facility construction, alternative fuels and fleet replacement. CityBus has completed several short range plans over the past two decades and will begin a new strategic plan in 2018 and address some of the supply and demand issues previously noted.

From the previous "First and Last Mile" analysis, Table 27 shows those neighborhoods that are in greatest need of sidewalks that connect to bus stops:

Table 27. First and Last Mile Sidewalk Recommendations

Locations	Minorities	Poverty	Employment
SR 38	X	X	X
South 4th Street	X	X	X
Elston Road	X	X	X
North Earl Avenue Area		X	X
South Street (36th Street to Park East)		X	X
Julia Lane and Shoshone Drive	X		
Earl Avenue, Ferry Street and Union	X		
US 52 in West Lafayette		X	
Klondike Road (Lindberg to SR 26)		X	
North River Road		X	
North 26th Street (Schuyler to Underwood)		X	
Creasy Lane & McCarty Lane (Northeast quadrant)		X	
Veterans Memorial South			X

Long term uncertainties make it almost impossible to plan beyond five years. Changes in the economy and travel pattern cannot be predicted. While state and federal funding has been mostly consistent for the past several years, changes at both levels are now creating even greater uncertainties.

CityBus staff has shown that they have an intimate knowledge of how their system performs which allows them to make the necessary immediate and near term adjustment to run a very effective and efficient transit system.

D. Environmental Sustainability

The ability of our community to maintain its physical and social infrastructure into the future without compromising our quality of life depends on the impacts of the decisions we make today. Projects recommended in the *2045MTP* will affect the community for an extended period of time. Negative consequences need to be avoided, minimized or mitigated. The *2045MTP* addresses the sustainability of our decisions in several ways. The discussion of the the FAST Act and Environmental Justice in the Appendices is one dimension of how the *2045MTP* addresses social and environmental impacts.

An extensive environmental analysis of the potential social, cultural and environmental impacts of the recommended highway projects is contained in Appendix 3. While not replacing the detailed Environmental Impact Statement requirements of the National Environmental Policy Act or Red Flag Investigations, it does provide a planning level assessment of possible impacts needing to be address in an EIS. The analysis includes the project's impact on several social and environmental factors using proximity analysis and tabulation. In Appendix 3 each factor is discussed, followed by a list of projects that may have a potential impact on that social or environmental factor.

E. Financing Plan

Obtaining the financial resources to implement the projects will be the greatest challenge facing the community's transportation needs. As listed in Table 22, the total estimated year of construction cost of all projects is over 1.7 billion dollars. Proposed State Highway needs make up 58**%** of the total and improvements to our local street network account for 42**%** (this does not include road construction costs to be borne by private developers as part of the cost of new development).

One of the primary funding sources for improvements to the transportation system is the Federal Highway Trust fund through the Federal Highway Administration. With uncertainties in federal funding beyond The FAST Act we can only estimate the nature and amount of federal funding available over the next 28 years. This community received approximately $4,500,000 in the last 3 fiscal years. Extrapolating that to the year 2045 this community might reasonably expect to receive $168,187,500 through 2045. The list of fiscally constrained projects in Table 28 shows the community anticipates requesting Federal funds within that range (see Appendix 7 for full calculation methodology).

Table 28, Fiscally Constrained Federal Aid Project List

Project	Location	Priority	Juris.	CN Cost Est.	Federal %
Bicycle, Pedestrian and Trail facilities (TAP and 10% of STP)					22,000,000
Twyckenham Blvd	Poland to 9th	In Tip	Laf	3,700,000	2,960,000
Park East Blvd	Haggerty Lane to SR 38	In TIP	Laf	2,300,000	1,840,000
Safety Ed. Program	All jurisdictions in MPO	In TIP	All	37,500	30,000
Twyckenham Trail	Old Romney Rd to Old US 231	In TIP	Laf	275,000	220,000
Klondike Road	US 52 to Lindberg Road	In TIP	TC	5,700,000	4,560,000
Lindberg Road	Klondike to US 231	In TIP	TC	2,600,000	2,080,000
North Yeager Rd	WL City Limits to CR 500N	In TIP	TC	4,800,000	3,840,000
Morehouse Rd	Sag Pkwy/SP52 to CR 500N	In TIP	TC	8,000,000	6,400,000
Concord Rd.	At CR 430S	In TIP	TC	1,600,000	1,280,000
County Farm Rd	At CR 500N & CR 600N	In TIP	TC	1,500,000	1,350,000
McCutcheon Ped	McCutcheon HS & Mayflower ES	In TIP	TC	600,000	540,000
North River Road	At CR 500N	In TIP	TC	940,000	846,000
Cherry Ln Ext.	McCormick Ln to US 52/231	In TIP	WL	4,500,000	3,600,000
Soldiers Home Rd	Sag. Pkwy. to Kalberer Rd	In TIP	WL	9,100,000	7,280,000
Happy Hollow Tr	Adjacent to realigned Entrance	In TIP	WL	675,000	540,000
Sag. Pkwy. Trail	Happy Hollow to Wabash Ri Br	In TIP	WL	1,600,000	1,280,000
Lindberg	Northwestern to Salisbury	In TIP	WL	2,000,000	1,600,000
South 9th St	Twyckenham Blvd to Vet. M P	High	Laf	7,600,000	6,080,000
Soldiers Home Rd	Kalberer Rd to City Limits	High	WL	11,000,000	8,800,000
Cherry	McCormick to Northwestern	High	WL	4,700,000	3,760,000
Yeager Rd	US 52 to Cumberland Ave	High	WL	2,700,000	2,160,000
CR 600N	Morehouse to CR 75E	High	TC	15,000,000	12,000,000
CR 450S/430S	US 52 to New Castle	High	TC	6,000,000	4,800,000
North 9th St	Sagamore Pkwy to Swisher Rd	High	TC	7,500,000	6,000,000
South 18th St	CR 430S to CR 510S	High	TC	9,500,000	7,600,000
South 9th St	CR 430S to CR 510S	High	TC	10,000,000	8,000,000
CR 450S	Concord Rd to US 52	High	TC	11,600,000	9,280,000
CR 430S	South 18th to Concord Rd	High	TC	4,300,000	3,440,000
Concord Rd	S of Veterans M. P. to CR 450S	High	TC	9,900,000	7,920,000
South 9th St	Veterans M. P. to CR 430S	Med	Laf	13,000,000	10,400,000
Northwestern Ave	Lindberg Rd to Cherry Ln	Med	WL	2,000,000	1,600,000
CR 50W	WL City Limits to N of CR 600N	Med	TC	10,000,000	8,000,000
36th Street	Union St to South St	Med.	Laf	2,800,000	2,240,000
CR 75E	Soldiers Home Rd to CR 500N	Med	WL	7,500,000	6,000,000
Total Project Cost				**182,377,500**	**168,286,000**
Reasonably Available From The Federal Highway Trust Fund					**$168,187,500**

F. Management Systems, TIP and the Thoroughfare Plan

There are several infrastructure management system tools we use in the transportation planning process in addition to the *2045MTP*. The transportation plan takes a long-range, system-wide approach to planning projects while other management systems complement that with shorter-range planning projects that maximizing system efficiency and safety. All local jurisdictions now have pavement preservation plans and all jurisdictions are now adding facilities that are compliant with the Americans with Disabilities Act as part of their roadway management systems. All use their systems to document and establish priorities.

Lafayette, West Lafayette and Tippecanoe County have roadway management systems that seek to preserve existing transportation facilities through data driven decisions about maintenance and repair programs. It also serves to better well utilize existing transportation facilities more efficiently (e.g. signal coordination, pavement marking, and intersection improvements). Additionally, Tippecanoe County has a bridge inventory and management system.

CityBus has adopted several system management practices that promote safety, mobility and more efficiently use their infrastructure. Ridership increases are evidence that their aggressive programs of fleet maintenance and acquisition, marketing, schedule adherence and strategic planning contribute to a system that successfully provides an alternative to the automobile.

The TIP is a capital budgeting tool that establishes an ongoing multi-year timetable for funding transportation improvements. These projects come from the transportation plan and other planning reports, monitoring of traffic volumes and crash analysis. The TIP includes all projects whether or not they receive USDOT funding. The TIP is rewritten every two years based on the state fiscal year. It includes a project's schedule, funding sources, and the agencies responsible for completing each project. These projects may originate from any one of the nine implementing agencies in the MPO: the Cities of Lafayette and West Lafayette, Dayton, Battle Ground, Clarks Hill, Tippecanoe County, INDOT, CityBus and the Purdue Airport.

The *Thoroughfare Plan* is an element of the adopted *Comprehensive Plan for Tippecanoe County*. It combines the classification of roads (freeways, arterials, collectors and locals) with specific design standards for each classification. As such, it links the transportation plan to the community's development codes, specifically the *Unified Subdivision Ordinance of Tippecanoe County,* and includes design standards required of local developers. Roads are also classified as either urban or rural (as defined by the US Census Bureau's Urbanized Area Boundary) as well as residential, nonresidential or arterial. There are three types of residential roads (place, local road, or collector), two types of nonresidential roads (local road, collector) and three types of arterials (secondary, primary and divided primary). For each type, standards are established regarding minimum right-of-way width, minimum pavement, sidewalks, curb and gutter, side ditch and shoulder widths, maximum grade and characteristics dealing with the geometry of curves, cul-de-sacs and connectivity.

The Thoroughfare Plan ensures that local governments and private developers will build improvements to adopted standards, including the Complete Streets Policy, to help implement the 20450 MTP. The most recent Thoroughfare Plan was adopted in 1981 and amended several times. An update to the Thoroughfare Plan is a top priority for the MPO.

Appendices

A. FAST Act Planning Factors

This Plan has been prepared to comply with the Federal Fixing America's Surface Transportation (FAST) Act and its predecessors. MPOs are required to have a continuous, cooperative and comprehensive planning processes that implement projects, strategies and services that will address the following ten planning factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency

This Plan is part of the Comprehensive Plan for Tippecanoe County that was adopted in 1981 and provides for orderly and efficient growth of Tippecanoe County. Goals adopted in the Comprehensive Plan for Tippecanoe County reinforce our strong local and national economy as well as global competitiveness. This Plan continues those specific goals and objectives. All of the components of the Comprehensive Plan are designed to strengthen the role of transportation in the community. Other elements include a Thoroughfare Plan, Bicycle and Pedestrian Plan, Land Use Plan, Housing Plan, Multi-Hazard Mitigation Plan, Neighborhood Plans and a Parks and Recreation Plan.

The *2045MTP* seeks to provide an efficient network where travel time reliability and on-time delivery services are maintained if not enhanced and productivity is strengthened by improved network circulation. One objective this Plan incorporates is connectivity and ease of movement by persons and goods in and through the area. It continues to develop multiple circumferential ring road systems around the community and strengthen the cross routes. Improvements to major corridors that bring commuter traffic from surrounding counties are specifically targeted.

2. Increase the safety of the transportation system for motorized and nonmotorized users.

This Plan continues to emphasize increased safety for both motorized and non-motorized users in the following ways:

- Current and historic crash analysis was considered in the development of the list of projects in the Plan.
- The Plan encourages development of a highway system that diverts through traffic away from residential neighborhoods while still providing accessibility.
- The projects contained in the Plan reduce congestion by providing alternative routes to satisfy user needs. With reduced congestion, conflicts are reduced and safety is enhanced.
- Industry safety and design standards, as well as those delineated in the Thoroughfare Plan, are required for all road improvements.
- In addition to road design standards, all improvement projects incorporate safety considerations for bicyclists and pedestrians and satisfy the adopted transportation goal of encouraging provisions for all modes of travel.
- The Plan advocates construction of grade separations to reduce motor vehicle and train conflicts.
- The Plan includes implementation of projects identified in the Transit Development Plan and the Bicycle and Pedestrian Plans, such as context sensitive design measures for pedestrian and bicycle safety around Purdue.

CityBus has several safety programs and meets Federal Transit Authority (FTA) requirements that it spend 1% of its funding on safety and security. Efforts are focused on worker health and safety, driver training, passenger safety and familiarity with the system. CityBus promotes FTA's "Transit Watch - if you see something, say something" to encourage riders to be a part of overall safety.

INDOT has developed a *Strategic Highway Safety Plan* (SHSP) whose goal is to reduce traffic crash fatalities. The SHSP is consistent with the goals and objectives of this community and is summarized in Appendix 6.

3. Increase the security of the transportation system for motorized, nonmotorized and transit users.

The APC works closely with the Tippecanoe County Emergency Management Agency (TEMA) and is represented on its Local Emergency Planning Committee by the Executive Director. TEMA has an adopted *Comprehensive Emergency Management Plan*. In conjunction with TEMA, APC has updated the *Multi-Hazard Mitigation Plan (MHMP)*. This plan is a requirement of the federal Disaster Mitigation Act of 2000 and has been adopted by APC and its member jurisdictions as a part of the *Comprehensive Plan* of Tippecanoe County. The *MHMP* provides a comprehensive assessment of how specific hazards affect the community, adopts mitigation goals for each hazard, and proposes solutions to prevent future damage caused by natural and manmade hazards. It represents a proactive tool to reduce personal and property damage and its implementation will reduce costs to local, state and federal governments. Additionally, the plan's existence ensures a wealth of readily available information to local governments, emergency service departments and area citizens through the County's GIS web site, with additional information available in its Management Information Technology Services Department.

TEMA is the lead county agency for security issues and APC will continue to play a supporting role providing them with assistance as needed. APC looks forward to working with TEMA to implement and broaden the MHMP and bring greater focus to transportation issues.

CityBus has several security strategies in operation. Access control, surveillance and monitoring on bus as well as office and maintenance facilities are currently employed strategies. Operations include Computer Aided Dispatching and Automatic Vehicle Locator technology. Additionally, CityBus has an emergency preparedness plan containing mitigation strategies for manmade and natural disasters.

4. Increase the accessibility and mobility options available to people and freight.

The 2045 MTP strengthens and creates accessibility on two distinct levels. One focuses on improving the continuity of the road network. The other provides additional connections and improvements between modes of travel. All citizens, travelers and businesses benefit from this dual approach.

Improving travel time is of the utmost concern for moving both people and freight. This Plan reduces travel and delivery time by increasing accessibility through the development of circular or ring road systems with major radial connections. Improvements are also targeted for the corridors that connect to and from other counties and states.

The 2045 MTP increases bicycle and pedestrian mobility, as well as the safety of transit riders because all proposed road improvements are required to include provisions for these modes. When sidewalks and trails are available it is safer for transit users as well as provides more options for bicyclists and pedestrians.

5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;

This Plan incorporates these goals by being part of the *Comprehensive Plan for Tippecanoe County* which guides all future development into a more sustainable compact urban environment. Benefits include less travel, reduced fuel consumption, and a cleaner environment that combine to enhance the quality of life. The community's Goals and Objectives state that any environmental impacts will follow the policy to avoid, minimize and mitigate. A comparison of the *2045MTP* with conservation plans, environmental analyses, and inventories of natural and historic resources is contained in Appendix 3. The results are forwarded to local agencies for their consideration during environmental assessments and for discussion with State and federal conservation, environmental, and historic agencies. All Federal Aid construction projects follow applicable INDOT, Federal Highway Administration (FHWA), Indiana Department of Environmental Management (IDEM), and Environmental Protection Agency (EPA) guidelines regarding environmental protection.

Transit use, bicycling and walking continue to play an ever increasing role in this community and the *2045MTP* includes specific project level recommendation for these modes. Multi-modal travel promotes energy conservation and improves the quality of life. The Plan also advocates the use of joint corridors and corridor reuse wherever possible by using existing corridors for new construction and road improvements.

6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

As part of the original 1978 transportation plan, citizens established an objective to develop an area-wide circulation network to accommodate present and anticipated future traffic demands. This Plan continues to recommend projects that strengthen connections throughout the community for all users by advancing ring and radial routing that connect all major corridor arterials in both cities.

The *2045MTP* builds upon the multi-modal plans and programs of previous plans. Transit use, bicycling, and walking play an increased role in this community and this plan makes specific project level recommendations for both bicycling and walking. APC works closely with CityBus to assist it in serving the community, because multi-modal travel not only promotes energy conservation it also improves the quality of life.

7. Promote efficient system management and operation

This community's operations and management systems are primarily pavement and traffic, bridge, and transit programs. These allow the jurisdictions to monitor system performance and needs, identify deficiencies, and then target specific projects to address needs.

Lafayette, West Lafayette and Tippecanoe County have pavement and traffic management systems that allow them to utilize existing transportation facilities more efficiently (e.g. pavement maintenance, signal timing and coordination, sign replacement, pavement marking, and intersection improvements). Community wide expansion of the Advanced Traffic Management System has been implemented. Additionally Tippecanoe County has a bridge inventory and management system. All jurisdictions are now updating roadway management systems to address Americans with Disabilities Act needs. All use their systems to document and establish priorities.

CityBus has adopted several strong system management practices that promote safety, mobility and more efficient use of their existing transportation infrastructure. Ridership increases are evidence that their aggressive programs of information management, fleet maintenance and acquisition, marketing, schedule adherence and strategic planning contribute to a system that successfully provides an alternative to the automobile.

The concept of corridor re-use and joint corridor use also make our existing transportation facilities more effective. There are very few new corridors or major new construction projects recommended in the *2045MTP.* Most improvements utilize existing corridors or are short extensions of existing facilities that provide greater connectivity to the transportation system. Most projects in the community are designed to relieve bottlenecks and include intersection widening, adding a travel lane, or lengthening a turn lane. The Hoosier Heartland corridor shares an alignment with the current Norfolk Southern tracks placing two modes in one corridor and reducing both the number of road and rail crossings. Additionally, the new perimeter parkway around Purdue University primarily utilizes existing rights-of-way.

8. Emphasize the preservation of the existing transportation system.

This Plan recognizes that the community cannot build its way out of congestion, which is environmentally, physically and fiscally irresponsible. The plan promotes the preservation of existing transportation facilities through continued maintenance and repair programs and utilizes existing transportation facilities more efficiently. The management and operations systems that member jurisdiction currently utilize preserve and protect the communities' investments in their infrastructure. All jurisdictions have adopted pavement preservation strategies. The Transportation Improvement Program tracks the revenues and costs needed to maintain and protect those roadway and transit assets.

Most road improvements in the community are on existing, not new, corridors. Several roads will be reconstructed within existing corridors such as the Purdue perimeter parkway, Yeager Rd., Salisbury St., Ortman Lane and Beck Lane. Most of the recommended projects follow changes in land use and roads that were originally built as rural cross sections now need to be updated to an urban cross section with sidewalks and bicycle facilities.

9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.

The Tippecanoe County Emergency Management Agency (TEMA) is this community's lead for crisis and disaster response. The APC works closely with TEMA and is represented on its Local Emergency Planning Committee by the Executive Director. TEMA has an adopted *Comprehensive Emergency Management Plan* and the APC, in conjunction with TEMA, has updated the *Multi-Hazard Mitigation Plan (MHMP)*. It provides a comprehensive assessment of how

specific hazards affect the community, adopts mitigation goals for each hazard and proposes solutions to prevent future damage caused by natural and manmade hazards as well as recovery strategies. Additionally, local asset management systems allow for the timely assessment, speedy repair and recovery from unexpected infrastructure damage.

Tippecanoe County has had stormwater management requirements dating back to the 1960s when the Drainage Board was established. Those requirements were updated in the 1970s and 1980s and again in 2005 to comply with Phase II of the National Pollutant Discharge Elimination System permit program. The stormwater ordinance was most recently updated in 2012. The program controls runoff with the goal of mitigating its effects on the community.

10. Enhance travel and tourism.

The MPO works directly with the greater Lafayette visitors and convention bureau, also known as "Visit Lafayette-West Lafayette" by providing maps and map assistance. The APC also works to have a road network that is easy for visitors to understand and easy use by encouraging two way verses one way streets where appropriate, supporting a community wide wayfinding program and improvements to arterial roads. Additionally, quality of life, as a tourist attraction and community amenity, is enhanced by the implementation of APC's Complete Streets policy and the sidewalk and trail networks contained in the MTP. Roads adjacent to and accessing area parks and tourist attractions are in place and a project to improve vehicular and trial access to Prophetstown State Park is contained in the Plan.

B. FAST Act and Map-21 Performance Measures

The FAST Act and MAP-21 have new requirements for performance management in transportation planning. National performance goals have been established in 7 key areas and states and MPO are to establish performance targets in support of the national goals. National performance goals for Federal Highway programs:

- **Safety** – to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure condition** – To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion reduction** – To achieve a significant reduction in congestion on the National Highway System (NHS).
- **System reliability** – To improve the efficiency of the surface transportation system.
- **Freight movement and economic vitality** – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental sustainability** – To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced project delivery delays** – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) issued new transportation planning rules on the statewide and metropolitan transportation planning processes to reflect the use of a performance based approach to decision-making in support of the national goals. These processes must document in writing how the Metropolitan Planning Organizations (MPOs), Indiana Department of Transportation (INDOT) and providers of public transportation shall jointly agree to cooperatively develop and share information related to transportation performance data, the selection of performance targets, the reporting of performance to be used in tracking progress toward attainment of critical outcomes for the region of the MPO (see 23 CFR 450.306(d)) and the collection of data for the INDOT asset management plan for the National Highway System specified in in 23 CFR 450.314(h).

FTA has performance measures for Transit Asset Management, and final regulations are published and currently in effect. FHWA has performance measures and final regulations published for Safety, Bridge and Pavement

Conditions, Congestion Reduction and System Reliability, but only the Safety Performance Measure regulation is in effect at this time.

INDOT along with the MPOs and FHWA will continue to collaborate to identify Performance Targets for each Performance Measure. Once Performance Targets are established, the Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP) will be modified to reflect this information.

For FHWA and FTA to approve any TIP amendments after May 27, 2018, the INDOT, MPOs and Public Transit Operators must reflect this information and describe how projects in the TIP/STIP, to the maximum extent practicable, achieve the Federally required performance targets identified in the Statewide and Metropolitan Transportation Plans, linking investment priorities to these performance targets.

Safety

The INDOT, the MPOs, FHWA, and Indiana Criminal Justice Institute (ICJI) are actively discussing and collaborating on the Safety Performance Measures and Safety Performance Targets. INDOT will submit their Safety Performance Measures by August 31, 2017, and the MPOs will have until February 27, 2018 to follow INDOT's submission to either support the INDOT Safety Targets or set independent targets. The Highway Safety Improvement Program (HSIP) is a primary source of federal funds for qualifying safety improvement projects. HSIP along with other funding sources are used to implement safety improvements with the purpose to reduce roadway crashes, and a corresponding reduction in fatalities and serious injuries on all public roads. The five specific safety performance measures are:

1) Number of fatalities;
2) Rate of fatalities;
3) Number of serious injuries;
4) Rate of serious injuries; and
5) Number of non-motorized fatalities and non-motorized serious injuries

If FHWA makes effective the rules they have published for assessing pavement and bridge condition for the National Highway Performance Program and performance of the National Highway System (NHS), freight movement on the Interstate System and Congestion Mitigation and Air Quality (CMAQ) improvement program, INDOT and the MPOs will have to establish performance targets for these measures, too.

Pavement and Bridge

The pavement and bridge condition performance measures are applicable to the Interstate and non-Interstate Highways that comprise the National Highway System (NHS). The NHS includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. The measures are focused on the condition of pavement and bridges, including ramps utilized to access the system. There are four measures to assess pavement condition and two measures for assessing bridge condition.

Pavement Performance Measures

1) Percentage of pavements of the Interstate System in Good condition
2) Percentage of pavements of the Interstate System in Poor condition
3) Percentage of pavements of the non-Interstate NHS in Good condition
4) Percentage of pavements of the non-interstate NHS in Poor condition

Bridge Performance Measures

1) Percentage of NHS bridges classified as in Good condition
2) Percentage of NHS bridges classified as in Poor condition

The INDOT, the MPO and FHWA will collectively develop targets for the pavement and bridge performance measures. The National Highway Performance Program is a core Federal-aid highway program that provides financial support to improve the condition and performance of the NHS, and the construction of new NHS facilities. INDOT utilizes these funds for maintenance activities on the NHS.

System Performance

The system performance measures are also applicable to the Interstate and non-Interstate NHS. These performance measures assess system reliability and freight movement, and establish several measures for on-road mobile source emissions consistent with the Congestion Mitigation and Air Quality (CMAQ) Program. There are two measures for assessing reliability, one measure to assess freight movement, and three measures for the CMAQ program.

Reliability Performance Measures

1) Percent of the Person-Miles Traveled on the Interstate System That Are Reliable
2) Percent of Person-Miles Traveled on the Non-Interstate NHS That Are Reliable

Freight Movement Performance Measure

1) Truck Travel Time Reliability (TTTR) Index

CMAQ Measures

1) Annual Hours of Peak-Hour Excessive Delay Per Capita Percent of Non-SOV Travel
2) Percent Change in Tailpipe CO2 Emissions on the NHS Compared to the Calendar Year 2017 Level
3) Total Emissions Reductions

Transit Performance Measures

The Transit Asset Management Final Rule requires transit providers to set performance targets for state of good repair by January 1, 2017. The Planning Rule requires each MPO to establish targets not later than 180 days after the date on which the relevant provider of public transportation establishes its performance targets. MPOs must establish their state of Good Repair targets before June 30, 2017.

CityBus has established their 2017 State of Good Repair performance targets and they are:

1) Rolling Stock – Percent of revenue vehicles that have met or exceeded their useful life benchmark.

Performance Measure	2017 Target (%)
Articulated Bus	50 %
Bus	20 %
Cutaway	10 %

2) Equipment – Percent of service vehicles that have met or exceeded their useful life benchmark

Performance Measure	2017 Target (%)
Automobiles	25 %

3) Facility– Percent of facilities rated below 3 on the condition scale

Performance Measure	2017 Target (%)
Passenger / Parking Facilities	0 %
Administrative / Maintenance Facilities	10 %

The Area Plan Commission adopted CityBus's 2017 performance targets as the MPO targets in the 2018-2021 TIP.

C. Environmental Justice

The MPO has an established Environmental Justice review procedure to ensure that proposed improvements take into consideration minorities (African American, Hispanic, Asian, and American Indian) and persons of low income. Additionally, it makes certain that these groups are not disproportionately impacted by recommended highway projects.

Each step in the review process addresses one of the following three principles of Environmental Justice. Proposed improvements were compared to areas of higher than average number of minorities or persons of low income. Data from the American Community Survey (ACS) and the 2010 census was used because it is the best available source of information and mapped. Additional outreach to minority groups has been accomplished through our public involvement process. After assessment, indicating minimal or no impact, proposed projects are scheduled

based on need and funding. When a new TIP is developed, all projects go through an additional EJ review and Red Flag Investigations are conducted on all projects prior to design.

Principal One: Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.

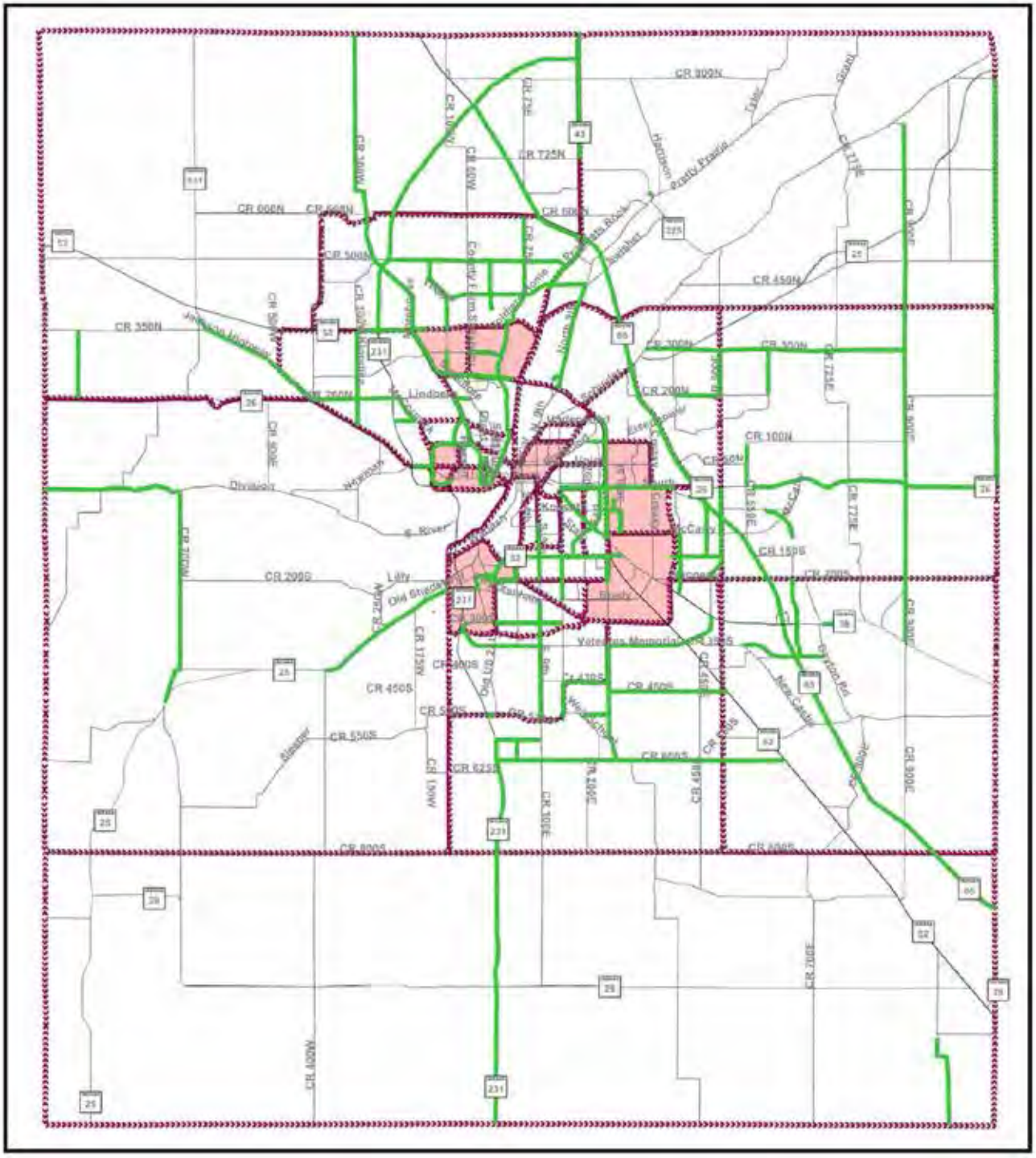
To identify whether a project disproportionately impacts minority and low income persons, two levels of analysis were conducted. All projects are first reviewed on a macro level. Those that show a possible impact on minority or low income areas were further evaluated on a micro level.

For the macro review, maps were created showing the proposed improvements and areas of concentrated minority group and/or low-income population based on the latest Census ACS data. The maps show areas with higher than average target populations. Projects that were located in areas with less than average target populations, have been already evaluated (under construction or starting construction shortly), or were funded using only local funding, received no further review.

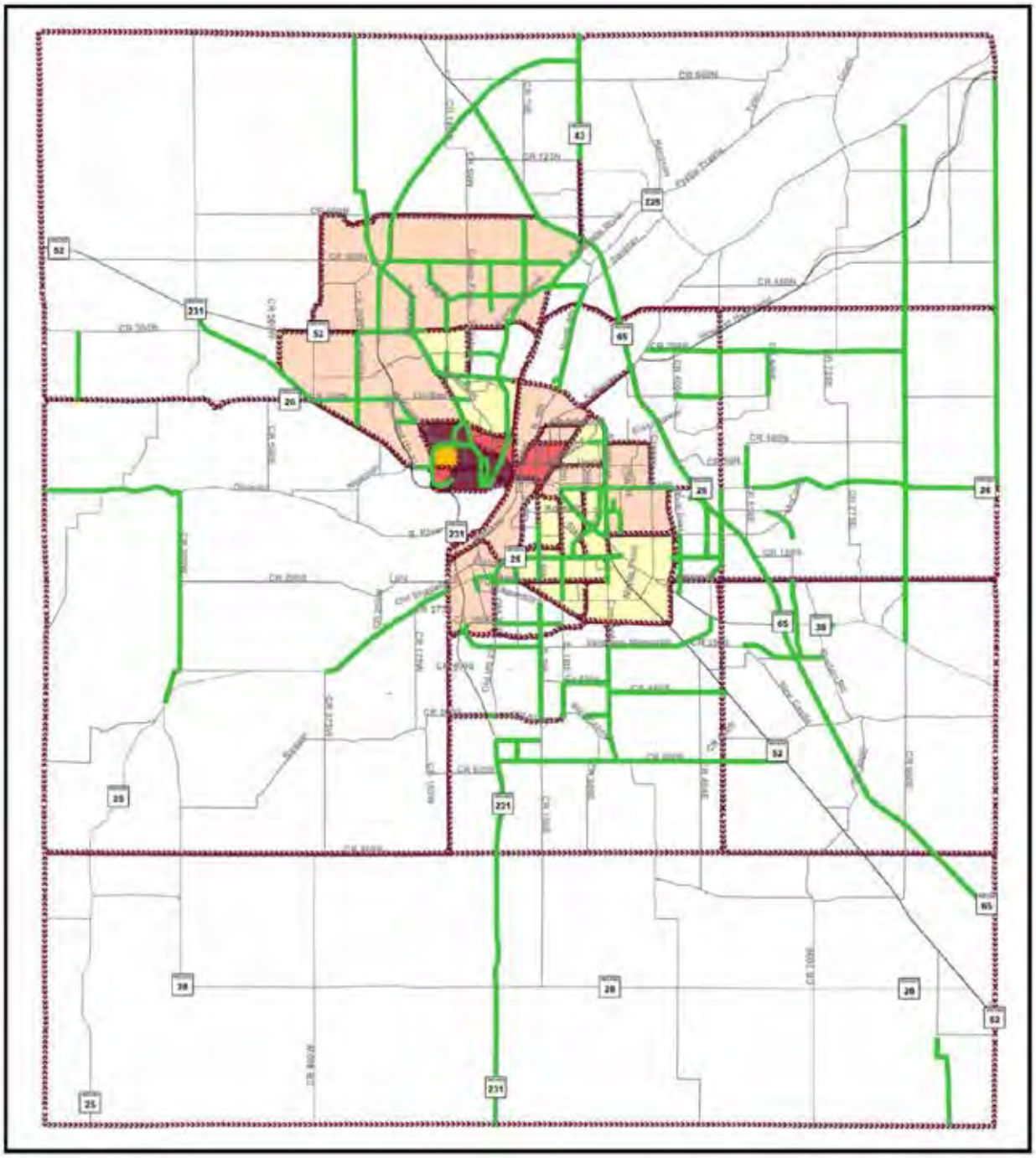
The micro level review was then conducted for projects that may have an environmental justice concern. Projects were examined individually using aerial photos from 2012. Each project was evaluated according to the nine standards for impact: displacement of residents; increase in noise and air pollution; creation of barriers in neighborhoods; destruction of natural habitat; reduction in access to transit; displacement of persons, businesses, farms, nonprofit organizations; increase in traffic congestion; and isolation.

Results of the micro level review range from as many as six concerns per project to none. Most of the impacts are due to road widening projects that involve dislocations and relocations. In the urban area the impacts also included potential barriers between neighborhoods and increase noise and air pollution, with rural and urban edge areas involving natural habitats. Projects with documented potential impacts will have them addressed in the environmental phase of each project. Proper engineering will be able to mitigate some of the issues and reducing the right-of-way where appropriate may reduce the dislocation of residents and businesses. Many of the projects involve widening corridors that already exist and mitigation measures can be employed to minimize negative impacts.

Environmental Justice Review
2010 Census Tracts with High Minority Populations



Environmental Justice Review
2010 Census Tracts with High Number of Persons in Poverty



Principal Two: Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.

There were multiple opportunities for potentially affected parties to have a voice in the decision making process used in creating this Plan. Identification of general transportation needs that would be addressed in the Plan began with discussions at Technical and Citizen Committees and stakeholder.

During five meetings of the Citizen Participation Committee in 2016 and two in 2017 the committee considered and discussed highway bottlenecks and delays, trail needs, bicycle and pedestrian needs and potential destinations, possible projects, Goals and Objectives, Complete Streets Policy, and population and employment forecasts. The Committee recommended highway, bicycle and pedestrian improvements. It also reviewed the final list of recommended highway, bicycle and pedestrian project. Press releases were sent to local media resulting in meetings being listed in the local meeting section. Comments received are included in Appendix G.

The Technical Transportation Committee and Policy Board assisted in developing the *2045MTP* at ten regular meetings by reviewing area needs, development patterns and socioeconomic projections. They also recommended projects to be incorporated into the Plan and prioritize projects. The meetings were open public meetings and covered by both broadcast and print media.

There were several well attended outreach meetings that provided citizen and stakeholder input at the meeting and through follow-up communications. The MPO adopted the *2045MTP* at a public hearing. All meetings complied with the adopted Public Participation Plan.

Principal Three: Prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations.

Projects proposed in the *2045MTP* were identified from deficiencies shown in earlier traffic modeling and through public input and comment. The phasing of projects was based on need and anticipated financing.

D. Environmental Analysis

1. Introduction

The FAST Act builds upon previous initiatives to ensure environmental protection as part of local transportation planning. A general system level environmental analysis was conducted on all proposed highway projects to assess the potential impacts of the Metropolitan Transportation Plan for 2045. Figure 3-A shows a Map of all proposed highway projects in the Plan. A copy of the plan was sent to environmental agencies for review and early coordination. No substantive comments have been received.

This analysis does not replace the detailed environmental reports required by the National Environmental Policy Act (NEPA) for any transportation improvement project utilizing federal funds.

2. Background

Metropolitan Transportation Plan for 2045

The 2045 Metropolitan Transportation Plan updates previous long range plans and emphasizes creating alternative route, such as circumferential streets, to divert traffic away from existing congested streets. It recommends improving circulation through expanding and upgrading the road network. It incorporates bicycle and pedestrian needs as well as the needs of those using transit. The Plan contains a detailed list of projects and estimates of year of construction costs.

The Plan is a joint effort by the staffs of the MPO, Tippecanoe County, the Cities of Lafayette, and West Lafayette, with input from the citizens, Purdue University, the local transit provider (CityBus) and the Indiana Department of Transportation. The Plan has been reviewed and approved by the Policy Board of the MPO and its Citizens Participation and Technical Committees. INDOT maintains its own separate list of needed improvements on State highways and this Plan supports those state projects. However, the community has identified additional needs not yet included in the state's schedule and those have been included in the Plan for illustrative purposes.

Assessment Categories

As part of the Metropolitan Transportation Plan for 2045, information on potential social, cultural, and environmental characteristics in Tippecanoe County was documented. MPO staff reviewed the following characteristics and how they could impact, or be affected by projects in the Plan.

Social Impacts

- Neighborhoods, Low Income and Traditionally Underserved Groups
- Tribal Areas
- Historical Sites and Districts

Environmental Impacts

- Parks and Open Spaces
- Cemeteries
- Endangered Species
- Floodplains
- Surface and Subsurface/Aquifer Water Quality
- Hazardous Waste and Superfund Sites
- Leaking Underground Storage Tanks

3. Analysis Methodology

To better illustrate how the recommended projects in the Metropolitan Transportation Plan for 2045 could impact the social and environmental quality of the area, maps were developed to visually represent the location of the potential impacts.

Proximity analyses were then performed using GIS software to evaluate the specific social, environmental, and cultural features that could impact the various network improvements. This process first involved creating a buffer around all road segments and intersections programed for improvements in the recommended list of projects (Table 21). A buffer of 150 feet on each side of a proposed limited access facilities, and 100 feet on each side of all other improvements were used to determine which potential sites or features might be adversely impacted by the transportation improvement.

It is important to note that the GIS data used in the proximity analysis in this Appendix is of varying levels of accuracy and completeness. No attempt was made to correct or improve the spatial accuracy, completeness or the data obtained from sources outside of Tippecanoe County (e.g., Leaking Underground Storage Tanks, hazardous waste sites, and superfund sites). However, staff made efforts to ensure the accuracy and completeness for data supplied by the Tippecanoe County GIS and MPO Staff. While care was taken in the creation and maintenance of this data, the Area Plan Commission of Tippecanoe County does not accept responsibility for its accuracy.

4. Social Impacts

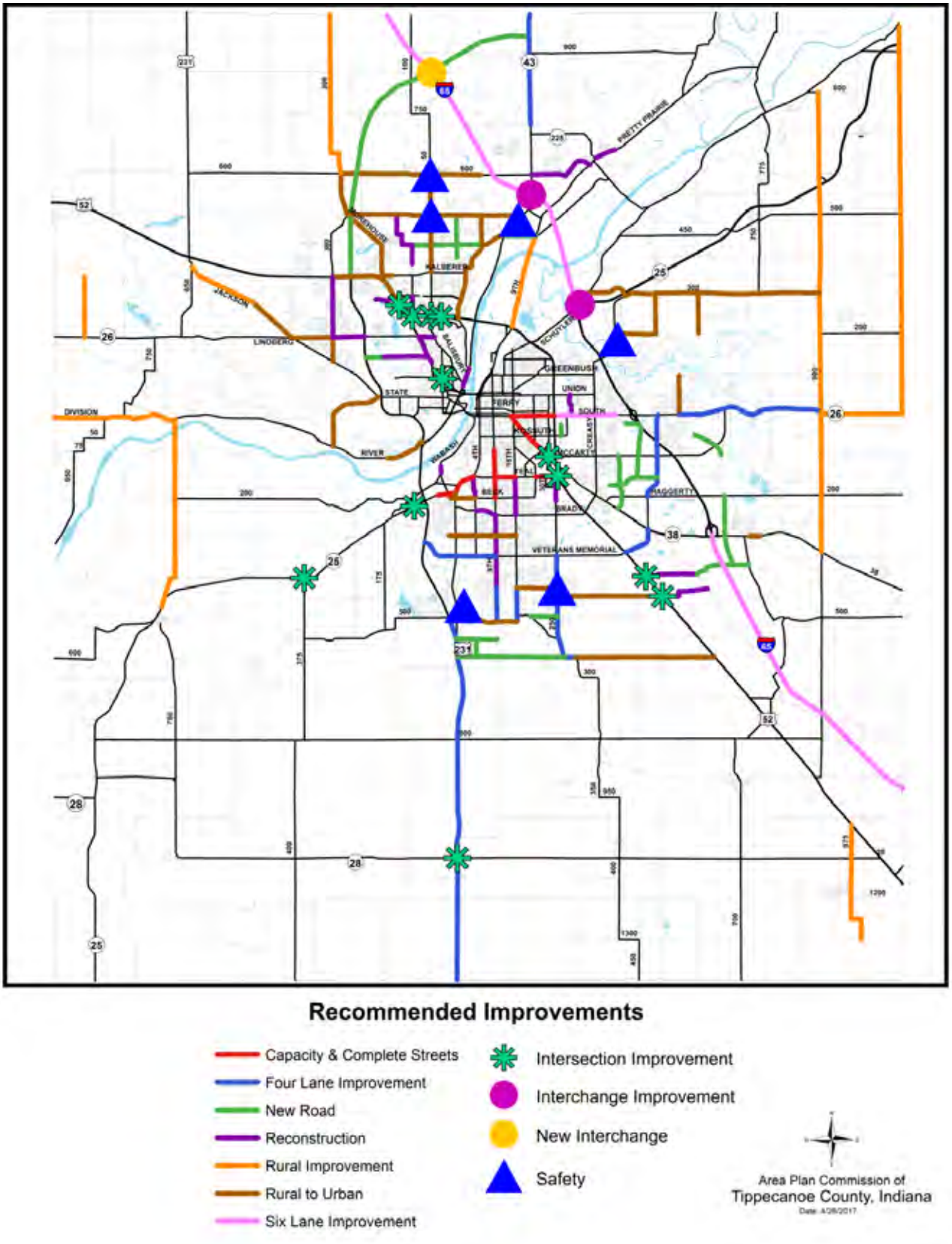
Neighborhoods, Low Income and Traditionally Underserved Groups

Acquisition of rights-of-way and/or being in close proximity to improvements may negatively impact low-income and minority groups. For further information, see the Environmental Justice Section in the Appendices of this Plan.

Tribal Areas

Tribal land include those lands under the jurisdiction or control of a Native American Tribe, including that land held in federal trust by the Bureau of Indian Affairs (BIA) for the tribe. In Tippecanoe County there are no federally recognized tribes and no tribal or federal trust land holdings.

Figure 3-A, 2045Metropolitan Transportation Plan



National Historic Sites and Districts

Information on historic sites and districts was collected from the National Park Service's National Registry of Historic Places, the Indiana Division of Historical Preservation and Archeology. As of 2015, there were 33 sites and 15 districts listed with the National Registry of Historic Places (and six sites listed only on the State Registry). Figure 3-B shows those registered historical site and district locations within Tippecanoe County.

A proximity analysis determined that no historical sites/buildings are located within the potential impact buffer from the projects recommended in the 2045MTP. However, the parcel/lot associated the registered site or building(s) will require additional site-specific planning and review during project development.

A proximity analysis determined the following historical district potential impact locations:

- Dayton Historic District from the urban conversion on SR 38, through Dayton, (INDOT).
- Highland Park Neighborhood Historic District from the reconstruction on South 9th, Owen to Teal, (Lafayette).
- Battleground Historic District from the road reconstruction of Main Street and Prophets Rock Road in Battle Ground.
- Hills and Dales Historic District from the road reconstruction of Northwestern from Lindberg to Cherry.
- New Chauncey Historic District from the intersection improvements at Stadium and Grant and improvements to North River Road.

In general, the potential impacts on historical sites/districts from the street and highway improvements would possibly involve added time and costs in site specific planning for the improvement.

5. Environmental Impacts

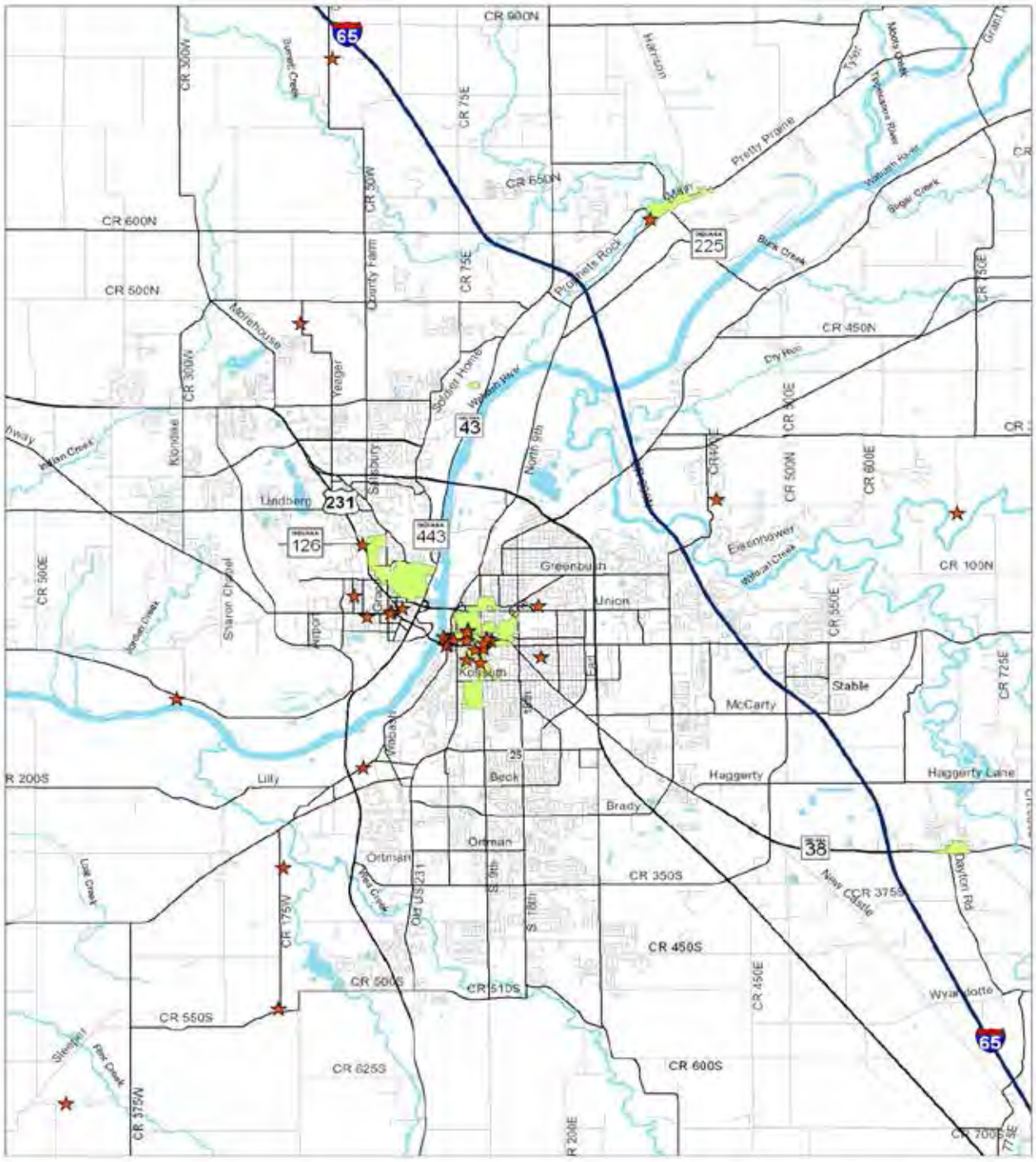
Parks and Open Spaces

The inventory of existing parks, trails, and open spaces was obtained from the Tippecanoe County GIS data warehouse, and supplemented by MPO Staff. The inventory includes state parks, municipal and neighborhood parks, golf courses, sports complexes, trails, wildlife and nature areas, and public areas surrounding significant bodies of water. This inventory does not include parks and sports facilities adjacent to schools and Purdue University (with the exception of the Purdue Golf Courses and the Horticulture Park). Conservatively, there are 3000+ acres of parkland, open space golf, sports complexes, and public nature areas. Figure 3-C shows the major parks, open spaces, and recreational facilities in the County.

A proximity analysis determined that the following parks/open spaces (> 10 acres) are potential impact locations.

- Bishop Woods from the reconstruction of S 9thst from Teal to Beck Lane in Lafayette.
- Coyote Crossing Golf Course from the rural to urban improvement on CR 75E from CR 600N to Soldiers Home in Tippecanoe County.
- Columbian Park from the capacity improvements on Main Street from 18th to McCarty Lane and South Street from Main Street to Earl Avenue in Lafayette.
- Davis Ferry Park from the rural improvement of North 9th St. from Swisher to Duncan Road in Tippecanoe County.
- Happy Hollow Park from the reconstruction of North River Road from Robinson Street to Happy Hollow Road in West Lafayette.
- Lafayette Country Club from the reconstruction of South 9th from Central to Teal in Lafayette.
- Mar Len Park from the four lane widening of South 18th from CR 430S to CR 510S in Tippecanoe County.
- Mascouten Park from the reconstruction of N. River Road from Robinson Street to Happy Hollow in West Lafayette.
- Prophetstown State Park from the six lane widening of I-65 from SR 43 to SR 38, sponsored by INDOT.
- Ravines Golf Course from the rural improvements on Division Road from County Line to CR 700W in Tippecanoe County.
- Tecumseh Trails/Amphitheater Park from the new road to the State Park from North River Road to North 9th, sponsored by INDNR.
- Tecumseh Trails/Amphitheater Park from the rural to urban improvement on Soldiers Home Road at N. River Road in Tippecanoe County.

Figure 3-B, National and State Registry of Historic Places



- Tippecanoe Battlefield Park from the six lane widening of I-65 from SR 43 to SR 38, sponsored by INDOT.
- Tippecanoe County Fairgrounds from the reconstruction of US 52 (Teal Rd.), sponsored by INDOT.

In general, the potential impacts to parks and open spaces from street and highway improvements would possibly involve added time and cost in site specific planning, permitting and construction for the improvement.

Cemeteries

APC staff created a cemetery database from a land use survey in 1988-1989. It was subsequently converted into a GIS format by identifying the location and approximate aerial extent of the cemeteries. The database was most recently updated in the August of 2009.

The database includes 134 sites that have been documented by verifiable public information. However, there are 30 to 40 other cemetery sites that are not verifiable. It is estimated that Tippecanoe County may have approximately 200 cemeteries. Figure 3-C shows the location of the verified cemeteries in Tippecanoe County.

The Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology require that all improvements within 100 ft of a cemetery must submit a development plan for approval. A proximity analysis determined that the following cemeteries, within a 100 ft buffer of the 2040 Plan road improvements, are potential impact locations:

- Burton Cemetery (AKA Old Bilderback, Klondike) from the urban conversion on SP 52 from Klondike to Morehouse.
- Davis-Higman Cemetery from the rural improvement on North 9th St. from Swisher to Duncan Road in Tippecanoe County.
- Fink Cemetery (AKA Fink Meadows, Tharp, Ortman) from the urban conversion on Ortman from Old US 231 to 18th Street in Lafayette
- Hebron Cemetery (AKA Grand Prairie Baptist (not Mt. Zion)) from the urban conversion on Morehouse Rd from CR 600N to US 52 in Tippecanoe County.
- Kenny Cemetery from the urban conversion on CR 450S from Concord Rd to US 52 in Tippecanoe County.
- Montmorenci Cemetery from the rural improvement on Jackson Highway from CR 650W to UAB in Tippecanoe County.
- Old Union Cemetery (AKA Union, Bowers, Old Campbellite) from the rural improvement on CR 975E from US 52 to CR 1300S in Tippecanoe County.
- Sickler Cemetery (AKA Lehman) from the urban conversion on Ortman from Old US 231 to 18th Street in Lafayette
- Soldiers Home Cemetery (AKA Old Veterans Cemetery) from the urban conversion on Soldiers Home from Kalberer to City Limits in West Lafayette
- Spring Grove Cemetery (AKA Ritchie) from the urban conversion on CR 600S from Wea School Rd to US 52 in Tippecanoe County

In general, the potential impacts of cemeteries from street and highway improvements would possibly involve added time and cost in site specific planning, permitting, construction, or alignment of the improvement. However, it is possible that an undocumented cemetery or unmarked gravesite may be encountered during a road construction causing a significant delay.

Wildlife and Endangered Species

The US Fish and Wildlife Services (USFWS), and the Indiana Department of Natural Resources (IDNR) provide a listing on their website of all endangered, threatened and rare species for Tippecanoe County (Table 3-A).

The USFWS has only designated critical habitats for the Rabbitsfoot as a threatened species within Tippecanoe County (http://criticalhabitat.fws.gov/). However, the Indiana Bat and the Bald Eagle may appear in Tippecanoe County because of streams, rivers, and forested area located along the Wabash and Wildcat Rivers, and throughout the County. Due to species roosting and foraging, the USFWS will most likely request species surveys if a road project impacts the Wabash River or its upstream tributaries, the Clubshell and Fanshell mussels will most likely require mitigation activities.

Figure 3-C, Parks, Open Space, Recreational Facilities, and Cemeteries

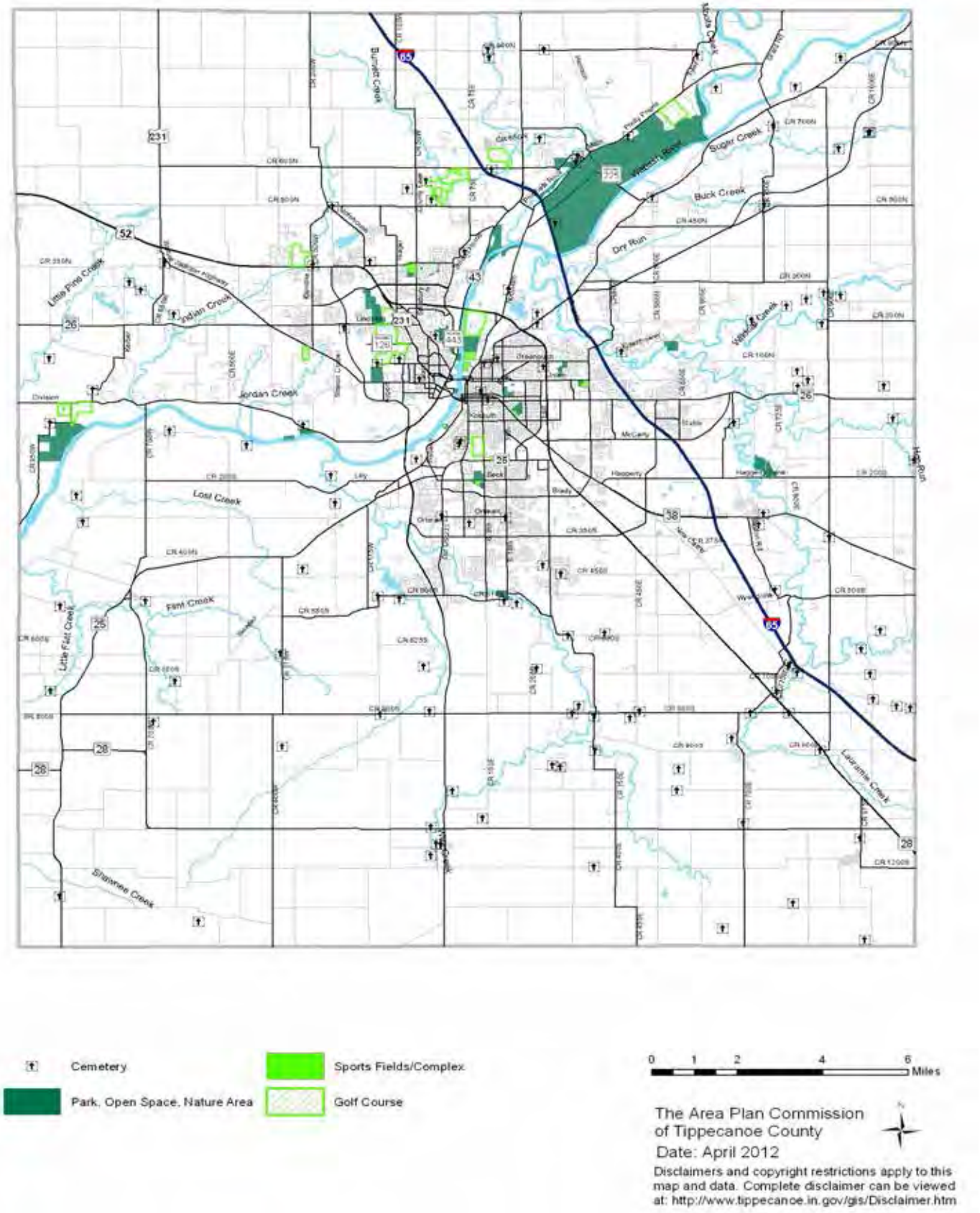


Table 3-A, Indiana County Endangered, Threatened and Rare Species in Tippecanoe County

Species Name	Common Name	Fed	State	GRANK	SRANK
Mollusk: Bivalvia (Mussels) Cyprogenia stegaria	Eastern Fanshell Pearlymussel	LE	SE	G1Q	S1
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Epioblasma torulosa torulosa	Tubercled Blossom	LE	SE	G2TX	SX
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Fusconaia subrotunda	Longsolid		SE	G3	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Lampsilis ovata	Pocketbook			G5	S2
Leptodea leptodon	Scaleshell	LE	SX	G1G2	SX
Ligumia recta	Black Sandshell			G4G5	S2
Obovaria retusa	Ring Pink	LE	SX	G1	SX
Obovaria subrotunda	Round Hickorynut		SE	G4	S1
Plethobasus cicatricosus	White Wartyback	LE	SE	G1	SX
Plethobasus cyphyus	Sheepnose	LE	SE	G3	S1
Pleurobema clava	Clubshell	LE	SE	G1G2	S1
Pleurobema cordatum	Ohio Pigtoe		SSC	G4	S2
Pleurobema plenum	Rough Pigtoe	LE	SE	G1	S1
Pleurobema pyramidatum	Pyramid Pigtoe		SE	G2G3	SX
Potamilus capax	Fat Pocketbook	LE	SE	G2	S1
Ptychobranchus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	LT	SE	G3G4T3	S1
Simpsonaias ambigua	Salamander Mussel		SSC	G3	S2
Toxolasma lividus	Purple Lilliput		SSC	G3Q	S2
Villosa fabalis	Rayed Bean	LE	SE	G2	S1
Insect: Coleoptera (Beetles) Lissobiops serpentinus	A Rove Beetle		SE	GNR	S1
Insect: Ephemeroptera (Mayflies) Paracloeodes minutus	A Small Minnow Mayfly			G5	S2
Insect: Lepidoptera (Butterfly) Speyeria idalia	Regal Fritillary		SE	G3	S1
Insect: Mecoptera Merope tuber	Earwig Scorpionfly		SE	G3G5	S1
Insect: Odonata (Dragonflies) Erpetogomphus designatus	Eastern Ringtail		ST	G5	S2
Somatochlora tenebrosa	Clamp-tipped Emerald		SR	G5	S2S3
Fish Etheostoma tippecanoe	Tippecanoe Darter		SSC	G3G4	S3
Amphibian Hemidactylium scutatum	Four-toed Salamander		SSC	G5	S2
Reptile Clemmys guttata	Spotted Turtle		SE	G5	S2
Emydoidea blandingii	Blanding's Turtle		SE	G4	S2
Opheodrys vernalis	Smooth Green Snake		SE	G5	S2

Terrapene carolina carolina	Eastern Box Turtle		SSC	G5T5	S3
Terrapene ornata ornata	Ornate Box Turtle		SE	G5T5	S1
Bird Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ammodramus henslowii	Henslow's Sparrow		SE	G4	S3B
Asio flammeus	Short-eared Owl		SE	G5	S2
Asio otus	Long-eared Owl			G5	S2
Aythya collaris	Ring-necked Duck			G5	SHB
Bartramia longicauda	Upland Sandpiper		SE	G5	S3B
Botaurus lentiginosus	American Bittern		SE	G4	S2B
Buteo platypterus	Broad-winged Hawk		SSC	G5	S3B
Carduelis pinus	Pine Siskin			G5	S3N
Cistothorus platensis	Sedge Wren		SE	G5	S3B
Dendroica cerulea	Cerulean Warbler		SE	G4	S3B
Falco peregrinus	Peregrine Falcon		SSC	G4	S2B
Grus canadensis	Sandhill Crane	No Status	SSC	G5	S2B,S1N
Haliaeetus leucocephalus	Bald Eagle		SSC	G5	S2
Ixobrychus exilis	Least Bittern		SE	G5	S3B
Lanius ludovicianus	Loggerhead Shrike		SE	G4	S3B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Rallus elegans	King Rail		SE	G4	S1B
Sturnella neglecta	Western Meadowlark		SSC	G5	S2B
Tyto alba	Barn Owl		SE	G5	S2
Mammal Geomys bursarius	Plains Pocket Gopher		SSC	G5	S2
Lasiurus borealis	Eastern Red Bat		SSC	G5	S4
Mustela nivalis	Least Weasel		SSC	G5	S2?
Myotis septentrionalis	Northern Myotis		SSC	G1G3	S2S3
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
Nycticeius humeralis	Evening Bat		SE	G5	S1
Plecotus rafinesquii	Rafinesque's Big-eared Bat		SSC	G3G4	SH
Reithrodontomys megalotis	Western Harvest Mouse			G5	S2
Spermophilus franklinii	Franklin's Ground Squirrel		SE	G5	S2
Taxidea taxus	American Badger		SSC	G5	S2
Vascular Plant Androsace occidentalis	Western Rockjasmine		ST	G5	S2
Arenaria patula	Pitcher's Stitchwort		SE	G4	S1
Aster oblongifolius	Aromatic Aster		SR	G5	S2
Astragalus tennesseensis	Tennessee Milk-vetch		SRE	G3	SX
Bacopa rotundifolia	Roundleaf Water-hyssop		ST	G5	S1
Besseya bullii	Kitten Tails		SE	G3	S1
Botrychium matricariifolium	Chamomile Grape-fern		SR	G5	S2
Botrychium simplex	Least Grape-fern		SE	G5	S1
Camassia angusta	Wild Hyacinth		SE	G5?Q	S1
Carex flava	Yellow Sedge		ST	G5	S2

Carex gravida	Heavy Sedge	SE	G5	S1
Chelone obliqua var. speciosa	Rose Turtlehead	WL	G4T3	S3
Chrysopsis villosa	Hairy Golden-aster	ST	G5	S2
Circaea alpina	Small Enchanter's Nightshade	SX	G5	SX
Cirsium hillii	Hill's Thistle	SE	G3	S1
Coeloglossum viride var. virescens	Long-bract Green Orchis	ST	G5T5	S2
Crataegus pedicellata	Scarlet Hawthorn	ST	G5	S2
Cypripedium candidum	Small White Lady's-slipper	WL	G4	S2
Eriophorum angustifolium	Narrow-leaved Cotton-grass	SR	G5	S2
Erysimum capitatum	Prairie-rocket Wallflower	ST	G5	S2
Euphorbia obtusata	Bluntleaf Spurge	SE	G5	S1
Gentiana alba	Yellow Gentian	SR	G4	S2
Houstonia nigricans	Narrowleaf Summer Bluets	SR	G5	S2
Linum sulcatum	Grooved Yellow Flax	SR	G5	S2
Lithospermum incisum	Narrow-leaved Puccoon	SE	G5	S1
Melampyrum lineare	American Cow-wheat	SR	G5	S2
Muhlenbergia cuspidata	Plains Muhlenbergia	SE	G4	S1
Napaea dioica	Glade Mallow	SR	G4	S2
Onosmodium hispidissimum	Shaggy False-gromwell	SE	G4	S1
Orobanche riparia	Bottomland Broomrape	SE	G4?	S2
Oryzopsis racemosa	Black-fruit Mountain-ricegrass	SR	G5	S2
Panicum rigidulum var. pubescens	Long-leaved Panic-grass	SX	G5T5?	SX
Plantago cordata	Heart-leaved Plantain	SE	G4	S1
Platanthera psycodes	Small Purple-fringe Orchis	SR	G5	S2
Poa paludigena	Bog Bluegrass	WL	G3	S3
Psoralea tenuiflora	Few-flowered Scurf-pea	SX	G5	SX
Sanguisorba canadensis	Canada Burnet	SE	G5	S1
Selaginella apoda	Meadow Spike-moss	WL	G5	S1
Silene regia	Royal Catchfly	ST	G3	S2
Trichostema dichotomum	Forked Bluecurl	SR	G5	S2
Viola pedatifida	Prairie Violet	ST	G5	S2
High Quality Natural Community				
Barrens - gravel	Gravel Slope Barrens	SG	G3	S1
Barrens - sand	Sand Barrens		SG	G3
Forest - upland dry-mesic	Dry-mesic Upland Forest	SG	G4	S4
Forest - upland mesic	Mesic Upland Forest	SG	G3?	S3
Lake - lake	Lake		SG	GNR
Prairie - dry-mesic	Dry-mesic Prairie	SG	G3	S2
Wetland - fen	Fen		SG	G3
Wetland - marsh	Marsh		SG	GU
Wetland - seep circumneutral	Circumneutral Seep	SG	GU	S1

Fed LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting

State SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list

GRANK Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank

SRANK State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

The Indiana Natural Heritage Data Center of the IDNR states that "This data is not the result of comprehensive county surveys."

All of the USFWS species are included on IDNR's list above. Indiana state law protects several species from "take," which is defined as harassing, hunting, capturing, killing or attempting to kill a state-listed species. The Indiana Division of the Fish and Wildlife (IDFW) will be contacted during the EIS to potential impact on state-listed species' habitat.

In general, the potential impacts of endangered and threatened species from street and highway improvements would possibly involve added time and cost in site specific planning, permitting, construction, or alignment of the improvement.

Floodplains

The Multi-Hazard Mitigation Plan for Tippecanoe County was originally adopted by the County and cities in 2006 and rewritten and adopted in 2016. The plan describes the risk assessment and the mitigation goals and projects in relation to flood hazard zones. The plan should be used as guidance for road improvement projects. In addition local floodplain ordinances and the Tippecanoe County Drainage Board must be consulted for all street and highway improvements.

Proximity analysis determined that 42 road projects would pass through the 100-year and/or 500-year FEMA flood hazard zone as shown in Table 3-B.

In general the potential impacts from flood zones to street and highway improvements would possibly involve time and cost in site specific planning, permitting and construction. Refer to the following section for additional information regarding potential source water protection requirements.

Table 3-B. Projects Crossing the 100-Year and/or the 500-Year Flood Hazard Zone

Project	Location	Project Sponsor	Water Body
Concord Rd	CR430S to CR600S	Tippecanoe Co.	Wea Creek
McCutcheon Ped.	McCutcheon HS &Mayflower ES	Tippecanoe Co.	Wea Creek
CR 500N	SR 43 to County Farm	Tippecanoe Co.	Burnett Creek
CR 500N	County Farm to rel. 231	Tippecanoe Co.	Burnett Creek
Jackson Hwy	UAB to SR 26	Tippecanoe Co	Indian Creek
Morehouse Rd	CR 600N to US 52	Tippecanoe Co	Indian Creek/Hadley Lake
Morehouse Rd	County Line to CR600N	Tippecanoe Co	Burnett Creek
CR 600S	Wea School Rd to US 52	Tippecanoe Co	Wea Creek
CR 700W	SR 25 to Division Rd	Tippecanoe Co	Lost Creek
CR 75E	CR 600N to Soldiers Home	Tippecanoe Co	Burnett Creek
CR 900E	SR 26 to SR 38	Tippecanoe Co	Wildcat Creek
CR 900E	SR 26 to CR300N	Tippecanoe Co	Wildcat Creek
CR 900E	CR300N to CR800N	Tippecanoe Co	Sugar Creek
Division	CR700W to County Line	Tippecanoe Co	Indian Creek
E Co. Line Rd	Hoosier Heartland Hwy. to SR 26	Tippecanoe Co	Sugar Creek/Wildcat Creek
North 9th St	Swisher to Duncan Rd	Tippecanoe Co	Wabash River
North Yeager	Curve Correction to CR500N	Tippecanoe Co	Burnett Creek

Project	Location	Project Sponsor	Water Body
South 18th	CR430S to CR510S	Tippecanoe Co	Wea Creek
South 9th	CR430S to CR510S	Tippecanoe Co	Wea Creek
CR 50W	At CR 500N & CR 600N	Tippecanoe Co	Unnamed Burnett Tributary
CR 600N	Morehouse to CR 75E	Tippecanoe Co	Unnamed Burnett Tributary
South 9th	Twyckenham to CR350S	Lafayette	Wea Creek
Vet. Mem. Pkwy	US 231 to S 9th	Lafayette	Wea Creek
N. River Road	Robinson St. to Happy Hollow Rd	West Lafayette	Wabash River
WL-E/W Collector	Yeager to Soldiers Home	West Lafayette	Unnamed Burnett Tributary
Happy Hollow Tr	Adj. to Happy Hollow Entrance	West Lafayette	Happy Hollow Creek
Cumberland, Ph 4	Blue Ivy Ln to Sag. Pkwy.	West Lafayette	Celery Bog
South River Rd	US 52/231 to City Limits	West Lafayette	Wabash River
Newman Rd	SR 26 to South River Rd	West Lafayette	Wabash River
I-65	At SR 25	INDOT	Wildcat Creek
I 65	SR 38 to East County Line	INDOT	Lauramie Creek
I 65	SR 43 to SR 25	INDOT	Wabash River/Wildcat Creek
I 65	US 231 to SR 43	INDOT	Burnett Creek
SR 26	CR550E to CR900E	INDOT	Wildcat Creek
US 52 (Teal)	S 4th to S 9th	INDOT	Unnamed Wabash Tributary
US 231	CR500S to County Line	INDOT	Wea and Little Wea Creek
US 231 Connector	US 52 to I65	INDOT	Burnett Creek/Indian Creek
Prophetstown	N. River Road to N 9th	INDNR	Burnett Creek
CR 600N	SR 43 to Prophets Rock Rd	Battle Ground	Burnett Creek
Prophets Rock Rd	CR 600N to Railroad St	Battle Ground	Burnett Creek
CR 500S	Wea School to Concord	Private Dev.	Wea Creek
CR 600S	US 231 to CR250E	Private Dev.	Little Wea/Wea Creek

Water Quality

In Tippecanoe County, all residences rely on groundwater for potable water which may or may not receive treatment. In addition to public supply, Tippecanoe County surface water resources and wetlands are crucial to wildlife, agriculture, businesses, and recreational users. The water quality of surface and groundwater sources is monitored by the Indiana Department of Natural Resources (IDNR) and Indiana Department of Environmental Management (IDEM). These state agencies are responsible for regulating monitoring and enforcing the water quality and source protection laws. The Tippecanoe County Soil and Water Conservation District (SWCD) is the local subdivision of state government responsible for coordinating the conservation of our soil, water, and related natural resources. In addition, the Wabash River Enhancement Corporation is active in monitoring and promoting local water quality.

Ensuring that the source water is protected from contamination will reduce the potential costs of treatment and risks to public health. In addition, many of the larger street and highway improvements may require National Pollutant Discharge Elimination System (NPDES) project and storm water permit from IDEM.

In general, the potential impacts from source water protection and runoff permitting to street and highway improvements would possibly involve added time and cost in site-specific planning.

Groundwater

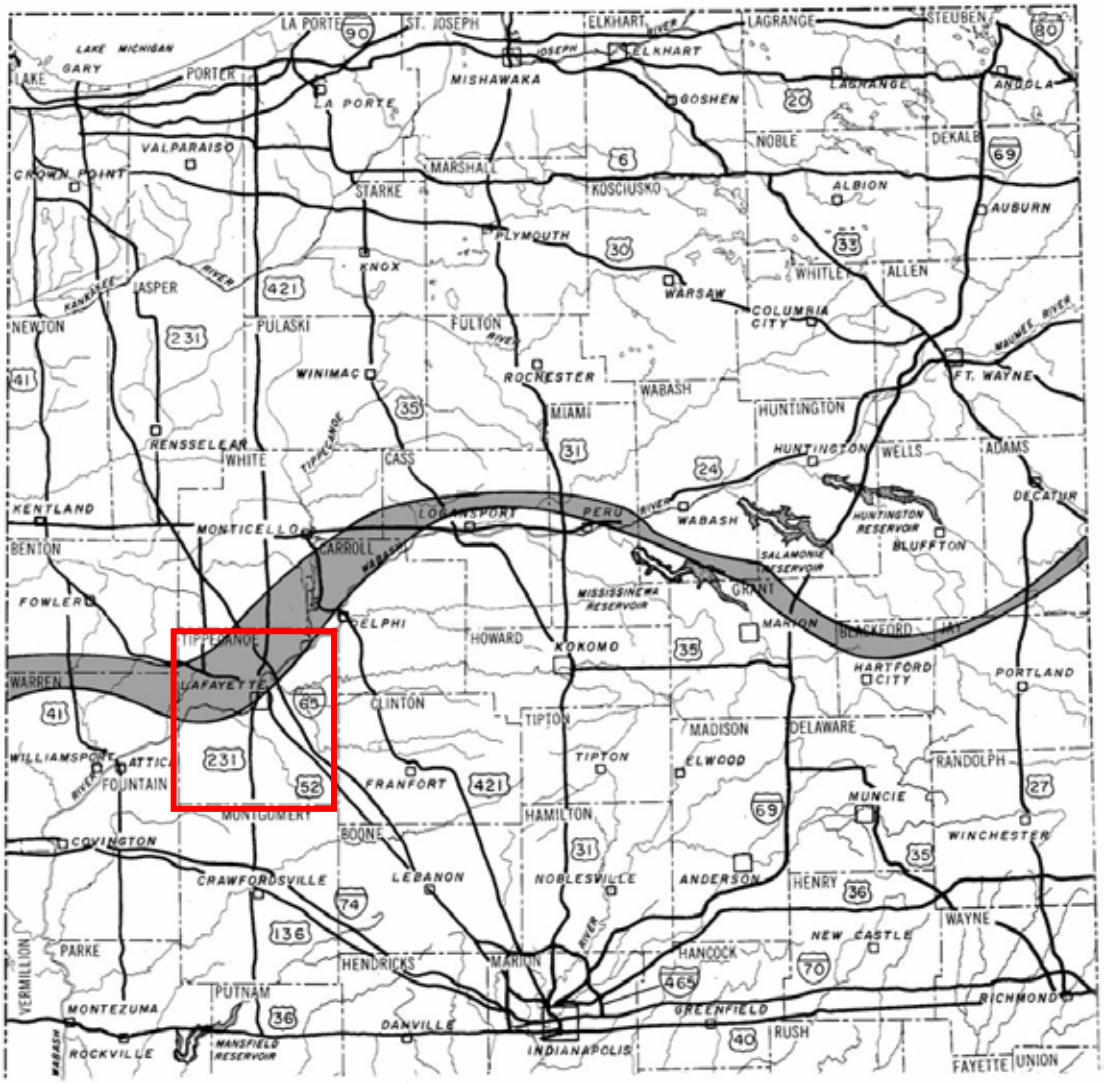
Municipal and industrial water supply is taken primarily from the Lafayette (Teays) Bedrock Valley System, associated with the Wabash River; the Teays traverses north-central Indiana as shown in Figure 3-D.

Recharge to aquifers within the Lafayette (Teays) Bedrock Valley occur in the same manner as do many of the other aquifers in the state, namely by the downward percolation of local rainfall through the soil horizon and underlying formations. However, localized significant rainstorms can produce relatively quick response to recharge especially if adjacent areas did not receive the rainfall.

In addition to the Lafayette (Teays) bedrock aquifer, the Silurian-Devonian aquifer (carbonate-rock) and other surficial sand and gravel aquifers may be utilized in Tippecanoe County by rural wells.

Care must be taken to ensure the quality of the water from the alluvial and surficial aquifer source waters. Potential pollution from construction, sewage outfall, illegal dumping, agriculture, and storm water runoff must be avoided or controlled due to the recharge of these aquifers from runoff and river water.

Figure 3-D, Lafayette (Teays) Bedrock Valley in the State of Indiana

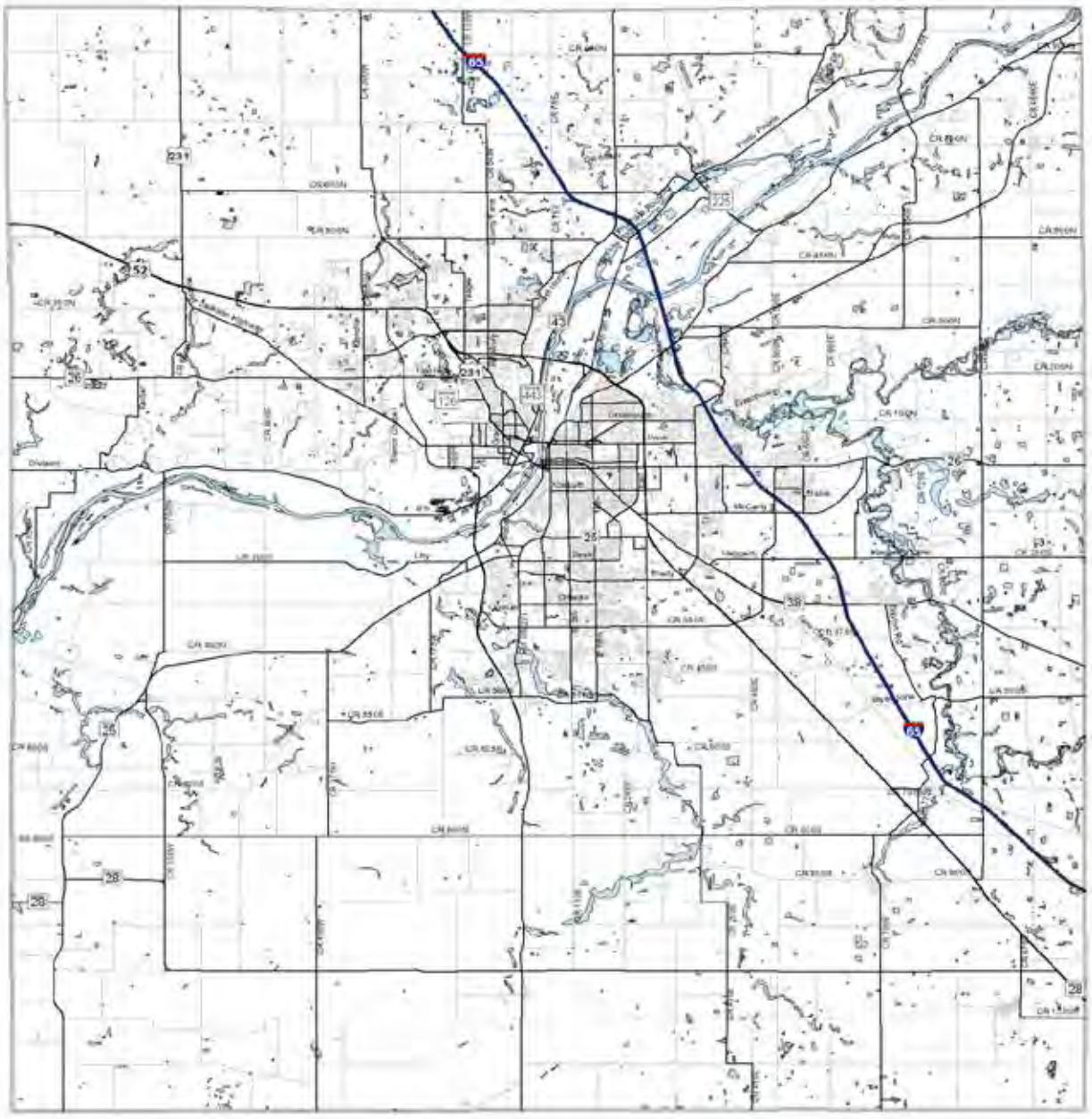


River, streams, lakes, and other surface water

The Wabash Valley is the most striking physiographic feature of this county. The entire county is within the drainage basin of the Wabash River, which crosses the county from the northeastern corner to near the center of the western boundary. In addition, there are many watersheds and sub watersheds within Tippecanoe County. Two main tributaries, the Tippecanoe River and Wildcat Creek, enter the Wabash River in the northeastern part of the county. Little Pine Creek, Indian Creek, Burnett's Creek and Moot's Creek are minor tributaries from the north; Sugar Creek and Buck Creek enter from the east, and finally, Wea Creek and Flint Creek come in from the south. In all, there are 65 waterways within Tippecanoe County according to IDEM as shown in Figure 3-E.The Indiana Department of Environmental Management has identified Wabash River segments on the State's Section 303(d) List

of Impaired Waters as shown in Table 3-C. Additional mitigation activities may be required surrounding these impaired reaches of the Wabash.

Figure 3-E, Tippecanoe County Hydrologic Features and Wetlands



NWI wetlands (2011)

0 1 2 4 6 Miles

The Area Plan Commission
of Tippecanoe County
Date: April 2012

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Table 3-C, Category 5 Waters: Indiana's Draft 2016 303(d) List of Impaired Waters

Basin	14-Digit HUC	Segment ID	Waterbody Segment Name	Cause of Imparement
Upper Wabash	51201050601	INB0561_02	SUGAR CREEK	E. COLI
Upper Wabash	51201050601	INB0561_T1004	SUGAR CREEK - UNNAMED TRIBUTARY	E. COLI
Upper Wabash	51201050602	INB0562_01	WABASH RIVER	PCBS (FISH TISSUE)
Upper Wabash	51201050603	INB0563_01	WABASH RIVER	IMPAIRED BIOTIC COMMUNITIES
Upper Wabash	51201050603	INB0563_01	WABASH RIVER	PCBS (FISH TISSUE)
Upper Wabash	51201050603	INB0563_T1002	BUCK CREEK	IMPAIRED BIOTIC COMMUNITIES
Upper Wabash	51201050603	INB0563_T1002	BUCK CREEK	E. COLI
Upper Wabash	51201050603	INB0563_T1003	BUCK CREEK - UNNAMED TRIBUTARY	E. COLI
Upper Wabash	51201050603	INB0563_T1003	BUCK CREEK - UNNAMED TRIBUTARY	IMPAIRED BIOTIC COMMUNITIES
Upper Wabash	51201061309	INB06D9_01	TIPPECANOE RIVER	PCBS (FISH TISSUE)
Upper Wabash	51201070205	INB0725_02	WILDCAT CREEK, MIDDLE FORK	PCBS (FISH TISSUE)
Upper Wabash	51201070205	INB0725_02A	WILDCAT CREEK, MIDDLE FORK - UNNAMED TRIBUTARY	PCBS (FISH TISSUE)
Upper Wabash	51201070310	INB073A_01	WILDCAT CREEK, SOUTH FORK	PCBS (FISH TISSUE)
Upper Wabash	51201070311	INB073B_01	WILDCAT CREEK, SOUTH FORK	PCBS (FISH TISSUE)
Upper Wabash	51201070311	INB073B_02	WILDCAT CREEK, SOUTH FORK	PCBS (FISH TISSUE)
Upper Wabash	51201070409	INB0749_01	WILDCAT CREEK	PCBS (FISH TISSUE)
Upper Wabash	51201070409	INB0749_02	WILDCAT CREEK	PCBS (FISH TISSUE)
Upper Wabash	51201070409	INB0749_03	WILDCAT CREEK	PCBS (FISH TISSUE)
Lower Wabash	51201080104	INB0814_01	ELLIOT DITCH	IMPAIRED BIOTIC COMMUNITIES
Lower Wabash	51201080104	INB0814_01	ELLIOT DITCH	PCBS (FISH TISSUE)
Lower Wabash	51201080106	INB0816_01	WEA CREEK	E. COLI
Lower Wabash	51201080106	INB0816_01	WEA CREEK	PCBS (FISH TISSUE)
Lower Wabash	51201080106	INB0816_02	WEA CREEK	E. COLI
Lower Wabash	51201080106	INB0816_02	WEA CREEK	PCBS (FISH TISSUE)
Lower Wabash	51201080106	INB0816_06A	WEA CREEK - UNNAMED TRIBUTARY	E. COLI
Lower Wabash	51201080106	INB0816_06A	WEA CREEK - UNNAMED TRIBUTARY	PCBS (FISH TISSUE)
Lower Wabash	51201080202	INB0822_01	BURNETTE CREEK	E. COLI
Lower Wabash	51201080202	INB0822_02	BURNETTE CREEK (DOWNSTREAM OF BATTLE GROUND, IN)	IMPAIRED BIOTIC COMMUNITIES
Lower Wabash	51201080202	INB0822_02	BURNETTE CREEK (DOWNSTREAM OF BATTLE GROUND, IN)	E. COLI
Lower Wabash	51201080203	INB0823_01	WABASH RIVER	PCBS (FISH TISSUE)
Lower Wabash	51201080502	INB0852_01	WABASH RIVER	PCBS (FISH TISSUE)
Lower Wabash	51201080503	INB0853_01	WABASH RIVER	PCBS (FISH TISSUE)
Lower Wabash	51201080504	INB0854_01	FLINT CREEK	DISSOLVED OXYGEN
Lower Wabash	51201080504	INB0854_01	FLINT CREEK	NUTRIENTS
Lower Wabash	51201080601	INB0861_01	BIG SHAWNEE CREEK	E. COLI

Table 3-D shows the results of proximity analysis for surface water bodies that may be impacted by transportation improvements in the 2045 Plan.

In general, care must be taken to ensure the quality of the County's surface water. Potential pollution from construction, sewage outfall, illegal dumping, agriculture, and storm water runoff must be avoided or controlled to ensure heath water for wildlife and humans. It is also important to protect the surface water since it's a recharge mechanism for local alluvial and bedrock aquifers used for drinking water.

Table 3-D, Water Bodies Potentially Affected by Projects

Project	Location	Project Sponsor
Burnett Creek		
CR 75E	Soldiers Home to CR 600N	Tippecanoe Co
CR 500N	SR 43 to County Farm	Tippecanoe Co.
CR 500N	County Farm to rel. 231	Tippecanoe Co.
Morehouse Rd	County Line to CR600N	Tippecanoe Co
North Yeager	Curve Correction to CR500N	Tippecanoe Co
I 65	SR 43 to new US 231	INDOT
Prophetstown	N. River Road to N 9th	INDNR
US 231 Connector	US 52 to I 65	INDOT
US 231 Connector	I 65 to SR 43	INDOT
Hadley Lake		
Morehouse	US 52 to CR 600N	Tippecanoe Co
US 231	US 52 to I 65	INDOT
Indian Creek		
Division	CR 700W to County Line	Tippecanoe Co
Jackson Hwy	SR 26 to UAB	Tippecanoe Co
Morehouse	US 52 to CR 600N	Tippecanoe Co
US 231 Connector	US 52 to I65	INDOT
Lauramie Creek		
I 65	East County Line to SR 38	INDOT
Sugar Creek		
CR 900E	CR 300N to CR 800N	Tippecanoe Co
E Co. Line Rd	Hoosier Heartland Hwy. to SR 26	Tippecanoe Co
Wabash River		
CR 700W	SR 25 to Division	Tippecanoe Co
I 65	SR 25 to SR 43	INDOT
N 9th	Duncan to Swisher	Tippecanoe Co
N. River Road	Robinson St. to Happy Hollow Rd	West Lafayette
South River Rd	US 52/231 to City Limits	West Lafayette
Newman Rd	SR 26 to South River Rd	West Lafayette
Wea Creek		
CR 600S	Wea School Rd to US 52	Tippecanoe Co
S 9th	CR 430S to CR 510S	Tippecanoe Co
South 18th	CR430S to CR510S	Tippecanoe Co
Concord Rd	CR430S to CR600S	Tippecanoe Co.
McCutcheon Ped.	McCutcheon HS &Mayflower ES	Tippecanoe Co.
South 9th	Twyckenham to CR350S	Lafayette
Vet. Mem. Pkwy	US 231 to S 9th	Lafayette
CR 500S	Wea School to Concord	Private Dev.
US 231	CR500S to County Line	INDOT
Wildcat Creek		
CR 900E	SR 26 to SR 38	Tippecanoe Co
CR 900E	SR 26 to CR300N	Tippecanoe Co
E County Line Rd	HH to SR 26	Tippecanoe Co
I 65	SR 38 to SR 43	INDOT
I-65	At SR 25	INDOT
SR 26	CR 550E to CR 900E	INDOT

Wetlands

Wetlands are areas of land that are wet (saturated or flooded) for at least part of the year, have soils that formed under wet conditions and support vegetation that can live in wet or moist areas. Wetlands are important because they naturally perform many functions we value as a society. Wetlands, depending on their location, can provide habitat for fish wildlife, flood protection, shoreline stabilization, groundwater recharge, water quality protection and recreation.

According to National Wetland Inventory there are ~20 square miles of wetlands in Tippecanoe County. However, State agencies, such as INDOT, are continually updating the wetland delineations in during site investigations.

In general, the potential impacts of wetlands from street and highway improvements would possibly involve added time and cost in site specific planning, permitting, construction, or alignment of the improvement.

A proximity analysis determined the following 32 improvements listed in Table 3-E may impact wetland locations.

Table 3-E, Projects in Close Proximity of Wetlands

Project Name	Location	Project Sponsor	Wetland Type
Concord Rd	CR 430S to CR 600S	Tippecanoe County	Freshwater Forested/Shrub
CR 550S	US 231 to CR 100E	Private Development	Freshwater Emergent Wetland
CR 600S	US 231 to CR 250E	Private Development	Freshwater Forested/Shrub
CR 700W	SR 25 to Division Rd	Tippecanoe County	Riverine,
CR 900E	SR 26 to CR 300N	Tippecanoe County	Riverine,
CR 900E	SR 26 to SR 38	Tippecanoe County	Freshwater Forested/Shrub
CR 925W	CR 350N to SR 26	Tippecanoe County	Freshwater Emergent Wetland
CR 975E	US 52 to CR 1300S	Tippecanoe County	Freshwater Emergent Wetland
E County Line Rd	Hoosier Heartland to SR 26	Tippecanoe County	Riverine,
Hamman	Current Dead-End to Kossuth	Lafayette	Freshwater Pond
I-65	US 231 Connector to SR 43	INDOT	Freshwater Forested/Shrub
I-65	SR 43 to SR 25	INDOT	Riverine,
I-65	SR 38 to East County Line	INDOT	Freshwater Emergent Wetland,
Jackson	CR 650W to UAB	Tippecanoe County	Freshwater Emergent Wetland,
Klondike	US 52 to Lindberg	Tippecanoe County	Freshwater Emergent Wetland
Lindberg	Klondike To McCormick	Tippecanoe County	Freshwater Pond
Morehouse Rd	CR 600N to Sagamore Pkwy	Tippecanoe County	Freshwater Lake,
N 9th St	Swisher to Duncan Rd	Tippecanoe County	Riverine,
N Yeager Rd	Curve Correction to CR	Tippecanoe County	Freshwater Forested/Shrub
Park East Drive	McCarty to E-W Collector	Private Development	Freshwater Emergent Wetland
Prophetstown Pk	North River Rd to North 9th	INDOT	Freshwater Pond
S 18th	CR 430S to CR 510S	Tippecanoe County	Freshwater Forested/Shrub
Veterans M. P	New US 231 to Poland Hill	Lafayette	Freshwater Pond
SR 26	CR 550E to CR 900E	INDOT	Riverine, Freshwater Pond,
South Street	Sagamore Parkway to I-65	Lafayette	Freshwater Pond
SR 43B	I-65 to SR 43	INDOT	Freshwater Emergent Wetland,
US 231	CR 500S to South County	INDOT	Freshwater Emergent Wetland,
US 231	US 52 to I-65	INDOT	Freshwater Forested/Shrub
WL E/W	CR 100W to Soldiers Home	West Lafayette	Freshwater Emergent Wetland
WL N/S	CR 500N to Kalberer	West Lafayette	Freshwater Emergent Wetland

Hazardous Waste Sites/Superfund Sites

The Superfund program, also known as the National Priorities List (NPL), was created as a result of the Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLA was enacted in 1980, and amended by the Superfund Amendments and Reauthorization act of 1986. These acts establish broad authority for the government to respond to problems posed by the release, or threat of release, of hazardous substances and provided the authority for the government to undertake enforcement and abatement action against responsible parties.

Staff obtained the listing of open and archived hazardous waste sites from the Superfund Enterprise Management System online database. Both archived and open CERCLA sites must be considered for an environmental impact studies.

Table 3-F. Active Superfund Sites

EPA ID	Site Name	City	Non-NPL Status Date	NPL Status
IND980997639	Tippecanoe Sanitary Landfill, Inc.	Lafayette	[Blank Date]	Final NPL
INSFN0507954	*Elliott Ditch/Wea Creek Sediment Site*	Lafayette	1/25/2008	*Not NPL*
INN000507202	Canal Road Groundwater Contamination	Lafayette	12/22/2016	Not NPL
INN000506503	USPS Service Vehicle Maintenance Facility	Lafayette	12/31/2014	Not NPL

The Toxics Release Inventory (TRI) is an additional publicly available EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. The list of facilities is found at the EPA TRI Explorer (http://www.epa.gov/tri), and release information is found at the EPA Envirofacts website (http://www.epa.gov/enviro).

In total, there is one accepted Superfund and 18 TRI release or reporting sites located in Tippecanoe County.

Proximity analysis determined that only the North 9th St., Swisher to Duncan Rd. widening project is in the proximity of the Tippecanoe County Sanitary Landfill Superfund site.

Leaking Underground Storage Tanks

If a release from an Underground Storage Tanks (UST) system is suspected or confirmed, the owner and operator must report it to IDEM, stop any on-going release, investigate to determine the type and extent of contamination, and conduct cleanup actions as necessary. These sites are called Leaking USTs (LUST). The current listing of LUST sites is an IDEM database. The dataset consists of known sites with leaking underground storage tanks.

There are 221 LUSTs listed in Tippecanoe County according to the Indiana Department of Environmental Management. Only 92 sites were able to be georeferenced A proximity analysis determined that of known LUST locations, there are 27 sites within the proximity buffer affecting 14 highway projects (Table 3-H**)**. It is important to note that the property access point is considered in this analysis and not the actual tank location. Therefore the tank, in most instances, will not physically lie within the street or highway improvement area.

Table 3-H, Projects in Close Proximity of Leaking Underground Storage Tanks

Project Name	Location	Project Sponsor	LUST System ID
Veterans M.P.	SR 26 to Haggerty	Lafayette	16929
South 18th St	Teal to Brady	Lafayette	2018
Main	S 18th to McCarty	Lafayette	2898, 6740, 19803
South	Main to Earl	Lafayette	4696, 10042
South Street	N 31st to west of US 52	Lafayette	4696, 10042, 21300
South Street	US 52 to I 65	Lafayette	191, 1057, 3527, 6807
E Co. Line Rd	Hoosier Heartland to SR 26	Tippecanoe County	21353
Morehouse	County Line to CR 600N	Tippecanoe County	20009
CR 975	US 52 to CR1300S	Tippecanoe County	19275
US 52	Old US 231 to Teal	INDOT	11517, 11574
US 52	S 18th to Sagamore Pkwy	INDOT	116, 1095, 3505, 5009
SR 43	CR 725N to County Line	INDOT	6397
US 52	S 9th to S 18th	INDOT	12799
SP 52	Cumberland to Yeager	INDOT	1106, 6884

In general, the potential impacts from known and undiscovered LUSTs to street and highway improvements would possibly involve added time and cost in site-specific planning, permitting, and construction.

6. Conclusion

Although general in nature this analysis found that the social and environmental impacts, identified at the County level, would not preclude final plan adoption. Several potential impacts to projects may require increased time and costs in the planning and review process due to the need to comply with environmental and historical regulations, additional rights-of-way acquisition, and potential accommodations/mitigation activities to neighborhoods, businesses, and historical places. Furthermore, a detailed site-specific review of environmental impacts is required by the National Environmental Policy Act (NEPA) for any street or highway project utilizing federal funds. In short, the analysis provided in this analysis provides a forum for discussion and consideration of the potential system level impacts during the plan adoption phase.

E. Project Descriptions

Lafayette:

Twyckenham Blvd. is a Minor Arterial that is a narrow, 4 lane road with horizontal curves and deteriorating concrete pavement. It is currently in the TIP and reconstruction is recommended with a sidewalk and trail.

Park East Boulevard is a Major Collector that needs to be extended further south to SR 38. A trail will be constructed on one side and a sidewalk on the other. The southern portion of the project is currently in the TIP, and the remainder is dependent upon development in the area.

South 9th Street is a Minor Arterial north of Veterans Memorial Parkway and a Major Collector south of VMP. Four sections are identified for widening from Owen Street to CR 430S. The highest priority is the section from Twyckenham Boulevard to Veterans Memorial Parkway. The section south of Veterans Memorial Parkway is a medium priority. The two projects north of Twyckenham Boulevard are low priority. There are several pedestrian and bicycle improvements in the corridor.

36th Street from South Street to Union is a Major Collector. It is a corridor of heavy commercial and light industrial uses with deteriorating concrete pavement in need of reconstruction.

South Beck Lane from Old US 231 to SR 52 (Teal West) needs to be reconstructed to urban road standards.

Sidewalks are needed on both side of the road. The road is classified as a collector and this is a low priority project.

Poland Hill Road from Teal Road (US 52) to Beck Lane is a Major Collector that is a narrow two lane road with no curbs, shoulders or sidewalks and several engineering challenges. It will be reconstructed to an urban cross-section with sidewalks and is a medium priority.

Beck Lane from Old US 231 to Poland Hill Road is a Major Collector and needs to be upgraded from a rural design to urban cross-section with sidewalks and a bike lane. It is a medium priority project. A trail will be constructed on one side with a sidewalk on the other.

***McCarty* Lane** is a Minor Arterial and sections of it have been improved over the last two decades. The last section between Main Street and Sagamore Parkway will be widened as part of the Sagamore Parkway project. The intersection with Main Street will then need to be improved.

South 18th Street is a Minor Arterial and the section from Teal Road (SR 52) to Brady Lane needs capacity improvements and a complete street design. Lafayette's Master Greenway and Trail Plan calls for a trail to be constructed on one side. The project is a medium priority.

Veterans Memorial Parkway *is* a Principal Arterial, from US 231 to SR 38, and a Minor Arterial from SR 38 to SR 26. Three sections of the road need to be widened to four lanes to match the existing four lane sections. Widening is needed from US 52 to SR 38, Haggerty to SR 26 (both medium priorities) and from US 231 to 9th Street (a low priority). All need to be upgraded to an urban cross section with a trail.

South Street is a principal arterial from I-65 to Earl and a gateway into our community. Because of its importance, the corridor has been improved several times with. South Street between Sagamore Parkway and I-65 experiences significant congestion, crashes and delay. It is targeted for widening to six travel lanes and needs sidewalks on both sides of the road. This project is a medium priority. In 2012 INDOT transferred jurisdiction of South Street from the Wabash River to I-65 to Lafayette.

The section from Main Street to Earl Avenue is a Minor Arterial and will be reconstructed to improve congestion and capacity. Left turn lanes could be incorporated at key intersections with sidewalks on both sides. This project has been identified as a low priority.

Hamman Drive is a dead end street that needs to be extended south to Kossuth Street. The new road will be two travel lanes and constructed to an urban cross-section. It is a low priority and classified as a collector.

Main Street from 18th Street to Earl is a Minor Arterial and a principal arterial east of Earl. Congestion, capacity and complete streets improvements are needed, particularly east of 22nd Street.

Concord Road is a minor arterial and needs to be improved to an urban cross-section with complete street provisions for pedestrians and bicyclists.

Old US 231 is a Minor Arterial and needs to be improved to an urban cross-section with sidewalks from US 52 to Beck Lane.

South Beck Lane is a Major Collector with two sections needing improvement. Between the CSX railroad tracks and Old Romney Road the section is a medium priority and needs reconstruction because of the deteriorated concrete pavement. The section between US 52 and Old US 231 needs widening and reconstruction to an urban cross-section. It is a low priority.

Ortman Lane will be upgraded to an urban cross section with a trail on one side. The project is a low priority and the road is functionally classified as a Major Collector.

Traffic Signal upgrade is needed for all signals that have not already been upgraded and become part of the Advanced Traffic Management System. Equipment and software upgrades need to be made on routine basis.

West Lafayette

Cherry Lane Extension is a new road with a new intersection on US 231. It is programmed in the TIP as part of the Perimeter Parkway and will provide better access to Purdue. Cherry Lane is a Major Collector and the project will provide a trail connection between two existing trail systems.

Soldiers Home Road is programmed in the TIP. It is a Minor Arterial and scheduled for reconstruction in two sections. The road will be reconstructed to an urban cross-section. The section between Sagamore Parkway and Kalberer as well as the section from there to the City Limits will be designed as a Complete Street project and include bike lanes, a trail and a sidewalk. The second section is identified as a high priority.

Lindberg Road between Northwestern and Salisbury Street is programmed in the TIP and currently being designed. The road is a Major Collector and needs to be improved to a complete street design to better accommodate pedestrian and bicycle traffic.

Happy Hollow Trail adds two trail connections. The first is adjacent to the redesigned entrance road into Happy Hollow Park and connects to the existing trail in the park. The second continues the trail adjacent to newly reconstructed Happy Hollow Road from the park entrance to the trail at River Road. The projects are in the TIP and currently being designed.

Sagamore Parkway Trail will connect the recently constructed trail on Happy Hollow Road with the trail being constructed on the SP52 bridge over the Wabash River. It is in the TIP and currently being designed. When Lafayette completes its trail to the SP 52 bridge trail it will connect West Lafayette's trail system to the Wabash Heritage Trail along the Wabash River in Lafayette.

Cherry Lane between McCormick and Northwestern is a Major Collector. The project is a high priority and will be reconstructed to a complete streets urban cross-section and include a trail.

Yeager Road between Sagamore Parkway and Cumberland is a Minor Arterial. The project is a high priority and will be reconstructed to a complete streets design that will include a trail and sidewalks.

Northwestern Avenue between Lindberg and Cherry is a Minor Arterial. The project is a medium priority and will be reconstructed to a complete streets design that will include a trail and sidewalks.

CR 75E from Soldiers Home Road to CR 500N is a major collector needing reconstruction. The project is a medium priority and will be improved to an urban cross-section with a trail and sidewalk.

CR 425N is a Major Collector and new road that will serve a growing residential area. It will connect Soldiers Home Road to Salisbury Road and ultimately Yeager Road.

Cumberland Ave. Phase 4 is from Blue Ivy Lane to Sagamore Parkway. It is a Minor Arterial and a medium priority. It will be widened to four lanes to match the recently constructed Cumberland Avenue to the west. The project will include improvements to the intersection of Sagamore Parkway and be designed as a complete street.

North River Road from Robinson Street to North of Happy Hollow is a Minor Arterial needing to be widened. Turning lanes are needed to accommodate the high number of turning vehicles. The project has a low priority.

Stadium and Grant streets are Minor Arterials and their intersection is a bottleneck. The current dog-legged intersection needs to be redesigned so that Stadium is aligned on both sides of Grant.

Salisbury from Kalberer to the City Limits is a rural design Minor Arterial that needs to be reconstructed to a complete streets urban cross-section.

South River Road from US 52 to the City Limits is a rural design Minor Arterial that needs to be reconstructed to a complete streets urban cross-section.

Newman Road is currently a rural design Local road that needs to be reconstructed to a complete streets urban cross-section.

Westmoreland Drive is a Minor Arterial that needs to be extended into an area experiencing growing residential development.

Traffic Signal Coordination is a high priority and will interconnect as many traffic signals as possible. West Lafayette has assumed ownership and maintenance responsibility for many signals as a part of the relinquishment agreement with INDOT. Equipment and software upgrades will need to be made on a routine basis.

Tippecanoe County

Klondike Road is a rural designed Major Collector and needs improvement in two locations; from US 52 to Lindberg and from Lindberg to SR 26. From Lindberg to US 52 has experienced significant residential, commercial and industrial growth and two schools are located just south of US 52. The improvements include reconstruction and widening to an urban cross-section with a sidewalk and trail. The improvements are programmed in the TIP and scheduled for a bid opening.

The section from Lindberg Road to SR 26 needs to be reconstructed as a two lane urban cross-section with a sidewalk and trail. It is a medium priority.

Lindberg Road is a rural designed Minor Arterial that is an important east-west corridor into the community and needs improvement in two locations. The section between McCormick and Klondike Roads will be widened and include a trail on one side and a sidewalk on the other. This project is programmed in the TIP and scheduled for a bid opening. Between Klondike Road and SR 26, the road will be reconstructed to an urban cross-section with a trail and sidewalk. This section is a medium priority.

Yeager Road is a rural designed Major Collector that needs to be realigned and reconstructed to a complete streets urban cross-section. This project: is a high priority, in the TIP and a joint project with West Lafayette.

Morehouse Road is a rural designed Major Collector that needs to be realigned and reconstructed to a complete streets urban cross-section. This project is a high priority and in the TIP.

Safety Improvements in the following four areas are in the TIP and currently being designed. They are programed to use federal safety funds

- North River Road intersection improvements at CR 500N
- Pedestrian and bicycle safety improvements in the area of McCutcheon High School and Mayflower Elementary School
- Concord Road intersection improvements at CR 430S
- CR 50W roadway, traffic, pedestrian and bicycle safety improvements at CR 500N and on CR 600N in the area of Harrison High, Battle Ground Middle and Burnett Creek Elementary Schools.

Most of the projects classified as high priorities in the 2045 MTP are on the edge of the built up urban area. This is where improvements are needed to respond to development and convert a rural designed road to an urban road with curb, gutter, sidewalk and often a trail.

- There are sections of CR 600N that are currently experiencing residential growth that necessitate road improvements more suited to an urban area close to three schools.
- The industrial areas to the south east of Lafayette are experiencing development growth and improvements is on CR 450/430S between US 52 and New Castle Road are recommended to provide access for freight movements.
- To provide better access to Prophetstown State Park improvements to N. 9th Street are recommended from Sagamore Parkway to Swisher Road, particularly for bicyclists and walkers. The road is currently relatively narrow with minimal if any shoulders. The recommendation includes a proposed trail in the road right-of-way and modifications to the bridge over the Wabash River.
- There have been many recent and planned improvements to the residential growth on the south side of Lafayette and the County will make the following additional improvements to complement improvement made by the City of Lafayette: 9th and 18th Streets between CR 430S and CR 510S, CR 430S from 18th to Concord and CR 450S from 18th to US 52, as well as Concord from south of Veterans Memorial Parkway to CR 430S.

The remaining medium and low priority projects for Tippecanoe County are either converting rural designed road to an urban cross-section along the edges of the urban growth area or improvements needed to rural roads for widening, shoulders and drainage.

Battle Ground and Dayton

The incorporated towns of Battle Ground and Dayton also need road improvements. Dayton wants to extend Yost Drive north from its current termini to Haggerty Lane. This new road, constructed as a collector, will parallel Dayton Road and provide an alternative to get to Haggerty Lane. The project is a medium priority.

The Town of Battle Ground has three reconstruction projects to provide complete street urban road improvements.

- Main Street from SR 225 to High School Avenue currently has deteriorated pavement, sidewalks and severe drainage problems.
- CR 600N from SR 43 to Prophets Rock Road currently has deteriorated pavement, no shoulders, sidewalks or trails. Both this and the next project will provide better connections between the different parts of the town.
- Prophets Rock Road from CR 600N to Railroad Street currently has deteriorated pavement, no shoulders, sidewalks or trails.

Indiana Department of Transportation

Many of our most heavily traveled roads are owned and maintained by INDOT. Thus, the 2045 MPT contains recommendations for improvements to the state highways. The majority of projects on the list involve preservation or increasing capacity either by widening intersection approaches, adding lanes/turn lanes or new construction. At this time, only the first two projects on the list are funded.

SR 38 in Dayton was reconstructed in 2011 by INDOT. For several reasons, the project's eastern terminus was shortened and a portion of the road was not rebuilt. This project completes the improvements through the town and the road will be reconstructed with curb, gutter and sidewalks.

US 52 from US 231 to 26th Street in Lafayette is fully designed and right-of-way is being acquired with a bid opening in the near future. The road will be reconstructed with an urban cross-section but it will not be a complete streets project. There are several sections without sidewalks.

US 231 improvements were a part of the first transportation plan in 1978 and most have been constructed. The remaining section needing relocation is from Sagamore Parkway north to a new interchange on I-65 and continuing to a new interchange at SR 43. These new roads will have a similar design with a controlled access divided four lane road and some county road connections.

The improvement between US 52 to I-65 is a high priority for the community, and the new road between the I-65 and SR 43 (labeled as SR 43A) has a medium priority. These new roads are classified as principal arterials.

INDOT has identified the need to widen US 231 south of Lafayette to I-74. The road would be widened to four lanes and construct bypasses around the smaller towns. This stretch of US 231 is a part of the National Highway System and is classified as a primary arterial. This project is a medium priority.

Interstate 65 is the most significant road in the county carrying more vehicles than any other road and has significant truck volumes, upward to 50% of traffic. Projects on the interstate extend the current widening from four travel lanes to six and interchange improvements to the county boundaries.

Three interchange projects are recommended. The interchange at SR 43 was recently improved but the project scope was scaled back leaving unaddressed safety issues. This project would complete the improvements with a traffic signal at the northbound off-on ramps and is a low priority. Traffic forecasts show that the interchange with SR 25 will experience capacity issues by 2045 and will need to be improved. The last recommendation is for a new interchange to accommodate extending US 231 further north.

US 52 or SP 52 is a principal arterial in West Lafayette and is currently being reconstructed. INDOT wants to relinquish it to West Lafayette. Lafayette has assumed jurisdiction of Sagamore Parkway from the Wabash River to SR 25/38. Recommendation included here are the projects on SP 52 that have not been relinquished.

The eastbound bridge over the Wabash River is the older of the two SP 52 bridges and it is currently being replaced. Redecking of the westbound bridge is fully designed and bids will be open in the near future.

All of the remaining improvements on SP 52 are located in the City of West Lafayette and in Tippecanoe County

to its west. A recent corridor study made several recommendations for this section of SP 52. The corridor study was a joint effort by INDOT, West Lafayette, Tippecanoe County and the Area Plan Commission. Study recommended the following projects as a high priority:

-Klondike Road to Morehouse Road should be reconstructed to urban design standards that include curb, sidewalks and enclosed drainage. Additionally raised landscaped medians, and gateways were recommended.
-Morehouse Road to Yeager Road experiences some of the heaviest congestion in the corridor and additional lanes are recommended as is reconstruction to urban design standards to accommodate bicyclist and pedestrians.
-Yeager Road to the Wabash River has several bottlenecks and Michigan Left Turns are recommended to address safety (of bicyclists, pedestrians and motorists) and capacity issues at several intersections and eliminate the need for significant widening. Drainage issues also need to be addressed in this section because it affects safety.
-The Northwestern Avenue bridge over SP 52 is nearing the end of its life expectancy. An alternative to rebuilding the bridge is to construct a new intersection and possibly a roundabout. This project has a medium priority.

INDOT has proposing a new road between US 52 to SR 38. This section of SR 38 is classified as a Principal Arterial and all of these improvements are a low priority.

There are additional projects on SR 25 from CR 375W to CR 100W. Improvements in this area include capacity improvement to intersections. This project has been given a low priority and SR 25 in this area is classified as a Minor Arterial.

SR 43 north of I-65 has very high traffic and INDOT has already widened a portion of the corridor from I- 65 to CR 725N. The *2045MTP* recommends widening to the Town of Brookston. SR 43 is classified as a Principal Arterial and is a medium priority.

SR 26 has been improved several times in the eastern part of the county. The recommended projects complement recent improvements from I-65 to CR 550E. The road would be widened to four travel lanes from CR 550E to the McCarty Lane intersection. Further east; improvements switch to a super two-lane design continuing to the county line. A new bridge over the south fork of the Wildcat Creek is currently under construction. Provisions for pedestrians and bicycles will be included from CR 550E to McCarty Lane.

Constructing the improvements to CR 900E was assigned a medium priority. The improvements east of the bridge are a low priority. This portion of SR 26 is classified as a Principal Arterial and is part of the National Highway System.

Indiana Department of Natural Resources

The existing main entrance to Prophetstown State Park is via Swisher Road which currently ends at North 9th Street and access to the park is very circuitous. The Prophetstown State Park Master Plan recommends a new road connecting North River Road (SR 43) to North 9th Street at the intersection of Swisher Road. This would give a more direct access to any one coming from the interstate or the south. The new road would be constructed as a local road and have a trail built along one side.

The project has been assigned a low priority because of limited state funds.

Private Development:

Some road improvements in this plan will be constructed by private developers. They are located in future growth areas. No specific construction schedule is available because they are dependent on when those growth areas develop. All will be constructed as new roads.

Five projects are planned for Lafayette's east side and will form a grid road system. The area is bounded by South Street, I-65, SR 38 and Creasy Lane. All will be classified as collector Roads. These projects include:

-An East-West road from the end of St. Francis Drive east to Park East Boulevard
-An East-West road from Park East Boulevard to Commerce Drive
-An East-West road from Commerce Drive to Veterans Memorial Parkway

-Commerce Drive from its current terminus to McCarty Lane
-Commerce Drive from McCarty Lane to the new East-West Road

Further to the east near Wyandotte Elementary School two new projects are planned. These projects will create a new commercial node at Stable Drive and McCarty Lane. The two projects are:

-Stable Drive from CR 550E to McCarty Lane
-Stable Drive from McCarty Lane to CR 650E

Stable Drive northwest of McCarty Lane is a collector. To the southeast it is a local road.

To the south of Lafayette a new East-West road will be built connecting US 231 to US 52. There will also be several new roads constructed between US 231 and CR 100E to better serve forecasted development in that area. One other new road will be constructed that will extend CR 500S to Wea School Road. All will be local roads except CR 600S which will be a collector.

The projects include:

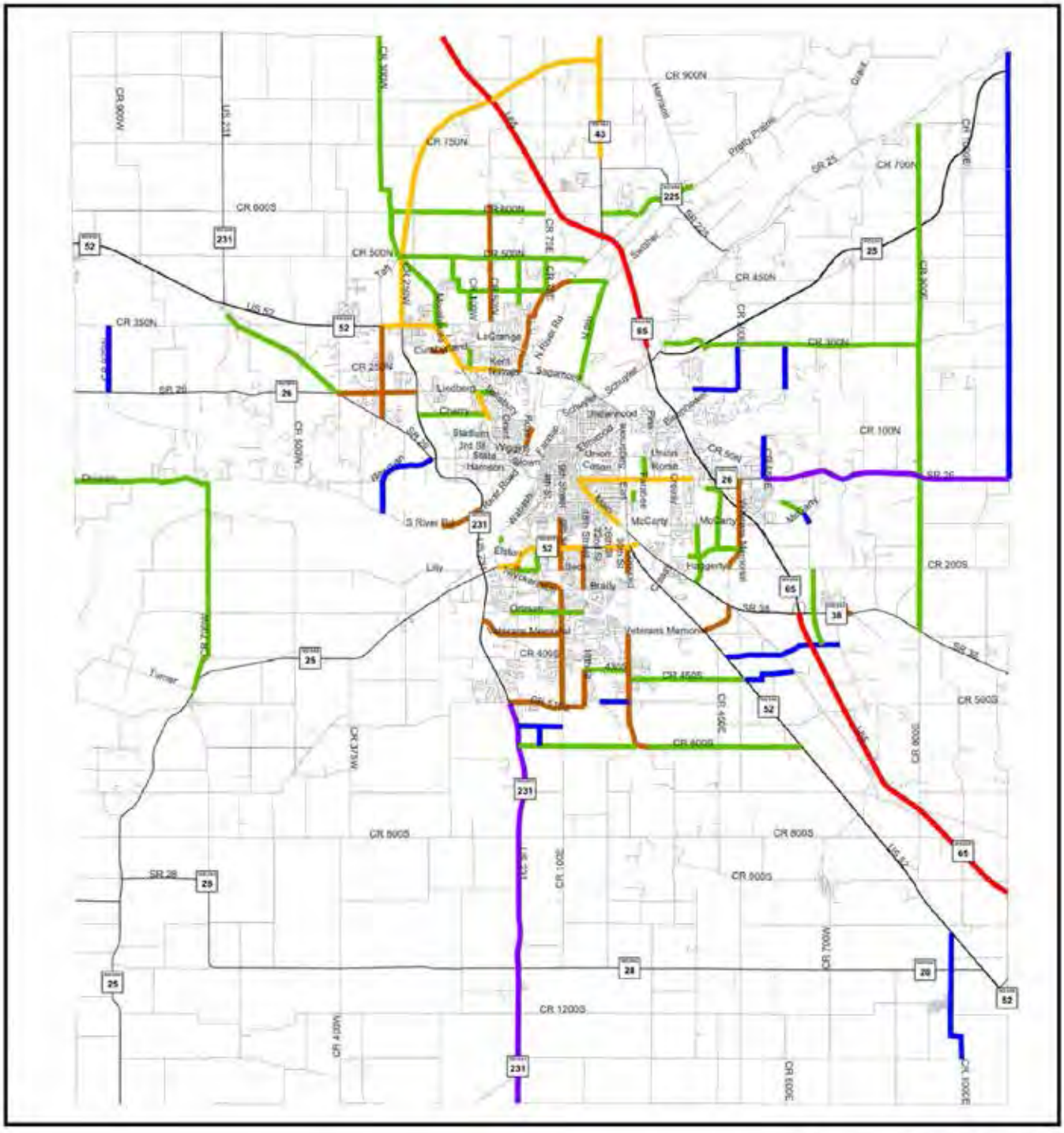
-CR 500S from Wea School Road to Concord Road
-CR 550S from US 231 to CR 100E
-N-S Collector (Wea) from CR 550S to CR 600S
-CR 600S from US 231 to CR 250E

West Lafayette's north side is a growing area and two new collector roads are recommended to create a grid system to service the area. The projects include a North-South collector from where Westmoreland ends to CR 500N, and an East-West collector from Soldiers Home Road to ultimately Yeager Road. West Lafayette has decided to include some of these improvements in the 2045MTP.

The remaining two development oriented road projects are located in growth areas but are stand-alone projects. They will be classified as collector road. The two projects are:

-Yost Drive from SR 38 to CR 375S
-CR 400S from CR 375S to New Castle Road

F. Future Functional Classification



Prepared by the Area Plan Commission
of Tippecanoe County, May 9, 2017

G. INDOT and Consulted agencies comments

From: Mitchell, Jay [mailto:JAYMITCHELL@indot.IN.gov]
Sent: Friday, April 28, 2017 8:16 AM
To: John Thomas
Cc: Schoenherr, Catherine
Subject: RE: 2045 Metropolitan Transportation Plan

John:

With one exception, the list as you have presented it is acceptable. The heading clearly indicates that the candidate listing is unfunded and illustrative. I would like to see a change for the project identified as US 231 new road from US 52 to I-65. Please do not identify the project as US 231. Instead, you can refer to it as a connector road running northeast from the junction of US 231/US52 (Sagamore Parkway) to I-65.

Thank you,

Jay

Jay Mitchell, Supervisor
Technical Planning Section
Indiana Department of Transportation
100 N. Senate Avenue, Room N955
Indianapolis, IN 46204

Telephone: (317) 233-4713
E-mail: jaymitchell@indot.in.gov

From: John Thomas [mailto:jthomas@tippecanoe.in.gov]
Sent: Thursday, April 20, 2017 9:36 AM
To: Mitchell, Jay <JAYMITCHELL@indot.IN.gov>
Cc: Schoenherr, Catherine <CSchoenherr@indot.IN.gov>; Nunnally, Roy <RNUNNALLY@indot.IN.gov>
Subject: RE: 2045 Metropolitan Transportation Plan

Jay,

As you know, we are finalizing our 2045 MTP and anticipate its approval by the Policy Board on June 8th. In the MTP we are including a list of needed projects on the state system. The list of projects previously provided in the email below has been slightly modified to reflect conversations we had at our February 25 Planning Certification Review meeting clarifying the unfunded nature of most of the recommendations. The attached list has been modified to incorporate wording in the title and notations in the table we discussed. Would you please provide us with your concurrence or acceptance of the attached list so we can include it in the new MTP.

Thanks,

John P. Thomas
Assistant Director for Transportation Planning
Area Plan Commission of Tippecanoe County

H. Methodology for calculating year of construction coasts and Federal funding

A multistep process was used to calculate individual road project costs.

1) Costs for new projects that were not included in the 2040 MTP were obtained from the FY 2016 – 2019 Transportation Improvement Program and from the sponsoring jurisdiction engineer.

2) Project costs were then recalculated to reflect the year of construction. The year of construction for each project was previously determined for the 2040 MTP by our local jurisdiction engineers. Taking that date and applying an annual inflation rate of 2.5% for an additional 5 years (the difference between 2040 and 2045) provided the year of construction project cost.

At this time it is uncertain what the next Federal transportation act will contain, what the funding categories will be and the level of funding. The 2045MTP assumed that the Federal Surface Transportation Program and its funding of Group II areas would continue in the future as it has in the past.

The Indiana Division of the Federal Highway Administration provided guidance for developing an estimate of the future Federal funds that may be available to this community. Based on their recommendation, two trends will occur. Our community received an average of approximately $4,500,000 in FY-2015, 2016 and 2017. It is expected that the amount of funds coming to our community may remain flat through 2020. From then on, the annual amount will increase slightly at 1.5 % each year.

Based on those assumptions our community will receive approximately $168,000,000 in Federal highway funds over the life of the 2045MTP.

I. Community Input, outreach and adopting resolution

Adopting Resolution

Resolution T-17-08

RESOLUTION TO ADOPT THE
METROPOLITAN TRANSPORTATION PLAN FOR 2045
THE FUTURE OF MOBILITY

WHEREAS, the Area Plan Commission of Tippecanoe County has been designated the Metropolitan Planning Organization (MPO) by the Governor and is responsible for transportation planning in Tippecanoe County; and

WHEREAS, the MPO and its Policy Board are responsible for developing and maintaining the Metropolitan Transportation Plan; and

WHEREAS, the Metropolitan Planning Organization staff has worked with the Technical, and Citizen Committees to develop the *Metropolitan Transportation Plan for 2045-The Future of Mobility* to insure compliance with the Federal requirements; and

WHEREAS, the contents of the plan were discussed with the Citizen Participation Committee since January 2016, the formal public comment period started on April 19 of 2017 and a formal public hearing was held on April 25, 2017. Four additional public open houses were held around the community, and on May 17, 2017 the Technical Transportation Committee recommended its adoption to the Policy Board.

NOW THEREFORE BE IN RESOLVED, that the Area Plan Commission of Tippecanoe County, as the designated Metropolitan Planning Organization, does hereby adopt the *Metropolitan Transportation Plan for 2045-The Future of Mobility* as an the official Long Range Transportation Plan for Tippecanoe County, Lafayette, West Lafayette, Dayton, Battle Ground and Clarks Hill.

Adopted on Thursday, the 8th of June, 2017.

By _____
Tony Roswarski, President
MPO Policy Board

Attest:

_____
Sallie Dell Fahey, Secretary

Date: 6.8.17

Meetings, Mailings and Media Coverage

November, 2015

-24, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.

December, 2015

-1, CPC meeting. The Committee discussed the 2045MTP Goals and Objectives.

January, 2016

-19, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.

-26, CPC meeting. The Committee discussed the 2045MTP Goals and Objectives and forecasting traffic volumes.

March, 2016

-15, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.

-22, CPC meeting. The Committee discussed the 2045MTP socio-economic projections.

April, 2016

-7, Local newspaper article about the 2045 Metropolitan Transportation Plans.

-11, Local newspaper article about the 2045 Metropolitan Transportation Plans.

May, 2016

-5, Policy Board agenda and packet sent to Policy Board members and non-members.

-11, Technical Transportation Committee meeting agenda and packet mailed.

-12, Policy Board meeting. The Board discussed the 2045MTP socio-economic projections.

-18, Technical Committee meeting. The Committee discussed the 2045MTP socio-economic projections.

July, 2016

-7, Policy Board agenda and packet sent to Policy Board members and non-members.

-13, Technical Transportation Committee meeting agenda and packet mailed.

-14, Policy Board meeting. The Board discussed the 2045MTP socio-economic projections.

-19, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.

-20, Technical Committee meeting. The Committee discussed the 2045MTP employment and dwelling unit forecasts.

-26, CPC meeting. The Committee discussed 2045MTP employment and dwelling unit forecasts.

August, 2016

-4, Policy Board agenda and packet sent to Policy Board members and non-members.

-10, Technical Transportation Committee meeting agenda and packet mailed.

-11, Policy Board meeting. The Board discussed the maps of the forecasted number of dwelling units and employment and reviewed the assumptions used their development and distribution.

-17, Technical Committee meeting. The Committee discussed the socio-economic projections.

September, 2016

-20, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.

-27, CPC meeting. The Committee discussed

October, 2016

-6, Policy Board agenda and packet sent to Policy Board members and non-members.

-12, Technical Transportation Committee meeting agenda and packet mailed.

-13, Policy Board meeting. The Board reviewed the Goals and Objectives and maps of the: 2045MTP traffic forecasts and its assumptions.

-19, Technical Committee meeting. The Committee discussed the 2045MTP schedule, next steps and project list.

November, 2016

-3, Policy Board agenda and packet sent to Policy Board members and non-members.

-9, Technical Transportation Committee meeting agenda and packet mailed.

-10, Policy Board meeting. The Board reviewed the maps of the: 2045MTP traffic forecasts and discussed how the traffic forecasting model works, its assumptions and data needs as well as what to do about congestion and safety issues in the areas shown to be congested; and high crash locations.

-16, Technical Committee meeting. The Committee discussed traffic forecasts and future congestion and the transit First Mile-Last Mile analysis.

-29, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.

December, 2016

-1, Policy Board agenda and packet sent to Policy Board members and non-members.

-6, CPC meeting. The Committee discussed Vision, Objectives and performance Measures, traffic forecasts and high crash locations.

-8, Policy Board meeting. The Board reviewed a map of the: 2045 traffic forecast that showed the location of slight, mild and severe congestion, 2045 employment and number of dwellings units and the high crash locations

-14, Technical Transportation Committee meeting agenda and packet mailed.

-21, Technical Committee meeting. The Committee discussed the high crash locations.

January, 2017

-5, Policy Board agenda and packet sent to Policy Board members and non-members.

-11, Technical Transportation Committee meeting agenda and packet mailed.

-12, Policy Board meeting. The Board reviewed the roadway inventory and PASER ratings for each jurisdiction in the MPO.

-17, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.

-18, Technical Committee meeting. The Committee discussed the 2045 project list, summary of pavement ratings and mileages, and Automated Traffic Management System.

-24, CPC meeting. The Committee discussed the 2045 Vision, Objectives and performance Measures, traffic forecasts and high crash locations.

February, 2017

-1, Policy Board agenda and packet sent to Policy Board members and non-members.

-8, Technical Transportation Committee meeting agenda and packet mailed.

-9, Policy Board meeting. The Board reviewed the map of recommended projects and discussed recent and upcoming projects.
-15, Technical Committee meeting. The Committee discussed finalized the list of projects.

March, 2017

-2, Policy Board agenda and packet sent to Policy Board members and non-members.
-8, Technical Committee meeting notice and packet sent to Technical committee mailing list'
-9, Policy Board meeting. The Board reviewed the 2045MTP map of the Automated Traffic Management System signals.
-13, Technical Committee meeting. The Committee discussed 2045MTP project list, Advanced Traffic Management System and the Plan's recommendations.
-21, CPC meeting agenda and packet sent to CPC and Technical Committee mailing list and meeting notice posted.
-28, CPC meeting, discussed the 2045 project list and map, goals and performance measures and map of traffic signals.

April, 2017

-6, Policy Board agenda and packet sent to Policy Board members and non-members.
-12, Technical Transportation Committee meeting agenda and packet mailed.
-13, Policy Board meeting. The Board reviewed the summary and status of the 2045MTP.
-17, Draft 2045 MTP posted on the APC website.
-17, The public hearing agenda was sent to the Citizen and Technical Committee members and non-members.
-18,-Public Hearing notices posted.
-19, Technical Transportation Committee meeting. The Committee reviewed and discussed a summary of the Plan.
-25, The Citizen Participation Committee held the formal public hearing on the 2045 MTP.

May, 2017

-4, Policy Board agenda and packet sent to Policy Board members and non-members.
-10, Technical Transportation Committee meeting agenda and packet mailed.
-11, Policy Board meeting. The Board received a briefing on nearing completion and the public participation in review of the 2045 MTP.
-15, Meeting notices posted for the public information open house at Mama Ines Bakery
-17, Technical Transportation Committee meeting. The Committee voted to recommend adoption of the 2045MTP to the MPO Policy Board.
-17, Sent upcoming public open house information to Citizen Participation Committee members and the media.
-18, Media Release sent announcing upcoming public information open houses.
-20, Public Information open house at Mama Ines Bakery.
-22, Meeting notices posted for the public information open house in West Lafayette.
-23, Meeting notices posted for the public information open house at the County Libraries.
-24, Public Information open house at the West Lafayette Public Library.
-25, Public Information open house at the Wyandotte branch of the Tippecanoe County Public Library.
-30, Public Information open house at the Klondike branch of the Tippecanoe County Public Library.

June, 2017

-1, Policy Board agenda and packet sent to Policy Board members and non-members.

-8, Policy Board meeting. The Board voted to adopt the 2045 Metropolitan Transportation Plan.

Additional Public Information and Outreach

Public Participation
2045 Metropolitan Transportation Plan

To facilitate the public's input on recommendations from the 2045 Metropolitan Transportation Plan the APC staff will conduct the following outreach in addition to the Technical Committee and Policy Board meetings:

Web based – The APC website will be modified to add a section with information about the MTP. It will include the capability for a citizen to ask questions and make comments on the MTP. At a minimum this will be a link to the "apc@tippecanoe.in.gov" email. Optimally, one of the CivicPlus "CommunityEngage" Modules may be used if a County Social Media Policy is adopted in the near future and if MITS can provide assistance in setting up the program.

Formal Public Hearing – The formal public hearing is scheduled for April 25 in conjunction with a special CPC meeting.

Public Input Meetings – Additional outreach meetings will be held to obtain citizen feedback about the Plan's recommendations. At each meeting there will be information about the major components of the Plan (recommendations for Bike/Ped, roadway, transit and freight). Maps and boards, set up at different tables, will provide information about the recommendations and will be available for citizens to mark-up with their concerns and needs. Forms will also be available for narrative explanations of concerns and needs. Press releases will be sent prior to each meeting and a notice posted at each location a week in advance of each meeting. Potential meetings locations are:

1, Tippecanoe County Library - Downtown branch

2, Tippecanoe County Library - Wyandotte branch

3, West Lafayette Library

4, Mama Ines Bakery

Long Range Transportation Plan for 2045

Public Hearing Notice

The staff of the Area Plan Commission has developed the 20045 Long Range Transportation Plan for the Lafayette, West Lafayette, and Tippecanoe County area. This posting invites citizens to a public meeting to review, provide comments and ask questions about the document and the projects being included for funding.

The draft document will be presented at a public hearing sponsored by the Citizen Participation Committee on April 25, 2017, at 7:00 p.m., in the Grand Prairie Room, Tippecanoe County Office Building in Lafayette, Indiana.

The document evaluates the community's future transportation needs and makes recommends for local road, state highway, transit, bicycle, and pedestrian improvements through the year 2045. Since the Lafayette, West Lafayette, and Tippecanoe County area receives a limited amount of federal funds, a prioritized list of proposed projects is also recommended. The 2045 MTP includes a discussion of the location and extent of current and future population, housing and employment. Additional recommendations include Complete Streets, 10% set-aside for independent trails and development of a tree replacement policy for Federal Aid projects.

All available information, including the draft document, can be viewed in the office of the Area Plan Commission of Tippecanoe County at 20 North 3rd Street, Lafayette Indiana, and on the "Long Range Plans" web page of the APC's "Transportation Planning" website: http://www.tippecanoe.in.gov/401/Transportation-Planning.

If you have any questions or comments about to the 2045 MTP, please direct them to:

John Thomas
Assistant Director for Transportation Planning
(765) 423-9242
jthomas@tippecanoe.in.gov
Reference Number: 2017-133

THE Area Plan Commission of TIPPECANOE COUNTY

20 NORTH 3RD STREET
LAFAYETTE, INDIANA 47901-1209

(765) 423-9242
(765) 423-9154 [FAX]
www.tippecanoe.in.gov/apc

SALLIE DELL FAHEY
EXECUTIVE DIRECTOR

FOR IMMEDIATE RELEASE: May 18, 2017

Public Meetings to Discuss the Metropolitan Transportation Plan for 2045

TIPPECANOE COUNTY, Ind. – The Area Plan Commission of Tippecanoe County (APCTC) will be holding public meetings to discuss the *2045 Metropolitan Transportation Plan* (*2045MTP*). The meetings will be held on:

- Saturday, May 20 at Mama Inés Bakery, at 518 Sagamore Pkwy N., Lafayette,
- Wednesday, May 24 in the Elm Room at the West Lafayette Public Library,
- Thursday, May 25 in the Timberstone Room at the Wyandotte branch of the Tippecanoe County Public Library,
- Tuesday, May 30 in the Tempest Room at the Klondike branch of the Tippecanoe County Public Library.

All meetings will be held from 5 pm to 7 pm.

The meetings offer an opportunity for citizens to share with planners what would make their commute, shopping, and around-town travel easier. There will be many one-on-one opportunities for citizens to discuss current and proposed projects with APC staff, as well as a short presentation at 6 pm.

The *2045MTP* is a long range transportation plan outlining infrastructure goals and needs for the community. It also qualifies the community to receive funding from both the US Department of Transportation and INDOT. Over the last two years, APCTC has collected and analyzed data to forecast community growth for the year 2045. This includes data on new dwelling units, jobs, and development to understand future traffic volumes and develop solutions for future traffic issues. APCTC Assistant Director of Transportation, John Thomas, explains, "The community creates the long range transportation plan to identify needed projects. Because the costs are significant projects need to be budgeted over time. The goal is to move the community forward in a positive way. We assessed where the community has been, where it is now and where the community is going. We developed the plan to identify and prioritize our needs which allows the community to budget and schedule improvements to meet those needs."

The *2045MTP* identifies 175 highway projects, 94 sidewalk projects, 128 trail projects and 57 bike lane/shared lane bikeways. It takes into account previous long range transportation plans as well as other community plans such as Lafayette's Trail and Bicycle/Pedestrian Master Plans, West Lafayette's trail plan, and the US 52 Corridor Study, as well as input from the Technical and Citizen Participation Committees. The Plan focuses on better management of current assets to improve safety and traffic flow. It also continues to acknowledge active transportation's important role in improving mobility and contributing to the quality of life in our community. Thomas also reports "The plan develops streets for all users with its emphasis not solely on driving, but just as importantly on walking, bicycling and taking transit."

For more information contact the APCTC or review the plan at http://www.tippecanoe.in.gov/apc.

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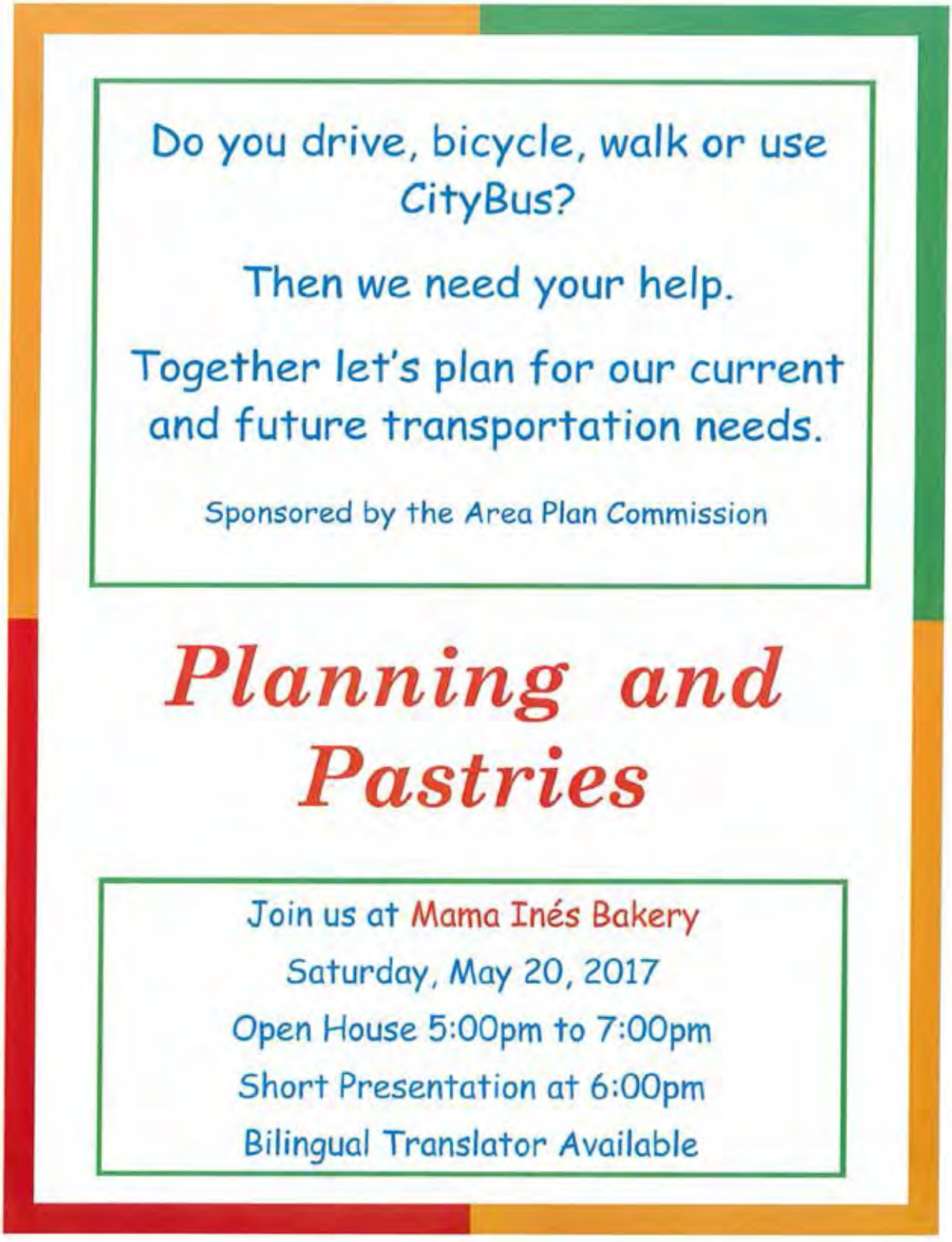

Do you drive, bicycle, walk or use CityBus?
Then we need your help.
Together let's plan for our current and future transportation needs.
Sponsored by the Area Plan Commission
Planning and Pastries
Join us at Mama Inés Bakery
Saturday, May 20, 2017
Open House 5:00pm to 7:00pm
Short Presentation at 6:00pm
Bilingual Translator Available


¿Conduce un auto, monta bicicleta, camina o toma el bus de la ciudad?
De ser así, necesitamos de su ayuda.
Planifiquemos juntos nuestras necesidades de transporte actuales y futuras.
Patrocinado por el Comité de Planeación Regional
Planeación y Pan Dulce
Asista el 20 de Mayo de 2017 a
la Panadería Mama Inés
Entrada al público de 5:00 pm 7:00 pm
Presentación breve a las 6:00 pm
Habrá intérprete bilingüe

Locations where Public Notices were Posted

1)	Lafayette City Hall	Drop off at Clerk's Office, or email clerks@lafayette.in.gov
2)	West Lafayette City Hall	Drop off at front desk (mayors/engineers office)
3)	Tippecanoe Co. Office Building	Post by Tippecanoe Room
4)	West Lafayette Public Library	Drop off at book check out
5)	Downtown Public Library	Drop off at book check out
6)	Lindberg Public Library	Drop off at book check out
7)	Wyandotte Public Library	Drop off at book check out
8)	West Lafayette Community Center	Ask permission to post and post near office door
9)	Hanna Center	Drop off at office
10)	Jenks Rest	Drop off at desk
11)	IVY Tech	Drop off at book check out
12)	CityBus Admin Building	Drop off at Admin Building
14)	Harrison College	Drop off at front desk

J. Traffic Analysis Zones and Socioeconomic Data

Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
1	111	1	110	93	78	15	51	353	24	329
2	177	0	177	119	104	15	73	902	96	806
3	276	0	276	192	191	1	222	1,758	74	1684
4	325	0	325	335	297	38	212	700	41	659
5	327	0	327	229	202	27	211	1,004	77	927
6	866	105	761	535	484	51	475	1,835	203	1632
7	1,197	42	1155	790	763	27	741	1,007	118	889
8	1,350	19	1331	803	714	89	719	810	36	774
9	131	0	131	69	66	3	103	701	0	701
10	1,179	0	1179	626	563	63	702	58	0	58
11	1,160	198	962	434	386	48	416	400	7	393
12	967	493	474	321	270	51	282	1,050	231	819
13	613	0	613	257	232	25	405	90	1	89
14	1,489	13	1476	667	595	72	923	1,039	13	1026
15	149	0	149	88	78	10	91	217	36	181
16	600	0	600	279	270	9	345	54	26	28
17	1,335	0	1335	613	569	44	840	89	12	77
18	386	0	386	160	147	13	216	60	31	29
19	1,263	0	1263	548	522	26	792	136	2	134
20	127	55	72	37	37	0	57	954	322	632
21	567	0	567	248	240	8	392	9	0	9
22	655	0	655	314	304	10	509	226	102	124
23	416	0	416	251	240	11	334	1,228	473	755
24	197	0	197	90	88	2	99	368	0	368
25	944	158	786	442	415	27	488	431	24	407
26	956	0	956	557	517	40	656	150	10	140
27	1,134	0	1134	569	529	40	726	327	75	252
28	453	79	374	165	149	16	180	450	3	447
29	1,013	0	1013	487	464	23	583	134	24	110
30	0	0	0	0	0	0	0	433	32	401
31	981	4	977	483	447	36	655	194	43	151
32	22	0	22	22	17	5	19	3,800	105	3695
33	1,222	0	1222	562	532	30	714	139	43	96
34	9	0	9	3	2	1	2	1,134	752	382
35	0	0	0	0	0	0	0	29	8	21
36	0	0	0	0	0	0	0	427	256	171
37	0	0	0	0	0	0	0	210	0	210

Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
38	46	19	27	21	19	2	27	180	0	180
39	1,287	5	1282	637	603	34	797	37	2	35
40	686	0	686	330	314	16	560	103	8	95
41	848	0	848	426	384	42	520	129	11	118
42	787	6	781	444	404	40	485	45	15	30
43	1,130	16	1114	491	473	18	810	49	1	48
44	953	0	953	459	418	41	736	53	22	31
45	528	0	528	278	251	27	396	112	3	109
46	702	7	695	375	341	34	433	175	20	155
47	550	121	429	186	157	29	174	261	27	234
48	669	0	669	350	312	38	481	3	0	3
49	829	158	671	415	377	38	593	289	11	278
50	920	0	920	433	430	3	1251	124	6	118
51	569	0	569	241	241	0	306	4	0	4
52	2,572	0	2572	1122	1,024	98	1297	31	1	30
53	1,451	0	1451	904	804	100	908	678	79	599
54	513	0	513	258	252	6	341	102	1	101
55	0	0	0	0	0	0	0	164	0	164
56	0	0	0	0	0	0	0	398	193	205
57	416	0	416	154	139	15	244	165	0	165
58	48	0	48	20	20	0	26	114	26	88
59	581	0	581	249	221	28	339	33	6	27
60	474	0	474	204	198	6	308	104	0	104
61	0	0	0	0	0	0	0	21	13	8
62	339	0	339	157	141	16	195	40	25	15
63	2,763	100	2663	1120	1,037	83	1875	22	0	22
64	2,319	0	2319	1025	986	39	1454	127	0	127
65	0	0	0	0	0	0	0	17	7	10
66	1,086	0	1086	445	440	5	841	20	2	18
67	856	0	856	379	367	12	687	18	0	18
68	1,239	0	1239	485	470	15	960	84	0	84
69	1,582	0	1582	725	701	24	1046	286	75	211
70	156	150	6	4	4	0	7	204	0	204
71	2,068	0	2068	997	916	81	1464	53	15	38
72	144	0	144	56	56	0	131	1,022	215	807
73	0	0	0	0	0	0	0	1,591	981	610
74	1,329	0	1329	539	521	18	831	110	13	97
75	828	0	828	358	349	9	562	27	15	12

Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
76	0	0	0	0	0	0	0	313	180	133
77	1,862	0	1862	1165	1,036	129	1359	47	7	40
78	0	0	0	0	0	0	0	706	5	701
79	17	0	17	9	6	3	10	336	60	276
80	39	0	39	25	25	0	48	1,000	22	978
81	2	0	2	1	1	0	2	134	20	114
82	0	0	0	0	0	0	0	156	8	148
83	565	0	565	254	239	15	415	72	0	72
84	1,646	0	1646	605	597	8	1427	14	0	14
85	992	0	992	359	358	1	761	127	28	99
86	0	0	0	0	0	0	0	118	0	118
87	657	0	657	249	244	5	509	5	0	5
88	2,001	0	2001	740	733	7	1546	8	1	7
89	2,161	100	2061	841	823	18	1357	15	0	15
90	1,767	0	1767	752	724	28	1470	29	0	29
91	612	0	612	268	260	8	531	0	0	0
92	239	0	239	104	103	1	198	4	0	4
93	701	0	701	293	291	2	485	28	0	28
94	1,121	0	1121	538	510	28	812	450	204	246
95	781	0	781	277	267	10	432	538	183	355
96	0	0	0	0	0	0	0	370	186	184
97	350	16	334	267	233	34	342	38	0	38
98	1	0	1	1	1	0	1	294	115	179
99	1,636	50	1586	615	604	11	996	66	12	54
100	1,331	0	1331	457	445	12	728	18	3	15
101	792	0	792	271	259	12	417	5	1	4
102	58	0	58	24	23	1	50	184	0	184
103	395	0	395	159	155	4	322	9	1	8
104	1,756	0	1756	727	702	25	1444	22	0	22
105	1,950	0	1950	634	604	30	1275	10	1	9
106	6	0	6	2	2	0	4	1,000	70	930
107	1,421	0	1421	530	516	14	1179	43	0	43
108	7,788	0	7788	2610	2,599	11	5734	19	0	19
109	310	0	310	107	105	2	265	124	0	124
110	27	0	27	9	9	0	16	205	60	145
111	19	0	19	14	11	3	15	684	57	627
112	37	0	37	20	20	0	67	2,682	160	2522
113	0	0	0	0	0	0	0	7,000	67	6933

Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
114	100	100	0	0	0	0	0	3,000	0	3000
115	116	100	16	5	5	0	8	2,012	703	1309
116	0	0	0	0	0	0	0	1,610	0	1610
117	611	0	611	193	188	5	243	1,800	1,090	710
118	3	0	3	2	2	0	3	577	0	577
119	487	0	487	229	218	11	268	424	227	197
120	0	0	0	0	0	0	0	400	211	189
121	0	0	0	0	0	0	0	582	346	236
122	47	0	47	44	35	9	39	4	3	1
123	0	0	0	0	0	0	0	2,398	1,570	828
124	1	0	1	1	1	0	1	359	227	132
125	7	0	7	5	3	2	2	1,082	332	750
126	1,245	0	1245	626	551	75	597	19	0	19
127	175	41	134	54	53	1	65	196	60	136
128	8	0	8	4	4	0	5	499	55	444
129	908	50	858	478	448	30	632	111	45	66
130	63	50	13	7	7	0	11	1,485	0	1485
131	0	0	0	0	0	0	0	512	15	497
132	1,473	0	1473	821	733	88	985	16	0	16
133	105	100	5	2	2	0	3	2,000	419	1581
134	14	0	14	6	6	0	9	2,600	454	2146
135	0	0	0	0	0	0	0	1,482	451	1031
136	95	44	51	22	21	1	32	2,000	349	1651
137	8	0	8	2	2	0	4	987	507	480
138	417	5	412	259	257	2	380	8	2	6
139	174	0	174	81	80	1	120	793	6	787
140	916	0	916	341	323	18	525	123	9	114
141	88	0	88	41	39	2	63	821	401	420
142	0	0	0	0	0	0	0	658	396	262
143	0	0	0	0	0	0	0	273	0	273
144	0	0	0	0	0	0	0	350	0	350
145	165	0	165	143	133	10	140	783	393	390
146	0	0	0	0	0	0	0	1,904	0	1904
147	0	0	0	0	0	0	0	1,152	351	801
148	7	0	7	5	4	1	4	1,345	187	1158
149	0	0	0	0	0	0	0	166	13	153
150	0	0	0	0	0	0	0	17	0	17
151	2,398	64	2334	1138	1,048	90	1465	166	3	163

Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
152	49	0	49	50	43	7	40	1,719	519	1200
153	394	0	394	207	204	3	371	737	385	352
154	1,294	7	1287	584	575	9	1045	204	6	198
155	1,639	0	1639	761	744	17	1322	170	8	162
156	371	0	371	147	145	2	308	111	68	43
157	210	0	210	94	89	5	174	390	0	390
158	77	0	77	34	30	4	52	291	28	263
159	142	132	10	10	7	3	3	446	30	416
160	2,074	0	2074	989	982	7	2424	1,428	728	700
161	1,086	0	1086	790	654	136	1586	285	148	137
162	2,448	238	2210	982	976	6	2066	1,461	565	896
163	4,091	22	4069	1975	1,961	14	3149	929	517	412
164	1,859	1,219	640	274	272	2	473	122	0	122
165	0	0	0	0	0	0	0	462	14	448
166	2,878	680	2198	1079	995	84	896	506	0	506
167	1,285	47	1238	803	761	42	936	116	0	116
168	2,377	107	2270	955	951	4	1757	285	63	222
169	294	205	89	64	62	2	92	805	13	792
170	2,937	2,597	340	148	146	2	98	144	6	138
171	6,738	6,738	0	0	0	0	0	393	263	130
172	0	0	0	0	0	0	0	15,562	0	15562
173	4,034	3,810	224	87	87	0	81	84	0	84
174	1,053	0	1053	487	471	16	836	132	0	132
175	1,402	53	1349	567	551	16	1030	188	28	160
176	0	0	0	0	0	0	0	103	0	103
177	2,435	1,587	848	415	412	3	449	286	10	276
178	1,044	0	1044	536	506	30	868	61	3	58
179	597	0	597	251	242	9	429	49	0	49
180	779	0	779	354	343	11	581	76	1	75
181	882	8	874	375	363	12	646	226	7	219
182	7	0	7	3	3	0	3	450	314	136
183	0	0	0	0	0	0	0	374	195	179
184	145	0	145	83	77	6	116	374	131	243
185	849	0	849	545	528	17	570	160	14	146
186	864	103	761	333	321	12	672	200	0	200
187	2,229	0	2229	733	730	3	1484	176	5	171
188	1,210	0	1210	496	482	14	956	28	0	28
189	586	0	586	363	333	30	513	12	0	12

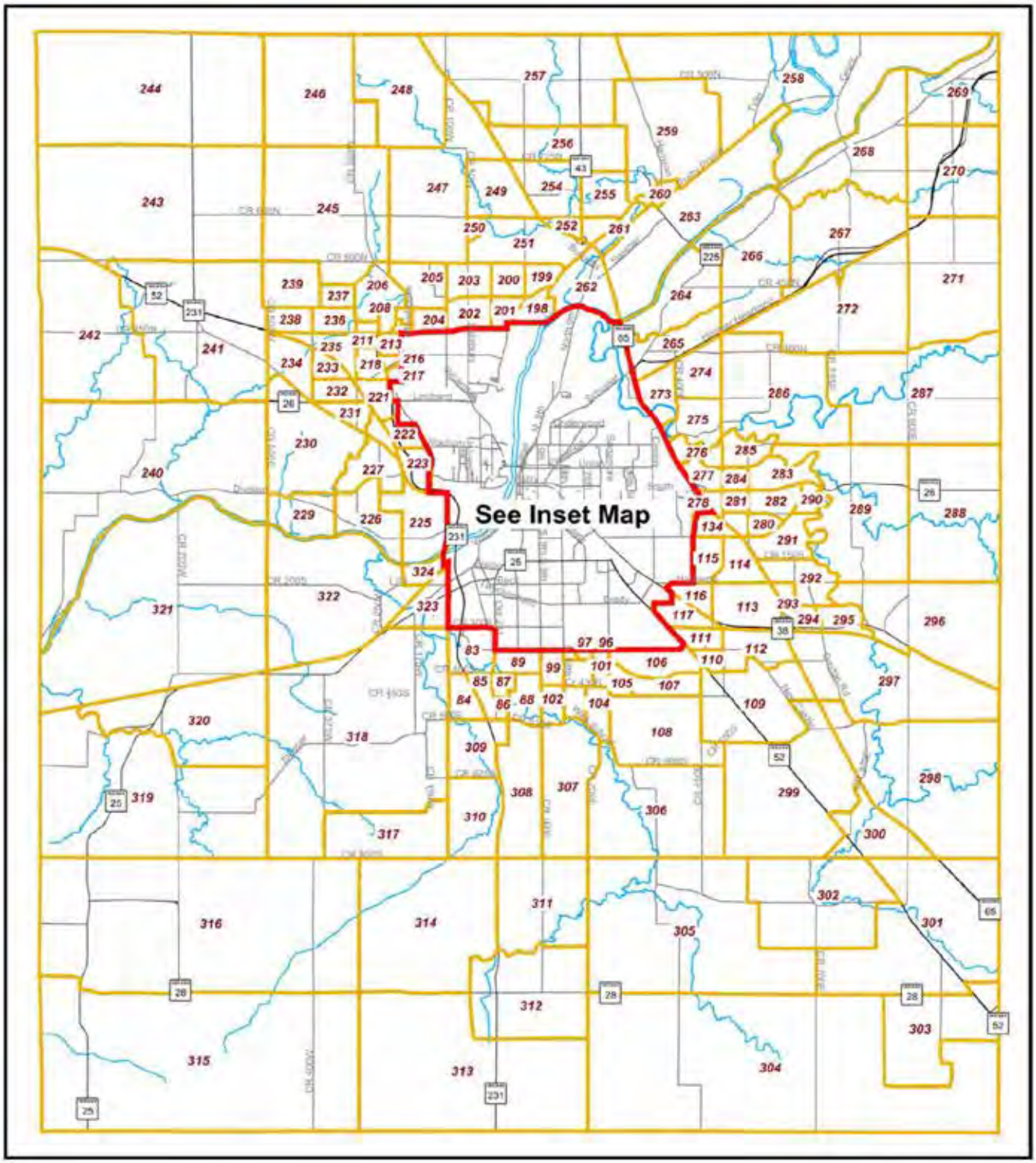
Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
190	0	0	0	0	0	0	0	412	137	275
191	0	0	0	0	0	0	0	532	321	211
192	635	225	410	318	308	10	420	500	0	500
193	799	0	799	396	391	5	543	3	0	3
194	1,022	0	1022	489	486	3	583	187	0	187
195	0	0	0	0	0	0	0	628	95	533
196	684	0	684	430	388	42	420	3	0	3
197	58	0	58	50	32	18	25	2,000	181	1819
198	335	260	75	51	44	7	85	497	0	497
199	556	0	556	324	249	75	426	10	0	10
200	1,606	0	1606	619	578	41	1201	0	0	0
201	1,406	0	1406	589	533	56	1075	2	0	2
202	834	156	678	441	385	56	903	787	30	757
203	1,770	0	1770	737	726	11	1918	12	0	12
204	176	0	176	76	76	0	152	2,049	0	2049
205	2,540	0	2540	1039	994	45	1773	528	79	449
206	520	0	520	238	227	11	343	9	6	3
207	4	0	4	2	2	0	4	799	457	342
208	1,886	0	1886	977	887	90	1274	14	0	14
209	586	0	586	266	252	14	445	3	0	3
210	590	0	590	246	222	24	374	76	20	56
211	181	0	181	79	69	10	101	229	24	205
212	288	0	288	130	116	14	173	28	13	15
213	2,126	0	2126	905	882	23	1444	31	0	31
214	455	0	455	267	262	5	262	1,000	366	634
215	949	0	949	536	527	9	688	300	92	208
216	0	0	0	0	0	0	0	1,400	783	617
217	5	0	5	2	2	0	3	400	224	176
218	1,284	200	1084	494	431	63	632	775	105	670
219	2,257	124	2133	901	895	6	1197	193	0	193
220	775	0	775	415	412	3	738	6	0	6
221	2,003	0	2003	799	765	34	1230	6	0	6
222	46	0	46	24	24	0	52	0	0	0
223	1,239	300	939	369	358	11	773	2,008	526	1482
224	13	0	13	5	5	0	7	106	8	98
225	11	0	11	7	6	1	10	125	20	105
226	236	0	236	110	109	1	220	38	10	28
227	275	0	275	118	116	2	193	1,025	287	738

Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
228	387	0	387	144	140	4	232	3	0	3
229	149	0	149	70	69	1	142	6	0	6
230	676	0	676	260	254	6	483	141	49	92
231	1,673	0	1673	651	633	18	1197	20	3	17
232	1,855	0	1855	752	734	18	1393	19	0	19
233	52	0	52	27	22	5	42	75	0	75
234	488	0	488	198	187	11	411	15	0	15
235	1,506	0	1506	698	595	103	922	750	429	321
236	471	0	471	205	176	29	275	35	0	35
237	778	0	778	413	278	135	340	0	0	0
238	162	0	162	92	74	18	108	31	0	31
239	3	0	3	2	2	0	4	0	0	0
240	882	0	882	352	342	10	816	93	6	87
241	808	0	808	327	319	8	762	102	3	99
242	545	0	545	213	209	4	503	172	0	172
243	86	0	86	36	33	3	61	25	2	23
244	115	0	115	38	38	0	76	27	7	20
245	278	0	278	108	106	2	267	26	1	25
246	134	0	134	45	44	1	79	9	0	9
247	973	0	973	367	364	3	972	136	0	136
248	180	0	180	52	52	0	144	10	0	10
249	565	0	565	266	188	78	324	14	1	13
250	0	0	0	0	0	0	0	173	0	173
251	1,795	70	1725	636	613	23	1443	54	3	51
252	43	0	43	20	19	1	38	300	180	120
253	228	0	228	88	88	0	180	200	8	192
254	1,149	0	1149	461	422	39	789	29	3	26
255	1,337	0	1337	618	484	134	774	14	2	12
256	586	0	586	209	199	10	387	41	3	38
257	536	0	536	207	199	8	470	22	1	21
258	412	0	412	203	175	28	271	46	3	43
259	357	0	357	156	142	14	269	26	2	24
260	659	0	659	293	272	21	526	200	36	164
261	85	0	85	38	37	1	74	6	0	6
262	140	0	140	69	59	10	99	286	6	280
263	295	0	295	155	125	30	209	102	0	102
264	2,944	0	2944	1219	1,195	24	2678	58	0	58
265	701	0	701	306	295	11	652	585	117	468

Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
266	980	0	980	470	440	30	947	39	0	39
267	485	0	485	198	193	5	432	100	0	100
268	572	0	572	254	241	13	461	53	17	36
269	134	0	134	52	49	3	93	109	0	109
270	370	0	370	136	129	7	245	32	0	32
271	102	0	102	41	38	3	74	41	0	41
272	154	0	154	65	60	5	119	1,539	0	1539
273	639	0	639	228	225	3	462	14	1	13
274	3,483	0	3483	1222	1,194	28	2430	218	0	218
275	1,080	0	1080	401	395	6	808	38	6	32
276	358	0	358	159	152	7	272	12	1	11
277	1,118	0	1118	819	664	155	1010	320	129	191
278	0	0	0	0	0	0	0	886	472	414
279	1,282	0	1282	553	508	45	944	0	0	0
280	251	0	251	108	100	8	100	257	36	221
281	1,430	0	1430	545	542	3	1089	42	0	42
282	2,370	100	2270	832	807	25	1582	111	0	111
283	788	21	767	326	295	31	609	124	1	123
284	1,039	0	1039	418	417	1	946	8	3	5
285	391	0	391	154	144	10	306	17	8	9
286	2,039	0	2039	843	817	26	1801	1,530	0	1530
287	499	0	499	189	188	1	427	213	2	211
288	348	0	348	132	130	2	292	66	16	50
289	870	0	870	328	315	13	688	155	12	143
290	93	0	93	34	33	1	64	0	0	0
291	5,642	0	5642	1813	1,713	100	3294	100	66	34
292	1,450	0	1450	807	785	22	2159	0	0	0
293	670	100	570	202	197	5	591	311	138	173
294	646	0	646	263	259	4	605	199	104	95
295	762	0	762	303	293	10	453	182	22	160
296	426	0	426	159	156	3	350	24	1	23
297	2,055	0	2055	721	706	15	1520	73	1	72
298	544	0	544	204	196	8	540	26	0	26
299	311	0	311	122	121	1	276	50	0	50
300	259	0	259	96	91	5	198	69	0	69
301	458	0	458	170	163	7	316	33	0	33
302	578	0	578	224	216	8	423	121	2	119
303	706	0	706	313	277	36	498	205	12	193

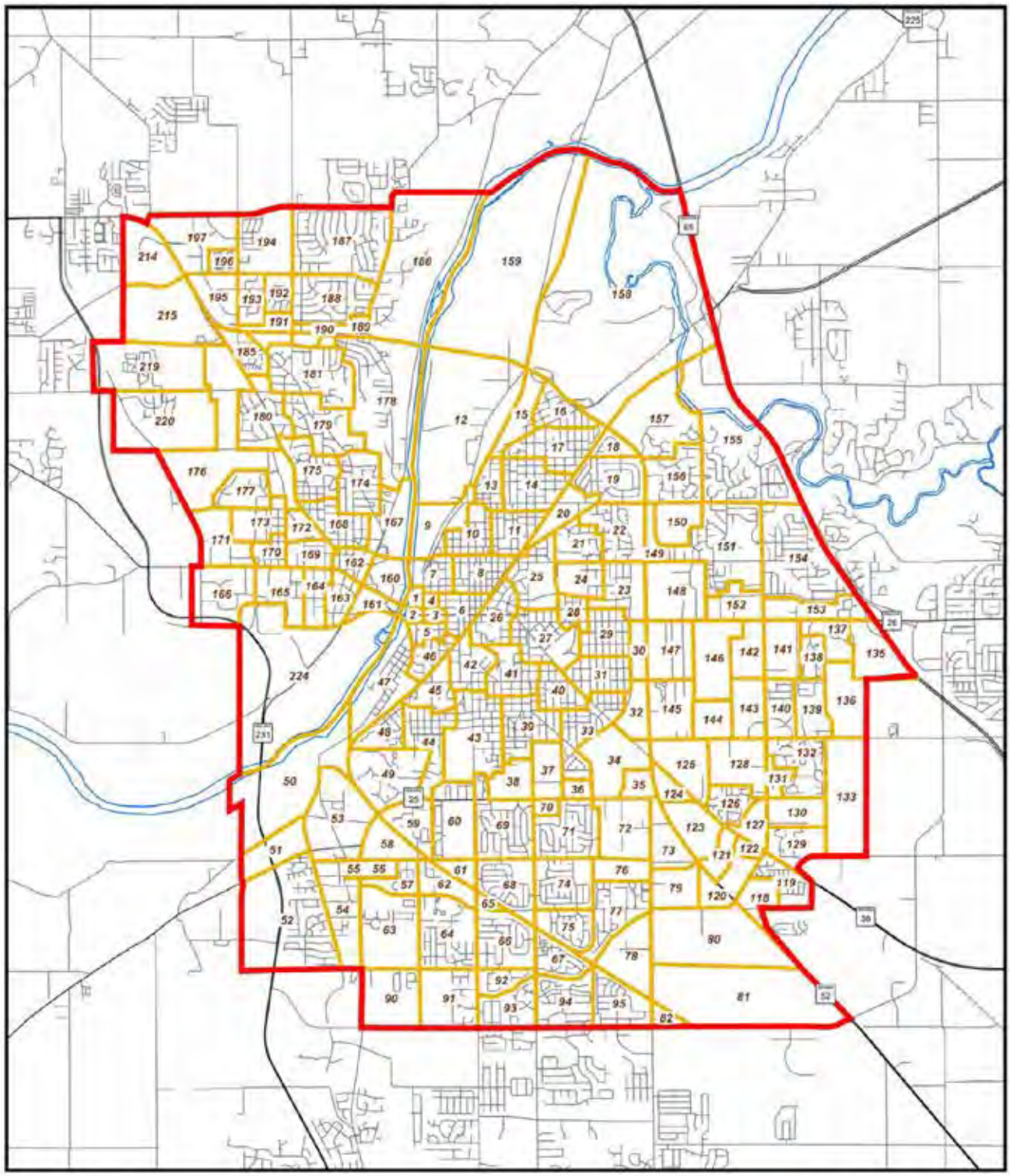
Traffic Zone	Total Pop 2045	Group Q. 2045	Household Pop 2045	Number of Dus 2045	Occupied Dus 2045	Vacant Dus 2045	Autos 2045	Total 2045 Emp	Retail Emp. 2045	Non-Retail Emp. 2045
304	383	0	383	152	146	6	285	33	0	33
305	500	0	500	186	179	7	349	39	2	37
306	717	0	717	249	243	6	608	45	0	45
307	91	0	91	37	36	1	74	13	4	9
308	741	0	741	310	302	8	657	11	0	11
309	218	0	218	83	80	3	186	6	0	6
310	232	0	232	91	89	2	211	30	0	30
311	95	0	95	31	30	1	66	50	28	22
312	551	0	551	218	210	8	467	150	57	93
313	163	0	163	66	62	4	135	44	4	40
314	139	0	139	49	48	1	109	17	0	17
315	200	0	200	77	70	7	162	26	0	26
316	306	0	306	114	108	6	259	37	0	37
317	40	0	40	16	16	0	37	120	0	120
318	1,142	0	1142	478	439	39	906	99	24	75
319	667	0	667	259	245	14	567	38	1	37
320	643	0	643	274	260	14	603	80	21	59
321	514	0	514	201	185	16	406	38	0	38
322	168	0	168	64	64	0	128	11	0	11
323	479	0	479	217	204	13	477	23	0	23
324	0	0	0	0	0	0	0	600	0	600

Rural Traffic Zones



Prepared by the Area Plan Commission
of Tippecanoe County, May 8, 2017

Urban Traffic Zones



Prepared by the Area Plan Commission
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K. Assumptions used for 2045 socioeconomic forecasts

Assumptions from the previous plan plus updated information:

Growth in Housing:

* The total number of housing units (total) will grow at 500 units per year from 2011 to 2015. After 2015, the annual growth rate will be 1,000 units per year.

* Projection rates are based on building permit data from 1989 to 2010 and decennial census data from 1970 - 2010.

Updated Comparison:

Dwelling Unit Comparison

Comparisons of Actual Permit Date to STATS Projections

	2010	2011	2012	2013	2014	2015	
Total DUs *(B.O.Y)*	71,096	71,611	72,834	73,506	74,393	75,315	
Single Family	381	462	496	454	468	429	
2 Family	4	366	1	0	2	24	
Multifamily	130	395	175	433	452	36	*6 Year Average*
Total New (Annual)	515	1,223	672	887	922	489	***785***
				Actual	*4,219*	*(2010-2014)*	
				Projected	*2,500*	*(2010-2014 in 2040 Long-Range Plan)*	
STATS DU Numbers	71,096	71,504	72,547	72,959	73,901		
	71	408	1,043	412	942		
				STATS	*2,876*	*(2010-2014)*	

Eleven Year Permit Data

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Single Family	898	637	570	448	389	381	462	496	454	468	429
2 Family	6	2	0	0	12	4	366	1	0	2	24
Multifamily	139	175	255	131	4	130	395	175	433	452	36
Total New (Annual)	1,043	814	825	579	405	515	1,223	672	887	922	489

Average Per Year ***761***

Recommend 750 instead of 1,000 DUs per year.

Vacancy Rate:

* The vacancy rate will decrease by a half of one percent per year until it reaches 5.5% in 2015. The vacancy rate will then remain constant at 5.5%.

* The rate is based of Census historical trends: 1970, 1980, 1990, 2000 and 2010.

Decennial Census	1970	1980	1990	2000	2010
Total HH	34,197	43,130	48,134	58,343	71,096
Vacancy	1,877	2,449	2,516	3,117	5,564
Percentage Vacant	5.5%	5.7%	5.2%	5.3%	7.826%

American Community Survey Data:	**HUD/USPS**
2014 Data:	
Total housing Units: 73,905	Total housing Units: 76,335
Occupied Housing Units: 65,834 (89.1%)	
Vacant housing Units: 8,071 (10.9%) *Error +/-1,666 or 2.3%*	Vacant housing Units: 2,086 (2.73%)
2013 Data	
Total housing Units: 72,797	Total housing Units: 75,007
Occupied Housing Units: 68,442 (94.0%)	
Vacant housing Units: 4,355 (6.0%) *Error +/-1,283 or 1.8%*	Vacant housing Units: 2,083 (2.78%)
2012 Data	
Total housing Units: 72,506	Total housing Units: 74,121
Occupied Housing Units: 67,977 (93.8%)	
Vacant housing Units: 4,529 (6.2%) *Error +/-1,505 or 2.1%*	Vacant housing Units: 2,016 (2.72%)
2011 Data	
Total housing Units: 71,829	Total housing Units: 71,018
Occupied Housing Units: 66,480 (92.6%)	
Vacant housing Units: 5,349 (7.4%) *Error +/-1,282 or 1.8%*	Vacant housing Units: 2,113 (2.98%)
2010 Data	
Total housing Units: 71,168	Total housing Units: 69,885
Occupied Housing Units: 66,226 (91.7%)	
Vacant housing Units: 5,942 (8.3%) *Error +/-1,677 or 2.4%*	Vacant housing Units: 2,144 (3.07%)

Persons Per Household:

* Based on historical Decennial Census trends, the average number of persons per household remains constant at 2.40 through 2020. The average will then decrease to 2.39 from 2021 to 2030, and then decreases to 2.38 from 2031 to 2040. Projections are based on national trends and national projections by Arthur C. Nelson, FAICP, Director of the Metropolitan Research Center, University of Utah.

Persons Per Household Rates:

Decennial Census	1960	1970	1980	1990	2000	2010
HH Population	79,987	96,901	105,271	114,138	133,829	158,317
Total Occupied HH	24,928	32,320	40,681	45,618	55,226	65,532
Persons Per Household	3.21	3.00	2.59	2.50	2.42	2.4159

The Census's American Community Survey does not provide household population.
STATS Indiana does not provide household population data.

Group Quarter Population – Purdue:

* There will be 778 new beds added (in dorms) by 2017. Thereafter, no new beds will be added.

The Census's American Community Survey does not provide group quarter population for college. Only the Decennial Census does.

Group Quarter Population - Nursing Home Population:

* The age group of those living in nursing homes is based on the National Nursing Home Survey from the CDC (Table 30B). The 2010 Census population for persons who are 85 and older is 2,506. The 2010 Census nursing home population is 1,506. The ratio of the two is 42.5%. Future growth in the nursing home population is calculated by using the ratio and multiplying it by the Indiana Business Research Center (IBRC) population projections of 85 and older for 2020, 2030 and 2040. Independent living and assisted living developments for seniors are not considered nursing homes (group quarters) by the Census Bureau.

The National Nursing Home Survey has not been conducted since 2004.
The Census's American Community Survey does not give any group quarter information.

Group Quarter Population - Veteran Population:

* The number of veterans living in group quarters will remain constant based on interviews with Tippecanoe County Veteran's Services . Between the decreasing number of

Veterans from past wars and the increasing numbers from the most recent wars, the two trends will result in neither a significant increase nor decrease in group quarters population.

Decennial Census	1960	1970	1980	1990	2000	2010
Group Quarters	9,135	12,477	16,031	16,460	15,126	14,463
College Dorm				14,549	13,288	12,162
Percent in College Dorm				*88.4%*	*87.8%*	*84.1%*
Nursing				1,455	1,141	1,065
Remaining				456	697	1,236
Total Population	89,122	109,378	121,702	130,598	148,955	172,780
Group Quarter Percent	10.2%	11.4%	13.2%	12.6%	10.2%	8.4%

Veteran Information, American Community Survey, 1 Year Estimates, Table S2101

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total Pop.	10,117	8,765	9,853	9,665	9,809	10,238	9,151	10,022	8,389	6,620
Gulf 9/'01 >	18.3%	17.9%	---	9.2%	---	11.2%	12.7%	---	19.2%	15.3%
Gulf 9/'01 <			---	21.4%	---	12.8%	14.9%	---	8.7%	21.0%
Vietnam	28.9%	30.0%	---	22.9%	---	36.2%	37.9%	---	37.0%	37.0%
Korean	10.7%	13.2%	---	16.3%	---	14.1%	12.5%	---	14.2%	12.1%
WW II	15.3%	18.4%	---	11.7%	---	12.5%	9.4%	---	3.3%	6.7%
Age										
55-64	26.1%	25.6%	25.2%	16.7%	24.5%	24.4%	34.4%	19.3%	26.7%	18.8%
65-74	16.8%	14.5%	19.9%	17.3%	16.5%	19.2%	12.1%	21.1%	24.2%	23.5%
75+	17.0%	25.1%	21.1%	23.4%	20.4%	22.7%	22.3%	18.0%	22.9%	24.7%
Below Poverty Status										
	5.8%	4.5%	1.2%	4.3%	11.5%	8.5%	6.4%	3.2%	2.3%	4.4%
Disability Status, Veterans with a disability										
	21.2%	27.3%	27.9%	23.0%	29.5%	31.5%	27.6%	17.9%	19.2%	31.2%

Note: in 2005 and 2006, the veterans pre and post 9/'01 were counted in only one category

Note: The missing entries mean the data cannot be displayed because the number in the sample cases was too small.

Group Quarter Population
Population in Group Quarters, American Community Survey, 1 Year Estimates, Table B26001

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Population	16,155	16,422	13,321	12,596	15,138	12,041	13,985	14,637	14,714

Total Employment:

* Base year information is from InfoGroup (through IBRC). Farm employment is based on Bureau of Economic Analysis historical trends.

* Future projections are based on the number of jobs per housing unit and historical data. The 2020 jobs/household rate used was 1.45, 2030 rate 1.50 and the 2040 rate 1.55.

Bureau of Economic Analysis Data *(download January 2016)*

Year	Total Employment	Farm Employment	Non-Farm Employment
1969	51,130	1,519	49,611
1970	52,016	1,524	50,492
1971	52,467	1,528	50,939
1972	53,731	1,549	52,182
1973	56,078	1,557	54,521
1974	57,737	1,579	56,158
1975	56,876	1,672	55,204
1976	58,608	1,713	56,895
1977	61,105	1,686	59,419
1978	63,672	1,657	62,015
1979	64,312	1,525	62,787
1980	64,824	1,569	63,255
1981	64,729	1,464	63,265
1982	64,208	1,400	62,808
1983	64,186	1,483	62,703
1984	66,648	1,412	65,236
1985	66,077	1,391	64,686
1986	69,532	1,389	68,143
1987	71,575	1,309	70,266
1988	74,708	1,240	73,468
1989	77,323	1,197	76,126
1990	79,949	1,145	78,804
1991	81,084	1,093	79,991
1992	82,196	1,089	81,107
1993	83,670	1,140	82,530
1994	85,650	1,107	84,543
1995	89,144	1,079	88,065
1996	90,680	1,068	89,612
1997	93,009	1,098	91,911
1998	95,083	1,028	94,055
1999	97,142	1,016	96,126
2000	98,398	1,003	97,395
2001	96,301	952	95,349
2002	96,073	818	95,255
2003	93,812	800	93,012
2004	94,977	786	94,191
2005	96,782	807	95,975
2006	98,983	841	98,142
2007	100,590	844	99,746
2008	101,144	801	100,343
2009	97,796	826	96,970
2010	97,229	897	96,332
2011	101,229	834	100,395
2012	104,117	860	103,257
2013	104,548	839	103,709
2014	106,566	820	105,746

L. Status of 2040MTP Performance Measures

System Performance Report
Status of 2040 MTP Performance Measures

Vision, Objectives and Performance Measures

Goals and objectives for the *Comprehensive Plan for Tippecanoe County* were generated through an extensive effort by the Citizen Participation Committee in 1976. That effort reached hundreds of citizens and culminated in the adoption of the following goals and objectives that guided the original *1978 Transportation Plan*, the 1981 *Comprehensive Plan for Tippecanoe County* and all subsequent APC plans. The Citizen Participation Committee updated the following transportation vision and objectives in 2006 and 2011.

Vision

Develop a coordinated, safe, and interrelated transportation system, integrating thoroughfares, transit, airport facilities, passenger rail service, freight movement, and pedestrian and bicycle facilities to adequately serve the entire community, guided by the adopted Land Use Plan, and compatible with economic development, financial resources, and cooperative governmental and citizen action; linking Tippecanoe County, Lafayette and West Lafayette with each other and to the region, state and nation.

Evaluation:

á Accomplished or significant progress made
á Progress made
Minimal progress made
1 Insufficient data to assess performance
â No Progress

Criteria for eliminating PM: The PM need to be realistic from the perspective of: data availability and quality, manpower, financial, agency jurisdiction and reflect what APC has responsibility, authority and ability to have some control over the outcome.

Objectives:

1. Improve Sustainability (the long term maintenance of our economy, environment and social institutions).
Performance Measures:

a. Reduce single vehicle occupancy to 2001 levels (1.13 persons/vehicle from 1.1 in 2010) within 10 years.	While a good PM for the community, the data is neither easily obtainable nor reliable, and APC has little authority or ability to affect this PM.	1
b. Upgrade or install sidewalks to Public Rights-of-Way Accessibility Guidelines (PROWAG) standards within a quarter mile of all transit stops by 2020.	Both cities have active sidewalk improvement projects, but no summary of progress to date has been compiled.	á
c. Develop the procedure manual to implement the Complete Streets Policy within six months of its adoption.	MPO Procedure Manual completed and used in TIP project selection.	á
d. Allocate 10% of the MPO's STP funds to bicycle and pedestrian projects that are not part of a jurisdiction's road construction and reconstruction projects.	Accomplished in each year since 2040 MTP adopted.	á
e. Update the Bicycle and Pedestrian Plan by 2014.	Components of update completed (crash analysis and significant progress on education and awareness). Lafayette completed a Trails Plan and a Bike/Pedestrian Plan.	á
f. Achieve increased housing density and mixed-use development near Purdue campus areas and near downtown neighborhoods close to the new CityBus transfer station.	Continued implementation and reliance on the Metropolitan Land Use Plan achieves the goal of compact development. Higher density housing and mixed use developments have been constructed near Purdue University and downtown Lafayette.	á
g. Annually allocate all APC UPWP Section 5303 funding	Accomplished.	á

resources to provide program assistance to CityBus.		
2. Preserve the capacity and improve efficiency of existing facilities. Performance Measures:		
a. Reduce vehicle miles traveled per capita by 2% by 2020	INDOT website shows daily vehicle miles traveled per capita in Tippecanoe Co. was 12.71 in 2012, 13.09 in 2013, and 13.05 in 2014. Further data investigation needed.	1
b. Maintain existing peak period travel times on arterials by 2020.	Insufficient data available. Further data investigation needed.	1
c. Ensure all scheduled traffic counts are taken and information published within 30 days of receiving count data from LPAs.	Not all traffic counts were taken by local jurisdictions and transition to new web platform hindered publishing of historical and detailed data.	#
d. Expand the advanced traffic signal management system beyond the City of Lafayette by including all signals in West Lafayette and unincorporated Tippecanoe County by 2020.	Accomplished. Lafayette has an Advanced Traffic Management System and West Lafayette is implementing its in 2017.	á
e. Adopt an Access Management Plan by 2015.	Not yet developed.	â
f. Develop a tracking system for traffic crash clearance times in conjunction with public safety agencies.	Insufficient data available. Further data investigation needed.	1

3. Enhance mobility and accessibility. Performance Measures:		
a. Allocate 10% of the MPO's STP funds to bicycle and pedestrian projects that are not part of a jurisdiction's road construction and reconstruction projects.	Accomplished in each year since adoption of 2040 MTP.	á
b. Annually allocate all APC's UPWP Section 5303 funding resources to provide program assistance to CityBus.	Accomplished.	á
c. Update Bicycle and Pedestrian Plan by 2014.	Components of update completed (crash analysis and significant progress on education and awareness). Lafayette completed a Trails Plan and a Bike/Pedestrian Plan.	á
d. Expand the advanced traffic signal management system beyond the City of Lafayette by including all signals in West Lafayette and unincorporated Tippecanoe County by 2020.	Accomplished. Lafayette has an Advanced Traffic Management System and West Lafayette is implementing its in 2017.	á
e. Achieve increased housing density and mixed use development on near-Purdue campus areas and near downtown neighborhoods close to the new CityBus transfer station.	Continued implementation and reliance on the Metropolitan Land Use Plan achieves the goal of compact development. Higher density housing and mixed use developments have been constructed near Purdue University and downtown Lafayette.	á
f. Update the Thoroughfare Plan by 2013.	Development ongoing.	â

4. Improve the safety and security of all road users. Performance Measures:		
a. Work with local public safety agencies to reduce severe and fatal crashes by 5% by 2020.	Five year rolling average of fatalities is the same as 2010 and varied from 17 (2015) to 15. Five year rolling average of serious injuries has varied from 71 (2015) to 59. Crash analysis ongoing. Summary report in development.	á
b. Create crash analysis report within 30 days of final crash report submission to ISP.	Annual crash reports written and in review, with summary in development.	á
c. Work with local public safety agencies to address high crash locations	Accomplished. Seven projects approved for use of HSIP funds. All HSIP funds programed. Crash analysis ongoing. Summary report in development.	á
d. Ensure that projects utilize current best practice design standards to minimize conflicts between all modes of transportation	No progress.	â
e. Annually allocate all APC UPWP Section 5303 funding resources to provide program assistance to CityBus.	Accomplished.	á

5. Reduce the effects of climate change. Performance Measures:		
a. Implement mitigation projects developed in each 5 year Multi-Hazard Mitigation Plan.	Multi-Hazard Plan approved and progress made toward implementation.	á
b. Annually allocate all APC UPWP Section 5303 funding resources to provide program assistance to CityBus.	Accomplished.	á
c. Update Bicycle and Pedestrian Plan by 2014.	Components of update completed (crash analysis and significant progress on education and awareness). Lafayette completed a Trails Plan and a Bike/Pedestrian Plan.	á
d. Increase percentage of the population within a half mile of a bicycle or pedestrian facility.	Both cities have active bicycle and pedestrian facility programs and APC has mapped all facilities. No summary of progress to date has been compiled.	á
e. Increase percentage of the population within a quarter mile of a transit route.	Population densities in the downtowns have increased and route refinements ongoing.	á
f. Achieve increased housing density and mixed use development near Purdue campus areas and near downtown neighborhoods close to the new CityBus transfer station.	Continued implementation and reliance on the Metropolitan Land Use Plan achieves the goal of compact development. Higher density housing and mixed use developments have been constructed near Purdue University and downtown Lafayette.	á
g. Advocate for extensive landscape plans on public highway projects and within subdivisions.	Staff advocates for and requires extensive landscaping in Planned Developments.	â

M. Fiscal Year 2018 Self-Certification

TRANSPORTATION PLANNING PROCESS
FY 2018
CERTIFICATION

In accordance with 23 CFR 450.336, the Indiana Department of Transportation and the Area Plan Commission of Tippecanoe County hereby certify that the transportation planning process is addressing the major issues in the metropolitan planning area and is being conducted in accordance with all applicable requirements of:

1. 23 U.S.C. 134, 49 U.S.C. 5303, and 23 CFR part 450.300;
2. Sections 174 and 176(c) and (d) of the Clean Air Act, as amended (42 U.S.C. 7504, 7506(c) and (d)) and 40 CFR part 93;
3. Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-1) and 49 CFR part 21;
4. 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity;
5. Section 1101(b) of the FAST Act (Pub. L. 114–357) and 49 CFR part 26 regarding the involvement of disadvantaged business enterprises in DOT funded projects;
6. 23 C.F.R. part 230, regarding the implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts;
7. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) and 49 CFR parts 27, 37 and 38;
8. The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving Federal financial assistance;
9. Section 324 of title 23 U.S.C. regarding the prohibition of discrimination based on gender; and
10. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities.

Area Plan Commission of
Tippecanoe County - MPO

Sallie Dell Fahey

Executive Director
Title

5.23.17
Date

Indiana Department of Transportation

Roy Nunnally

Division Director
Title

5/3/17
Date