



# 2045

WEST CENTRAL INDIANA  
METROPOLITAN TRANSPORTATION PLAN



September 2018

**Metropolitan Planning Organization  
West Central Indiana Economic Development District  
1718 Wabash Ave, Terre Haute, IN 47807**

Preparation of this plan was financed in part by funds provided by the Federal Highway Administration and the Federal Transit Administration in cooperation with the Indiana Department of Transportation. The opinions, findings, and conclusions expressed in this plan are not necessarily those of the Federal Highway Administration, the Federal Transit Administration or the Indiana Department of Transportation.

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## Adopting Resolution

**West Central Indiana Economic Development District  
Transportation Policy Committee  
Resolution No. 091819-01**

**WHEREAS**, West Central Indiana Economic Development District, Inc. (WCIEDD) is the Metropolitan Planning Organization (MPO), designated by the Governor of Indiana, for the Terre Haute Urbanized Area and the West Central Indiana Metropolitan Planning Area pursuant to 23 U.S.C. 450.310 (Designations); and

**WHEREAS**, the MPO is statutorily required to develop and publish a metropolitan transportation plan, with a 20 year planning horizon, that includes both long-range and short-range strategies/actions that support the continued development of an integrated multimodal transportation system to facilitate the efficient movement of people and goods in the West Central Indiana Metropolitan Planning Area; and

**WHEREAS**, the MPO must review and update the plan at least every 4 years to confirm the plan's validity and consistency with current and forecasted transportation and land use conditions and trends; and

**WHEREAS**, the MPO developed the 2045 Metropolitan Transportation Plan to fulfill the statutory requirements of 23 U.S.C. 450.332 and 49 U.S.C. 5303(i); and

**WHEREAS**, the MPO used a continuous, cooperative, and comprehensive (3C) metropolitan planning process that substantially complies with the intent of 23 CFR 134 and 23 CFR 450 to develop the 2045 Metropolitan Transportation Plan; and

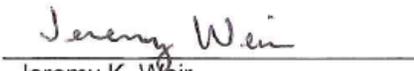
**WHEREAS**, draft copies of the 2045 Metropolitan Transportation Plan are/were made available for public review and comment from September 1<sup>st</sup> to September 24<sup>th</sup>, 2019 at WCIEDD's offices located at 1718 Wabash Ave, Terre Haute, IN 47807; at the Main Branch of the Vigo County Public Library, One Library Square, Terre Haute, IN 47807; at the Brazil Public Library, 204 N Walnut St, Brazil, IN 47834; and in electronically accessible format on WCIEDD's website;

**NOW THEREFORE BE IT RESOLVED**, the Transportation Policy Committee hereby approves the 2045 Metropolitan Transportation Plan, contingent upon satisfactory completion of the aforementioned public comment period (no adverse comments of a material nature).

The above and foregoing resolution is hereby adopted this 27<sup>th</sup> day of September, 2018 during a regularly scheduled meeting of the Transportation Policy Committee held in Terre Haute, Indiana.

ATTESTS:

  
Judith A. Anderson  
Vigo County Commissioner  
Transportation Policy Committee Chair

  
Jeremy K. Weir  
Director of Transportation Planning  
WCIEDD

## Glossary of Terms

**AADT:** Average Annual Daily Traffic. The total volume of traffic on a highway segment for one year, divided by the number of days in the year.

**AASHTO:** American Association of State Highway and Transportation Officials. A nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail and water. Its primary goal is to foster the development, operation and maintenance of an integrated national transportation system.

**ADA:** Americans with Disabilities Act of 1990. The legislation defining the responsibilities of and requirements for transportation providers to make transportation accessible to individuals with disabilities.

**Capital project:** A major construction project or acquisition. May apply to all transportation modes, for example: facilities for pedestrians and cyclists, purchasing buses, or maintaining, improving, and constructing roads and bridges.

**Complete streets:** Streets that are safe for people of all ages and abilities, balance the needs of different modes (walking, driving, biking, transit), and support local land uses, economies, cultures, and natural environments.

**CCP:** Community Crossings Program. The program provides funding to cities, towns, and counties across Indiana to make improvements to local roads and bridges. Community Crossings is a partnership between INDOT and Hoosier communities, both urban and rural, to invest in infrastructure projects that catalyze economic development, create jobs, and strengthen local transportation networks.

**EJ:** Environmental Justice. The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. (EPA) Executive Order 12898, issued by President Clinton in 1994, stated that each federal agency shall make EJ part of their mission.

**FFY:** Federal Fiscal Year. The 12-month period for federal budgets running from October 1 through September 30 of the following calendar year.

**FHWA:** Federal Highway Administration. Federal agency within the United States Department of Transportation (U.S. DOT) that “provides stewardship over the construction, maintenance and preservation of the Nation’s highways, bridges and tunnels. FHWA also conducts research and provides technical assistance to state and local agencies in an effort to improve safety, mobility, and livability, and to encourage innovation.”

**Fiscal Constraint:** A demonstration of sufficient funds (Federal, State, local, and private) to implement proposed transportation system improvements, as well as to operate and maintain the entire system, through the comparison of revenues and costs.

**FTA:** Federal Transit Administration. Federal agency “within the United States Department of Transportation (DOT) that provides financial and technical assistance to local public transit systems.”

**FY:** Fiscal Year. The 12-month period for local budgets (including the WCIEDD) running from January 1 through December 31 of the calendar year.

**GIS:** Geographic Information System. 1) Computerized data management system designed to capture, store, retrieve, analyze, and display geographically referenced information. 2) A system of hardware, software, and data for collecting, storing, analyzing, and disseminating information about areas of the Earth.

**HOV:** High Occupancy Vehicle. A vehicle carrying two or more people.

**HTF:** Highway Trust Fund. An account established by law to hold Federal highway user taxes that are dedicated for highway and transit related purposes. The HTF has two accounts: the Highway Account, and the Mass Transit Account.

**INDOT:** Indiana Department of Transportation. State department of transportation whose mission is to plan, build, maintain and operate a superior transportation system enhancing safety, mobility and economic growth.

**ITS:** Intelligent Transportation Systems. The application of advanced technologies to improve the efficiency and safety of transportation systems.

**LOS:** Level of Service. A standard measurement used by transportation officials which reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F.

**LPA:** Local Public Agency. Cities, towns and county public agencies charged with planning, building, maintaining and operating local bridge and road networks across Indiana.

**LRS:** Local Road and Street Fund. Funds distributed by the State Auditor to counties, cities and towns for 1) engineering, land acquisition, construction, resurfacing, maintenance, restoration, or rehabilitation of both local and arterial road and street systems; 2) the payment of principal and interest on bonds sold primarily to finance road, street, or thoroughfare projects; or 3) the purchase, rental, or repair of highway equipment.

**Mode:** A specific form of transportation, such as automobile, subway, bus, rail, or air. (FHWA)

**Mode share or mode split:** The percentage of a population that utilizes a specific transportation mode to complete a trip.

**MPA:** Metropolitan Planning Area. The geographic area in which the metropolitan transportation planning process required by 23 U.S.C. 134 and section 8 of the Federal Transit Act (49 U.S.C. app. 1607) must be carried out. The area is determined by agreement between the metropolitan planning organization and the Governor. It must encompass at least the existing urbanized area and the contiguous area expected to become urbanized within a 20-year forecast period for the metropolitan transportation plan. WCIEDD's MPA consists of the Terre Haute Urbanized Area, all of Vigo County, and portions of Clay County including the City of Brazil.

**MPO:** Metropolitan Planning Organization. The organization designated to carry out the metropolitan transportation planning process required by 23 U.S.C. 134 and the Federal Transit Act of 1991, Sec. 8(b)(1). An MPO is required in urbanized areas with populations over 50,000. It is designated by agreement between the Governor and units of general-purpose local government that together represent at least 75% of the affected population (including the largest incorporated city (based on population) as named by the Bureau of Census. WCIEDD is the MPO for the Terre Haute Urbanized Area and the West Central Indiana Metropolitan Planning Area.

**MTP:** Metropolitan Transportation Plan. A fiscally constrained transportation plan, covering at least a 20-year planning horizon, that includes both long-range and short-range strategies/actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods in the metropolitan planning area. The plan, which must be approved by the metropolitan planning organization's policy and decision-making body, must be updated at least every 5-years.

**MVH:** Motor Vehicle Highway Funds. Funds distributed by the State Auditor to counties, cities and towns for traffic safety programs and for construction, reconstruction, improvement, and maintenance of roads and highways.

**NHS:** National Highway System. The system of highways designated and approved in accordance with the provisions of 23 U.S.C. 103b). (23CFR500) The NHS consists of interstates and other key roadways that are important to the nation's economy, defense, and mobility as determined by U.S. DOT in cooperation with states, local officials, and MPOs.

**PPP:** Public Participation Plan. A document created by WCIEDD and approved by the Transportation Policy Committee that outlines the anticipated public outreach and involvement activities associated with an MPO plan or specific planning study.

**Road diet:** A project that removes travel lanes from a roadway so that this space can be utilized for other uses or travel modes.

**SFY:** State Fiscal Year. The 12-month period for state budgets running from July 1 through June 30 of the following calendar year.

**TAC:** Transportation Advisory Committee. This committee provides the transportation policy committee with public input on official decision making for transportation planning matters. The committee is made up of residents and representatives of various stakeholder groups.

**TDM:** Transportation Demand Management. Programs designed to reduce demand for transportation through various means, such as the use of transit and of alternative work hours. (FHWA)

**TIP:** Transportation Improvement Program. A document prepared by a metropolitan planning organization that lists improvement projects to be funded with FHWA/FTA funds over the next four years. The TIP must be updated at least once every 4 years.

**TOD:** Transit-Oriented Development. An approach to commercial and residential construction that promotes transit ridership, creates a pedestrian-friendly environment, and enhances a neighborhood's character, typically by creating a mix of land uses within a walkable radius of a transit station/stop.

**TPC:** Transportation Policy Committee. The committee serves as the official policy and decision-making body of the metropolitan planning organization. The committee is made up of local elected officials, officials of agencies that administer or operate major modes of transportation (transit operators, airport operators, etc.) and appropriate State officials.

**Travel demand model:** A computer model used to predict the amount, type, and location of travel that residents will undertake now and in the future, based on inputs such as population and economic forecasts, the geographic dispersion of people and jobs, and a description of the regional transportation system.

**TRAX:** Local TRAX Rail Overpass Program. This State program provides grants to cities, towns and counties for grade separation, crossing closure and other safety enhancement projects at rail-highway intersections on local roads.

**TTC:** Transportation Technical Committee. The committee provides technical support to the TPC and MPO staff, a linkage between planning and actual project implementation. The committee is made up city engineers, county engineers, town managers, and other individuals who possess the technical expertise to represent their town, city or county.

**TTI:** Travel Time Index. The ratio of travel time during peak periods to the time necessary to make the same trip at free-flow speeds, often used as a measure of roadway congestion.

**UPWP:** Unified Planning Work Program. The management plan for the (metropolitan) planning program. Its purpose is to coordinate the planning activities of all participants in the planning process. The UPWP lists all of the planning activities, including ongoing activities and individual studies that the MPO will undertake in a year.

**UA:** Urbanized Area: The geographic area with a population of 50,000 or more, as designated by the Bureau of the Census, in which the transportation planning process is carried out. The urbanized area is included in the metropolitan planning area.

## Chapter 1: Introduction

### A Brief History - Transportation Legislation, MPOs and Planning

The spread of development around urban centers in the United States throughout the early 20th century resulted in greater regional connectivity and a wider network of roads and highways than ever before. By the 1950's, some large cities like New York and Chicago had created organizations that focused on transit planning at a regional scale, but the landmark moment for Metropolitan Planning Organizations (MPOs) came in 1962 with the passage of the Federal Aid Highway Act. This legislation required, as a condition attached to federal transportation financial assistance, that transportation projects in urbanized areas of 50,000 or more be based on a continuing, comprehensive, urban transportation planning process undertaken cooperatively by the states and local government – hence the so-called 3C, “continuing, comprehensive and cooperative planning process” and MPOs were born. By the mid-1960s, there were 224 MPOs in the country. In 1973, MPOs began receiving either direct or pass-through federal funding to carry out the planning activities outlined in federal highway legislation.



The next leap forward for MPOs came with the introduction of the Intermodal Surface Transportation Efficiency Act of 1991, or ISTEA. ISTEA created a structure that increased funding for MPOs, strengthened the metropolitan planning process, required public and stakeholder participation, and recommended multi-modal solutions.

Congress enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETA-LU) in 2005. It established new consultation requirements for States and MPO, and placed more emphasis on transportation safety and security planning. It also added requirements for plans to address environmental mitigation, improved performance, multimodal capacity, and enhancement activities. Congress renewed SAFETA-LU ten times after its original expiration date (September 30, 2009).

In 2012, new legislation called Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) replaced SAFETA-LU. Besides being the first long-term highway authorization enacted since 2005, MAP-21 began transforming the policy and programmatic framework for investments to guide transportation system growth and development. Among other things, it created a streamlined and performance-based surface transportation program that builds upon many of the highway, transit, bike, and pedestrian programs and policies established in 1991.

The current transportation measure is called Fixing America's Surface Transportation Act, and is known as the FAST Act. It was signed into law on December 4, 2015 by President Obama. The Act authorizes \$305 billion over federal fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. It also maintains the focus on safety, keeps intact the established 3C planning process and the structure of the various highway-related programs, continues efforts to streamline project delivery and, for the first time, provides a dedicated source of federal dollars for freight projects.

Today, there are over 480 MPOs in the United States. West Central Indiana Economic Development District (WCIEDD) was designated the MPO for the Terre Haute Urbanized Area (UAZ) in 1974 by the Governor of Indiana and it is one of 14 MPOs in Indiana.

## Organizational Framework for Transportation Planning

WCIEDD is a regional organization serving Clay, Parke, Putnam, Sullivan, Vermillion and Vigo Counties in West Central Indiana. In addition to its designation as an MPO under 23 U.S.C. 134 and 49 U.S.C. 5303, the Agency is designated an Economic Development District (EDD) under Public Law 89-136 and as an Area Agency on Aging (AAA) under Public Law 86-73. Through these three designations and its designations as a Rural Planning Organization (RPO), the Agency works with federal, state and local partners to help build strong communities and improve quality of life in West Central Indiana.

The Agency, a quasigovernmental 501c(3) non-profit corporation, is managed and controlled by a 31 member board of directors composed of 18 local elected officials (3 from each county), 12 private sector representatives (2 from each county) and a private sector gubernatorial appointee who lives in the District. Annually, the board of directors elects nine of its members to serve as the corporation's officers. These elected officers and the Agency's executive director make up the executive committee, which is empowered to act for and on behalf of the board of directors between regular meetings of the board.

In its role as an MPO, WCIEDD provides multimodal metropolitan transportation planning services through its Transportation Planning Division for the West Central Indiana Metropolitan Planning Area (MPA) that includes the Terre Haute Urbanized Area (UAZ). The MPA is the geographic area determined by agreement between the MPO and the Governor, in which the federally prescribed metropolitan transportation planning process is to be carried out. The MPA must encompass the entire existing UAZ, as defined by the Bureau of the Census after each decennial census, and the contiguous area expected to become urbanized within the 20-year forecast period of the metropolitan transportation plan.

The current MPA served by the MPO, as depicted in Figure 1-1, encompasses the City of Terre Haute, Town of Seelyville, Town of Riley, Town of West Terre Haute, and all of Vigo County. The City of Brazil, Town of Carbon, Town of Harmony, Town of Knightsville, Town of Staunton, and Dick Johnson, Van Buren, Brazil, Posey, Jackson, and Cass Townships in Clay County were added as the result of the 2010 Decennial Census when the Bureau of Census redefined the boundaries of the Terre Haute Urbanized Area.

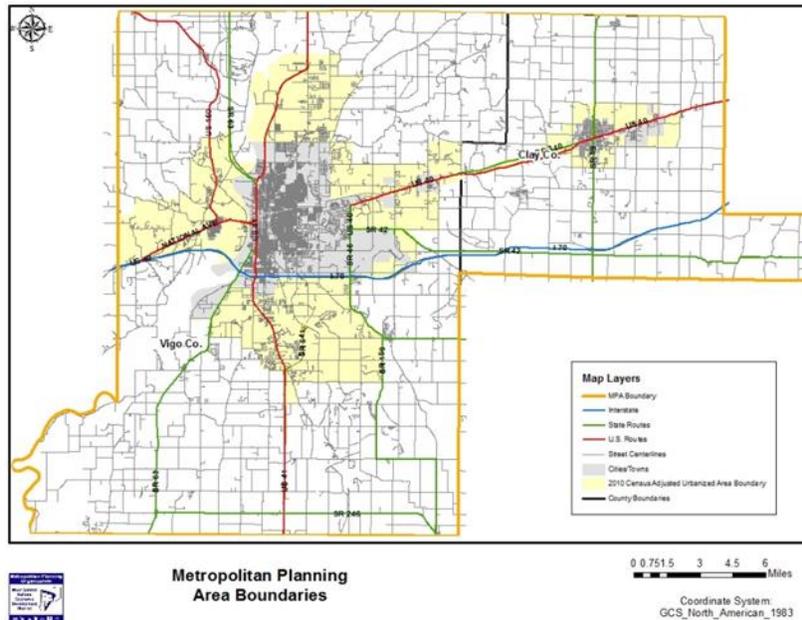


Figure 1-1: MPA Boundary Map

Federal funding for metropolitan transportation planning and local federal-aid transportation projects (highway, roads, streets, pedestrian and bicycle facilities, etc.) is generally allocated to the MPO for programming by the Indiana Department of Transportation (INDOT) based on the UAZ population. The Federal Transit Administration (FTA) also allocates federal funding for metropolitan transit system operations based on the UAZ population. Funding for projects outside the UAZ, but within the MPA may be funded by the MPO or through an INDOT competitive process. Table 1-1 shows the UAZ population served by each of the MPOs serving Indiana.

Indiana UAZ Population Served by MPOs

UAZ	Servicing MPO	2010 Census Population	% of Total UAZ Population
Anderson	Madison County Council of Governments (MCCOG)	88,133	2.27%
Bloomington	Bloomington/Monroe County Metropolitan Planning Organization (BMCMPPO)	108,657	2.80%
Columbus	Columbus Area Metropolitan Planning Organization (CAMPO)	54,933	1.42%
Cincinnati	Ohio-Kentucky-Indiana Regional Council of Governments (OKI)	50,035	1.29% <sup>1</sup>
Evansville	Evansville Metropolitan Planning Organization (EMPO)	200,768	5.18%
Fort Wayne	Northeastern Indiana Regional Coordinating Council (NIRCC)	313,492	8.09%
Kokomo	Kokomo-Howard County Governmental Coordinating Council (KHCGCC)	62,182	1.60%
Lafayette	Area Plan Commission of Tippecanoe County (TCAPC)	147,725	3.81%
Louisville	Kentuckiana Regional Planning and Development Agency (KIPDA)	140,180	3.62% <sup>2</sup>
Muncie	Delaware-Muncie Metropolitan Plan Commission (DMMPCC)	90,580	2.34%
Northwest	Northwestern Indiana Regional Planning Commission (NIRPC)	654,922	16.90%
South Bend	Michiana Area Council of Governments (MACOG)	384,562	9.92% <sup>3</sup>
Terre Haute	West Central Indiana Economic Development District (WCIEDD)	92,742	2.39%
Indianapolis	Indianapolis Metropolitan Planning Organization (IMPO)	1,487,483	38.37%
<b>Total</b>		<b>3,876,394</b>	<b>100.00%</b>

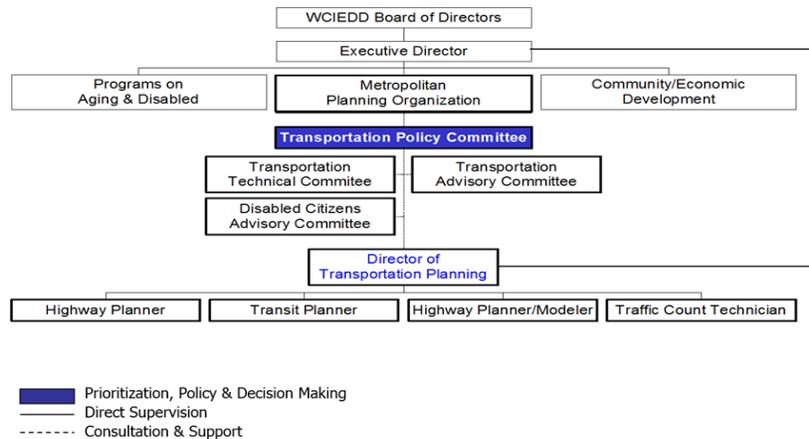
<sup>1</sup>Percent of Indiana population served by OKI.

<sup>2</sup>Percent of Indiana population served by KIPDA

<sup>3</sup>Includes both the Mishawaka and South Bend UZAs, which are served by MACOG

**Table 1-1: Indiana UAZ Population Served by MPOs**

Since WCIEDD is only charged with the responsibility to carry out the federally prescribed 3C metropolitan transportation planning in the MPA, versus in all six counties served by the Agency, WCIEDD's Board of Directors has established the organizational structure depicted in Figure 1-2. This structure establishes the Transportation Policy Committee as the local decision making body for actions WCIEDD takes in its role as an MPO.

**Figure 1-2: MPO Organizational Structure**

This structure helps ensure compliance with federal and state rules, regulations and policies regarding metropolitan transportation planning.

#### Committee Roles & Responsibilities

The Agency and the Transportation Planning Division operate under a structure that relies on committees to help it fulfill its MPO duties and responsibilities. The committees are:

The Transportation Policy Committee (TPC) is the policy and decision-making body of the MPO. It is ultimately responsible for insuring the federally prescribed 3C multimodal transportation planning process is carried out in the MPA. The committee typically meets on a bi-monthly basis beginning in January of each year.

The Transportation Technical Committee (TTC), works alongside the Agency's transportation planners and advises the TPC on planning and technical matters. It also provides a critical link between project planning and project implementation. The committee typically meets on a bi-monthly basis beginning in February of each year.

The Transportation Advisory Committee (TAC) provides the TPC with citizen and stakeholder input regarding plans, projects, studies and policies. They also help promote special programs and project activities. The committee normally meets once a quarter.

The Disabled Citizen's Advisory Committee (DCAC) has been formed under the joint leadership of the Terre Haute Transit Utility (THTU) and the MPO to provide a forum for identifying and addressing the transportation needs of those with disabilities. Committee membership is open to the public and to stakeholders who deliver services to this target group. The committee normally meets once a quarter.

Senior WCIEDD staff members and designated representatives of the Indiana Division of the Federal Highway Administration (FHWA) and Region 5 of the Federal Transit Administration (FTA) serve as advisory (non-voting) members of the TPC and TTC.

All committees operate under a single set of bylaws adopted by the TPC and each committee is led by a Chairperson and Vice-Chairperson who are elected from among the committee membership at the first committee meeting each year. Committee meetings are open to public unless the committee is meeting in executive session as authorized by I.C. 5-14-1.5-6.1.

Committee membership lists, meeting schedules, agendas, minutes, etc. are available for public inspection at the Agency’s office located at 1718 Wabash Ave, Terre Haute, IN 47807 during normal business hours (8:00 AM – 4:30 PM, Monday – Friday) or they can be accessed via the Agency’s website at <http://westcentralin.com/transport.html>.

## MPO Staff and Functions

WCIEDD’s Transportation Planning Division currently has four full-time employees who serve as the MPO staff. In addition, the Agency’s Director of Operations and Executive Director provide leadership, advice, community liaison, oversight and management support. The Agency occasionally hire consultants, through a competitive selection process, to provide specialize services and technical planning support. It also collaborates with local universities to create opportunities that provide students internship experiences.

Although organized in the traditional hierarchical structure depicted in Figure 1-3 for the purposes of establishing reporting relationships and a focal point for major program elements, the staff generally operates as a self-managed team on a day-to-day basis.

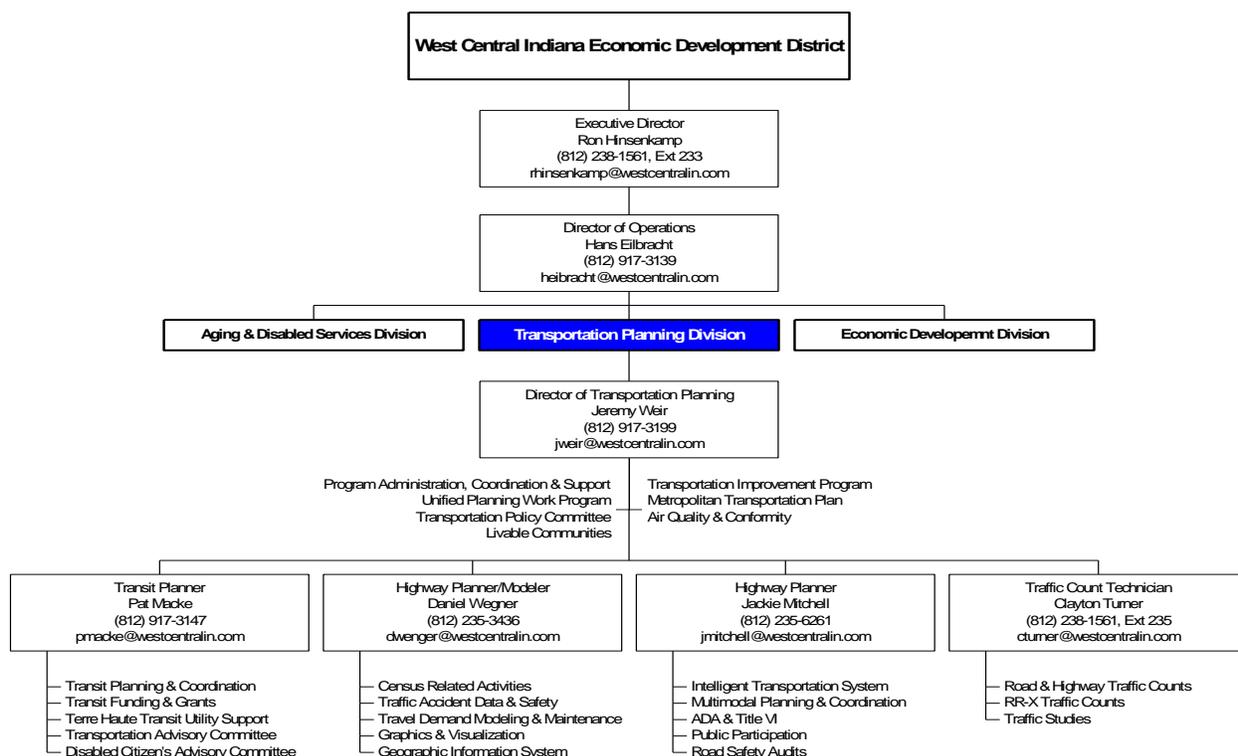


Figure 1-3: Organizational Structure

This operating culture fosters a synergistic approach to process design and problem solving, encourages knowledge sharing, improves quality and productivity, promotes greater innovation, increases ownership and stewardship, and helps create a team that is more responsive to meeting the changing needs of our planning partners, stakeholders and the general public. This type of operating culture also aligns well with the 3C framework for carrying out multimodal transportation planning.

## Core MPO Functions & Documents

MPOs perform five core functions detailed in the federal transportation regulations.

1. **Establish a setting:** Establish and manage a fair and impartial setting for effective regional decision-making in the metropolitan area.
2. **Identify and evaluate alternative transportation improvement options:** Use data and planning methods to generate and evaluate alternatives. Planning studies and evaluations are included in the Unified Planning Work Program (UPWP).
3. **Prepare and maintain a Metropolitan Transportation Plan (MTP):** Develop and update a long-range transportation plan for the metropolitan area covering a planning horizon of at least twenty years that fosters (1) mobility and access for people and goods, (2) efficient system performance and preservation, and (3) good quality of life.
4. **Develop a Transportation Improvement Program (TIP):** Develop a short-range (four-year) program of transportation improvements based on the long-range transportation plan; the TIP should be designed to achieve the area's goals, using regulating, operating, management, and financial tools.
5. **Involve the public:** Actively engage the general public and other affected stakeholders in the four essential functions listed above.

Federal transportation regulations establish four documents MPOs are required to create, implement, and maintain in order to carry out the five core MPO functions. These documents are:

1. **Unified Planning Work Program (UPWP):** The UPWP is a biannual document that outlines transportation planning activities to be conducted by the MPO staff as well as processes staff will participate in, but not necessarily oversee. The UPWP also includes a budget, allocating staff time and money toward accomplishing the identified activities.
2. **Public Participation Plan (PPP):** The PPP guides public involvement activities conducted by the MPO. It contains the goals for public involvement, as well as specific public involvement techniques and procedures to engage the public and stakeholders in the transportation planning process. The MPO strives to use these public involvement processes and techniques in every phase of the planning process, but especially during development of the Metropolitan Transportation Plan and the Transportation Improvement Program.
3. **Metropolitan Transportation Plan (MTP):** The MTP is the long-range transportation plan that guides planning, construction, operation and maintenance of the integrated, multi-modal transportation network in the MPA. It sets the regional transportation vision and priorities through a variety of principles and strategies providing a foundation for all of the tasks and projects delineated in the UPWP and the Transportation Improvement Program (TIP). The MTP is reviewed and updated at least every 4 years in air quality nonattainment and maintenance area like Vigo County, and every 5 years in attainment area. This document constitutes the MTP for the West Central Indiana Metropolitan Planning Area. It covers a 20-year forecast period from 2020 through 204 and it replaces the MTP adopted in September 2013.

4. **Transportation Improvement Program (TIP):** The TIP is a short-range, financially constrained list of federally funded and/or regionally significant transportation projects, or phases of projects (i.e. preliminary engineering, right-of-way acquisition, construction, etc.) approved by the TPC. The list of projects is created in cooperation with inputs from the public, sponsoring local public agencies, and INDOT. The TIP must reflect the investment priorities established in the current MTP. The Statewide Transportation Improvement Program (STIP) includes, without alteration, all of the TIPs from Indiana's MPOs and the transportation projects from the RPOs throughout the State. The STIP is maintained by INDOT.

The following chapters provide additional information about the metropolitan transportation planning process and the many factors considered during development of this MTP. Specific information about projects to be targeted for advancement are identified in Chapter 5 and Appendices 1 – 6.

## Chapter 2: Existing Conditions

### Introduction

One of the early steps in the transportation planning development process is to gather information regarding existing conditions. It is imperative to understand the existing socio-economic, land use, environmental, and transportation conditions of a region before forecasting potential future conditions and deriving implementation strategies. In this chapter, current characteristics and future scenarios in the MPA as they relate to the following topics:

- Population Growth, Employment, and location Efficiency
- Health and Safety
- Multimodal Transportation
- Regional Movement, Freight Corridors, and Security
- Natural and Cultural Resources

Discussion of these topics include a brief examination of national and state-wide studies and trends, and a more detailed discussion of the potential impacts of existing local and regional conditions. Identification of existing conditions and particularly future scenarios were developed together with the Transportation Technical Committee (TTC) and Transportation Policy Committee (TPC)

### Characteristics of the MPA

The MPA is located in west-central Indiana. The area is one of the most stable areas in the State of Indiana. It is located in a humid subtropical climate, characterized by temperate winters; warm summers; and rainfall that is distributed relatively evenly throughout the year. The climate rarely seems to bring "average" conditions. The region includes many quality of life aspects, which range from natural outdoor parks and preserves to indoor venues for the arts and sporting events.

The MPA region is served by both the Vigo County School Corporation and the Clay Community Schools. The combined enrollment is around 19,000 students, as is indicated by their names Clay Community Schools is in Clay County and consist of a high school, a combined Jr. / Sr. high school in Clay City, a middle school, and seven elementary schools. The Vigo County School Corporation consist of 3 high schools, 2 alternative schools, 5 middle schools, and 18 elementary schools. The region is also home to Indiana State University, Rose Hulman Institute of Technology, St. Mary-of-the Woods College, and Ivy Tech Community College. The combined enrollment of these institutions of higher education is over 18,000 students.

The WCIEDD MPO is the 10<sup>th</sup> largest MPO in the State of Indiana out of 14 by population with a 2010 census of 128,449 people. However, its urbanized area consist of 553 square miles making it the seventh largest by geographic area, but next to last in population density. The largest city in the MPA is Terre Haute (2017 population: 60,774). This large area/low density development pattern presents many planning related opportunities and challenges that will require coordination among a variety of agencies and jurisdictions. Because the MPA contains all of Vigo County and the Northern 1/3 of Clay County, (with the following incorporated places included: Terre Haute, Brazil, West Terre Haute, Seelyville, Harmony, Knightsville, Staunton, Carbon, and Riley) the transportation system must be examined from a regional perspective.

## Population

The MPA had a population of approximately 130,000 in 2010. After decades of declining population, it has seen a sustainable rate of increase from the 1990 census to the present. Table 2-1 shows the historic population growth of the MPO by township within the planning boundary since 1890.

MPA Population: 1890 - 2010													
Township	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
Brazil (Twp)	6,939	8,971	9,834	9,717	9,258	8,658	8,843	9,253	8,568	8,422	8,216	8,516	8,471
Cass	515	478	382	361	364	315	281	316	298	267	310	335	347
Dick Johnson	1,495	2,276	2,102	1,434	1,148	1,209	1,033	1,030	1,136	1,125	1,147	1,338	1,453
Jackson	2,443	2,412	2,128	1,921	1,686	1,720	1,442	1,491	1,665	2,022	2,126	2,602	2,739
Posey	2,511	2,949	3,230	2,863	2,545	2,359	2,451	2,811	3,311	3,459	3,347	3,984	4,063
Van Buren	5,318	5,416	3,974	3,322	2,998	2,877	2,805	2,979	2,990	3,168	3,411	3,144	3,528
Fayette	1,792	1,831	1,821	3,813	3,062	2,933	2,399	2,451	2,734	3,095	2,787	2,553	2,630
Harrison	31,277	40,430	61,305	71,112	70,922	71,855	75,052	72,480	69,577	60,462	53,810	51,898	51,272
Honey Creek	1,425	1,479	1,603	1,839	2,745	2,836	4,399	6,544	9,079	11,533	13,559	14,280	17,179
Linton	1,505	1,594	1,396	1,342	1,250	1,085	1,176	1,237	1,435	1,451	1,308	1,212	1,323
Lost Creek	1,738	2,056	3,302	2,845	2,799	2,728	3,383	4,475	6,434	7,753	8,633	9,907	10,497
Nevins	3,050	4,294	3,729	2,850	2,100	2,138	1,942	2,068	2,200	2,306	2,196	2,224	1,975
Otter Creek	1,470	1,842	2,845	2,836	3,017	3,201	3,513	5,387	7,801	9,485	8,792	9,059	9,069
Pierson	1,517	1,550	1,421	1,337	1,072	1,200	1,030	1,096	1,285	1,469	1,339	1,269	1,210
Prairie Creek	1,546	1,672	1,552	1,334	1,150	1,214	1,061	1,062	1,216	1,339	1,299	1,220	1,195
Prairieton	962	881	849	592	780	618	719	795	1,063	1,766	1,277	1,300	1,222
Riley (twp)	1,653	1,608	1,608	1,388	1,391	1,222	1,316	1,571	1,976	2,224	2,435	2,805	3,123
Sugar Creek	2,260	2,798	2,798	8,924	8,573	8,679	9,170	9,292	9,728	9,502	8,672	8,121	7,153
<b>MPA Total</b>	<b>69,416</b>	<b>84,537</b>	<b>105,879</b>	<b>119,830</b>	<b>116,860</b>	<b>116,847</b>	<b>122,015</b>	<b>126,338</b>	<b>132,496</b>	<b>130,848</b>	<b>124,664</b>	<b>125,767</b>	<b>128,449</b>
Indiana	2,192,404	2,516,462	2,700,876	2,930,390	3,238,503	3,427,796	3,934,224	4,662,498	5,195,392	5,490,224	5,544,159	6,080,485	6,483,802
MPA % of IN	3.17%	3.36%	3.92%	4.09%	3.61%	3.41%	3.10%	2.71%	2.55%	2.38%	2.25%	2.07%	1.98%

Table 2-1: MPA Population 1890 - 2010

Table 2-2 shows the forecasted population for the MPA based on 1990 - 2010 trending data chosen by the TTC for use in the Travel Demand Model (TDM). It illustrates a slow and sustainable growth rate at just over 1% every 10 years through 2050.

MPA Population Projection: 2010 - 2050					
Township	2010	2020	2030	2040	2050
Brazil (Twp)	8,471	8,656	8,688	8,823	8,887
Cass	347	368	383	401	417
Dick Johnson	1,453	1,619	1,751	1,905	2,044
Jackson	2,739	3,102	3,314	3,627	3,873
Posey	4,063	4,514	4,717	5,085	5,343
Van Buren	3,528	3,478	3,717	3,764	3,939
Fayette	2,630	2,450	2,508	2,423	2,400
Harrison	51,272	49,789	48,877	47,584	46,545
Honey Creek	17,179	18,626	21,041	22,811	25,011
Linton	1,323	1,296	1,361	1,365	1,409
Lost Creek	10,497	11,543	12,285	13,230	14,039
Nevins	1,975	1,911	1,723	1,618	1,458
Otter Creek	9,069	9,250	9,317	9,461	9,553
Pierson	1,210	1,144	1,082	1,018	955
Prairie Creek	1,195	1,134	1,097	1,044	1,002
Prairieton	1,222	1,211	1,156	1,130	1,085
Riley (twp)	3,123	3,474	3,805	4,150	4,485
Sugar Creek	7,153	6,463	5,588	4,836	4,002
<b>MPA</b>	<b>128,449</b>	<b>130,028</b>	<b>132,410</b>	<b>134,275</b>	<b>136,447</b>
Indiana	6,483,802	6,975,792	7,408,666	7,880,951	8,326,962
MPA % of State	1.98%	1.86%	1.79%	1.70%	1.64%

Table 2-2: Planning Area Population Forecast

## Households

Nationally, household trends include more single households and households without children; this is in part due to an increase in the senior population and later starts to marriage and child bearing by millennials. While most national researchers agree that single-family detached housing will remain the preference for most homebuyers, a dramatic change in housing demand is occurring between large lot and small lot developments wherein smaller lots preferred. These trends will likely be accompanied with an increased desire for services and public transportation located near housing. The *Transportation Needs Survey* conducted as part of the process associated with development of this plan demonstrated a desire for these services and for public transportation.

## Income

Income levels are an important factor in transportation, since the MPO is responsible for planning a transportation system that offers mobility choices for all users. Table 2-3 notes key statistics regarding income for the MPA verses both the State of Indiana and the United States as a whole. In 2016, 17.8% of the Vigo County population was below poverty level and 14.2% of Clay County, both slightly higher than the state of Indiana as a whole, at 14%, and the US at 12.7%.

% of Population Below Poverty		
	2016	2010
Vigo County	17.8%	19.1%
Clay County	14.0%	13.6%
State of Indiana	14.2%	15.3%
United States	12.7%	15.1%

Source: US Census

**Table 2-3: Planning Area Poverty Status**

When conducting transportation studies and plans, the MPO identifies and maps the locations of low to moderate-income areas and evaluates the potential impacts from proposed transportation projects. Figure 2-1 shows median household incomes for the MPA.

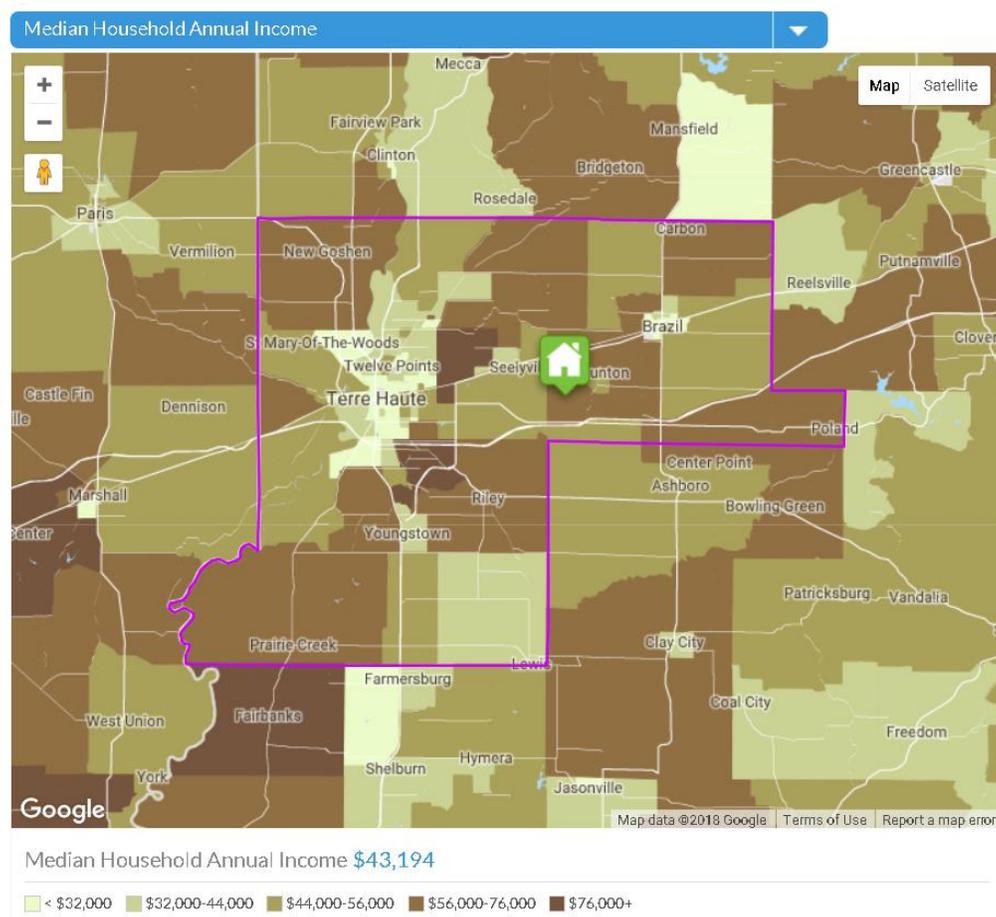


Figure 2-1: MPA Median Household Income

## Location Efficiency

Housing location and transportation options can have a significant impact on a household budget. Housing costs are the largest household expense, yet transportation costs can also dramatically affect the household budget. Transportation costs can include purchase of a vehicle or bicycle, fuel, short and long-term maintenance, registration, insurance, and other fees. The largest indicator of current and future transportation cost are urban form (particularly proximity to employment centers and regional destinations) and access to public transportation. These costs can vary considerably across a metro area depending upon development patterns and transportation system connectivity. For example, widely dispersed retail shops, employment centers, and service providers can increase the impact of transportation costs on a household budget.

## Housing and Transportation Costs

Housing and transportation costs, as a part of household expenses, are steadily increasing as the nation continues to grow horizontally, Tables 2-4 and 2-5 illustrate the result of a national study completed for the years 2010 – 2016 by the Bureau of Labor Statistics.

Average Annual Expenditures and Characteristics of all Consumer Units and Percent Changes							
Item	2010	2011	2012	2013	2014	2015	2016
Average annual expenditures:							
Total	\$ 48,109	\$ 49,705	\$ 51,442	\$ 51,100	\$ 53,495	\$ 55,978	\$ 57,311
Food:	\$ 6,129	\$ 6,458	\$ 6,599	\$ 6,602	\$ 6,759	\$ 7,023	\$ 7,203
At home	\$ 3,624	\$ 3,838	\$ 3,921	\$ 3,977	\$ 3,971	\$ 4,015	\$ 4,049
Away from home	\$ 2,505	\$ 2,620	\$ 2,678	\$ 2,625	\$ 2,787	\$ 3,008	\$ 3,154
Housing	\$ 16,557	\$ 16,803	\$ 16,887	\$ 17,148	\$ 17,798	\$ 18,409	\$ 18,886
Apparel and services	\$ 1,700	\$ 1,740	\$ 1,736	\$ 1,604	\$ 1,786	\$ 1,846	\$ 1,803
Transportation	\$ 7,677	\$ 8,293	\$ 8,998	\$ 9,004	\$ 9,073	\$ 9,503	\$ 9,049
Health care	\$ 3,157	\$ 3,313	\$ 3,556	\$ 3,631	\$ 4,290	\$ 4,342	\$ 4,612
Entertainment	\$ 2,504	\$ 2,572	\$ 2,605	\$ 2,482	\$ 2,728	\$ 2,842	\$ 2,913
Cash contributions	\$ 1,633	\$ 1,721	\$ 1,913	\$ 1,834	\$ 1,788	\$ 1,819	\$ 2,081
Personal insurance and pension	\$ 5,373	\$ 5,424	\$ 5,591	\$ 5,528	\$ 5,726	\$ 6,349	\$ 6,831
All other expenditures	\$ 3,379	\$ 3,382	\$ 3,557	\$ 2,823	\$ 3,085	\$ 3,332	\$ 3,450

**Table 2-4: National Household Expenditure Characteristics**

According to the study, the percent of housing and transportation costs for the average American family in 2016 was 32.95% for housing and 15.79% for transportation. Transportation cost decreased between 2015 and 2016, mostly due to gasoline cost. However, the long-term trends show expenditures continuing to increase.

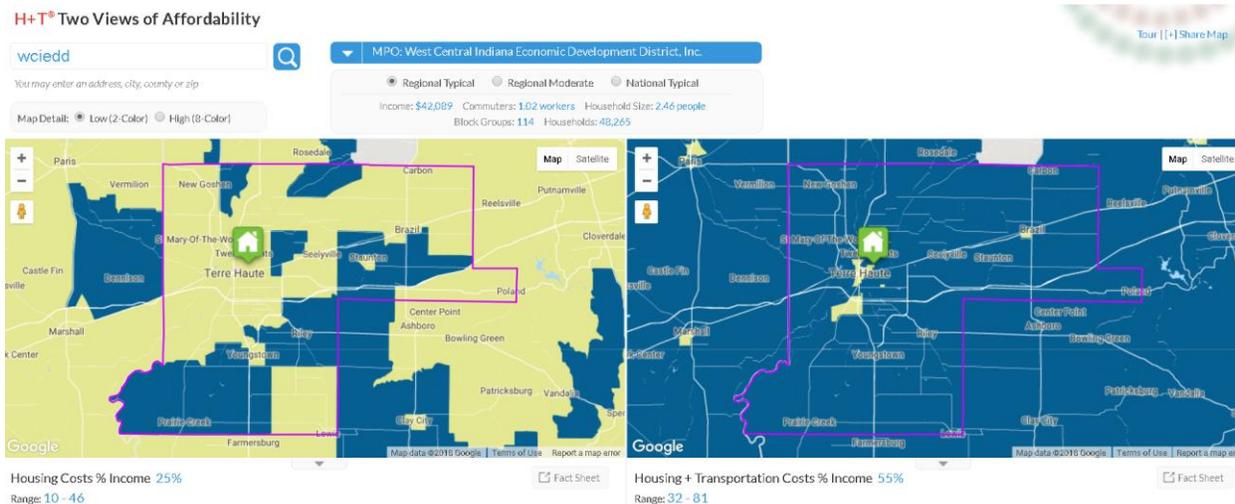
Average Annual Expenditures and Characteristics of all Consumer Units and Percent Changes							
Item		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Average annual expenditures percent change:							
Total		3.32%	3.49%	-0.66%	4.69%	4.64%	2.38%
Food:		5.37%	2.18%	0.05%	2.38%	3.91%	2.56%
At home		5.91%	2.16%	1.43%	-0.15%	1.11%	0.85%
Away from home		4.59%	2.21%	-1.98%	6.17%	7.93%	4.85%
Housing		1.49%	0.50%	1.55%	3.79%	3.43%	2.59%
Apparel and services		2.35%	-0.23%	-7.60%	11.35%	3.36%	-2.33%
Transportation		8.02%	8.50%	0.07%	0.77%	4.74%	-4.78%
Health care		4.94%	7.33%	2.11%	18.15%	1.21%	6.22%
Entertainment		2.72%	1.28%	-4.72%	9.91%	4.18%	2.50%
Cash contributions		5.39%	11.16%	-4.13%	-2.51%	1.73%	14.40%
Personal insurance and pension		0.95%	3.08%	-1.13%	3.58%	10.88%	7.59%
All other expenditures		0.09%	5.17%	-20.64%	9.28%	8.01%	3.54%

**Table 2-5: National Household Expenditure % Change**

## Housing and Transportation Index

The Center for Neighborhood Technology (CNT) has developed a Housing and Transportation Affordability Index based on detailed, peer-reviewed studies that correlate odometer readings and federal household transportation surveys with local factors and data such as neighborhood density, street grid complexity, availability of transit, and housing costs as a percent of the area median income. Housing costs alone are traditionally considered affordable when they make up no more than 30% of a household income. However, when including transportation costs based on the location of the home, the true cost of housing decisions emerges.

Figure 2-2 is a map of Housing and Transportation Affordability in the MPA. The map on the left only displays housing prices as a percent of total income. The areas in yellow are ones where housing prices are less than 25% of income and areas in blue are 25% and greater. The map on the right displays housing prices plus transportation costs as a percent of total income. The areas in yellow are ones where the housing plus transportation costs are less than 55% of income and areas in blue are 55% or greater.



**Figure 2-2: Housing and Transportation Affordability**

In simplistic terms, the areas in blue indicate the cost of living exceeded the traditional measure of affordability and therefore have a negative effect on the quality of life of an area.

## Employment

Different employment sectors result in different transportation needs. For example, retail and hospitals jobs have more dispersed and non-traditional hours than traditional 8 to 5 jobs. Therefore, identifying the distribution of jobs across employment sectors can be useful for understanding and predicting traffic congestion as well as planning service hours for public transportation. In addition, the location of employment centers, the types of employment, and the size of the work force also help to understand current transportation conditions and plan for future needs. These factors are important aspects of developing the TDM discussed further in Chapter 4. A more detailed description of future transportation needs, as projected by the Travel Demand Model (TDM), is available in the section on Multimodal Transportation. As shown in Figure 2-3, sectors that employ the greatest number of employees in the MPA are Health Care & Social Services (15.2%) and Educational Services (11.6%) with a combined total of 26.8%, followed by Manufacturing (17.2%) and Retail Trade (11.6%).

## Employment by Industries in Terre Haute, in

The closest comparable data for the metropolitan statistical area of Terre Haute, IN Metro Area is from the state of Indiana.

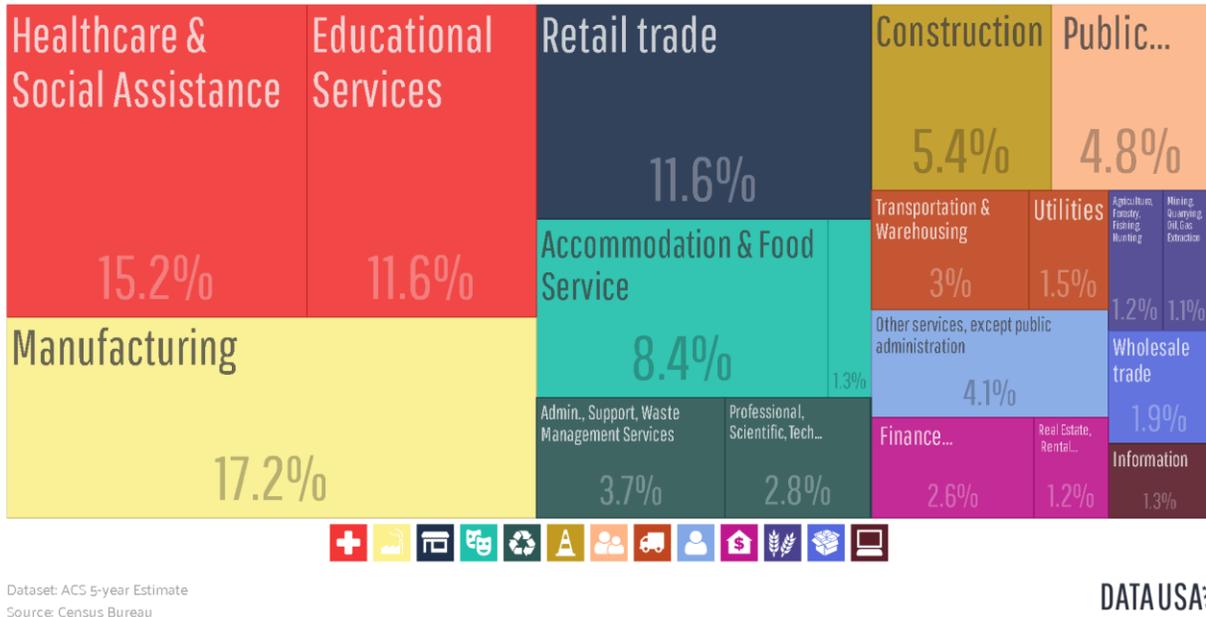


Figure 2-3: Planning Area Employment Sectors

## Health and Educational Services

Education and health services employ the highest percentage of people. The location of hospitals, clinics, and educational institutions are significant destinations that must be easily accessible. In addition to the three main community hospitals in the MPA (Union, Terre Haute Regional and St. Vincent Clay) and a community mental health center (Hamilton Center), there are a variety of retirement and assisted living facilities, nursing homes, and specialty medical service providers in the region. The location of health services is important because hospitals, in particular, have a large number of employees who work different shifts throughout the 24-hour period. Finally, emergency services need uncongested and well-connected routes to hospitals.

Large educational employment centers consist of both the Vigo County School Corporation and Clay Community Schools, Indiana State University (ISU), Rose Hulman Institute of Technology (RHIT), and St. Mary of the Woods College (SMWC). ISU is a hub of activity throughout the week and on weekends because of daytime and nighttime classes and special events held at the campus.

## Manufacturing

The area has a long tradition of being a manufacturing center within the Midwest. These manufacturing centers are often described as plants, factories, or mills. They characteristically use power-driven machines and materials-handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in the manufacturing jobs. As the economy transitions away from large heavy manufacturing plants and factories into the smaller advanced manufacturing

shops and storefronts, the transportation demands will transition from large facilities with significant peak traffic volumes centered on shift employment to smaller sites interspersed along the existing transportation network.

## **Other Large Employment Sectors and Centers**

Large, or big-box, retail stores are noteworthy employment centers because of the number of people they employ. Stores such as Wal-Mart also attract many shoppers each day to its three 24-hour shopping stores in the MPA. Finally, there are several industrial centers and other activity areas that have been master planned and/or are in the process of developing into important destinations. The following provides more information on industrial parks and activity areas.

### ***Fort Harrison Business Park***

Fort Harrison Business Park, a privately owned industrial park, is a 152 acre planned development at the northwest corner of North Fruitridge Avenue and Steelton Road in Northern Vigo County. The park contains a mix of tenant-ready buildings and green-field sites.

### ***Vigo County Industrial Park***

The Vigo County Industrial Park (VCIP) lies near the southernmost boundary of Vigo County on the west side of US 41. VCIP is made up of two adjoining phases and it is the most industrially populated park in the MPA. Phase 1 is a 1,500 acre site featuring all underground power service, natural gas service, sanitary sewer service, municipal water, and fiber optic infrastructure. Phase 2 is a 935 acre site immediately north of Phase 1. Both sites are connected to Interstate 70 via the SR 641 by-pass with direct access to the Terre Haute Regional Airport.

### ***Clay County Industrial Park***

Just east of Harmony in Clay County is the Clay County Industrial Park, located south of US 40. It is currently home to Great Dane Trailers, Thermo-King, Technifab Products, ADS, PPG Powder Coatings and recently added TKO Graphics. The park is a designated Economic Development Area (EDA), but is currently full.

### ***US 41 and I-70 Shopping District***

This area is located adjacent to the I-70/US 41 Interchange on the south side of Terre Haute. It runs south along US 41 for several miles and provides a wide variety of retail goods and services (comparative shopping goods such as jewelry, apparel, household goods, and general merchandise).

### ***Sycamore Terrace Shopping Center***

This area, located on the southeast side of Terre Haute, is a developing regional shopping district. Located just north of the I-70 interchange with US 40/SR 46/SR 641, the 47,633 square-foot shopping center is anchored by a Super Walmart. The center provide access to a wide variety of merchants and services. It also located adjacent to Sycamore Terrace Apartment, which is now in its third phase of development.

### ***Downtown Terre Haute***

Downtown Terre Haute is a mixed use, high intensity activity center providing regional, community-wide, and neighborhood services for West Central Indiana and East Central Illinois.

## Health and Safety

Vital to the future of both the MPA and all of West Central Indiana are the health and safety implications of a poorly versus well-planned region. Some of the issues affected by transportation planning include changes in air quality (respiratory health), a built environment that encourages or discourages physical activity (obesity and weight related disease), crash incidents (injuries and fatalities), and mobility and accessibility for children, the elderly, and the disabled (direct routes to school and access to services).

### Health

The transportation system is part of what is known as the built environment. A poorly connected transportation system, combined with widely dispersed and segregated land uses, can contribute to poor health and a decrease in physical activity. Over the past 20 years, there is evidence that the built environment has contributed to a decrease in health levels of U.S.

citizens. In the United States, obesity among adults and children is at epidemic levels and is the fastest growing public health problem. The built environment can promote a sedentary lifestyle that contributes to obesity and related health issues such as heart disease, diabetes, certain cancers, and arthritis, not to mention overall diminished quality of life and increasing health care costs. The public health

problem is costly to individuals as well as to the region and nation as a whole.

Many experts now believe there is a connection between decreased physical activity and the design of town and cities. *Measuring the Health Effects of Sprawl: A national Analysis of Physical Activity, Obesity, and Chronic Disease* was written in September of 2003 by Barbara A. McCann and Reid Ewing, with help from Rutgers University, the Surface Transportation Policy Project, and Smart Growth America (SGA). In this publication, the authors review the many studies that have been done in the United States showing a “clear association between the type of places people live and their activity levels, weight, and health.” This report also follows up on the early study titled *Relationship between Urban Sprawl and Physical Activity, Obesity, and Morbidity*, which found a direct association between community form and people’s health. The study concluded “. . . people living in counties marked by sprawling development are likely to walk less and weigh

### Health Quick Facts 1

In the United States:

- About 17% of nation’s young people aged 2 to 19 years is obese, whereas more than one-third of our adults are obese
- Heart disease continue to remain the number one cause of death for all Americans (598,000 in 2010)
- Less than half (48% of all adults meet the 2008 Physical Activity Guidelines (adults need at least 2.5 hours a week of physical activity)
- Americans living in the Midwest are more likely to be less physically active than Americans living in the West and Northeast regions of the country

Figure 2-4: Health Quick Facts 1

### Health Quick Facts 2

In Indiana:

- Over 66% of adults are overweight (33.7%) or obese (32.7%)
- In 2016, 56% of adults **did not** achieve the equivalent of at least 150 minutes of moderate intensity physical activity per week
- About 34% of children age 10-17 years old were obese or overweight in 2016

Figure 2-5: Health Quick Facts 2

more than people who live in less sprawling counties.” The study looked at 448 counties across the United States.

These studies signal there is indeed a connection between land use patterns, active transportation opportunities, and growing obesity rates in the U.S. Additional studies have shown that people living in areas with increased opportunities for active transportation can experience improvements in overall health. Ultimately, appropriate changes to our transportation and land use policies may be necessary.

## **Safety**

Planning, designing, and constructing safe transportation facilities and corridors is the top priority for every governmental agency responsible for public transport. This guiding priority does not guarantee that crashes, injuries, and fatalities are eliminated, but provides the impetus to identify and mitigate dangerous routes and intersections and to reduce property damage and loss of life. Improving safety throughout the transportation system also reduces the economic impacts to the region by reducing the number of costly crash incidents and the associated congestion. Direct and indirect cost of traffic crashes include property damage, emergency services, medical bills, loss of time at work, and loss of life.

### ***Motor Vehicle Crashes***

Nationally, motor vehicle crashes are by far the leading cause of accidental death. Unfortunately, according to the National Highway Traffic Safety Administration (NHTSA), crash incidents are increasing annually by a rate of about 4%. This trend is occurring after several years of a decrease in occurrences. Therefore, motor vehicle safety is a serious ongoing issue that needs to be addressed as a high priority in transportation planning and project design.

### ***INDOT Safety Planning***

On a state level, safety issues are incorporated into the INDOT 2030 Long Range Transportation Plan and the INDOT Strategic Highway Safety Plan (SHSP).

The INDOT 2030 Transportation Plan addresses issues such as safety in construction zones, increasing pedestrian and bicycle safety, public awareness, and Intelligent Transportation Systems (ITS) solutions. The plan also includes language that can be interpreted as supporting Livable Communities and Complete Streets concepts that promote designing communities to facilitate walking, biking, and using public transit as alternatives to dependence on private vehicle usage.

The 2016 edition of the SHSP is designed as a statewide coordinated safety plan for reducing highway fatalities and serious injuries on all public roads. As a living document, it provides decision makers with information related to the safety performance of Indiana’s highway system. This enables consideration of safety issues as part of highway project planning. With a vision of reducing the risk of fatal and serious injury crashes, and a goal of moving toward zero highway crash deaths, the SHSP seeks improvement of travel safety for all users of Indiana’s public streets, roads, and highways. It is one of the guides supporting Indiana’s mission to build, maintain, and operate a superior transportation system enhancing safety, mobility, and economic growth.

In conjunction with the SHSP, INDOT utilizes a Highway Safety Plan (HSP), which has a focus primarily on driver behavior issues and funds education and targeted law enforcement countermeasure activities. The HSP establishes an annual program of activities that utilize funds regulated by the National Highway Transportation Safety Administration (NHTSA) for awareness and enforcement projects, such as speed enforcement, drug and alcohol detection, seat belt and child seat use, as well as other unsafe

driver choices. Another State safety plan is the Commercial Vehicle Safety Plan (CVSP), which is an Indiana State Police administered effort. The CVSP is a specialized enforcement plan targeting safety of commercial vehicles. It is an annual program of inspection and enforcement activities, which utilize funds granted by the Federal Motor Carrier Safety Administration (FMCSA) to enforce commercial truck and bus regulations.

### ***MPA Crash Data***

MPO staff tracks crash statistics in the MPA. The statistics are provided by the Indiana State Police. The raw crash data is contained in the Electronic Vehicle Crash Reporting System (eVCRS). Public agency users commonly refer to the database as “ARIES” (Automated Reporting Information Exchange System), which is the acronym for the Internet portal providing access to the data. Several crash location inventories are produced annually for thoroughfare intersections in the MPA. This data, along with the information available from the INDOT Congestion Management and Safety Management Section, provides a comprehensive look at potential safety issues in the MPA.

The highest crash densities for pedestrian-involved crashes are around the areas of Indiana State University, the mid-block crossing of Cherry between 6<sup>th</sup> and 7<sup>th</sup> Street, and the intersection of US 41/3<sup>rd</sup> Street and Chestnut are of specific concern. No one area has been identified as having an above average density for bicycle-involved crashes. However, the theme of crashes being located along arterial and collector roadways without adequate shoulder or lane width is common. The highest crash densities for motor vehicle-involved crashes are along the US 41/3<sup>rd</sup> street corridor and the US 40/Wabash Avenue/ National Road corridor.

The calculated crash rate in the MPA for 2012 through 2016 was 958.2 crashes per million vehicles mile of travel.

Intersections identified with a high rate of accidents are top priorities for future studies and funding to identify and implement safety countermeasures. Further studies also include a more thorough examination of crash types, time of day, and other behavioral and physical crash factors.

## **Multimodal Transportation**

A built environment that integrates all transportation modes is essential for a well-functioning system. Transportation decisions makers must consider the impacts of infrastructure investments and land development on mobility for all modes and safe connections to a variety of destinations. In addition, the smooth transition from one mode to another (intermodal transportation), such as connections between bicycle lanes and transit stops, create a complete and healthy transportation network that is safe and accessible to people of all ages and abilities.

For community cohesiveness and safety for children, neighborhoods should be people-oriented and provide safe streets for both motorized and non-motorized transportation. Streets are public spaces in which all users should feel safe and comfortable. This section provides a discussion of transportation conditions for all modes in the MPA:

- Connectivity: Accessibility and Mobility
- Non-motorized Conditions: Pedestrian, Bicycle, and Trail
- Transit Conditions
- Automobile Conditions
- Travel Demand Modeling and Vehicle Miles Traveled

## Connectivity

Connectivity is a necessary component of a well-functioning transportation system, as it provides accessibility and mobility for all users. To provide connectivity, all transportation modes must be integrated throughout the system by appropriate design and connected networks.

## Accessibility

Accessibility, defined as the ability to reach a desired destination, can be improved by diverse land use development in addition to increased transportation options. Land use planning is important because land uses that are in closer proximity to residential areas can decrease the length of trips and provide more opportunity for modal choice.

## Mobility

Mobility is the physical movement from one place to another and relates to the different modes or options available to move from Point A to Point B. Shifting trips to a wider variety of modes can help alleviate congestion; however, the transit, bicycle, and pedestrian systems need to be convenient and well connected in order to reduce congestion on roadways. In some areas, particularly rural areas of Vigo and Clay Counties, the most vital mobility issues are that public transportation, although available, it is not convenient nor timely and the street system lacks connectivity. These issues significantly affect many people's ability to get from home to work and/or their access to services.

## Non-motorized Conditions

Non-motorized facilities include sidewalks, bicycle lanes, trails, and multi-use paths. Due to the geographic nature of the MPA there are limited opportunities for non-traditional transportation networks.

### *Pedestrian Conditions*

Developers are required to build sidewalks in all new development within Vigo County. In most cases, the developer is building in green-field situations that are not contiguous with the existing sidewalk network and they seek variances from this standard. Unfortunately, this abundance of places where the sidewalks have been waived or are discontinuous and/or not compliant with the Americans with Disabilities Act (ADA), has contributed to a reduction of non-motorized transportation opportunities.

In order to improve pedestrian infrastructure, local jurisdictions should ensure appropriate pedestrian facilities are included in transportation projects. However, identification of the potential need for improvements is contingent upon local jurisdictions developing and maintaining a comprehensive infrastructure inventory, a function that can be served by the MPO Transportation Asset Database.

Further compilation of this inventory can be done through neighborhood assessments of the pedestrian environment. This type of data collection will help prioritize the future improvement of pedestrian facilities. Finally, another important component of improving the pedestrian environment is establishing areas or activity centers throughout the MPA that are high priorities for improving the walking environment.

### *Bicycle Conditions*

Even though West Central Indiana is within a continental climate that features warm to hot summers and cold winters, bicycles can be ridden almost year-round. Therefore, continued development of a

comprehensive network of bicycle facilities is essential to further development of a truly multimodal transportation system in the MPA. Without a complete system of bicycle facilities, cyclists are either forced to take a less direct and more time consuming route to get to their destination or choose another form of transportation. Some bicyclist prefer using in-road bicycle facilities that provide movement with the flow of automobile traffic and direct access to destinations. These facilities include bicycle lanes and wide curb lanes. Bicyclist are to be treated as vehicles in the road and are expected to follow the same traffic rules as per Indiana state law.

## Historic and Current Miles of Bicycle Facilities

As of the writing of this plan, 12.5 miles of in-road facilities existing in the MPA. Most of these facilities are in the City of Terre Haute. The Trails and Greenways Plan, adopted in 2011, identified nearly \$35 million in needed investments for bicycle facilities.

### *Trail Conditions*

A variety of trails and pathways are available in the MPA area. The backbone of the trail system is the east-west National Road Heritage Trail (NRHT). It connects Indiana State University and downtown Terre Haute with Rose Hulman Institute of Technology, eastern Terre Haute, and eastern Vigo County. It is nearly 7 miles in length and follows the former abandoned Pennsylvania and Vandalia rail corridor.

Multi-use paths on independent rights-of-way can provide expansion of existing non-motorized facilities and unique connections to many destinations such as schools, parks, recreational facilities, and open spaces. However, it must be noted that the American Association of Highway Transportation Officials (AASHTO) recommends multi-use paths be used only in locations where intersecting conflicts can be minimized.

## Transit Conditions

The Terre Haute Transit Utility and WCIEDD Public Transit are the only public transit service providers in the MPA. The City of Brazil and the portion Clay County inside the MPA currently have no public transit service. However, the Clay County Senior Center provides demand response services for seniors (60+) and disabled individuals.

### *Terre Haute Transit Utility (THTU)*

THTU provides public transportation services within the corporate limits of the City of Terre Haute and to Ivy Tech Community College south of Terre Haute. It also currently provides fixed route service to the Town of West Terre Haute on a trial basis to determine whether there is sufficient demand to justify continuation of this service on a permanent basis.

THTU provides three types of services to the public. Services include an eight route fixed bus system, on demand service and a paratransit system called *Wheels to the World*. The paratransit service is provided for persons who qualify for the American with Disabilities Act (ADA).

1. **Fixed Route Service:** The fixed route service runs every weekday between 6 a.m. and 11 p.m. Monday – Saturday. A partnership between the City of Terre Haute and Indiana State University helps fund extended evening and night service hours. The eight fixed routes take passengers to major destinations in Terre Haute with several stops in between. All routes start and end at the Cherry Street Multimodal Facility, at 8th and Cherry Streets, in downtown Terre Haute. The regular fare is \$1.50 and children 5 and under ride free when accompanied by an adult. A reduced

rate is available between 9:15 a.m. and 3:15 p.m. for persons over 60, disabled or Medicare cardholders and again in the evenings from 7 p.m. until close. Monthly and 14-ride passes are also available. Appearing in Figure 5, the eight routes include: East Wabash, South East/Southside, North 19th, Plaza North, Honey Creek Mall, South 7th, Ivy Tech and ISU Campus.

2. **On Demand Service:** THTU also provides on demand (call ahead) service to selected locations on each fixed route during normal business hours. Riders can contact the THTU Office at (812) 235-0109 for an up to date list of on demand service locations or to make advance reservations for pick up and/or drop off.
3. **Wheels to the World:** *Wheels to the World* is an ADA service provided by THTU. Fares for this service are \$2.00 per one-way trip. This service is available within  $\frac{3}{4}$ -mile of an operating fixed bus route. This system operates at the same times as the fixed route bus system.

### ***WCIEDD Public Transit***

Through a partnership with INDOT and the Vigo County Commissioners, WCIEDD's Transportation Services Dept. provides door-to-door rural transportation services to the residents of Vigo County. Trips can be for any reason, but they must begin or end outside the City of Terre Haute and/or the THTU service area. All vehicles are fully accessible and ADA compliant.

Services are generally available Monday - Friday from 8:00 AM to 4:30 PM. Service is not available on Federal holidays, Good Friday, the day after Thanksgiving or Christmas Eve.

Trip reservations, which can be scheduled up to two weeks in advance, must be made by contacting the Transportation Services Dept. (812) 232-2675 at least 48-hours in advance. Reasonable efforts are made to accommodate short-notice requests for service (less than 48-hours). However, seating is limited and trips are scheduled on a first-come, first served basis. The fare for a one-way trip is \$2.00.

In its role as the Area Agency on Aging & Disabled, WCIEDD also provides door-to-door transportation services for older adults (60+) and people with disabilities. Hours of operation, reservation procedures, etc. are the same as those for rural transportation service. However, trips can begin and end anywhere in Vigo County and there is no charge for the service since it is funded through the Older Americans Act (OAA) and Social Service Block Grants (SSBG).

### ***Cherry Street Multimodal Facility***

This five story, 216,000 square foot structure, has over 600 parking spaces to help meet the parking needs of the downtown area, nearby hotels, Indiana State University (ISU) and Hulman Center. The THTU office and transfer center are also housed in the facility, providing indoor waiting for buses and restrooms for patrons. The Cherry Street Multimodal Facility is owned and operated by ISU. Their Department of Public Safety provides security and police protection for the facility.

### ***Coordinated Public-Transit Human Services Transportation Plan***

SAFETEA-LU established a requirement that all Elderly Individuals with Disabilities (Section 5310), Job Access Reverse Commute (Section 5316) and New Freedom (Section 5317) projects be derived and selected from a Coordinated Public Transit-Human Services Transportation Plan.

At the request of INDOT and THTU, the MPO took the lead in developing this Coordinated Public Transit-Human Services Transportation Plan for the MPA. Through our Transportation Advisory

Committee (TAC), 19 transportation service providers (public and private) and 21 human services agencies:

- Identified *transportation-dependent* individuals, including those with disabilities, older adults, and those with limited incomes.
- Inventoried transportation services currently available in the MPA, focusing on the identification of areas where services overlap and where gaps in service currently exist.
- Developed innovative strategies to address gaps in services as well as actions to eliminate or reduce duplication and to utilize resources in a more efficient fashion.
- Prioritized strategies and projects that provide new solutions to overcome transportation problems facing individuals who are unable to own or operate a private vehicle.

The work of these providers and agencies culminated in the publication of a Coordinated Public Transit-Human Services Transportation Plan that demonstrates how human services agencies and transportation system providers are working together to meet the needs of “transportation-dependent” individuals. The TPC adopted this plan, which is incorporated into this MTP by reference, on September 18, 2007.

## Aviation Conditions

The MPA is served by three airports (Brazil/Clay County Airport, Sky King Airport and Terre Haute Regional Airport – Hulman Field) that provide cargo, charter and general aviation services. Schedule airline service is not available in the MPA. However, passenger service is available at Indianapolis International Airport, which is approximately a 45-minute drive via I-70.

### ***Brazil/Clay County Airport***

This publicly owned and operated general aviation airport is located approximately 3 miles south of City of Brazil in Clay County. For the 12-month period ending 12/31/16, the airport averaged 20 aircraft operations per day (52% transient general aviation and 48% local general aviation).

- Acres: 70
- Runway 9/27: 2,941' x 40' or 896 x 12 m
- Aircraft Based on the Field: 17 (16 Single Engine and 1 Helicopter)
- Fixed Based Operator: Brazil-Clay County BOAC
- Easy Access To/From: SR 59, US 40 and I-70

### ***Sky King Airport***

This privately owned and operated general aviation airport located in Vigo County, approximately 5 miles north of the City of Terre Haute, is open to the public. For the 12-month period ending 12/31/17, the airport averaged 51 aircraft operations per day (17% transient general aviation, 78% local general aviation and 4% air taxi).

- Acres: 33
- Runway 8/26: 3,557' x 50' or 1,084 x 15 m
- Runway 18/36: 1,978' x 50' or 603 x 15 m
- Aircraft Based on the Field: 39 (34 Single Engine and 5 Multi Engine)
- Fixed Based Operator: Brown Flying School
- Easy Access To/From: US 41 via Clinton St.

### **Terre Haute Regional Airport – Hulman Field**

Located in Vigo County, approximately 5 miles east of the City Terre Haute, Terre Haute Regional Airport – Hulman Field (HUF) is the largest airport in the MPA and a first class general aviation facility. For the period ending 12/31/17, the airport average 138 aircraft operations per day (44% transient general aviation, 53% local general aviation, 1% military, 2% air taxi and <1% commercial), making it the third busiest airport in Indiana. It is also the only airport in the MPA with a 24 x 7 FAA Control Tower.

- Runway 5/23: 9,020' x 150' or 2,749 x 46 m (4th longest in Indiana)
- Runway 14/32: 7,200' x 150' or 2,195 x 46 m
- Precision Approaches: 9
- Aircraft Based on the Field: 67 (56 Single Engine, 9 Multi Engine, 1 Jet and 1 Helicopter)
- Restricted Airspace: DOD, Federal, State and Local Responder Training
- Fixed Based Operator: Hoosier Aviation
- Easy Access To/From: I-70, SR 641, US 41 and SR 63

ISU's Department of Aviation Technology not only maintains is ISU Flight Academy at the airport, they also offer the state's only Unmanned Systems degree program. This cutting edge program offers minors and majors in support of a growing need in the fields of homeland security, civil authorities and commercial enterprises.

## **Rail Conditions**

### **Passenger Rail Service**

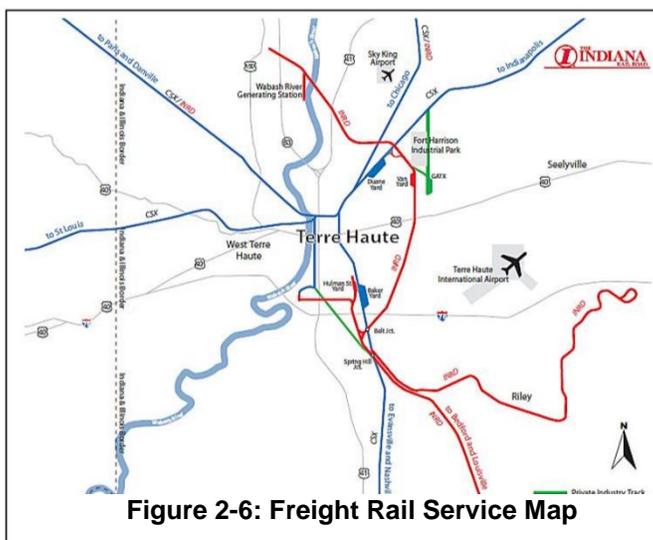
Passenger rail service in the MPA ended in 1979. However, AMTRAK can be accessed at stations in Effingham, IL, Crawfordsville, IN, and Indianapolis, IN; which are all within a 60-minute drive.

The nearest passenger rail station is located in Mattoon, IL. It provides service to Chicago, Memphis, and New Orleans via Amtrak's City of New Orleans Route. East-west rail service to Chicago, Cincinnati, Washington D.C., and New York can be accessed in Crawfordsville, IN.

Development of a Midwest high speed rail system and re-establishment of a route connecting Chicago, IL to Nashville, TN have sparked renewed interest in providing some type of passenger rail service to Terre Haute. As a result of strong public support for this initiative, the MPO and local government officials are working together to try and include Terre Haute in any state or federally funded feasibility studies to reestablish passenger rail service or to develop a high speed rail system.

### **Freight Rail Service**

CSX Transportation, a Class 1 railroad, operates two main line routes that crisscross the MPA. The north-south CE&D Subdivision operates about 50 freight trains per day between Chicago



**Figure 2-6: Freight Rail Service Map**

and Evansville, and the east–west St. Louis Line operates about 40 freight trains per day between St. Louis and Indianapolis. CSX also owns and operates two small yards inside the urbanized area known as Baker Yard and the Duane Yard.

Indiana Rail Road (INRD), a Class III railroad, provides short-line services to local and regional customers including: Duke Energy, Tangent Rail, Terre Haute Grain and Bemis Plastics. INRD also operates the Hulman Street Yard and Van Yard, which are located inside the urbanized area.

The high volume of train traffic through the MPA and the large number of at-grade public crossings contribute to traffic congestion, raise concerns about public safety and security, and limit opportunities for growth and development in some sections of the urbanized area.

### Automobile Traffic Conditions

This section includes information on Traffic Counts, Volume to Capacity Ratio (V/C), Level of Service (LOS), and Vehicle Miles Traveled (VMT). Many of these conditions are measured using the MPO’s TDM.

#### Traffic Counts

The MPO conducts counts on selected segments of thoroughfares classified as collectors or higher on a 3-year cycle. Count information is then provided to INDOT and is available to the public, stakeholders, and local government agencies via INDOT’s on-line MS2 Traffic Count Database System (TCDS). Staff also periodically do counts in support of traffic studies and prepare traffic flow maps to depict count information.

Staff also collect Volume by Classification data (VBC) as part of the traffic count program. This data shows the different types of vehicles that utilize the road network and it is especially useful in monitoring freight movement.

#### Travel Lanes and AADT

Figure 2-7, provides insight into how motor vehicle traffic volumes are being handled by roadways with a certain number of lanes. It also offers a perspective on how many lanes might be needed, or might not be needed, to handle said traffic volumes. In order to provide a conservative analysis, in all cases the segment of the corridor with the highest AADT was used.

These roadways comprise most of the main thoroughfares in the urbanized portion of the MPA. One caveat to consider though is that vehicle-turning movements have a great impact on how well the

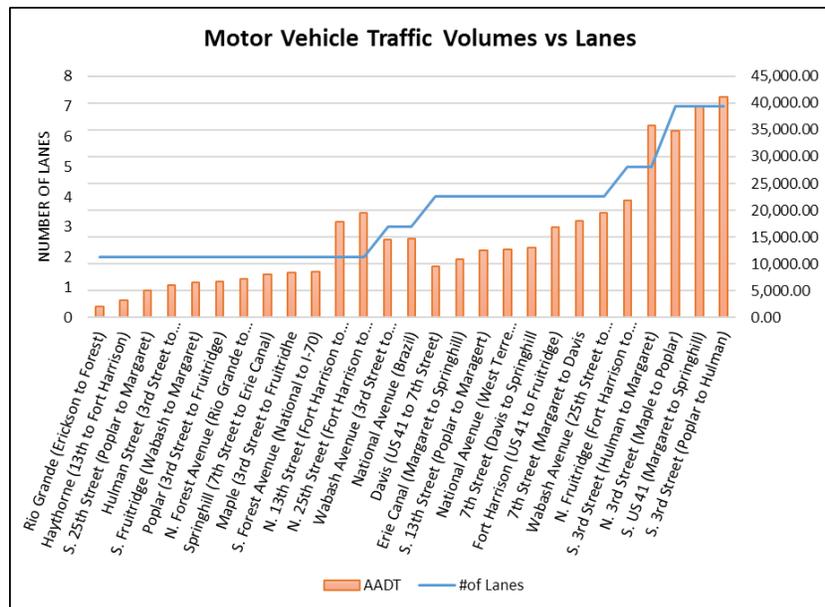


Figure 2-7: Traffic Volumes versus Lanes

roadway functions. Redistributing four travel lanes into 3-lanes provides a better opportunity for safely executing left turns. It also improves safety for bicycle and pedestrian modes of travel.

## Travel Demand Modeling

The MPO's travel demand model (TDM) is used to evaluate a variety of existing conditions and future scenarios for the transportation system and to identify potential infrastructure needs. For example, land use and roadway network parameters can be changed to simulate the impact of different transportation improvements and land use assumptions on the system.

The TDM also provides Volume-to-Capacity Ratio (VTCR) and Vehicle Miles Traveled (VMT) analysis for roadways in the MPA. The parameters for the model were developed in coordination with INDOT, and other Indiana MPOs. The travel behavior parameters are based on previous model runs and surveys conducted as part of the TDM update conducted in 2014.

The TDM uses a schematic of major roadways and land uses to predict travel. The network also contains some generalized local roadways to offer a few access points into the system. The land uses are also generalized and assigned to Traffic Analysis Zones (TAZ). Each TAZ is populated with housing and jobs. The model is then calibrated to historic traffic counts conducted by the MPO.

## Regional TDM Scenarios

In the development of the prioritized project lists contained in this MTP, staff analyzed several possible scenarios for the transportation system based on different roadway build outs (based on TIP projects) and different land use patterns. The scenarios selected for use include:

- No-build scenario for 2020
- Build Scenario for 2020
- Sustain and rebuild for 2045

As the growth scenarios illustrate a slow sustainable growth pattern, the TDM model did not indicate a need for a capacity-adding scenario to be used in the development of the prioritized project lists. Some discussion about the modeled scenarios follows:

### ***2020 No Build Scenario***

The No-Build Scenario utilizes the known land use with the existing roadway network and includes improvements that are funded in the 2018-2021 TIP. New facilities for the no-build condition are:

- Lafayette Avenue reconstruction with center turn lane
- Springhill Drive reconstruction with center turn lane
- RR Overpass on Margaret Drive

Total travel is estimated to 2,851,664 Vehicle Miles Traveled (VMT) for an average weekday, with a total system wide delay of 8,415 hours daily.

### ***2020 Build Scenario***

This scenario contains the improvements funded in the No-Build Scenario plus additional projects identified throughout the planning process such as the road diet along the S. 13<sup>th</sup> Street Corridor, construction of a center turn lane along N. 13<sup>th</sup> Street, and all other projects identified as fiscally

constrained. Total travel is estimated at 2,850,496 VMT with a total system wide delay of 8,548 hours daily.

### ***Sustain and Rebuild 2045***

The 2045 Scenario contains the improvements funded in the No-Build Scenario, plus the additional projects identified in the fiscally constrained prioritized projects list with the future population and land use forecast for the year 2045. The total travel is estimated at 2,850,959 VMT with a total system wide delay of 8,415 hours daily.

## **Regional Movement, Freight Corridors, and Security**

West Central Indiana is located at the intersection of vital cross-country routes that facilitate the movement of goods from major U.S. seaports and interior manufacturing and distribution regions. Major roadways and rail lines connect West Central Indiana to national and international facilities, such as the Port of Indiana Burns Harbor and the Port of Indiana Mt. Vernon. Because of its location the MPA has several transportation facilities that are important to regional, national, and international security. These include:

- Interstate 70
- US Highway 41
- Terre Haute Regional Airport
- CSX North/South rail line, and
- CSX East/West rail line

### **Interstate 70**

Interstate 70 passes through the center of the MPA, connecting the area to a majority of the U.S. states from Maryland and Pennsylvania on the east coast to Colorado and Utah in the Rocky Mountains on to California on the west coast. I-70 traffic volume ranges from ~24,000 AADT at the Illinois/Indiana state line west of Terre Haute to ~39,000 AADT just east of US 41 in the central portion of the UA. In addition, I-70 is one of only a few interstates that provide near straight-line cross-country travel from multiple cities on the east and west coasts.

### **US Highway 41**

US highway 41 runs through the MPA in a north/south direction. It connects the region to Chicago to the north and Atlanta on to Miami to the south. Traffic volumes on US 41 have a range of ~41,000 AADT in the Metro area and ~15,000 north of Terre Haute. The Intersection of I-70 (and its predecessor US 40) and US 41 have garnered the title of “Crossroads of America” to the City of Terre Haute and the region.

### **CSX Rail lines**

CSX Transportation currently operate two rail lines through the MPA. An east/west line connects the region to Indianapolis to the east and St. Louis to the West. This line currently has 22 trains per day with a forecast of 27 trains by 2031. The other line runs north/south and connects Chicago to the north and Evansville to the south. It currently has an average of 36 trains per day with a forecast of 47 trains by 2031. These two line share a corridor through the north side of the City of Terre Haute with a current count of 63 trains per day. This count forecast to grow to 80 trains per day by 2031. As a crossing point

of cardinal direction rail lines, Terre Haute houses three rail yards that provide transfer and staging of rail cars.

## Security

Continuity of the transportation network is a critical element to any federal, state or local emergency response. The Strategic Highway Network (STRAHNET) identifies the system of public highways that provide access, continuity and emergency transportation of personnel and equipment in time of peace and war. The MPO is a coordinating partner with the local, state and national Departments of Homeland Security to ensure the transportation network is maintained for the safety and security of the residents of the region.

## Natural and Cultural Resources

The MPA contains a unique mixture of industrial, agricultural and educational communities adjacent to the Wabash River. The river is located along the western edge of the MPA and traverses just west of the incorporated City of Terre Haute. The Wabash has been utilized as a key transportation corridor for over 500 years and the region has roots that date to the Mississippian culture. The Wabash River valley and its tributaries also serve as wildlife corridors.

Preserving the cultural heritage and aspects of the woodland and american bottom environment are integral parts of maintaining the community's natural and cultural resources. The industrial heritage of the area brings challenges associated with the cleanup of brownfields and abandoned manufacturing properties. There is also considerable concern for the protection of the natural environment and views of the floodplain along the Wabash River. Other issues related to the natural environment include the need to protect agricultural use of property and the potential for air quality standards. Regarding air quality, Vigo County is currently deemed to be in conformity with national air quality standards, but it was previously a non-attainment area. Therefore, evaluation of air quality may become part of future scenarios for the region.

This remaining portion of this section address:

- Development of Thoroughfare Plans and Transportation Studies
- Air Quality and Greenhouse Gases
- Identification of area of Cultural and Environmental Importance

## Thoroughfare Plans

Development of the thoroughfare plan is an example of a process where cultural and natural condition need to be addressed. MPO staff and TAC members considered the location of such things as floodplains, tree stands, and tillable land when establishing thoroughfare alignments.

## Transportation Studies: Study Areas and Corridors

When conducting transportation studies it is important to include the link between planning and project level analysis as the related to the National Environmental Protection Act (NEPA). A variety of tasks and information gathering steps are needed, including a robust public input process.

MPO study procedures provide insight into the types of information that may be needed to prepare for future project level analysis. These procedures include gathering information regarding the following:

- Public support
- Functional classification of the roadway
- Project description and justification
- Statement of purpose and need
- Technical information, such as number of lanes
- Pavement conditions
- Traffic and crash information
- Environmental information such as location or occurrence of active streams, archaeological sites, wetlands, air quality issues, noise increases, underground storage tanks and other hazardous waste sites, and drainage information
- Existing right-of-way and right-of-way needed for the project
- Relationship to other projects
- Preliminary costs estimates

Addressing all of these issues is integral to ensuring that the natural environment and potential environmental impacts of land use development and transportation system expansion are assessed prior to advancement of a project.

## Air Quality and Greenhouse Gases (GHG)

Transportation is a major contributor to local air pollution and smog. These outcomes in turn have a significant impact on health conditions such as asthma and cancer. The six criteria air pollutants monitored by the Environmental Protection Agency (EPA) are: 1) nitrogen oxides, carbon monoxide, 2) volatile organic compounds, 3) PM10 and PM2.5, 4) sulfur dioxide, and 5) ammonia. National statistics regarding air quality show an overall decrease of criteria air pollutants, but an increase of carbon dioxide, especially from transportation sources.

Currently, carbon dioxide, a common emission from motor vehicles and the burning of fossil fuels, is not considered one of the criteria pollutants. Transportation systems account for between 20 and 25% of the energy consumption and carbon dioxide emissions in the United States. In fact, greenhouse gases from transportation systems are increasing at a faster rate than any other energy-using sector. Eighty-four percent of the United States' GHG emissions are composed of carbon dioxide (CO<sub>2</sub>). In addition, the United States produces more than one-third (36%) of the world's CO<sub>2</sub> emissions.

## West Central Indiana and Air Quality

In June 2004, the U.S. Environmental Protection Agency (EPA) designated Vigo County as a basic non-attainment area for ozone under the 8-hour ozone standard. On February 6, 2006, EPA approved a request from the Indiana Department of Environmental Management (IDEM) to re-designate Vigo County to attainment of the 8-hour ozone National Ambient Air Quality Standard (NAAQS). As part of the re-designation request, IDEM submitted a maintenance plan, as required by the Clean Air Act, which established the MPA (at that time Vigo County) as an air quality maintenance area for ozone through 2024. Subsequently, in 2013 the 1997 8 hour Ozone NAAQS was revoked for the purposes of demonstrating conformity effective July 20, 2013. Therefore, the MPO was no longer required to demonstrate the conformity of any updated or new Metropolitan Transportation Plan (MTP) or Transportation Improvement Program (TIP) with the Clean Air Act and the EPA transportation conformity regulations (40 CFR Part 93). Subsequently, on February 16, 2018, the D.C Circuit Court issued a decision in *South Coast Air Quality Management District v. EPA*. The decision covers many topics including the revocation of the 1997 Ozone NAAQS and associated conformity requirements. In

a memorandum from the USDOT, dated April 23, 2018, the following guidance were issued for the 82 areas potentially affected by the Court's decision (which includes the Vigo County portion of the MPA):

- ...all routine planning and project development actions may proceed throughout the country, except for the following actions within the identified areas that should be considered “on-hold” for now:
  - New Metropolitan Long Range Plan and Transportation Improvement Programs (TIP), *updates* and *amendments* that include the addition of a project that is not exempt from transportation conformity may not proceed until transportation conformity with the 1997 Ozone NAAQS is determined. Exempt projects are listed in 40 CFR 93.126 and 93.127. *Administrative modifications* to Metropolitan Plans and TIPs may proceed because, by definition in 23 CFR 450.104, those actions do not require a conformity determination.
  - Statewide Transportation Improvement Program (STIP) approvals and amendments that include TIPs or non-exempt projects from the 82 identified areas may not proceed, unless the TIP or project is determined to conform with the 1997 Ozone NAAQS or is limited to projects that are exempt from transportation conformity. Exempt projects are listed in 40 CFR 93.126 and 93.127. Partial STIP approvals, i.e., those limited to other areas of the state may proceed as described in 23 CFR 450.220(b)(1)(iii).
  - Within the 82 identified areas, NEPA approvals for FHWA/FTA projects (40 CF 93.101) may not proceed unless the existing Metropolitan Transportation Plan and TIP include the project. For projects that already completed NEPA, there is no need to delay further actions; including grant obligations; approvals of plans, specifications and estimates; and authorizations to begin construction.

## Natural and Cultural Resources Conclusion

The MPO transportation planning process includes the identification of natural and cultural resources, a public involvement process to determine potential impacts to these resources, and an evaluation of ways to eliminate or mitigate potential negative impacts. This process both protects these resources and provides for enhanced urban and rural environments.

Appropriate land use densities and planned developments that encourage the use of all modes should be giving high priority. While land use decisions are not made by the MPO, the MPO can consider land use development when making transportation decisions. In addition, the MPO should continue to facilitate better coordination among local entities and regional and state agencies to ensure wise investments are made. Finally, considerable input is needed from environmental and cultural resource agencies to ensure the integration of these issues into the transportation planning process continues.

## Chapter 3: Planning Process and Vision

### Transportation Planning Initiatives

The MTP must comply with national transportation goals and address the federal planning factors in order to maintain eligibility to receive federal funding for priority project. Therefore, staff researched and considered current legislation and initiatives at the federal, state and local levels, and prudently worked to weave these requirements and initiatives into the vision and goals for this plan.

#### Federal Initiatives

##### *FAST Act & MAP-21*

The most recent federal transportation bill is the Fixing America's Surface Transportation (FAST) Act, which was signed into law by President Barak Obama on December 4, 2016. With respect to planning, the FAST Act left the provisions from Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) Act intact and made minor revisions to existing provisions. FAST and MAP-21 include a broad range of issues such as climate change, enhancement of rail transportation, and land use and transportation coordination. A significant change introduced by MAP-21 was the emphasis placed on performance measures as a means of accountability for spending.

Accordingly, final rules issued by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) establish requirements that statewide and metropolitan planning processes must provide for the use of a performance-based approach to decision making in support of the national goals described in 23 U.S.C. 150(b) and the general purposes described in 49 U.S.C. 5301. The final rules requires States, MPOs, and operators of public transportation to establish targets in key national performance areas to document expectations for future performance and to coordinate the targets they set for key areas. These rules further MPOs include these targets in the MTP and that States must reflect their targets in the state's long-range statewide transportation plans. The final rule also establishes a requirement that the MPO must describe the anticipated effect of the Transportation Improvement Program (TIP) toward achieving the set targets. This emphasis on performance measures will be reflected in the transportation plan.

##### *Sustainable Communities Partnership*

In June 2009, The Partnership for Sustainable Communities was formed by the U.S. Department of Housing and Urban Development (HUD), the United States Department of Transportation (USDOT), and the U.S. Environmental Protection Agency (EPA).

The six livability principles associated with Sustainable Communities are as follows:

1. **Provide more transportation choices:** Develop safe, reliable, and economic transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.
2. **Promote equitable, affordable housing:** Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower combined cost of housing and transportation.
3. **Enhance economic competitiveness:** Improve economic competitiveness through reliable and timely access to employment centers, education opportunities, services and other basic needs by workers, as well as expanded business access to markets.

4. **Support existing communities:** Target federal funding toward existing communities through strategies like transit-oriented development, mixed-use development, and land recycling in order to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.
5. **Coordinate and leverage federal policies and investment:** Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan future growth, including making smart energy choices such as locally generated renewable energy.
6. **Value communities and neighborhoods:** enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods – rural, urban or suburban.

Since 2009, HUD, DOT, and EPA have collaborated to ensure their policies and investments better serve American communities. Through these efforts, more than 1,000 communities in all 50 states, Washington D.C., and Puerto Rico received more than \$4 billion in grants and technical assistance to help them sustain and improve their quality of life.

### ***Balancing Public Interest and Funding***

The Surface Transportation Policy Project Poll conducted by the USDOT asked Americans about their access to transportation and where and how to focus limited funding. The results of the poll are listed below:

- 55% of Americans want to walk more
- 84% of Americans want streets designed for slower traffic
- 74% want their children to be able to walk to school safely
- 59% of Americans support investing in transit
- 66% of Americans support innovative solutions to congestions

Funding has traditionally been available primarily to design freeways and has therefore created a well-functioning interstate system. It is time to focus more attention on community priorities and remember that roads are public space meant both for vehicle travel and community interaction. The future of our economy, our environment, and our social opportunities depend upon finding a balance between traffic flow, providing modal choice, and creating attractive, economically thriving destinations.

Pursuing strategies that include safety first for the most vulnerable modes, increased connectivity of the street system, improved walking and bicycling conditions, enhanced employment of Intelligent Transportation Systems (ITS), and preservation of natural greenways and trails can be steps toward reducing dependence on automobile travel. These steps also provide healthier more sustainable options for the communities as a whole.

## **State Initiatives**

### ***Common Paths Program***

INDOT's Common Paths Program is a large umbrella program and approach to road planning, design, and decision-making that considers and balances the dynamic needs of various users of the transportation system with a focus on moving people and goods safely and efficiently from points A to B. The program focuses on the basics: improving the transportation system's safety and functionality for all users regardless of age, ability, or mode of travel and satisfies national Complete Streets initiatives. Its main premise is simply getting people involved, connecting communities, and providing

transportation access to enhance the quality of life and economic competitiveness of the Hoosier State. The program provides many benefits to local residents, business owners, developers, and communities.

Below are some, but not all, of the programs INDOT has been involved in over the years that tie into the Common Paths concept of making the system safe, efficient, and accessible for all users:

- **American with Disabilities Act Transition Plan Development and Oversight** – INDOT is committed to providing resources and technical assistance regarding the Americans with Disabilities Act of 1990 (ADA), as amended, and Section 504 of the Rehabilitation Act of 1973 (Section 504). INDOT continuously strives to remove architectural and programmatic barriers that exclude qualified individuals with a disability. The ADA requires INDOT to make reasonable modifications to its policies and programs to ensure that qualified individuals with disabilities have an equal opportunity to enjoy its programs and activities.
- **Small Communities Sidewalk Program (SCSP)** – Throughout Indiana, sidewalks are being used more and more. Sidewalks connect neighborhoods to schools, parks, religious facilities, community centers, transit, housing, government facilities, retail, and other destinations. However, in small towns and unincorporated communities, sidewalks may be less common. Financial constraints and other limitations provide a challenge for local governments to develop and improve sidewalks along state jurisdictional facilities, as standalone projects. INDOT recognizes sidewalks are an integral part of the transportation system and in order to provide assistance in addressing this issue, INDOT will set aside funding each fiscal year to construct new sidewalks or to upgrade existing sidewalks to ensure compliance with the most current standards, including ADA standards. Development of this program provides health benefits associated with walking as well as providing a sense of safety and welfare for pedestrians utilizing sidewalks.
- **Safe, Efficient, and Accessible Transportation (SEAT)** – In 2014, INDOT adopted an internal Safe, Efficient, and Accessible Transportation (SEAT) guideline policy (previously known as the Complete Street Initiative). SEAT guidelines and policies build upon multiple efforts and promote an integrated multimodal transportation system that sustains local land use developments and economic development. The guidelines consider various strategies such as roundabout intersections, paved shoulders to accommodate bicycles and/or pedestrians, access management treatments, sidewalks, crosswalks, pedestrian crossing signals, transit shelters, bus pull-out lanes, road diets, traffic calming, other strategies.

### ***Community Crossing Matching Grant Program***

Launched in 2016, the Community Crossing Matching Grant Program provides funding to cities, towns, and counties across Indiana to make improvements to local roads and bridges. Community Crossings is a partnership between INDOT and Hoosier communities, both urban and rural, to invest in infrastructure projects that catalyze economic development, create jobs, and strengthen local transportation networks. Projects eligible for funding through Community Crossings include road resurfacing and preservation, bridge rehabilitation or replacement, road reconstruction with American with Disabilities Act compliance in connection with a road project. Material costs for chip sealing and crack filing operations are also eligible for funding. Community Crossings is open to all local government units in the State of Indiana with the following match requirements:

- Cities and towns with a population of fewer than 10,000 will receive funds using 75/25% match;
- Cities and towns with a population of greater than 10,000 will receive funds using a 50/50% match;

- Counties with a population of fewer than 50,000 people will receive funds using a 75/25% match, and;
- Counties with a population of greater than 50,000 people will receive funds using a 50/50% match.

### ***Local TRAX Railroad Overpass Program***

Similar to Community Crossings, this new INDOT program provide grants to cities, towns and counties for grade separation, crossing closure and other safety enhancement projects at rail-highway intersections on local roads. The local match is 20% of the total project's construction and right-of-way costs. INDOT will fund and manage the design fees. The match can be reached through any local partnerships including funding from the affected railroad.

### ***Strategic Highway Safety Plan (SHSP)***

The SHSP is not a standard, policy, or legal document that makes or mandates specific traffic safety decisions. The SHSP informs decision-makers by providing data related to the safety of the highway system. Decision makers can then consider safety issues explicitly along with all other factors that influence highway project management.

The SHSP is coordinated with other highway safety plans that utilize funding regulated by USDOT. This help promote complimentary efforts. For example, a vehicle running off the roadway could be address by:

- Educational outreach regarding driver inattention or impairment
- Law enforcement of speeding, texting-cell phone use, or driving under the influence
- Engineering of lane boundaries that provide improved driver visual and tactile feedback

A single approach to address the problem by one traffic safety discipline is often not as effective as multiple countermeasures applied by several disciplines.

## **Local and Regional Initiatives and Projects**

A variety of collaborative planning and engineering projects are being conducted throughout the MPA. These initiatives exemplify the continued need and desire for a variety of transportation options, well-connected neighborhoods, and economic vitality.

***Riverscape*** – The Riverscape master plan is a representation of preferred future land uses for parts of Terre Haute and Vigo County surrounding the Wabash River. The plan considers the natural and manmade conditions of the land, the environment and the community in the context of how best to employ the land adjacent to and within the immediate vicinity of the Wabash River. This blueprint represents an initiative to change the face of Terre Haute. As it is implemented, the projects and policies identified will create a place with local, state, regional, and national significance. Many of the improvements identified in the master plan involve pedestrian and bicycle amenities alongside existing transportation corridors or the crossing of major arterial roadways.

***Comprehensive Economic Development Strategy (CEDS)*** – The CEDS is a compilation of data, information, and economic development priorities for the West Central Indiana Economic Development District that encompasses Clay, Parke, Putnam, Sullivan, Vermillion, and Vigo Counties in Indiana. Its purpose is to facilitate regional discussion and to coordinate, cooperate, and develop comprehensive regional actions to improve and sustain growth with the District.

**Thrive 2025** – This plan is the existing Comprehensive Plan for Vigo County and the communities located within it. It is a policy document related to the physical, economic, and social development to the county and communities in Vigo County. It also establishes a policy direction that provides guidance to local elected officials and plan commission members in making decisions regarding development approval, rezoning, and issuance of variances. It was developed through consideration of other plans, analysis of existing conditions, and input from the public and a local steering committee.

**Safe Routes to Parks (SRTP)** – Public parks provide highly valuable benefits in communities. Some of these benefits include, but are not limited to, economic viability, environmental conservation and improved health outcomes. More safe and convenient places are needed to create physically active communities. People who are unable to walk to parks are deprived of the opportunity to engage in two instances of physical activity – walking to the park and participating in activities at the site. Parks are an important destination that should be easily accessible to all citizens. Consequently, the key to ensuring accessibility to parks is through creating safe routes to parks within communities. Nevertheless, there are physical and social barriers that make walking to parks undesirable, such as proximity to parks, lack of infrastructure, crime and traffic concerns. These barriers are a result of engineering, zoning, land use design trends that have existed for the past 60 to 70 years. Breaking down these barriers requires a shift in the transportation system paradigm from mobility to accessibility.

### ***Terre Haute Urbanized Area Railroad Corridor Study***

In 2012, the MPO, City of Terre Haute and the Vigo County Board of Commissioners embarked on a collaborative effort led to the development and eventual adoption of the *Terre Haute Urbanized Area Railroad Corridor Study* by the MPO's Transportation Policy Committee (TPC). The goals of this study were to:

- Identify and validate the purpose and need for a series of practical short- and long-term improvement projects, with independent utility, to mitigate the adverse community effects of rail operations in the Terre Haute Urbanized Area.
- Develop and write a formal plan, adopted by the MPO's Transportation Policy Committee, which outlines both short-range and long-range strategies and actions to be completed over the next 20 years to mitigate identified adverse effects of rail operations in the urbanized area. The adopted plan will be used as the framework for making strategic decisions concerning funding, prioritization and rail line improvements and relocation projects.
- Evaluate and screen, within the framework of the National Environmental Policy Act (NEPA), practicable alternatives (projects) that can be funded, programmed and advanced to construction.

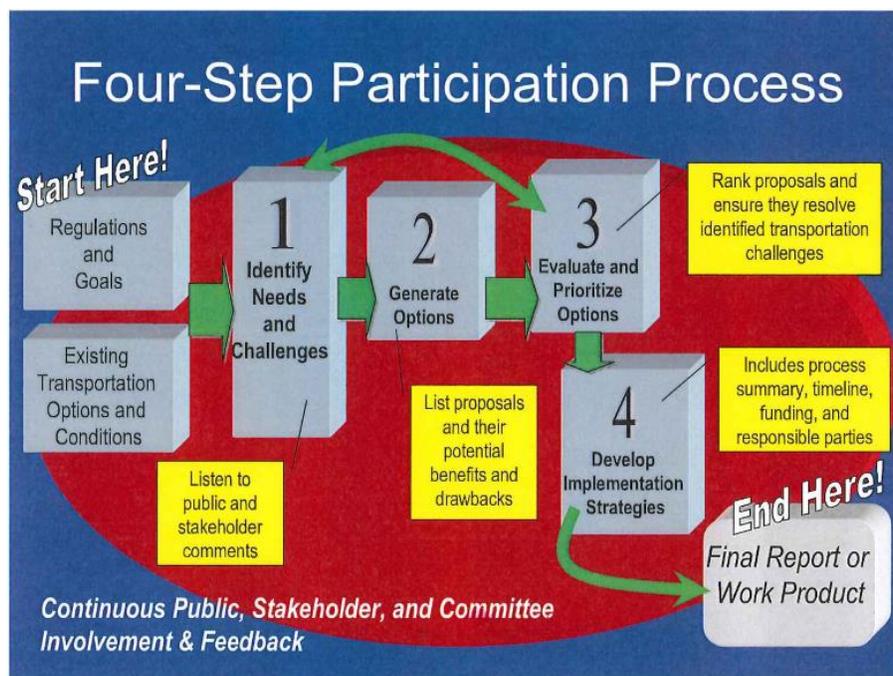
Since adoption of this study, the following projects have been completed, are underway, or are being advanced for funding and completion.

- An ITS application was developed and installed that allows the Vigo County 911 Center to track train traffic throughout the urbanized area. Dispatchers are now able relay information about blocked crossings and anticipated delays to First Responders, which potentially reduces emergency response times and improves quality of life.
- A grade separation (overpass) was validated for the 14<sup>th</sup> Street to 25<sup>th</sup> Street segment of the Margaret Ave Corridor Project, which is currently under construction. The separation, which is at 19<sup>th</sup> Street near the CSX Baker Yard, will eliminate delays, improve safety for motorists and pedestrians, and improve air quality.
- An application seeking funding under INDOT's new *Local Trax Program* is being prepared for construction of a grade separation (overpass or underpass) at 13<sup>th</sup> Street and 8<sup>th</sup> Ave. Like the

Margaret Ave grade separation, this separation will improve eliminate delays, improve safety for motorists and pedestrians, and improve air quality.

Projects in the study that still need to be developed and advanced include pedestrian and bicycle safety improvements in and around Indiana State University Campus; and the identification of the location for construction of a grade separation in the Downtown District of the City of Terre Haute.

**U.S. 150 Multi-use Pathway (US Bicycle Route 50)** – This project is the only remaining “high priority/high impact” project identified in the West Central Indiana Metropolitan Planning Area Trail and Greenways Plan. The project involves construction of a multi-use elevated pathway along the south side of US 150 (commonly known as the “Grade”). The pathway extends 0.9 mile from the existing sidewalk at the intersection of National Avenue and Sumner Avenue in West Terre Haute to an existing sidewalk located approximately 0.14 mile west of the intersection of US 150 and S. Schley Place on the west side of the Wabash River in Vigo County. This facility was identified during the planning process as a top priority as it will provide a critical network link by connecting the City of Terre Haute, Wabashiki Fish and Wildlife Area, and the Town of West Terre Haute. In addition to the need as a transportation link, local and state officials, the MPO, Indiana State University, St. Mary of the Woods College, and citizens groups have identified this 0.9 mile section along the 4-lane, undivided US 150 as an extremely dangerous route for pedestrian and bicyclist to navigate. This project is included in the Transportation Improvement Program (TIP) for preliminary engineering, design, and construction with an anticipated opening date of the facility in late 2020 or early 2021.



MPO staff will provide technical support and assistance with public participation to continue to support these initiative, projects and programs.

Figure 3-1 – 4 Step Participation Process

## Public Participation Plan and Process

The 4-Step Process illustrated in Figure 3-1 describes the public participation process that guided development of this MTP. Each step builds on the previous steps and identifies a variety of options for

developing regionally significant projects. This process enables transportation system alternatives to be described and evaluated prior to adoption of the MTP and development of projects.

Staff used a phased approach to implement the process. Through these phases, staff compiled input from multiple individuals and organizations to guide MTP development and incorporated this input into the plan, if applicable. The first phase gathered general ideas and issues from the public and stakeholders. During the second phase, staff distributed surveys to define transportation needs and vision as well as continuing to solicit broader public input. The third phase involved release and evaluation of draft document, maps, and implementation strategies. In addition, the MPO welcomed invitations to speak with individuals and groups throughout the entire process.

## Vision, Core Policy, Goals, and Principles

### Coordinated Land Use and Transportation

Chapter 2 discussed the current transportation and land use conditions in the MPA and outlined future scenarios based on proposed changes in land use patterns, the transportation network, and population growth. That discussion was followed, in this chapter, by details recounting planning processes and projects underway at the federal, state, and local levels. Finally, the diverse public input processes were analyzed to determine response patterns and understand key issues, concerns, and desires of the area residents.

These conditions, future scenarios, planning processes, and public comments lead to the development of a concise vision for the future of our transportation system. The associated core policy, goals, and principles provide the basis for implementing this vision as outlined in Chapters 4 and 5. It is clear that the federal, state, and local initiatives have arisen as a result of the growing desire for safer, healthier, and well-connected multimodal transportation. In addition, it is necessary to plan our land use and transportation systems together so that the region grows in a smart and efficient manner that takes into account the three pillars of sustainability - People, Economy, and the Environment. (Figure 3-2)

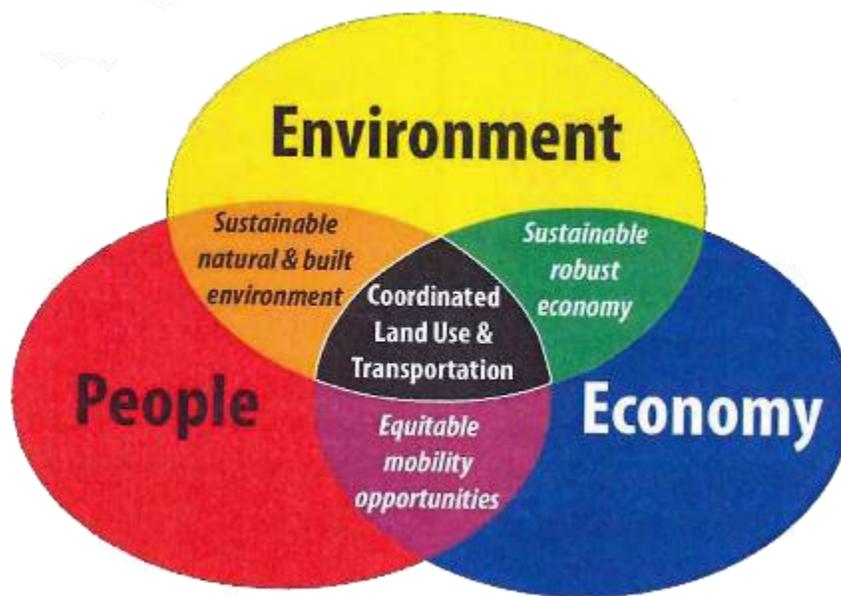


Figure 3-2: Pillars of Sustainability

- People – the transportation users within the region and those who pass through the area.
- Economy – the land use activities and the transportation of people, goods, and services within and through the region.
- Environment – the natural and human-made forms within the region.

The three pillars are not simply conceptual elements existing in a planning document. Creating a smart and efficient transportation system requires a balanced approach utilizing the three pillars of sustainability. Land use location and type and the transportation network and modes are the working parts of these elements. As a result, well-coordinated changes in land use patterns and/or transportation network should result in positive impacts on these elements and their relationships to each other.

By following the MTP Vision, we are able to promote a sustainable natural and built environment, robust economy, and equitable mobility opportunities.

## Core Policy

In order to keep the plan simple and active, the core policy sets the framework for the three main goals. It is a statement emphasizing the necessity of coordinating land use and transportation in order to achieve sustainable communities. It provides a direct link between the MPO and the coordinated planning effort of the City of Brazil, City of Terre Haute, Clay County, and Vigo County.

**Core Policy:** Achieve sustainability through coordinated land use/transportation planning.

**Objective:** Coordinate the reconstruction of the transportation system with neighborhood revitalization planning and regional economic development strategies.

**Action:** Utilize the Mobility Zones concept for short-term project prioritization, analysis and improvements of system operations, and long-range planning efforts.

Beyond the Core Policy, three main goals are used to achieve an appropriate balance in developing our transportation system. These main goals have accompanying principles and strategies.

## Transportation Goals

Sustainability, in the context of this plan, is the equitable convergence of environmental, economic and community elements through coordinated land use-transportation planning and implementation. Therefore, the vision has three overlapping goals: 1) support a robust economy, 2) preserve our unique environment and cultural character, and 3) enhance our mobility opportunities through community efforts. In order to provide very clear direction and understanding of the basis on which decision-making occurs the goals are defined below:

- **Sustainable Robust Economy** – This the convergence of the Environment and Economy elements. This goal is focused on integrating land uses with well-connected transportation systems to develop an economic environment that provides timely access to a wide-range of jobs, services, education, and recreational opportunities. This supports a strong economic base

that breeds innovation, self-sufficiency for local business, expanded regional trade opportunities, and conservation of natural resources.

- **Sustainable Natural and Built Environment** – This the convergence of the Environment and People elements. This goal entails a balance between built and natural environments that promote physical activity, social interaction, and sustainable use of resources. The goal can be achieved through land uses and transportation integration and design that enhance the unique characteristics of communities, and by investing in safe, healthy, and walkable neighborhoods. Application of this goal can minimize negative impacts to natural resources and help quality of life.
- **Equitable Mobility Opportunities** – This is the convergence of the People and Economy elements. This goal is focused on providing a variety of transportation choices that serve all users through development of safe, reliable, and convenient transportation modes. Different areas of in the MPA will be served with a variety of transportation options based on their range of needs while endeavoring to maintain system efficiency.

## Transportation Principles

The transportation principles are listed below. Following the list is a definition for each principle. The implementation strategies outlined in Chapter 4, which may related to one or more principles, will be used to fulfill these principles.

- Maintain and improve the existing transportation system, first and foremost
- Connect people to jobs, goods, services, education, and recreation opportunities
- Preserve natural, cultural, historic, and agricultural resources
- Promote and design healthy and livable communities
- Provide and improve multi-modal options and accessibility for all users
- Increase safety for all users starting with the most vulnerable modes

### Maintain and improve the existing transportation system

Preserving the existing transportation system may consist of traditional maintenance activities such as resurfacing and reconstruction roadways, improving pedestrian access with repaired sidewalks, or rebuilding bridges. Additionally, preservation of the existing system requires applying transportation systems management and operations to improve safety, decrease travel delays, and provide traveler information. Systems management and operations may include upgrading traffic signal systems for better coordination, applying ITS technology for improved transit and emergency services, and using dynamic message signs for special event and traffic incident management.

Development in the MPA should be targeted where there is already existing infrastructure. However, even the new links of a growing network will not function well without maintaining the existing transportation system. Expansion of the regional transportation network must be accomplished in a cost effective manner that does not divert needed resources from the existing system.

### Connect people to jobs, goods, services, education, and recreational opportunities

Connecting people to destinations requires complete networks. These networks include corridors connecting activity centers, well-connected neighborhoods, including fewer cul-de-sacs and private streets, and well-distributed land use patterns throughout the MPA.

People throughout the MPA benefit through improved access to the opportunities they desire. Goods and services are more accessible which can aid in acquiring nutritious food, health care, and other necessities of life. Better access to educational services can lead to opportunities for upward mobility in the job market. Better connections throughout the community provide people with improved opportunities for increasing their quality of life and supporting local programs. Improved access to destinations increases business sustainability. Access to a well-connected network allows businesses to reduce transportation costs and expand their target audiences, thereby becoming more competitive within the region. Tourism also benefits from improved accessibility by encouraging more residents and visitors to the area to visit local and regional attractions.

## **Preserve natural, cultural, historical, and agricultural resources**

Investments in transportation infrastructure impact the environment and the course of development patterns. New roadways encourage development and increased automobile use, which affect air and water quality, noise, and safety. Sometimes new roadways can segment natural assets, including important ecosystems and potential open space. Cultural and historical resources, such as structures, local events, and archeological sites, can also be adversely affected by an ever-expanding network.

Exploring new methods for addressing environmental and cultural impacts are essential. This includes consulting with state and federal land use agencies and stakeholder organizations before projects are designed and implemented. For example, well-designed projects can sustainably integrate aspects of the existing natural environment while lessening the disruption of natural habitats or existing water flows. Encouraging more sustainable and energy efficient designs and applications are important parts of preserving natural, cultural, historical, and agricultural resources.

## **Promote and design healthy and livable communities**

Transportation infrastructure can be an integral part of supporting physical activity and social interaction, and therefore improving the overall health of our communities. A livable community means the creation of sustainable urban environments that foster walking, biking, and transit, while reducing dependency on private automobiles. Developing quiet but active neighborhoods and lively activity centers with streets that are designed for pedestrians as well as automobiles, helps decrease the use of the automobiles for short trips and daily commutes. This can be achieved by balancing the need for smooth automobile traffic flow with street design that fits the context of our neighborhoods and supports safety and convenience for other modes of travel.

Context sensitive design features include pedestrian scale building placement and height, mixed land uses, and sustainable patterns of development (appropriate distribution, density, and diversity of land uses). Overcoming barriers to safer neighborhoods, such as fast vehicle traffic and wide intersections that are difficult for pedestrians to cross, allows people to walk and bike to their everyday needs, to school, and to neighborhood parks. Business areas more conducive to non-motorized travel can also entice visitors to stop, stroll, and shop. By providing streets that are designed for all users and that shift more trips to non-motorized modes, the overall safety of the roadway for drivers increases as well.

## **Provide and improve multi-modal and intermodal options and accessibility for all users**

Multi-modal transportation refers to integrating multiple transportation modes through the process of planning, implementing, and maintaining transportation systems. Intermodal means a smooth transition of people and goods from one mode to another during a single trip. This approach to providing transportation addresses the mobility of all system users, including the disabled, elderly, children,

students, and commuters. Promoting multi-modal options also provides a more comprehensive and inclusive approach to addressing the costs of congestion, crashes, parking, and vehicle ownership.

For many people, being able to comfortably walk to your car from a business, bike to the nearest transit stop, or have access to car-sharing are critical transportation assets. Providing more options for reliable, safe, and economical travel can provide a variety of benefits such as lower household transportation costs, congestion mitigation, and a decrease in negative impacts to the environment. Ultimately, multi-modal options can offer households a better quality of life and improved personal mobility.

## **Increase safety for all users starting with the most vulnerable modes**

Safety, in this context, is focused on reducing crashes and saving lives across all modes of transportation. Well-designed facilities are a major factor in improving safety. For example, the design of the roadway may encourage higher speeds even though the intent is to build room for non-typical vehicles and account for driver error. Fatalities and injuries from crashes along with the associated economic costs, including time lost on the job and healthcare, can quickly overburden households too.

Safety is a prominent feature in transportation funding. For example, transportation investments that are funded through the federal-aid process are required to have a safety evaluation as a factor in their selection procedure. In addition, INDOT annually awards funding for safety projects to local jurisdictions throughout Indiana.

Improving the safety of the system with a focus on the more vulnerable users can lead to a reduction in crashes, injuries, and fatalities for all modes. Improving transportation facilities at the more vulnerable places, such as intersections, should also be a priority as these improvements can lead to an overall decrease in traveler delay and associated economic costs. Finally, safety is not just about creating better facilities. It also includes a variety of education and outreach components that are essential to the success of creation of safer transportation systems.

## **Achieving a Balance**

Coordinated transportation and land use policies and practices can have a major impact on the creation of healthy and livable communities, traffic noise and air pollution, affordability of housing and access to services and recreational opportunities. These issues effect people's daily lives and their mobility opportunities. Identifying natural, environmental, and cultural resources can help preserve important aspects of our environment and at the same time provide increased economic opportunities. A balance between built and natural environments that promote physical activity and the sustainable use of resources are essential to the region's overall well-being.

## **Sustainable Land Use and Transportation**

A well-coordinated land use and transportation plan is necessary for an efficient transportation system. For example, the success or failure of public transportation depends upon diverse and compact land use patterns in key locations, with efficient spacing between those locations. This type of development does not mean all areas must become more dense and diversified. Areas with lower density, or rural areas, are able to maintain their character because they are supported by adjacent land patterns that are more compact and diversified. This type of smart growth supports development that includes the preservation of agricultural, biking and walking opportunities, and open space and trail networks.

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# Chapter 4: Implementation Strategies and Performance Measures

## Introduction

In order to implement the aforementioned Vision, Goals and Policies, as well as implement the performance measures required by MAP 21 and the FAST Act, various strategies have been developed for this MTP. The strategy toolboxes outline approaches to linking land use and transportation planning through a variety of methods that provide the means for evaluating performance and set the stage for developing future projects. Tracking performance can be a difficult challenge. Many of the activities undertaken by the MPO are qualitative in nature rather than quantifiable. Additionally, as a small MPO, WCIEDD is limited in its ability to influence outcomes on the ground. In order to develop accessible, connected networks throughout the MPA and to maximize the impact of efforts the implementation strategies and performance measures herein focus on partnerships, policies, community design, education, and outreach.

As outlined in Chapter 1, the MTP provides the direction for the rest of federally required planning documents. The Strategy Toolboxes that follow form the basis for the work items in the UPWP as well as providing performance outcomes that measure the results of the work items. The UPWP has sections related to the daily work the MPO staff carryout including short- and long-range planning, administrative duties, corridor studies, and other specific tasks.

The strategies established by this MTP are grouped into four Strategy Toolboxes. Each section in this chapter describes a strategy toolbox that is organized as follows: definition, example, potential benefits, and associated policies and tasks. Because the elements of the Vision being addressed are overlapping, each toolbox may address several principals at once.

- Land Use and Design Elements
- Management Plans
- Resource and Outreach Center
- Process Development
- Mobility Zones

## Land Use and Design Elements

Promoting appropriate land use patterns and design is an integral part of supporting an efficient and sustainable transportation system. Transportation patterns are highly effected by land use diversity, density, and distribution (the 3 D's). Therefore, this plan examines the 3 D's of land uses in urban, suburban, and rural areas throughout the MPA area. Design elements include items such as utilizing a variety of traffic calming techniques, encouraging transit oriented development, and supporting area-wide planning. It is important to allow a flexible approach to applying the land use and design elements discussed in this section to achieving the transportation vision and goals.

The MPO does not have land use authority and does not enforce land use and transportation coordination. However, one of its primary functions is to provide a forum for collaboration on land use and transportation efforts, particularly on long range and comprehensive planning. Therefore, the MPO supports the conceptual idea of growth areas along with simultaneous preservation of natural and rural environments.

The following are land use and design elements that support a revitalization for growth strategy, which incorporates the 3 D's of land use, and a well-designed transportation system:

- Land Use Diversity, Density, and Distribution
- Transit Oriented Development
- Sector Planning
- Form Based Code
- Context Sensitive Design Solutions
- Complete Streets
- Designing Thoroughfares

## Land Use Diversity, Density, and Distribution

Land use diversity is a measure of the variety of land uses within a given area. Diversity is exemplified by a pattern of interspersed land uses, including a full range of activity types such as commercial, residential, and office. Diversity promotes shorter trips for daily services and results in more transportation options by making non-motorized trips more viable. Diversity promotes a better mix of employment, housing, and services activities in a given area resulting in potentially less time and money being spent on transportation needs.

Density is a measure of the average amount of units of a given land use type within a geographic area. Residential units are usually stated in dwelling units per acre and commercial and office units are described in gross floor area relative to land parcel area (commonly referred to as Floor to Area Ratio or FAR). A FAR can also be used to measure density of mixed-use developments. Density should be applied at appropriate locations across a given area in order to provide a variety of housing choices, support urban and rural environments, and sustain an efficient public transportation system. Height limitation should be considered adjacent to low density residential areas, but otherwise used sensibly.

Land use distribution measures clustering and dispersion of land use patterns across a given area. Clustering is providing a mix of land uses that work well together. For example, a commercial cluster could include a bank, dry cleaners, and apartments. A neighborhood cluster could include a school, a library, and single-family units. Dispersion, on the other hand, means that these clustered land uses are interspersed throughout a neighborhood or community providing residents with access to multiple destinations by using shorter and fewer trips. The appropriate combination of clustering and dispersion provides the best mix for mitigating congestion, providing opportunities for physical activity, and addressing air quality issues.

Applying the 3 D's of land use is a critical component of achieving better places to live. By putting uses in close proximity to one another, alternatives to driving, such as walking or biking, once again become viable. Mixed land uses also provide a more diverse and sizable population and commercial base supporting viable public transit. The 3 D's enhance the vitality, safety, and security of an area by attracting pedestrians back onto the street and helping to revitalize community life. Public spaces and pedestrian-oriented retail again become dynamic and attractive destinations for people to gather.

### ***Associated Policies:***

- Encourage local communities to adopt active-friendly land uses and to plan for active transportation choices in their general plans
- Support appropriately dispersed, compact mixed use developments

**Performance Outcome**

- Coordinate with local communities to establish sound planning practices

**Transit Oriented Development (TOD)**

Transit Oriented Development (TOD) is a compact mixed-use development pattern, which contains a mix of uses such as housing, jobs, shops, restaurants, and entertainment designed to maximize access to public transportation. TOD brings many of the aforementioned land use and design elements together to create a pedestrian-friendly built environment that efficiently supports transit, and provides mobility and accessibility for all citizens. The center of a TOD is surrounded by relatively high-density development with progressively lower-density development spreading outward from the centers. TODs generally are located within a radius of one-quarter to one-half mile from a transit stop with an integrated sidewalk network, as this is considered an appropriate scale for pedestrians. TOD neighborhoods increase economic value for public and private sectors, provide for a lifestyle that's convenient, affordable, and active, and create a sense of community and place for both new and existing residents. TODs may be developed in anticipation of future transit.

**Associated Policies:**

- Support TOD in appropriate corridors through land use and zoning decisions such as:
  - mixed use high density development so people can walk, bike and take transit
  - a rich mix of housing, jobs, shopping, and recreational choices

**Performance Outcome**

- Assist the Terre Haute Transit Utility and the WCIEDD Transportation Services Dept. with the development and implementation of an integrated area-wide transit system and long-range plan.

**Sector Planning**

A Sector Plan is a fine-grained planning document for a relatively small geographic area that addresses, among other things, specific land uses and transportation needs. Aspects of the area that the community wants to see protected or improved are determined through extensive public and stakeholder input processes and a thorough evaluation of existing conditions. The plan also includes a list of prioritized policy and project recommendations. A Sector Plan may include a distinct zoning code as part of the policy recommendations.

While plans range in scope and detail from large-scale comprehensive plans to neighborhood plans and overlays, all plans are intended to work together to support a desired direction for economic, environmental, and social aspects of development. This approach recognizes planning and development issues in a stagnant region are numerous and complex, requiring a flexible approach designed to respond to both area-wide and neighborhood scale issues.

**Associated Policies:**

- Support establishment of planning areas as discussed in the THRIVE 2025 Comprehensive Plan
- Encourage local jurisdictions to develop a sector planning process

**Performance Outcome:**

- Coordinate transportation planning with sector planning processes

**Form Based Code**

Form based codes apply rules to development according to criteria that are typically dependent on lot size, location, proximity, and other various site-specific and use specific characteristics. Form-based codes differ from Euclidean zoning codes (like the ones currently used in Terre Haute, Brazil, and Vigo County) in that they focus more on the appearance of a building and its relationship to its surroundings, and less on what goes on inside the building. Therefore, form-based codes are often viewed as more flexible. This type of zoning can help relieve congestion by combing the appropriate placement of land uses with a well-connected transportation network. Ultimately, form based codes emphasize creating and restoring walkable, diverse, compact development that offers a variety of living choices (including townhomes, apartments, live-work spaces, and lofts). Form based codes also support development that include a full range of services, including entertainment and cultural activities, within a 5-10 minute walk of every residence.

**Associated Policies:**

- Encourage local jurisdictions to develop a form based code and offer it as an option to developers
- Encourage special districts to utilize a form based code

**Performance Outcome:**

- Coordinate transportation planning with form based code zoning process

**Context Sensitive Design Solutions (CSS)**

Context Sensitive Design Solutions (CSS) seek transportation solutions that improve mobility and safety while complementing and enhancing community values and objectives. CSS is considered in two scales: 1) the broad context created by the surrounding neighborhood, district, or corridor, and 2) the immediate physical context created by buildings and activities. An examination of these contexts through a robust, collaborative public input process will result in design parameters for the context, roadside, traveled way, and intersections (Figure 4-1). The examination should include maintaining safety and mobility, as well as aesthetic, social, economic, and environmental values and opportunities.

While the elements of context can combine in almost infinite varieties, the Institute of Transportation Engineers report *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities* uses four context zones to define and categorize urban areas: suburban, general urban, urban center, and urban core. Much like the “rural” and “urban” classifications used in selecting design criteria in AASHTO’s *A Policy on Geometric Design of Highways and Streets*, context zones are an important determinant of basic design criteria.

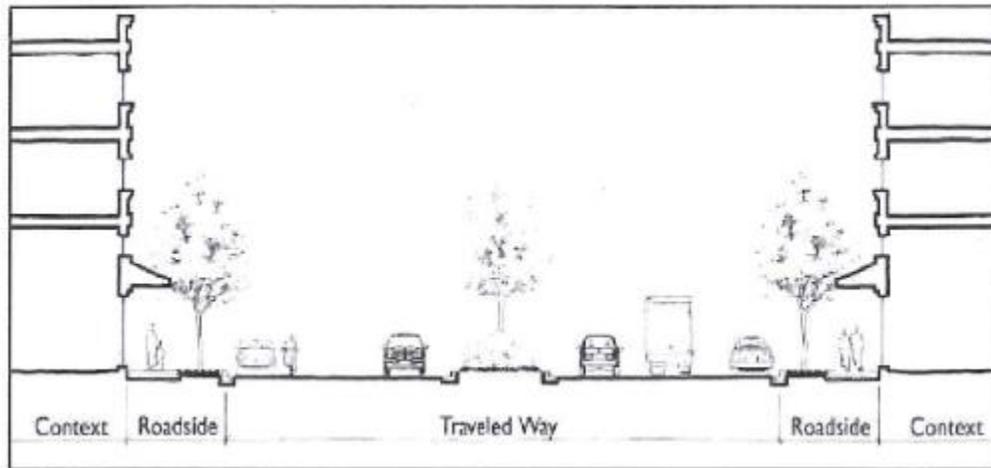


Figure 4-1: Context Sensitive Roadway Design

## Complete Streets

Complete Streets are defined as streets that are designed and operated to enable safe access for all users, including children, seniors, and those with disabilities. Complete Streets address both policies and design standards requiring consideration of all users in planning, design, construction, and maintenance of the traveled way and roadside. Currently none of the jurisdiction in the MPA have formally adopted a complete streets policy. However, many work to incorporate the concept when designing new transportation projects.

Complete Streets include design elements such as bicycle lanes, pedestrian buffers, curb extensions, narrow residential roadways, and improved signal timing. Design standards offer flexibility and enhanced safety for all users while providing minimum standards, a range of options, and an efficient development process.

Figure 4-2, below shows a street prior to implementing Complete Streets concepts, and then the same street after a simulated Complete Streets application. The figure illustrates how the Complete Streets concept is combined with CSS through improvements to the traveled way, roadside environment, and corridor context (building setbacks and heights).



Figure 4-2: Complete Streets Concept

A formerly incomplete street could be “completed” by implementing a road diet. A road diet is a reduction in the number of auto lanes for a given section of roadway, where the remaining width is then reallocated to provide multi-modal transportation that did not previously exist. An example is shown in Figure 4-3, where four lanes of through auto traffic are converted into two through auto lanes, a continuous center turn lane, and two bicycle lanes.

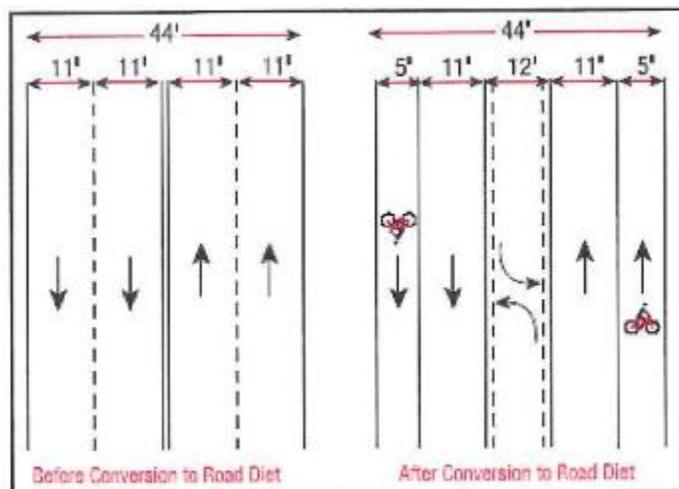


Figure 4-3: Road Diet Example

## Designing Thoroughfares

A recent report completed by the Institute of Transportation Engineers (ITE) and the Congress for New Urbanism (sponsored by the FHWA and EPA) called *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* gives specific guidance on street cross sections, intersection design, and design control flexibility that is practical and comprehensive. These recommended practices provide a way to balance the issues encompassing user mobility, land use diversity, community interest, and environmental concerns. This approach reduces or eliminates the need for exceptions and variances through its inherent flexibility.

The ITE report recommends addressing safety concerns by designing thoroughfares for speeds that are the same as or 5 miles over the target speed, instead of 10 to 15 miles over the target speed. The report also recommends special emphasis on intersection design, particularly addressing pedestrian safety. Other safety measures include traffic calming techniques such as narrowing vehicle travel lanes, widening sidewalks, and adding curb extensions and medians.

### Associated Policies:

- Utilize complete street design – provide for all modes of transportation – when building or reconstructing streets
- Incorporate proper signage requirements
- Require adequate links to new transit as well as improved access for existing transit, including safe, convenient bicycle lanes and pedestrian routes
- Incorporate bicycle parking and storage in key transit-oriented locations
- New or improved roadways shall provide minimum 4-foot paved shoulder or bicycle lane, where feasible
- Sidewalks shall provide a minimum 5-foot paved unobstructed walkable surface

- Tree rows shall provide a minimum 3-foot buffer between the roadway and the sidewalk in all urban areas
- Support the use of narrow residential roadways
- Require a non-motorized path at the head of all cul-de-sacs
- Support pilot projects that explore innovative transportation facility design

### ***Performance Outcomes***

- Assist local jurisdictions in updating Local Design Standards
- Support utilization of Context Sensitive Design Solutions
- Set modal priorities for thoroughfare corridors through CSS design practices
- Develop a traffic calming toolbox
- Identify appropriate location to incorporate shared-use paths along rivers, streams, utility right-of-ways, railroads or freeway corridors, within college campuses, within parks and cul-de-sacs, and anywhere else natural barriers exist.

## **Management Plans**

Management plans provide a coarse-grained tool to analyze the transportation network and its relationship with the surrounding land uses. These plans can address a wide range of policies, programs, services, and products that influence how, why, when, and where people travel. The intended result is that travel behaviors become more sustainable.

It is often the case that certain corridors in a community will handle more traffic than any others (i.e. Wabash Ave and 3<sup>rd</sup> Street in Terre Haute, National Ave and Forest Ave in Brazil, etc.). These corridors may benefit from countermeasures such as improving the land use diversity, additional public transportation investment, and the implementation of Intelligent Transportation Systems (ITS) to better utilize existing capacity.

In order to minimize congestion and plan for future traffic impacts, the MPO is developing work items to assist local jurisdictions in analyzing their traffic demand and help identify mitigation opportunities and funding. Some of the work items that need to be addressed are as follows:

- Planning and Environmental Linkages
- Parking Management Plan
- Transportation Demand Management Plan

## **Planning and Environmental Linkages**

Planning and Environmental Linkages offer a coordinated approach between system level planning, project level decisions, community needs, and sensitivity to historical, cultural, and environmental concerns. The MTP provides system level planning for the region that includes conceptual design, identifying project locations, and analyzing land use patterns and other cultural and natural resources. Project level decisions are made through the study corridor process where community needs and historical, cultural, and environmental concern are gathered through the MPO's public participation process.

### ***Associated Policies:***

- Support the National Environmental Protection Agency (NEPA) process through well-coordinated land use and transportation planning and the five core MPO functions

**Performance Outcomes:**

- Develop and share maps that illustrate historical, cultural, and environmental areas of importance and their relationship to the transportation system
- Cooperate with local jurisdiction efforts on view a shed analysis.

**Access Management Plan**

According to the Transportation Research Board (TRB), access management is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections. It also encompasses roadway design treatments such as medians and auxiliary lanes, and appropriate spacing of traffic signals. By managing roadway access, local public agencies can improve public safety, reduce traffic congestion, support multimodal transportation, and improve the appearance and quality of the built environment. In addition, access management can reduce the need and cost of widening roadways and reduce the number of conflicts between automobiles and pedestrians.

**Associated Policies**

- Encourage local entities to promote shared access for commercial development

**Performance Outcomes**

- Assist local jurisdictions in developing Access Management Plans
- Begin inventory of traffic signal spacing

**Parking Management**

A parking management plan can improve the efficiency of parking facilities and their relationship to a well-functioning transportation system. A plan begins with an inventory of a geographic area's parking facilities and a projection of parking needs. Then, a plan outlines policies, programs, and strategies to more efficiently use existing facilities and determine appropriate facility expansion. Some principles to address in a parking management plan are consumer choice, circulation patterns, shared parking opportunities, and peak management. Applying parking management plans can provide benefits such as reducing development costs and impervious surfaces and utilizing flexible design. Ultimately, a parking management plan should support a balance between parking needs and creating inviting business environments.

**Associated Policies**

- Support the development of shared parking policies

**Performance Outcomes**

- Develop a parking management plan with local jurisdictions

**Resource and Outreach Center**

In order to implement the policies and accomplish the performance outcomes outlined in this plan the MPO will work toward creation of a Resource and Outreach Center. This will help emphasize the MPO's role as a resource for data and information related to metropolitan transportation planning and

public involvement techniques. This will required the MPO to keep up with the latest technologies and to provide a physical and electronic library for the community and local public agency use.

In general, the MPO will emphasize its role as a Resource and Outreach Center by providing:

- Data and information on current and future transportation conditions
- Clarification of the Transportation Demand Model developed by the MPO
- Technical assistance with public participation planning and visualization techniques
- Educational seminars and classes on land use and transportation planning
- Webinars on a variety of planning and engineering related subjects
- A library of best practices in planning and engineering fields

Some of the more specific tasks that may come out of the aforementioned responsibilities include, but are not limited to, the following:

### **Data Collection**

- Safety-related data, including crashes
- Neighborhood pedestrian network assessments using a walking audit
- Continuation of traffic count program
- Use traffic counts to calibrate the travel demand model within every 4-5 year update
- Begin including pedestrian and bicycle traffic counts

### **Education and Outreach**

- Support education on traffic laws
- Development and distribution of MPO 101 documents
- Provide access to modal-focused website pages

The Resource and Outreach Center would benefit from being physically accessible from long range planning and GIS staffs from all participating local partners. A transportation engineer would also be an important addition to the team. With this organizational structure, the MPO and local jurisdictions would then be able to provide more comprehensive support and assistance with implementation and updates of all types of long-range plans for the region, and better coordinate on land use and transportation issues that arise.

In order to assist the local jurisdictions in making informed decisions and to provide continuous and effective outreach it is important to provide access to materials and planning best practices. Implementation of any plan needs to be supported by up-to-date data and a comprehensive education and outreach program. Some of the concepts introduced above require additional explanation. The following items provide more detail on documents and concepts that the MPO is exploring through our efforts in creating a more visible Resource and Outreach Center.

### ***Visualization Techniques***

Visualization techniques help facilitate public, stakeholder, and decision maker understanding of transportation and land use planning issues. MPO staff needs to incorporate better visualization techniques into tasks to explain technical terms and transportation planning concepts. For example, many different types of graphics, such as tables and charts to display data, and aerial photography and maps illustrate planning activities, are integrated throughout MPO documents and presentations.

MPO staff uses Geographic Information Systems (GIS) and aerial photography to create maps of study corridors, trail systems, bicycle routes, and roadway classifications. All of these visualization techniques are applied liberally throughout MPO documents and the MPO website. MPO staff will expand its visualization techniques through use of traffic demand modeling (TDM) software and simulation presentations. TDM software assesses how well the transportation network functions based on changes in population growth and land use decisions. These assessments can be visually depicted by different line widths, colors, and numerical values. The purchase of a micro-simulation software that demonstrates how changes in the transportation network impact travel demands on a neighborhood or community will be necessary.

### ***MPO 101 Documents***

The MPO 101 is a proposed work product for the MPO staff to prepare that will be available in a binder and on-line. The MPO 101 publication will include documents vital to understanding MPO organization, functions, and processes. Documents will include maps, Metropolitan Transportation Plan (MTP), Transportation Improvement Program (TIP), Public Participation Plan (PPP), federal regulations and other guidelines. The MPO 101 book will be constantly updated as work products are amended, new projects are brought forward for inclusion in the TIP, and new federal regulations are passed.

## **Process Development**

Process development includes general and systematic written procedures that provide guidance on issues such as Development Review and Thoroughfare Alignment. Processes can be fluid and may require amendments as they are applied and evaluated. The processes proposed in this section include those that the MPO would be a participant. Most of these processes are also discussed in the MPO's Public Participation Plan and the MPO Bylaws.

### ***Associated Policies:***

- Support local jurisdictions' development review process

### ***MPO Processes:***

- Thoroughfare Alignment
- Study Corridors
- Transportation Improvement Program (TIP) Application

## **Thoroughfare Alignments**

The process of identifying the locations of existing thoroughfares and locating new alignments for proposed thoroughfares includes studying land uses and topography, as well as providing a well-connected roadway system. In addition, thoroughfare alignments have certain spacing requirements as outlined in the Federal Functional Classification Guidelines. Finally, whenever possible, public right-of-way property acquisition occurs on shared property or along section lines to maintain equity.

Occasionally land use changes and other issues are identified that require revision to the alignments. Therefore, the MPO has a process to evaluate thoroughfare alignments depending on the degree of change proposed and, most importantly, the impact a change would have on affected property owners.

## Area Plans and Study Corridors

Area plans and study corridors are undertaken in corridors or areas that are in need of intensive study to determine potential transportation needs. These are conducted on an “as-needed” basis. Studies can be initiated by a written request if a member jurisdiction identifies a transportation issue not previously discussed in the MTP, if a proposed project to be included in the TIP does not conform with the MTP, or if the Transportation Policy Committee requests a specific study.

The process for these types of studies is outlined in the Public Participation Plan. Some of the items in the process include determining the target audience (study area size), identifying alternative options through public input, and determining preliminary cost estimates, benefits, and potential issues to address through the National Environmental Policy Act (NEPA) process.

## Transportation Improvement Program (TIP) Application

All MPOs must develop a TIP, in conjunction with State and effected Transit Operators. The TIP is a financially constrained list that includes projects for which construction and operation funds can be reasonably expected. The project application process allows local entities to request that projects be considered for addition to the TIP. All projects, funded or unfunded, must be consistent with the MTP. The TIP includes all regionally significant transportation projects, regardless of federal, state, or local funding. Full details about this process can be found in the PPP and the TIP document.

## Transportation Performance Management (TPM)

The Federal Transportation Performance Management (TPM) process encompasses performance-based planning and programming. It is a systematically applied ongoing process that provides decisions makers with the information they need to understand the consequences of investment decisions across transportation assets or modes. The intent includes improving communication between decision makers, stakeholders and the traveling public and ensuring targets and measures are developed in cooperative partnerships and based on data and objective information.

The key feature of the TPM is the development and implementation of a performance- and outcome-based program to guide investment of federal funds toward the achievement of national policy objectives. These policy objectives are conveyed in the form of national transportation goals. The end-result is for States and MPOs to invest resources in projects that collectively make progress toward achieving the national goals, with an increased focus on accountability and transparency of the planning, programming and decision-making process.

The national performance goals are identified for seven areas including: 1) Safety, 2) Infrastructure Condition, 3) Congestion Reduction, 4) System Reliability, 5) Freight Movement and Economic Vitality, 6) Environmental Sustainability, and 7) Reduce Project Delivery Delays. Additional information regarding the transportation goals for the highway network have been established. They include:

- Safety – Achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- Infrastructure Condition – Maintain the highway infrastructure asset system in a state of good repair.
- Congestion Reduction – Achieve a significant reduction in congestion on the National Highway System.
- System Reliability – 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.
- Reduce 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 burden and improving agencies' work practices.

The national goals also relate to transit system with similar considerations for safety and infrastructure condition. They include reducing the number of fatalities and serious injuries related to transit service and maintaining the condition of transit infrastructure in a state of good repair.

## Highway Performance Measures

The transportation performance measures have been established for the highway system. The system performance measures and infrastructure measures are virtually complete and target setting is underway. The implementation of the safety performance measures and initial target setting was the first to be completed. WCIEDD has collaborated with INDOT and other planning partners on the development of performance measure data and target setting. The three sets of highway performance measures are:

- System Performance Measures
  - Percent of Person-Miles Traveled on the Interstate System that are Reliable (Interstate Travel Time Reliability measure)
  - Percent of Person-Miles Traveled on the Non-Interstate NHS that are Reliable (Non-Interstate Travel Time Reliability measure)
  - Percent Change in Tailpipe CO2 Emissions on the NHS (this system performance measure is currently suspended)
  - Percentage of Interstate System Mileage Providing for Reliable Truck Travel Times
  - Annual Hours of Peak-Hour Excessive Delay Per Capita
  - Percent of Non-Single Occupancy Vehicle Travel
  - Total Emission Reduction
- Infrastructure Performance Measures
  - Percentage of Pavements of the Interstate System in Good Condition
  - Percentage of Pavements of the Interstate System in Poor Condition
  - Percentage of Pavements of the Non-Interstate NHS in Good Condition
  - Percentage of Pavements of the Non-Interstate NHS in Poor Condition
  - Percentage of NHS Bridges Classified as in Good Condition
  - Percentage of NHS Bridges Classified as in Poor Condition
- Safety Performance Measures
  - Number of Fatalities
  - Rate of Fatalities per 100 million miles traveled
  - Number of serious injuries
  - Rate of serious injuries per 100 million miles traveled
  - Number of non-motorized fatalities and non-motorized serious injuries

It is the intent of the WCIEDD MPO with the adoption to incorporate the Indiana Department of Transportation statewide targets and performance measures in all aspects of planning and programming projects and preparing of core MPO documents. The WCIEDD MPO will support these targets and measures by incorporating planning activities, programs and projects.

## Transit Performance Measures

Under the final Transit Asset Management rule, transit providers must collect and report data for four performance measures, covering rolling stock, infrastructure, and facility condition. For these measures, transit providers are required to annually set targets for the fiscal year, develop a four-year Transit Asset Management Plan for managing capital assets, and use a decision support tool and analytical process to develop a prioritized list of investments. Each provider of public transportation is required to adopt targets for the performance of their transit assets. Subsequently, MPOs need to adopt transit asset targets for their metropolitan area.

There are four transit related asset performance measures, two of which are age-based and two condition-based. The age-based measures apply to rolling stock (transit vehicles) and non-revenue generating equipment (service vehicles). Conditions based measures apply to infrastructure (rail, fixed-guideway track, signals, and systems) and stations/facilities (transfer stations, administrative buildings, garages, and bus shelters). None of the transit operators in the MPA operate any rail, fix-guideway track or signals. Within each performance measure, assets are further divided into asset classes. For example, distinct asset classes for buses can be 30-foot, 35-foot, 40-foot, articulated, etc. Each asset class is measured separately for performance and for target setting. In addition, for the age-based performance measures, providers may set their own standards, and the useful life benchmark (ULB) for each asset class.

## Transit Asset Management Plan

The Federal Transit Administration (FTA) and the U.S. transit industry having been working to improve the understanding and practice of transit asset management. There is considerable evidence that this is a critical area of focus. Improving transit asset management is now a nation policy.

Transit asset management (TAM) is a business model that prioritizes funding based on the condition of transit assets, in order to achieve or maintain transit networks in a state of good repair (SGR). FTA requires transit agencies to maintain and document minimum TAM standards. These standards help transit agencies keep their systems operating smoothly and efficiently within the constraints of available funds.

TAM is the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their asset's life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation. Asset management processes are ongoing and involve evaluating and managing the relationship between costs, risks, and performance over the asset's life cycle. Asset management addresses the two concepts of customer level of service and life cycle management. Asset management can affect level of service by improving on-time performance and vehicle cleanliness and by reducing missed trips, slow orders, and service and station shutdowns. It also can improve safety, security, and risk management. Asset management provides accountability and communicates performance and asset condition to customers. The core of purpose of asset management is to understand and minimize the total cost of ownership of an asset while maximizing its performance (life cycle management). TAM integrates activities across departments and offices in a transit agency to

optimize resource allocation by providing quality information and well-defined business objectives to support decision-making within and between classes of assets.

Customer service levels and life-cycle management are addressed at the enterprise level and for each class of assets. Enterprise levels refers to management or decision-making activities that occur at the higher levels of an organization and apply across the entire organization. Asset class-level activities, on the other hand, refer to the management activities that are associated with a particular asset class. Through asset management, the transit providers in the area can more effectively use available funds to improve the physical condition and performance of their system. This, in turn, has the potential to increase ridership.

The transit providers for the area, as recipients of public transit funds, are required to establish performance targets for safety and state of good repair: develop a transit asset management and transit safety plans; and report on their progress toward achieving targets. They are directed to share information with WCIEDD and the state so that all plans and performance reports are coordinated. The 2019 targets will be set prior to the end of 2018, and the cycle of target setting and reporting will commence.

## System Management Report

The FAST Act planning regulations direct the MPOs to develop MTPs and TIPs through a performance-driven, outcome-based approach to planning. It required states, MPOs, and operators of public transportation to establish targets for performance measures in key performance areas, and to coordinate and collaborate when setting targets.

### Target Setting

The MPO is required to establish performance targets no later than 180 days after the state or public transportation operators sets their performance targets. For each performance measure, the MPO has decided to support the established state and public transportation operator targets. INDOT, and therefore the MPO, targets for roadway performance measures will be set at two-years and four-year intervals. The MPO, INDOT, and local public transportation providers must coordinate their respective targets for performance measures with each other to ensure consistency to the maximum extent practicable.

### Reporting

The MPO's and INDOT's transportation plans must include the performance measures and targets used to assess system performance, evaluate the performance of the transportation system with respect to the federally required performance targets, and report on progress made toward achievement of the targets. MPO's TIP and INDOT's STIP must link investment priorities to the targets in their respective transportation plans and describe, to the maximum extent practicable, the anticipated effect of the program toward achieving established targets. Since the MPO has adopted INDOT measures and targets, it will report base-line roadway system conditions, performance data, and progress toward the achievement of targets upon INDOT request. FHWA and FTA will decide if INDOT and public transportation providers met, or have made significant progress towards, meeting targets for their respective systems. FHWA and FTA will not directly assess MPO progress towards meeting targets for required performance measures. Instead, these agencies will review the MPO's performance as part of ongoing transportation planning process reviews.

## Chapter 5: Prioritized Plans and Projects

### Introduction

Through the public input process, the MPO has developed priority plans to support the implementation of complete transportation networks and a safer transportation system. The prioritized plans and projects should also align well with the Transportation Principles laid out in Chapter 3, which are restated here:

- Maintain and improve the existing transportation system, first and foremost.
- Connect people to jobs, goods, services, education, and recreational opportunities.
- Preserve natural, cultural, historical, and agricultural resources.
- Promote and design healthy and livable communities
- Provide and improve multi-modal and intermodal option for all users.
- Increase transportation safety for all users, starting with the most vulnerable modes.

Pedestrian safety is emphasized because all modes have a pedestrian component. For example, when driving to a shopping center, one portion of the trip includes a safe and convenient walk from the parking lot. In addition, disabled persons and seniors rely on having quality pedestrian facilities connecting to public transportation in order to access goods and services on a daily basis.

The priority plan maps in this chapter provide guidance, as well as a system for evaluating projects for inclusion in the TIP. For example, a project will be selected if it is identified on multiple priority plans. Also in an effort to preserve and maintain the existing transportation infrastructure, the MPO supports new and innovative funding mechanisms for implementing these priorities, and expanding the current unfunded illustrative project list.

Finally, each plan consists of a map identifying important components of the priorities plan and information text on the sidebar. These maps are readily available on the web, and will be emailed or printed upon request.

### Pedestrian System Priorities Plan

The Pedestrian System Priorities Plan Map, Appendix 1, identifies crucial pedestrian corridors, intersections, and regional area destinations that need infrastructure. The numbered corridors, intersections, and areas that were identified should be treated as a high priority Pedestrian Improvement Plan.

Associated Tasks:

- Develop pedestrian projects task force with local jurisdictions.
- Continue to support Safe Routes to School and Safe Route to Park programs.
- Provide a crash and proximity analysis for all local jurisdictions.

### Public Transportation Systems Priorities Plan

The Public Transportation System Priorities Plan Map, Appendix 2, is a description of the future transit system. It envisions the future transit system will be better coordinated with activity centers in order to support transit-oriented development opportunities. The future transit system should be based on establishing bi-directional express service corridors to encourage regional trips, and provide

neighborhood circulator systems that feed into stations along those express corridors. Examples of corridors that would benefit from express service are Wabash Avenue, 25<sup>th</sup> Street, 13<sup>th</sup> Street, and Margaret Drive. National Avenue through Brazil, Knightsville, and Harmony would also be an ideal candidate. The mobility zone areas should provide the framework within which the circulator systems operate.

Expansion of public transportation should also include the introduction of new types of systems such as Bus Rapid Transit (BRT). Connecting the urban system to rural and regional systems, such as WCIEDD Rural Transit is vital to the success of public transportation in the MPA and the region.

#### Associated Tasks:

- Assist in the development of inter-local agreements to ensure all jurisdiction within the UA have access to public transit.
- Assist the Terre Haute Transit Utility (THTU) and WCIEDD Rural Transit with the identification and operation of bi-directional routes.

#### On the Map:

The Public Transportation System Priorities Plan Map contains the tiered priorities as well as explanations of transit oriented development and different types of public transportation systems that could be implemented in the future.

## Bicycle System Priorities Plan

The Bicycle System Priorities Plan Map, Appendix 3, identifies current and future in-road bicycle facilities throughout the MPA. The facilities outlined in the plan are intended to create a well-connected bicycle transportation system using the roadway network. The plan prioritizes in-road facilities into three levels, or tiers, which will create a bicycle network across the MPA and the region.

Tier 1 – These routes are the arterial bicycle network that connects major destinations and provides continuous routes across the MPA and region.

Tier 2 – These routes act as minor arterials in the network to complete intra-regional travel.

Tier 3 – These routes round out the network by acting as collectors between neighborhoods and the arterials.

This tiered bicycle network, combined with a well-connected local street network will offer all transportation users convenient and safe routes to travel.

#### On the Map:

The Bicycle Systems Plan Map contains the tiered priorities as well as explanations of different types of bicycle facilities, recommended lane widths, and bicycle policies for the MPA.

## Future Thoroughfare Plan Map

The Future Thoroughfare Plan Map, Appendix 4, combines important features of the thoroughfare system for development: Current roadway functional classification, future functional classification in order to preserve right-of-way, and preliminary roadway alignments. This map is not intended to determine right-of-way widths; final right-of-way widths will be based on local jurisdictions' design

standards and the application of adopted complete street policies. This map was developed using the Federal Highway Administration Functional Classification Guidelines.

Collectors serve specific functions within the hierarchical road system, distributing traffic between neighborhoods and arterials and providing increased access across shorter distances and at lower speeds. In order to achieve these functions, as well as to preserve the context of the neighborhoods they serve, the MPO has set parameters and templates for the build-out of collectors rather than indicating their exact alignment on the map. These parameters provide enhanced alignment flexibility. For example, the connectivity component is more important than roadway alignment, which may need to be altered to account for topographic reasons.

Associated Policies:

- Collectors within any 1 square mile (approximately) of planned arterials shall maintain a connection to arterials in every cardinal direction and to each other.
- A collector shall not directly continue for more than 1.5 miles in any given direction.
- A collector should contain 2 or 3 vehicle lanes, bicycle lanes, and pedestrian facilities on both sides appropriate to the roadway context.
- Existing routes and connections will be maintained, where feasible.

On the Map:

The Future Thoroughfare Map contains the desired functional classification for existing and proposed roadways, a summary of the functional classification guidelines, roadway type percentages, and parameters for aligning collectors.

## Trail System Priorities Plan

The Trail System Priorities Plan Map, Appendix 5, identifies current and potential future trails within the MPA. The plan prioritizes trail facilities into three levels, or tiers that create a trail network across the MPA. The tiers serve the same purposes outlined in the Bicycle Systems Priority Plan. The trails outlined in this plan are intended to augment the roadway transportation system by providing additional networks for bicycles and pedestrians.

Associated Tasks:

- Increase access to regional recreation activities.
- Protect the natural environment of creeks and enhance them through trail development.
- Support the development of a Loop Trail that connects each member jurisdiction.

On the Map:

The Trail System Priorities Plan map contains text about the identified tiered network, examples of improved and unimproved trail facilities, and a discussion of potential pavement types.

## Transportation Projects Priorities Plan

The Transportation Projects Priorities Plan Map, Appendix 6, brings together projects for all modes that are on a list to be funded, or are already in the TIP and funded. The map illustrates the following types of projects:

- Projects funded in the 2018-2021 TIP.
- Prioritized fiscally constrained unfunded illustrative projects.
- Corridors that would benefit from Intelligent Transportation Systems (ITS) applications.
- Transit projects that cannot be illustrated on a map.

## Transportation Projects Input:

The following section is a list of projects and their associated status (measure or explanation of progress). This list of projects was derived from comments received during the public participation process. The list is not all inclusive of projects identified for funding in the MTP. Rather it is derived from projects and issues that received the bulk of comments during public outreach, MPO committee meetings, and stakeholder meetings. This section is intended to address these comments and concerns as best possible, however it also important to understand the plan itself (text and identified projects) was design to address these issues.

**Truck/Freight Traffic:** The discussion of freight corridors in Chapter 2 revealed many roadways within the MPA area carry significant commercial vehicle volumes.

**Loop Roads:** MPO staff received input on what we have grouped as “loop roads” around the City of Terre Haute. The subject of these roads came up early in the planning process, so staff focuses specifically on evaluating development of these roads with the travel demand model. With the opening of SR 641 between I-70 and US 41 around the southeast quadrant of Terre Haute, there are three quadrants remaining to be re-analyzed: 1) northeast quadrant, 2) northwest quadrant, and 3) southwest quadrant.

**Addition of a 3<sup>rd</sup> Lane to I-70:** Generally, there is support for adding an additional eastbound and westbound travel lane to I-70 as long as passenger lanes are not tolled.

## Illustrative Project List

Per CFR 450.322.10.vii, the items grouped together in Figures 5-1 and 5-2 represent an illustrative list of potential projects in the MPA currently not included in the Transportation Priorities Plan (see Figure 6-6) due to funding, design and physical constraints. Included in these projects are Complete Streets projects, road diets, and maintenance projects. Future work on development and advancement of these projects will require collaboration between the MPO, the applicable LPA, INDOT, FHWA and/or FTA.

MTP 2045 Illustrative Projects - INDOT		
Project	Description	Cost Estimate
Operations and Maintenance	System wide preservation	\$ 94,961,922
I-70 Added Travel Lanes	Construction of 3rd travel lane in both directions from the Wabash River Bridge to the Clay/Putnam County Line	\$ 35,160,000
I-70 Tabertown Rd Interchange	Construction of Diverging Diamond Interchange at Tabortown Road and I-70	\$ 12,500,000
SR 246 Safety Improvements	Highway safety improvements (shoulders and drainage) from SR 63 to Vigo/Clay County Line	\$ 2,636,250
SR 42 Safety Improvements	Highway safety improvements (shoulders and drainage) from Swalls Drive to SR 59	\$ 1,640,950
US 150 Safety Improvements	Highway safety improvements (shoulders and drainage) from SR 63 to Vigo/Clay County Line	\$ 2,264,500
US 41 Added Travel Lanes	Construction of 3rd travel lane in both directions from Hulman Street to Margaret Drive	\$ 26,138,000
<b>Total</b>		<b>\$ 175,301,622</b>

Table 5-1: INDOT Illustrative Project List

MTP 2045 Illustrative Projects - MPO & LPAs		
Location	Issue/Improvement	Status
Fort Harrison Road	Redesign ad Complete Street with Express and Circulator Transit Amenities	Coordinate with City of Terre Haute and THTU
19th Street	Redesign as Complete Street with Circulator Transit Amenities	Coordinate with City of Terre Haute and THTU
Brown Avenue	Redesign as Complete Street with Circulator Transit Amenities	Coordinate with City of Terre Haute and THTU
Clay County National Road Heritage Trail	Designated Trail Extension	Proposed Tier 1 Trail Priority
Davis Drive (7th Street to Erie Canal)	Shoulder work for bicycle facility	Tier 1 Bicycle Priority
Grade Separated Pedestrian Facility - US 41 and Chestnut Street (Vicinity)	Provide enhanced pedestrian safety	Awaiting demonstration and validation of need.
Hulman Street	Redesign as Complete Street with Express and Circulator Transit Amenities	Coordinate with City of Terre Haute and THTU
Northeast Extension Loop Roadway	New Road Alignment	Awaiting demonstration and validation of need.
Vandalia Street	Redesign as Complete Street	Coordinate with City of Brazil
Wabash River Heritage Trail North	Designated Trail	Proposed Tier 1 Trail System
Wabash River Heritage Trail South	Designated Trail	Proposed Tier 1 Trail System

Table 5-2: MPO &amp; LPA Illustrative Project List

## Summary and Conclusion

In most cases, projects recommended were included in the priority plans. In some cases, planning studies or further analysis are needed, and in other cases planning studies are underway that should address recommendations. Some of the projects recommended will also be addressed via one of the toolbox strategies. Finally, in Chapter 6, the financial plan is presented along with associated needs in the MPA, of which these projects were incorporated.

## Chapter 6: Financial Plan

### Introduction

Under federal regulations, the MTP, TIP and STIP must include a financial plan that demonstrates how the adopted plans can be implemented. The plan must demonstrate fiscal constraint by comparing estimates of funds that are reasonably expected to be available for transportation use, including transit, and the cost of constructing, maintaining and operating the total (existing, plus planned) transportation system over the time period covered by the applicable plan (i.e. MTP, TIP or STIP). The purpose of this requirement is twofold: 1) to ensure that funding sources for needed investments are identified, and 2) to demonstrate a reasonable reliable means to maintain and operate the existing and proposed federally funded transportation system.

### Financial Summary, Assumptions, and Available Tools

Total federal, state and local revenues for the 25-year planning horizon of the MTP are provided by FHWA, FTA, INDOT, public transportation operators, and LPAs. Total capital expenditures for roadways are estimated to be \$91,724,641. Capital expenditures for public transit are estimated to be \$1,546,665. Operation and Maintenance (O & M) expenditures are estimated to be \$946,469,122. Total capital and O & M expenditures for the 25-year planning horizon of MTP 2045 are estimated to be \$1,039,740,428.

Many funding tools are available to construct new transportation projects and to keep the existing transportation system operating and maintained. Funding sources include federal and state programs, such as fuel and sales taxes, as well as local and private funds. This chapter documents the financial strategy used to fund regional projects, programs, and activities covered in this MTP. Potential revenue sources are summarized and future revenues from these sources are estimated. Also expenditures to meet the projected transportation needs for the MPA through the year 2045 are estimated. The expenditures include those required to meet general administrative needs and the operation and maintenance of the existing transportation system.

### Proposed Revenues

#### Federal Funding

Federal funding for transportation in Indiana is transferred from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) to the Indiana Department of Transportation (INDOT). Funds are specifically allocated to various statewide programs and to the six INDOT Districts. The MPO is within the Crawfordsville District, which is comprised of Benton, Boone, Clay, Clinton, Fountain, Hendricks, Montgomery, Parke, Putnam, Tippecanoe, Vermillion, Vigo, and Warren counties, as well as parts of Morgan, Owen, and White counties. This District is further dividing into five sub-districts (Cloverdale, Crawfordsville, Frankfort, Terre Haute, and West Lafayette). The MPA is served by the Terre Haute Sub-district, which also serves small portions of Owen, Parke, and Vermillion Counties.

Primary sources of revenue for the Federal Highway Trust Fund (FHTF) are:

#### Fuel Taxes

- 18.4 cents per gallon for gasoline

- 24.4 cents per gallon for diesel

#### Heavy vehicle fees

- Heavy vehicle use tax for trucks over 55,000 pounds
- 12 percent sales tax on new trucks over 33,000 pounds
- Tire tax for tires over 40 pounds

Increases to federal fuel tax rates were last authorized in 1993, and therefore the purchasing power of federal funding sources has steadily eroded over time as material and labor costs have increased. Discussion by the House of Representative's Finance Committee and Transportation and Infrastructure Committee have included revenue options such as increase in fuel tax and a user fee based on Vehicle miles traveled.

The majority of monies spent in the MPA are typically from the National Highway Performance Program (NHPP) and the Surface Transportation Program (STP). NHPP funds are used to construct improvements on the urban and rural roads that are a part of the National Highway System (NHS), Major Highways, and Principle Arterials. STP funds provide discretionary funding used for planning, the Transportation Alternatives Program (TAP), bridge projects on public roads, and transit capital projects. STP funds can be used on all federal-aid highways (Functional Classification Plan), including the National Highway System. TAP funds can be used to create or improve walking and bicycling facilities, or to make other non-motorized improvements.

Also part of the STP funds are the Highway Safety Improvement Program (HSIP) funds, which are used for projects that improve safety or mitigate dangerous conditions on roadways, at intersections, or for walkers and bicyclist. The amount of STP programmed within an MPO's region can vary widely based on INDOT priorities for state maintained roadways. In small MPOs with a population less than 200,000 such as this MPO, the INDOT allocated STP funds in the area for use on locally maintained federal-aid-system facilities is distributed based on a formula which was developed through a collaborative process between the INDOT, MPO, and public transportation providers.

## State Funding

In addition to the federal apportionment, in 2017 the Indiana legislature passed a sustainable long-term transportation infrastructure bill. The bill will result in additional funding of \$617 million in State Fiscal Year (SFY) 2018 growing each year to an additional \$1.209 billion in SFY 2024. Specific bill details are as follows:

- Raises gas, diesel and motor carrier surcharge taxes by 10 cents each beginning in SFY 2018 and indexes the taxes annually for seven years with a one cent per year cap.
- Gradually shifts the sales tax on gas to the state highway fund by 2025 (but allows the Governor to hold back these funds for general fund purposes subject to review by the state budget committee).
- Increases the International Registration Plan and BMV registration fees by 25% for trucks greater than 26,000 lbs.
- Implements an annual electric vehicle fee of \$150 and a hybrid fee of \$50.

- Eliminates the sales tax on special fuel.
- Requires INDOT to study tolling and to apply for a federal tolling waiver; requires State Budget Committee review before INDOT could implement tolling.
- Requires INDOT to develop metrics and prioritize projects using data-driven model.
- Moves the motor carrier surcharge tax to the pump and applies to all diesel buyers.
- Continues the community crossing matching grant program for locals and modifies the match requirements as follows: counties over 50,000 population and cities/towns over 10,000 population will be at a 50/50 match; counties under 50,000 population and cities/towns under 10,000 population will be at a 75/25 match.
- Allows INDOT to operate a federal funds exchange program with locals.
- Extends local wheel tax/surcharge adoption deadlines.
- Restricts local uses of Motor Vehicle Highway (MVH) funds to exclude paying for police and painting structures and requires that 50% of MVH funds be used for construction, reconstruction, and maintenance.
- Phases in changes to the MVH split from current the 53% state and 47% local to 60% state and 40% local beginning in SFY 2017 and ending in SFY 2023.

These funds are administered by the INDOT. The allocation of state revenues is determined by the State Budget Committee.

## Local Funding

MTP 2045 Revenue Projection - Infrastructure							
Fund Source	Annual Estimated Allocation	YOE 2020 Forecast	YOE 2021-2025 Forecast	YOE 2026-2035 Forecast	YOE 2036-2045 Forecast	Total	
FHWA	STP-II	\$ 1,597,527	\$ 1,629,478	\$ 8,649,464	\$ 20,093,355	\$ 24,493,688	\$ 54,865,985
	CMAQ	\$ 749,792	\$ 764,788	\$ 4,059,587	\$ 9,430,725	\$ 11,496,001	\$ 25,751,101
	HSIP	\$ 312,528	\$ 318,779	\$ 1,692,114	\$ 3,930,911	\$ 4,791,758	\$ 10,733,562
	TAP	\$ 132,981	\$ 135,641	\$ 719,997	\$ 1,672,607	\$ 2,038,898	\$ 4,567,143
	<b>Sub-Total</b>	<b>\$ 2,792,828</b>	<b>\$ 2,848,685</b>	<b>\$ 15,121,162</b>	<b>\$ 35,127,598</b>	<b>\$ 42,820,345</b>	<b>\$ 95,917,790</b>
State	LRS	\$ 2,054,352	\$ 2,095,439	\$ 11,122,845	\$ 25,839,203	\$ 31,497,844	\$ 70,555,331
	MVH	\$ 9,659,429	\$ 9,852,618	\$ 52,298,886	\$ 121,494,246	\$ 148,100,808	\$ 331,746,558
	CCP	\$ 2,169,601	\$ 2,216,853	\$ 11,459,203	\$ 25,005,212	\$ 28,203,938	\$ 66,885,206
	<b>Sub-Total</b>	<b>\$ 13,883,382</b>	<b>\$ 14,164,910</b>	<b>\$ 74,880,934</b>	<b>\$ 172,338,661</b>	<b>\$ 207,802,590</b>	<b>\$ 469,187,095</b>
Local Match	STP-II	\$ 399,382	\$ 407,369	\$ 2,162,366	\$ 5,023,339	\$ 6,123,422	\$ 13,716,496
	CMAQ	\$ 187,448	\$ 191,197	\$ 1,014,897	\$ 2,357,681	\$ 2,874,000	\$ 6,437,775
	HSIP	\$ 34,725	\$ 35,420	\$ 188,013	\$ 436,768	\$ 532,418	\$ 1,192,619
	TAP	\$ 33,245	\$ 33,910	\$ 179,999	\$ 418,152	\$ 509,725	\$ 1,141,786
	CCP	\$ 2,047,969	\$ 2,090,307	\$ 10,787,480	\$ 23,444,752	\$ 26,301,746	\$ 62,624,285
	Other Funds	\$ 9,495,583	\$ 9,700,656	\$ 45,889,154	\$ 109,742,523	\$ 138,377,090	\$ 303,709,423
	<b>Sub-Total</b>	<b>\$ 12,198,353</b>	<b>\$ 12,458,860</b>	<b>\$ 60,221,909</b>	<b>\$ 141,423,215</b>	<b>\$ 174,718,401</b>	<b>\$ 388,822,384</b>
<b>Total</b>	<b>\$ 28,874,563</b>	<b>\$ 29,472,454</b>	<b>\$ 150,224,005</b>	<b>\$ 348,889,474</b>	<b>\$ 425,341,336</b>	<b>\$ 953,927,269</b>	

**Table 6-1: Forecasted Road and Street Revenues**

Funding for capital projects and street operations and maintenance for the City of Terre Haute, City of Brazil, Town of Harmony, Town of Knightsville, Town of Seelyville, Town of West Terre Haute, Clay County, and Vigo County are mainly derived from each jurisdiction's share of the gross receipts tax (sales tax), property tax, and gas tax. The funds received from these taxes are fluid, since they are determined based on local economic conditions and each jurisdiction's priorities. Because each jurisdiction has competing services, revenue shortfalls usually manifest themselves in delayed projects.

For the purposes of this MTP, it is assumed each jurisdiction will allocate general fund revenue to maintain the current level of service. The eight MPO member jurisdictions are expected to spend \$12,458,860 on transportation system in fiscal year 2020 and are projected to spend \$427,269,341 of local funds through the horizon year of 2045.

## Transit Funding

Currently, the City of Terre Haute under the Terre Haute Transit Utility (THTU) operates a fixed route bus system within the urbanized area and West Central Indiana Economic Development District Area 7 Agency on Aging (AAA7) operates a demand response senior transportation rural bus system for non-urbanized areas of the MPA. Primary revenue sources for both the THTU and AAA7 are federal grants, user fees, state public mass transit funds (PMTF), and a transfer from the City of Terre Haute general funds for the THTU and inter-local agreements for local match with Vigo and Clay counties for the AAA7. Federal grant amounts vary year to year due to funds related to the fleet replacement schedule. Total funding for fiscal year 2020 is anticipated to be \$2,548,585. Projected funding through the WCIEDD MTP 2045 horizon year is \$85,813,159.

MTP 2045 Revenue Projection - Public Transportation							
Fund Source	Annual Estimated Allocation	YOE 2020 Forecast	YOE 2021-205 Forecast	YOE 2026-2035 Forecast	YOE 2036-2045 Forecast	Total	
FTA	5307	\$ 1,099,935	\$ 1,121,934	\$ 5,955,360	\$ 13,834,749	\$ 16,864,482	\$ 37,776,525
	5310	\$ 37,130	\$ 37,873	\$ 201,032	\$ 467,013	\$ 569,287	\$ 1,275,205
	5311	\$ 126,165	\$ 128,688	\$ 683,093	\$ 1,586,877	\$ 1,934,394	\$ 4,333,052
	<b>Sub-Total</b>	<b>\$ 1,263,230</b>	<b>\$ 1,288,495</b>	<b>\$ 6,839,485</b>	<b>\$ 15,888,639</b>	<b>\$ 19,368,163</b>	<b>\$ 43,384,782</b>
State	PMTF	\$ 470,139	\$ 479,542	\$ 2,545,466	\$ 5,913,308	\$ 7,208,290	\$ 16,146,606
	<b>Sub-Total</b>	<b>\$ 470,139</b>	<b>\$ 479,542</b>	<b>\$ 2,545,466</b>	<b>\$ 5,913,308</b>	<b>\$ 7,208,290</b>	<b>\$ 16,146,606</b>
Local Match	5307	\$ 642,392	\$ 642,392	\$ 3,409,894	\$ 7,921,440	\$ 9,656,192	\$ 21,629,918
	5310	\$ 9,283	\$ 9,468	\$ 50,258	\$ 116,753	\$ 142,322	\$ 318,801
	5311	\$ 126,165	\$ 128,688	\$ 683,093	\$ 1,586,877	\$ 1,934,394	\$ 4,333,052
	Other Funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	<b>Sub-Total</b>	<b>\$ 777,840</b>	<b>\$ 780,548</b>	<b>\$ 4,143,245</b>	<b>\$ 9,625,070</b>	<b>\$ 11,732,908</b>	<b>\$ 26,281,771</b>
<b>Total</b>	<b>\$ 2,511,209</b>	<b>\$ 2,548,585</b>	<b>\$ 13,528,196</b>	<b>\$ 31,427,017</b>	<b>\$ 38,309,361</b>	<b>\$ 85,813,159</b>	

Table 6-2: Forecasted Public Transportation Revenues

## Other Funding

Private funding is a significant source of road building in the MPO area. New local roadways are constructed as new developments are constructed. Additionally, subdivision control ordinance for the local jurisdictions require that developments are responsible for building thoroughfare within their boundaries. The location of future thoroughfares is determined by the Future Thoroughfare Map. The value of these improvements is difficult to estimate since costs are not publicly reported. Additionally, these roadways are constructed as the real estate market can bear the cost.

New roadways also increase the maintenance obligation for public entities. The MPO recommends that the MPO members request an analysis of life-cycle costs prior to accepting new maintenance responsibilities.

## Total Revenues

Projected revenues to support implementation of the 25-year planning horizon of MTP are \$1,039,740,428. The breakdown of the estimates by funding source are illustrated in Figure 6-1.

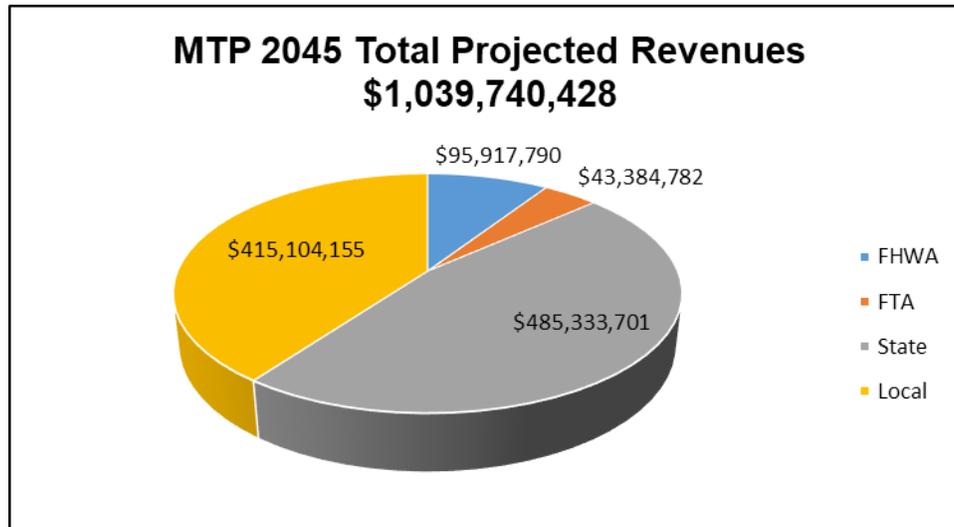


Figure 6-1: Total Projected Revenues 2020 - 2045

## Projected Expenditures

Federal regulations require the MTP to demonstrate that the region is able to maintain and operate the transportation system. This section examines the details of all costs (federal, state, local, and private) associated with building, maintaining, and operating the transportation system. In order to more accurately estimate costs over a long-term planning horizon, the federal regulations require the application of an inflation factor called Year of Expenditure Dollars (YOE). The MPO has applied a 2% YOE factor to all cost projections, as determined in cooperation with INDOT via a conference call.

Jurisdictions within the MPA are continuing development of their Pavement and Transportation Asset Management Plans. One of the core arguments/principles of asset management plans is that streets shouldn't be allowed to deteriorate to the point where they require costly replacement. Further, timely maintenance can extend the life of a roadway. Filling potholes and periodically re-surfacing existing streets to protect the huge investment already made should always be the top priority. Unfortunately, in the past this systematic approach to maintenance was often neglected in favor of capacity expansion. This MTP adopts a "fix it first" philosophy. New capital projects should be limited to those that improve connectivity to existing uses, aid in the providing more transportation choices, or can reduce overall maintenance and operations costs.

With the recent availability of Community Crossing Funds (CCF), LPAs have already placed greater emphasis on maintenance treatment. This program of funding requires a pavement management program that focuses on keeping good streets in good conditions while providing the most efficient use of available and limited resources. The local jurisdiction's pavement management plans/programs are a sum of all the actions the public works/town board and street/highway departments undertake to maintain and provide functional, safe, and reliable streets for the traveling public. They consist of routine maintenance (pothole patching, localized repairs), preventative maintenance (micro-surfacing,

crack sealing), rehabilitation (mill & overlay, pavement replacement), and full reconstruction. These actions increase the useful life of pavement and lower overall life-cycle costs.

Asphalt Treatment Schedule		
Year Applied	Treatment Type	Cost Per Lane-Mile
0	(Initial Construction)	N/A
5	Crack Sealing	\$ 1,800.00
6	Microsurfacing	\$ 24,000.00
10	Crack Sealing	\$ 1,800.00
14	Mill and Resurfacing	\$ 186,000.00
14	Chip Seal	\$ 36,000.00
18	Crack Sealing	\$ 1,800.00
19	Microsurfacing	\$ 24,000.00
23	Crack Sealing	\$ 1,800.00
26	Mill and Resurfacing	\$ 186,000.00
26	Chip Seal	\$ 36,000.00
30	Crack Sealing	\$ 1,800.00
31	Microsurfacing	\$ 24,000.00
34	Crack Sealing	\$ 1,800.00
38	Mill and Resurfacing	\$ 186,000.00
38	Chip Seal	\$ 36,000.00
42	Crack Sealing	\$ 1,800.00
43	Microsurfacing	\$ 24,000.00
50	Major Rehabilitation	\$ 220,000.00
<b>Total Life Cost Per Lane Mile</b>		<b>\$ 994,600.00</b>
<b>Annualized Cost per Lane-Mile</b>		<b>\$ 19,892.00</b>
Source: Repair Priorities 2014 Transportation spending strategies to save taxpayer dollars and improve roads; Joint publication: Smart Growth America and Taxpayers for Common Sense; Local Community Crossing awarded projects 2017.		

**Table 6-3: Asphalt Treatment Schedule**

## Capital

Capital costs for roadways were estimated by reviewing the current Capital Improvement Programs of the MPO member jurisdictions. At this time, most major capital projects are contained in the TIP or are part of the rehabilitation schedule of their respective pavement management plans. The total costs for these projects are \$87,251,321 (\$12,126,260 in 2020 – 2024, \$34,081,761 in 2025 – 2034, and \$41,043,300 in 2035 – 2045).

## Operations and Maintenance

Operations costs for roads, streets and highways were derived from evaluating mileage owned from each entity responsible for its portion of the transportation system in the MPA. An inflation factor of 2% was then applied yearly throughout the 25-year plan horizon. Total estimated operations and maintenance costs for roads, streets and highways in the MPA is \$874,189,122. Annualized maintenance costs for streets is \$19,892 per lane mile (Table 6-4). Based on the city, town, and county location, the total annual maintenance requirement in the MPO area amounts to \$33,622,650. (Table 6-4)

Public transportation costs, \$72,280,000, were estimated by reviewing of the strategic plans for both Terre Haute Transit Utility and the WCIEDD Transportation Services Department, as well as through in person discussions with the operation managers at both organizations. The largest capital expense will be purchasing replacement vehicles through the MTP's horizon year of 2045. The current year operating budgets for both THTU and WCIEDD were utilized to gauge operation cost for the plan. Funding comes from a combination of federal operating funds, fare box revenue, donations, state and local government support. It is anticipated this funding will remain relatively steady. The YOY factor was applied to account for inflation. Both annualized maintenance and totals costs for public transportation are summarized in Table 6-4.

<b>MPA Operations &amp; Maintenance Costs</b>			
<b>LPA/Operator</b>	<b>Miles Maintained</b>	<b>Annualized Maintenance Cost</b>	<b>2045 Total Cost</b>
<b>Roads, Streets &amp; Highways</b>			
Brazil	48.8	\$ 970,590	\$ 25,235,349.26
Carbon	3.7	\$ 74,098	\$ 1,926,540.20
Clay County	222.3	\$ 4,422,396	\$114,982,297.84
Harmony	4.7	\$ 94,447	\$ 2,455,627.62
Knighstville	7.0	\$ 139,025	\$ 3,614,654.89
Riley	1.8	\$ 36,184	\$ 940,772.25
Seelyville	7.0	\$ 139,562	\$ 3,628,619.07
Staunton	6.0	\$ 118,497	\$ 3,080,912.74
Terre Haute	348.3	\$ 6,927,648	\$180,118,837.50
Vigo County	836.9	\$ 16,646,998	\$432,821,951.85
West Terre Haute	12.8	\$ 254,737	\$ 6,623,160.75
INDOT	191.0	\$ 3,798,477	\$ 98,760,398.36
<b>Sub-Total</b>	<b>1690.3</b>	<b>\$ 33,622,659</b>	<b>\$ 874,189,122</b>
<b>Public Transportation (Transit)</b>			
Terre Haute Transit Utility	N/A	\$ 2,500,000	\$ 65,000,000
WCIEDD Rural Transit (Vigo County)	N/A	\$ 280,000	\$ 7,280,000
<b>Sub-Total</b>	<b>N/A</b>	<b>\$ 2,780,000</b>	<b>\$ 72,280,000</b>
<b>Total</b>			<b>\$ 946,469,122</b>

**Table 6-4: Forecasted Operations and Maintenance Costs**

## Total Expenditures

Capital expenditures for roadways and transit are estimated to be \$93,271,366 for MTP 2045. Total expenditures for capital projects and system operations and maintenance for the plan horizon year, 2045, are estimated to be \$1,039,740,428.

MTP 2045 Financial Constraint - Infrastructure				
Years of Plan	Type of Project	Estimated Cost	Estimated Revenues	Projected Balance
2020	Infrastructure	\$ 29,472,454	\$ 29,472,454	\$ -
	Public Transit	\$ 2,548,585	\$ 2,548,585	\$ -
2021-2025	Infrastructure	\$ 150,224,005	\$ 150,224,005	\$ -
	Public Transit	\$ 13,528,196	\$ 13,528,196	\$ -
2026-2035	Infrastructure	\$ 348,889,474	\$ 348,889,474	\$ -
	Public Transit	\$ 31,427,017	\$ 31,427,017	\$ -
2036-2045	Infrastructure	\$ 425,341,336	\$ 425,341,336	\$ -
	Public Transit	\$ 38,309,361	\$ 38,309,361	\$ -
<b>Total</b>		<b>\$ 1,039,740,428</b>	<b>\$ 1,039,740,428</b>	<b>\$ -</b>

Table 6-5: Local Financial Constraint

## Financial Plan Conclusion

As this MTP is being prepared, there is a great deal of discussion about financial support for the transportation system at the national level. There are several factors influencing this: changing national demographics that affect driving rates and therefore revenue collection, continued national debate on system priorities, an increased need to focus on maintenance as much of our infrastructure embarks on its second (sometimes third) life cycle, and many other factors. It seems clear construction of new liabilities should not continue without a clear show of return. While the national and state dialog has focused on ways of building new revenue for the transportation system, little publicity has been given to reducing infrastructure costs. We need to:

- Support ITS systems (Chapter 5) that help use roads more efficiently
- Invest in public transportation that can move greater numbers of people on the same infrastructure
- Invest in walking and biking facilities, low cost improvements that can increase an area's value
- Reduce roadway widths so that our transportation system is safer and less expensive to upkeep.

The MPO is committed to projects that support the Livability Principles as articulated by USDOT, EPA, and HUD. Although it is true this MPO may not have much ability to influence national transportation projects and priorities, it is able to influence which projects are built in the MPA. The TPC, TTC and MPO staff support reform in future transportation authorizations so that capacity expansion is not the

easy first choice. Indeed, emphasis should be placed on maintenance, efficiency, and treating all modes equally.

MTP 2045 MPO & LPA Project List: 2021-2025				
Project	Location	Description	Cost	
			Maintenance of LOS	New Capital and Upgrade Projects
Operations and Maintenance	System wide	Estimated cost from Annualized Maintenance Cost	\$ 138,097,745	
Wabash Ave	3rd St. to 9th St.	Reconstruction - Flat Street Treatment/Bicycle Blvd.		\$ 650,000
Wabash Ave & 13th St	Intersection of Wabash Ave. and 13th St.	Intersection improvement with signal upgrade and protected left turns		\$ 624,240
Mill Dam Park Multi-Use Trail	E. Park Ave. to Heritage Road Trail	Multi-use trail located within Terre Haute Sanitary District easement and along Mill Dam Road		\$ 614,200
3rd Street	Between: Sycamore and Chestnut; Chestnut and Cherry; and Poplar and Oak	Landscaped Islands / Street Beautification		\$ 495,000
8th and 9th	Wabash Ave. to Hulman St.	Road Diet - Reduce to 1 automobile travel lane and add bicycle lane in each direction; ADA ramp and crossing upgrades		\$ 30,240
Wabash and Brown	Intersection of Wabash Ave. and Brown St.	Intersection Improvement with signal upgrade and protected left turns		\$ 621,180
Lafayette Avenue/Clinton Road	US 41 to Hasselburger	Rural to urban center turn lane and Complete Streets elements		\$ 4,251,360
Harlan Road	Sullivan Pl. to Industrial Dr.	Rural to urban reconstruction with upgrade for truck route		\$ 2,756,040
Springhill Drive	7th St. to Erie Canal Rd.	Rural to urban center turn lane and Complete Streets elements		\$ 2,084,000
<b>Sub-Total</b>			<b>\$ 138,097,745</b>	<b>\$ 12,126,260</b>
			<b>Total</b>	<b>\$ 150,224,005</b>

**Table 6-6: MTP 2045 Project List: 2021-2025**

Note: Precise cost estimates TBD; require Plan amendment when determined.

MTP 2045 MPO & LPA Project List: 2026-2035				
Project	Location	Description	Cost	
			Maintenance of LOS	New Capital and Upgrade Projects
Operations and Maintenance	System wide	Estimated cost from Annualized Maintenance Cost	\$ 314,807,713	
13th Street	Poplar St. to Margaret Dr.	Road Diet - Continuous center turn lane, bicycle lanes, ADA ramps and crossing upgrades		\$ 240,000
Locust Street	3rd St. to 13th St.	Reconstruction with removal of rail bed and replacement of subgrade. Widen within existing ROW to allow for bicycle lanes		\$ 1,000,000
Hunt Road	Hulman St. to US40/SR46	New roadway to connect existing segments		\$ 2,157,300
Wabash Avenue	25th St to Fruitridge Ave.	Road Diet - Continuous center turn lane, bicycle lanes, ADA ramp and crossing upgrades		\$ 180,000
Springhill Trail Connector	Along abandoned RR that starts at 7th and Margaret and runs to Springhill and Erie Canal	Multi-use trail		\$ 875,961
E. Pinckley Street	Forest Ave to Murphy Ave.	Reconstruction with Complete Streets elements		\$ 850,000
Murphy Street	Hendrix St. to Pinckley St.	Reconstruction with Complete Streets elements		\$ 850,000
Rosedale Road	Rio Grande to Park Ave.	Reconstruction with 4 to 6' shoulders		\$ 2,359,500
Harlan Road	US 41 to SR 159	Reconstruction with 4 to 6' shoulders		\$ 3,570,000
Gross Road	McDaniel to SR 159	Reconstruction with 4 to 6' foot shoulders		\$ 2,499,000
CSX Grade Separation	13th St. and 8th Ave.	Grade Separation at 13th and 8th Ave from the CSX north/south and east/west mainline railroads		\$ 19,500,000
<b>Sub-Total</b>			<b>\$ 314,807,713</b>	<b>\$ 34,081,761</b>
			<b>Total</b>	<b>\$ 348,889,474</b>

Table 6-7: MTP 2045 Project List: 2021-2025

Note: Precise cost estimates TBD; require Plan amendment when determined.

## Appendix 1: Pedestrian System Priorities Plan

- The Pedestrian Priorities Plan section of the MTP identifies crucial pedestrian corridors, intersection, and regional area destinations that need infrastructure.
- Pedestrian infrastructure is emphasized throughout the MTP because all modes of travel have a pedestrian component that are referred to as Pedestrian Catchments.
- Pedestrian Catchments: the distance along a street network from specific locations that generally a person will walk before switching to another mode.

### Pedestrian Corridors (Terre Haute)

- Wabash Ave
- 8th Ave
- 25th St
- Chestnut St
- Fort Harrison
- Poplar St
- 13th St
- Lafayette Ave
- Hospital Lane/4th St
- 7th St
- Brown Ave
- Voorhees St
- College Ave
- Maple Ave
- Hulman St

### Pedestrian Corridors (Brazil, Knightsville, and Harmony)

- Pinckley St
- Murphy Ave
- Vandalia St
- Hendrix St
- Vine St
- Depot St
- National Ave (Knightsville and Harmony)
- Knightsville St

### Pedestrian Corridors (West Terre Haute, Seelyville, Riley)

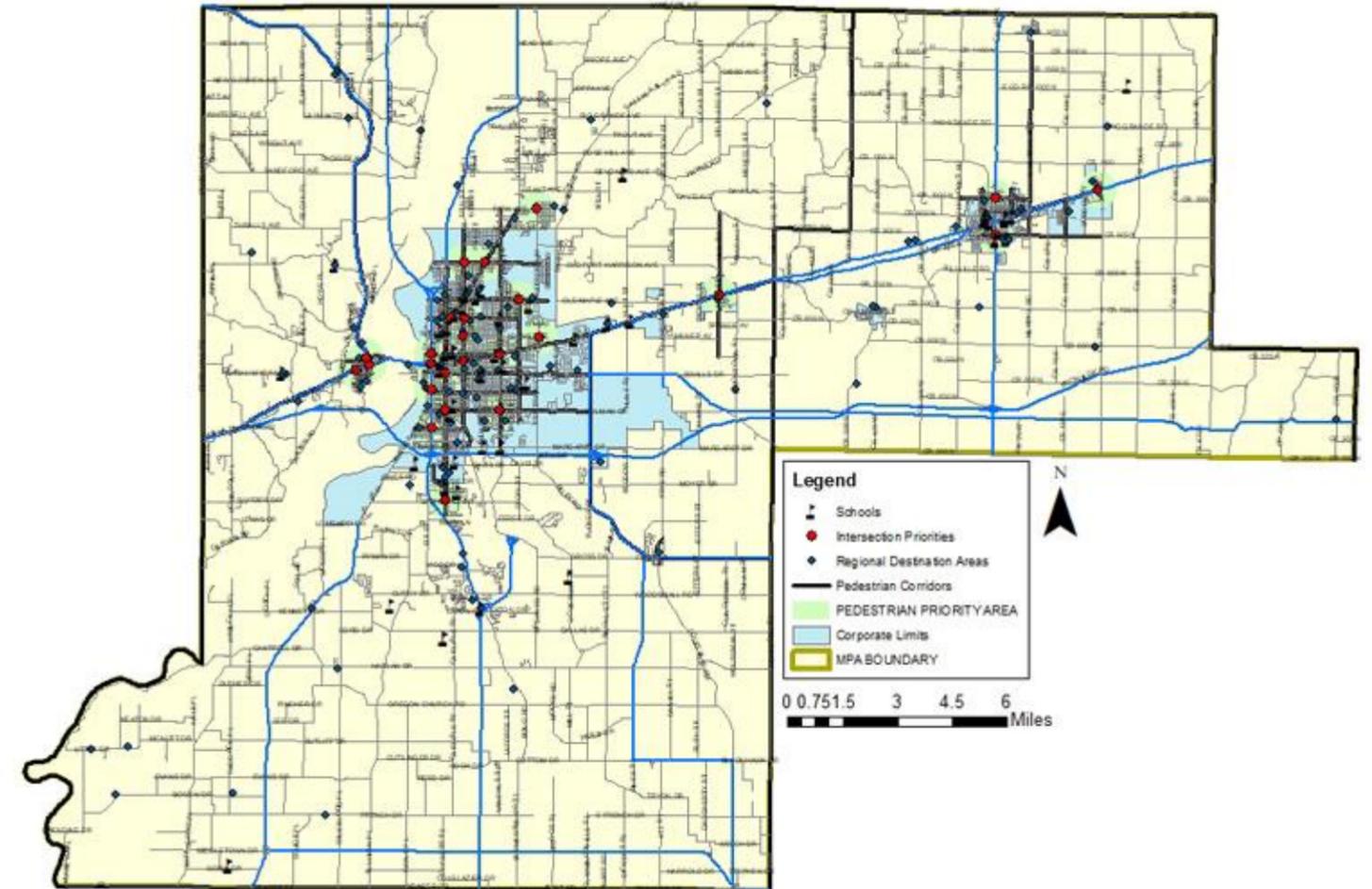
- National Ave (WTH)
- Paris Ave
- 7th St (WTH)
- Poplar St (WTH)
- 3rd St/US 150 (WTH)

### Pedestrian Corridors (West Terre Haute, Seelyville, Riley – Continued)

- Main St (Seelyville)
- US 40 (Seelyville)
- SR 46 (Riley)
- Canal Street (Riley)

### Intersection Priorities

- 3rd St & Chestnut St (Terre Haute)
- 3rd St & Wabash Ave (Terre Haute)
- 13th St & Wabash Ave (Terre Haute)
- 3rd St/US 150 & National Ave (WTH)
- SR 59 & Pinckley St (Brazil)
- Wabash Ave & 25th St (Terre Haute)
- Maple Ave & Brown Ave (Terre Haute)
- Locust St & Blakely Ave (Terre Haute)
- 8th Ave & 13th St (Terre Haute)
- 8th Ave & Lafayette Ave (Terre Haute)
- Locust St & 13th St (Terre Haute)
- Paris Ave & 3rd St (West Terre Haute)
- Hulman St & 25th St (Terre Haute)
- 3rd St & Voorhees St (Terre Haute)
- Springhill Drive & 7th St (Vigo County)
- Forest Ave/SR 59 & Hendrix St (Brazil)
- National Ave/US 40 & Main St (Seelyville)
- US 40/National Ave & Vine St (Harmony)
- Fort Harrison & Lafayette Ave (Terre Haute)
- Poplar St & 7th St (Terre Haute)
- 3rd St/US 41 & Farrington St (Terre Haute)
- 7th St & Hulman St (Terre Haute)
- 9th St & National Ave (West Terre Haute)
- Fruitridge St & Park Ave (Vigo County)
- 13th St & Fort Harrison (Terre Haute)



## Appendix 2: Public Transportation System Plan

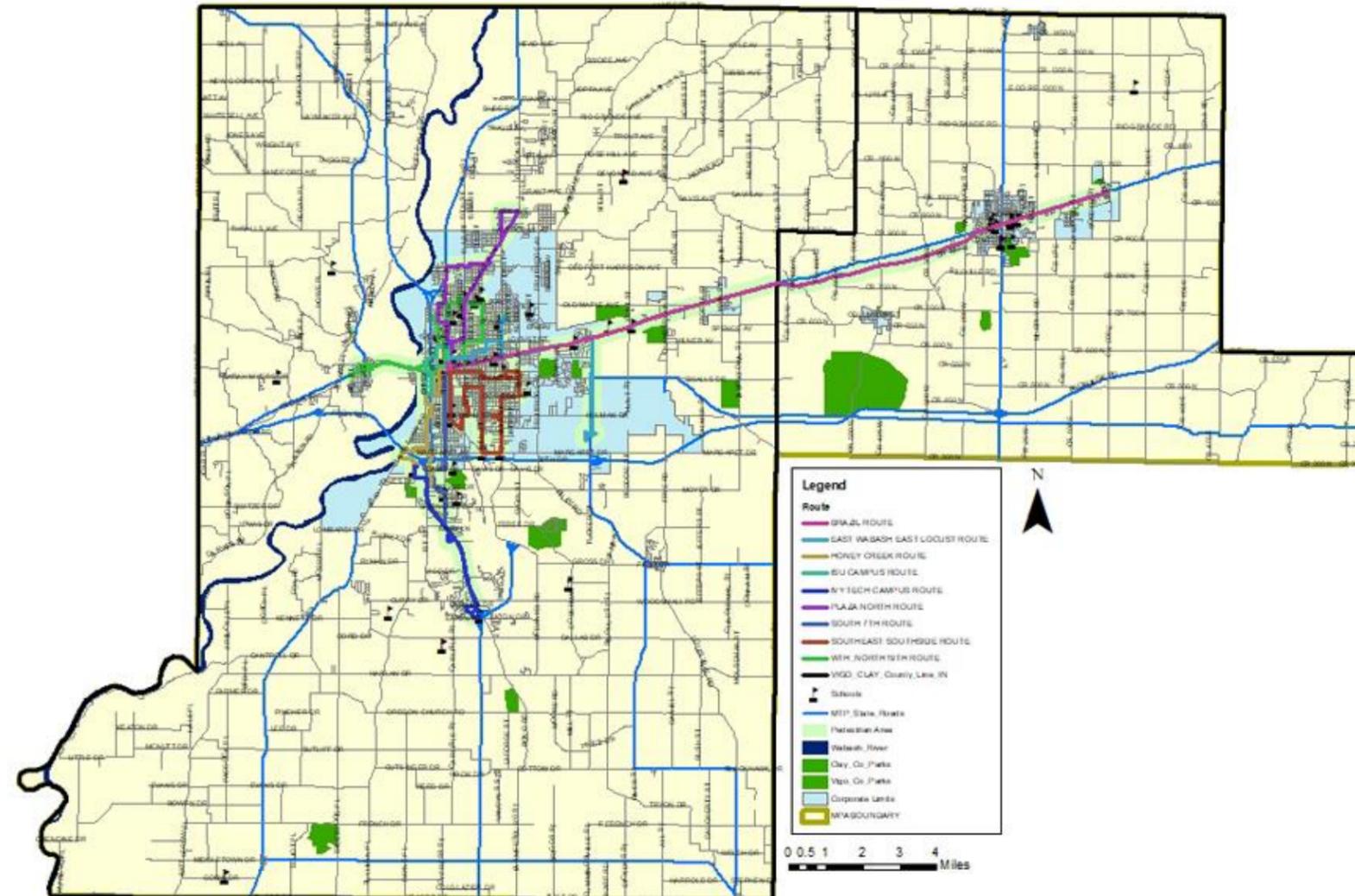
- The public Transportation System Plan is intended to describe the future transit needs throughout the area.
- Provide a system that is better coordinated with activity centers in order to support transit-oriented development opportunities.
- Establishment of Bi-Directional express service corridors to encourage regional trips
- Provide neighborhood circulatory systems that feed into stops along the express routes.
- Expansion to include new types of systems such as Bus Rapid Transit (BRT) connecting the urban system to rural and regional systems.

- **Transit Oriented Development (TOD)**

- This type of development is around a transit stop that contains a mix of uses such as housing, jobs, shops, restaurants and entertainment.
- The Center of a TOD is surrounded by relatively high-density development with progressively lower density development spreading out from the center.
- TODs generally are located within a radius of ¼ mile from a transit stop (preferable centers on the stop).
- TOD neighborhoods increase economic value for the public and private sectors, provide for a lifestyle that is convenient, affordable, and active, and create a sense of community and place for both new and existing residents.

- **Bus Rapid Transit (BRT)**

- Expansion of public transportation should also include the introduction of new types of systems such as BRT. BRT could connect the urban system to rural and regional systems thereby providing access to the outlying population centers such as Clinton, Rockville, and Farmersburg.
- BRT should also be explored to connect the Terre Haute Urbanized Area with other Metropolitan Areas in Indiana, specifically Indianapolis.



## Appendix 3: Bicycle System Priorities Plan

- This plan identifies current and future in-road bicycle facilities throughout the MPA.
- It is intended to create a well-connected bicycle transportation system using the roadway network.
- It prioritizes in-road facilities into three levels, or tiers, which will create a bicycle network across the region.
- Building Complete Streets is an important part of developing a safe and well-connected bicycle network.

**Tier 1:** These links are of the highest priority. They would provide a basic well-connected in-road bicycle network throughout the MPA.

Key Corridors Include:

- National Ave/Wabash Ave/US 40 – (US Bicycle Route 50)
- US 150
- Rosedale Rd/Fruitridge Ave
- Old State Rd 63
- 13<sup>th</sup> St
- Rio Grande Ave
- Harlan Dr
- Hawthorne Ave

**Tier 2:** These links would provide secondary connections for an extended network. These links should be incorporated into roadway classified as Minor Arterial and Major Collectors.

**Tier 3:** These links would round out the designated bicycle network. They should be incorporated into well-connected roadways and Minor Collectors.

**Associated Tasks:**

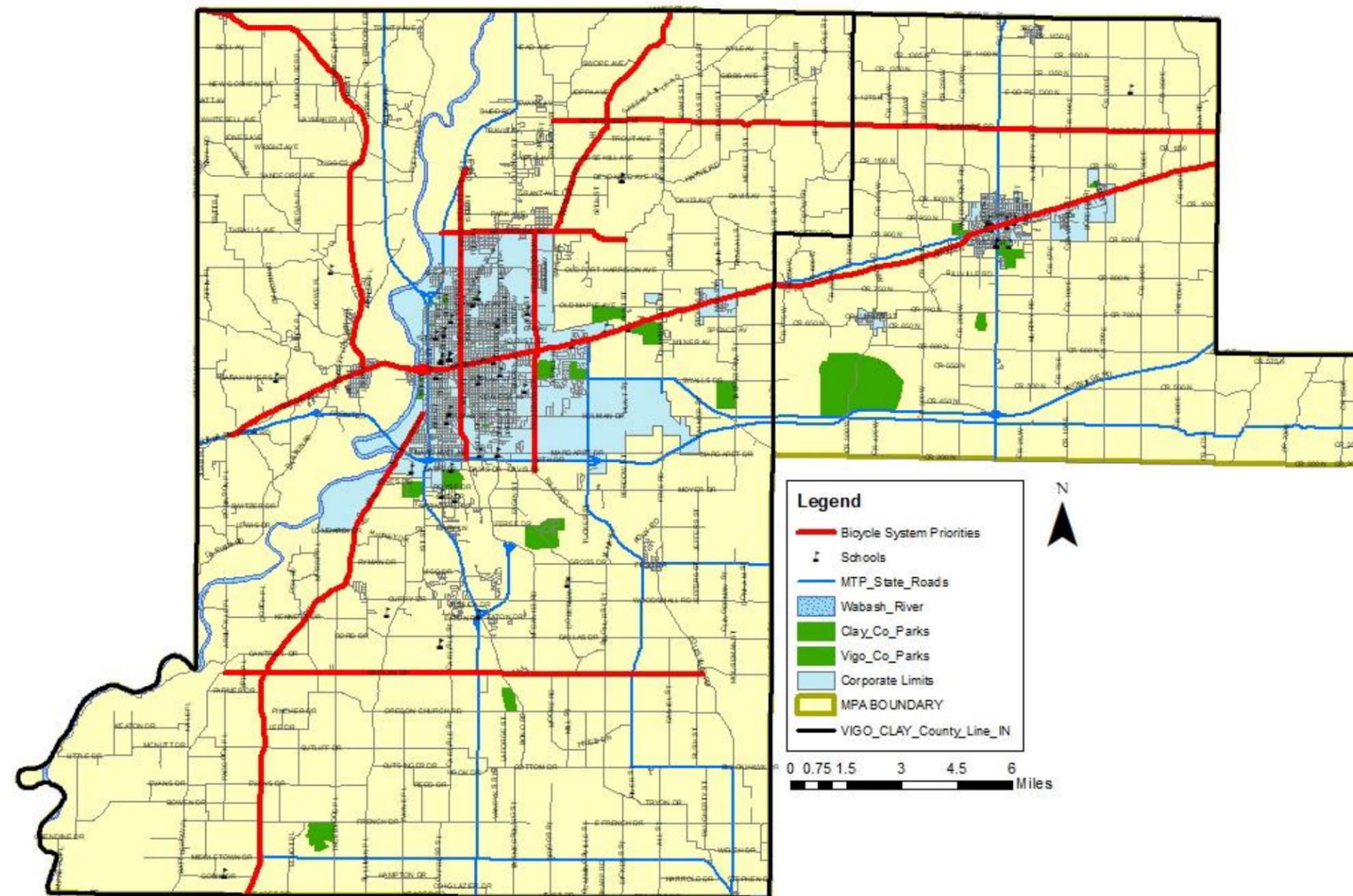
- Assist local jurisdiction in updating Design Standards to incorporate Complete Streets.
- Support the creation of a West Central Indiana Bicycle Task Force.

**Associated Policies:**

- Incorporate proper signage requirements.
- Incorporate bicycle parking and storage in transit-oriented locations.
- Require a minimum 4-foot paved shoulder or lane along all new or improved roadways.

**Recommended Road Diets:**

- 13<sup>th</sup> St – Poplar St to Margaret Dr
- S. 7<sup>th</sup> St – Davis Dr to Margaret Dr
- National Ave (WTH) – Bennet Ln to Dewey Pt
- Wabash Ave – 25<sup>th</sup> St to Fruitridge Ave



## Appendix 4: Future Thoroughfare Plan

**Functional Classification:** Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they provide. There are three functional classification categories that are common to rural and urban roads: Arterials (Principal and Minor), Collector (Major and Minor), and Local.

**Functional Classification Determination:** There is a detailed process for how functional classification is established. First, the urbanized area and the MPO Boundary Area are determined. Next, the function of the streets are determined by looking at factors such as location of activity centers, trip lengths, and system continuity. To the right is a short list of some of the factors looked at to determine functional classification. Federal Guidelines require a certain percentage of each type of roadway (see table below).

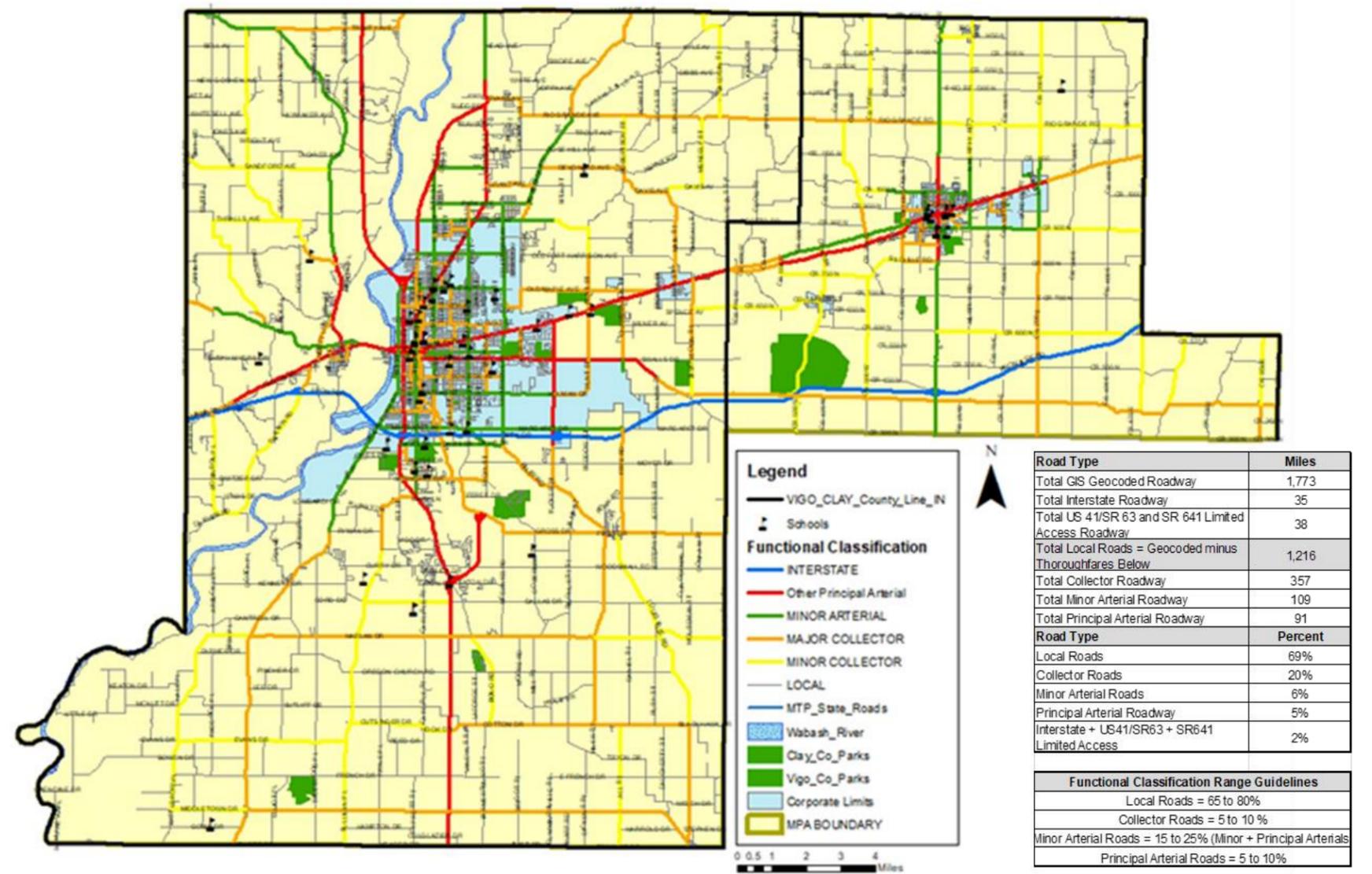
**Efficiency of Travel:** Trip makers will typically seek out roadways that allow them to travel to their destinations with as little delay as possible and by the shortest travel time. Arterial roadways provide this kind of service, often in the form of fully or partially controlled access highways, with no or very few intersecting roadways to hinder traffic flow. Therefore, a high percentage of the length of a long-distance trip will be made on Arterials. In contrast, travelers making shorter trips tend to use local and/or Collector roadways for a much higher proportion of the trip length than Arterial roads.

**Access Points:** Arterials primarily serve long-distance travel and are typically designed as either access controlled or partially access controlled facilities with limited locations at which vehicles can enter or exit the roadway (typically via on or off-ramps). In instances where limited or partial access control is not provided, signalized intersections are used to control traffic flow, with the Arterial given the majority of the green time. In growing urban areas, Arterial roadways often experience an ever-increasing number of driveway access points. This high degree of accessibility decreases mobility. To address this issue and restore the carrying capacity of through traffic on these roadways, transportation agencies apply access management principles, such as driveway consolidation and median installation. In contrast, roadways classified as "Local" provide direct access to multiple properties.

**Speed Limit:** In general, there is a relationship between posted speed limits and functional classification. Arterials typically have higher posted speed limits as vehicles encounter few or no at-grade intersections. The absence of cross-traffic and driveways allows for higher rates of speed, which provides mobility, especially for long-distance travel. In contrast, because their primary role is to provide access; locals are lined with intersecting access points in the form of driveways, intersecting roadways, cross walks, and transfer points for buses and other modes. Due to the frequency of traffic turns, speed limits are kept low to promote safe traffic operations.

**Route Spacing:** Directly related to the concept of channelization of traffic throughout a network is the concept of distance (or spacing) between routes. For a variety of reasons, it is not feasible to provide Arterial facilities to accommodate every possible trip in the most direct manner possible or in the shortest amount of time. Ideally, regular and logical spacing between routes of different classifications exists. Arterials are typically spaced at greater intervals than collectors, which are spaced at much greater intervals than Locals. This spacing varies considerably for different areas; densely populated urban areas, spacing of all route types is smaller and generally more consistent than the spacing in sparsely developed rural areas. Geographic barriers greatly influence the layout and spacing of roadways.

**Usage (Annual Average Daily Traffic [AADT] Volumes and Vehicle Miles of Travel [VMT]):** Arterials serve a high share of longer distance trips and daily vehicle miles of travel. While there is a general relationship between the functional classification of a roadway and its annual average daily traffic volume, two roads that carry the same traffic volume may actually serve very different purposes and therefore have different functional classifications. Traffic volumes, however, can come into play when determining the proper functional classification of a roadway "on the border" of a functional classification group. AADT can often be used as a "tie-breaker" when trying to determine which of the two (or more) similar and roughly parallel roadways should be classified with a higher (or lower) classification than the other.



## Appendix 5: Trail System Priorities Plan

- The plan identifies current and potential future trail locations within the MPA.
- The trails outlined in the plan are intended to augment the roadway transportation system by providing additional networks for cyclists and pedestrians.
- The plan prioritizes trail facilities into three levels:
  - Tier 1 – Arterial network that connects major destinations
  - Tier 2 – Trail routes intended to provide intra-regional travel
  - Tier 3 – Trails to connect neighborhoods with other Trails and Transportation Facilities.

### Tier 1 Trails:

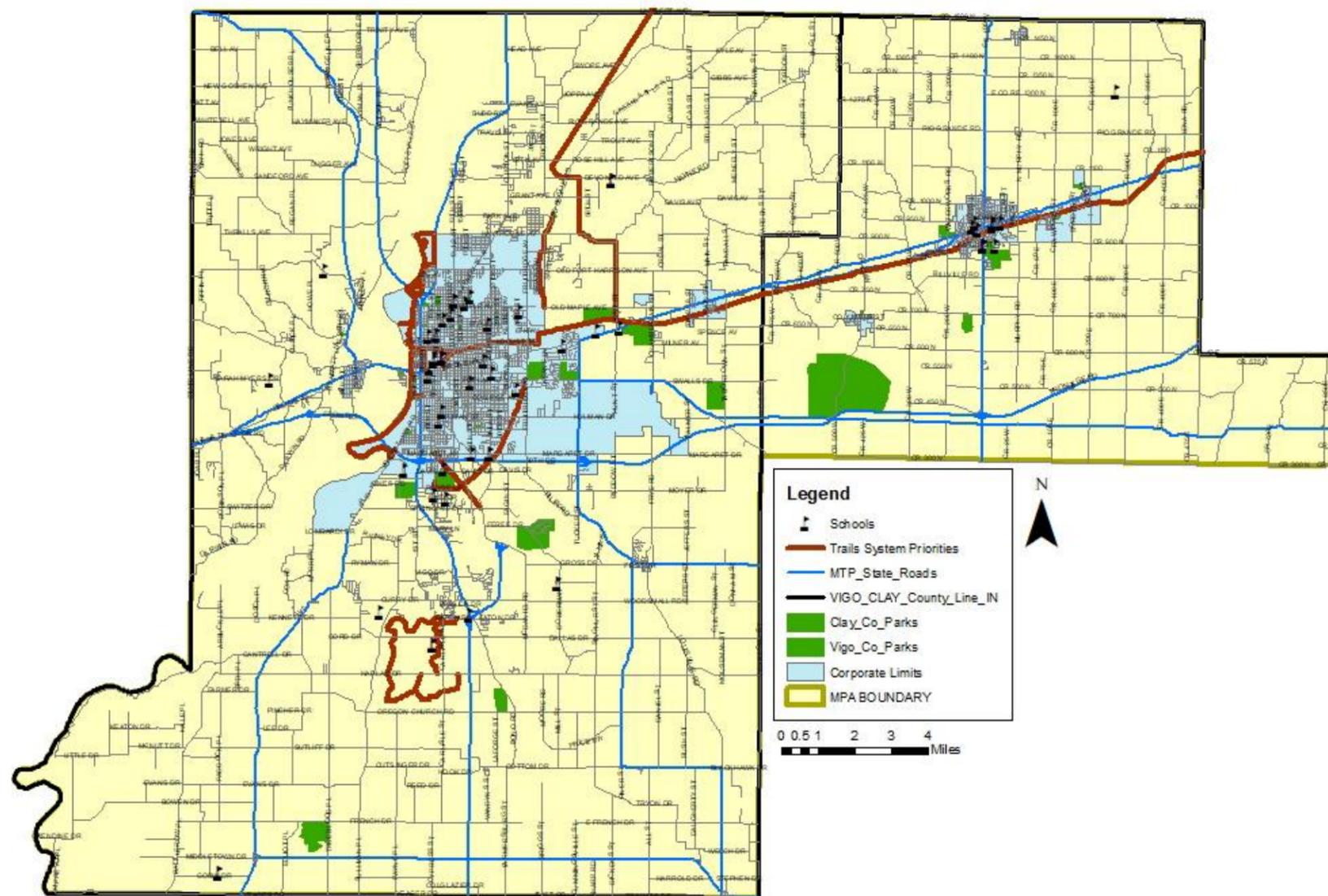
- National Road Heritage Trail (Existing) – includes US 150 Multi-use Pathway under development
- National Road Heritage Trail - Extension to serve Seelyville, Staunton, Brazil, and points east
- Markle Mill Dam Trail
- Wabash River Heritage Trail (Existing)
- Wabash River Heritage Trail - Extension to Fort Harrison Historic Site and points north
- Covered Bridge Gateway Trail

### Tier 2 Trails:

- Vigo County Industrial Park Loop
- Springhill Rail Trail
- Thompson Ditch Trail

### Tier 3 Trails

List of Tier 3 trails to be added before final adoption of plan.



## Appendix 6: Transportation Projects Priorities Plan

- This plan that brings together projects for all modes that are on the list to be funded, or are already funded.
- In addition to projects that meet fiscal constraint requirement for advancement within the horizon of the MTP, it includes illustrative unfunded projects.
- INDOT sponsored projects are depicted as illustrative as their long-range plan is not project specific.
- Transit projects are difficult to depict on a map or by a list, but are part of the fiscally constrained list of projects.
- Maintenance projects (i.e. Community Crossings) are depicted as project specific as they are identified through individual LPA Asset Management Plans.

### City of Terre Haute:

- 13<sup>th</sup> Street Rd Diet with signalized intersection dedicated left turns (Poplar to Margaret)
- Wabash Ave Reconstruction (Flat Street Treatment) – 3<sup>rd</sup> St to 9<sup>th</sup> St
- Wabash Ave & 13<sup>th</sup> Street Intersection Improvement
- Mill Dam Trail (NRHT to Markle Mill Dam Park)
- Locust St Reconstruction (Complete Streets Treatment)
- 7<sup>th</sup> St Road Diet (Margaret to Davis)
- Poplar St Reconstruction – 3<sup>rd</sup> St to Fruitridge (Complete Streets Treatment)
- 3<sup>rd</sup> Street/US 41 - Landscape Islands (Sycamore to Chestnut, Chestnut to Cherry, and Poplar to Oak Street)
- 8<sup>TH</sup> and 9<sup>th</sup> Streets - One-Way Pair Rd Diet – 1 Bicycle Lane and 1 Automobile Lane
- Hunt Rd Reconstruction – SR 42 to Hulman Dr
- Hunt Rd Extension – Hulman Dr to US 40/SR 46 at New Margaret Dr
- Wabash Ave Road Diet from 25<sup>th</sup> St to Fruitridge Ave
- Wabash and Brown Ave Intersection Improvement (dedicated left turns on Wabash)
- Springhill Trail Connector

**Seelyville Project(s):** Main Street Reconstruction – US 40 to Railroad (Complete Street Treatment)

### Brazil/Clay County Projects:

- Industrial Park Road Extension
- National Road Heritage Trail Extension

### Vigo County Projects:

- Rosedale Rd Reconstruction (Rio Grande to Park Avenue) – 4 foot shoulder
- Park Ave Reconstruction (13<sup>th</sup> St to Rosedale) – Complete Streets Treatment
- Springhill Dr Reconstruction (7<sup>th</sup> St to Erie Canal) – In design
- St. Mary-of-the Woods Trail Connector
- Erie Canal/McDaniel Road Bicycle Route - Signage and shoulders
- Harlan Dr Upgrade – Sullivan Pl to Industrial Dr (Truck Routes)
- Harlan Dr Reconstruction – US 41 to SR 159 (High Risk Rural Road Safety Improvements) – 4 foot shoulders
- Rio Grande Reconstruction – US 41 to SR 59 (High Risk Rural Road Safety Improvements) – 4 foot shoulders
- Gross Road Reconstruction – McDaniel Rd to SR 159 (High Risk Rural Road Safety Improvements) – 4 foot shoulders

### INDOT Projects (Illustrative)

- 3<sup>rd</sup> Lane of I-70 (Wabash River Bridge to Clay/Putnam County Line)
- Tabortown Rd/I-70 Interchange
- 3<sup>rd</sup> Lane of US 41 - Hulman St to Margaret Dr
- SR 42 – Swalls Dr to SR 59 (High Risk Rural Road Safety Improvement) – 4-foot shoulders
- SR 246 – SR 63 to Vigo/Clay County Line (High Risk Rural Road Safety Improvement) – 4-foot shoulders
- US 150 - Illinois State Line to St. Mary Rd (High Risk Rural Road Safety Improvement) – (4-foot shoulders)

